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# The Economics Of Moral Uncertainty : essays in Behavioral and Experimental Economics

Brian Jabarian

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**UNIVERSITE PARIS I PANTHÉON SORBONNE**

**ED de Sciences Économiques (ED465)**

Laboratoire de rattachement : PjSE

THÈSE

Pour l'obtention du titre de Docteur en Sciences Economiques

Présenté(e) et soutenu(e) publiquement

le 12 Juillet 2023 par

**Brian JABARIAN**

**L'économie de l'incertitude morale**  
**Essais en économie comportementale et expérimentale**

Volume I/II/III

**Sous la direction de M. Jean-Marc Tallon**

Directeur de recherche CNRS et Professeur titulaire d'une chaire à l'Ecole d'Économie de Paris

**Membre du Jury**

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## Résumé

Cette thèse, basée sur l'économie expérimentale, l'économie comportementale politique et l'économie comportementale macroéconomique, aborde divers sujets concernant les processus de choix des agents économiques.

Le premier chapitre explore la préférence de l'évitement de l'ambiguïté, avec une expérience menée sur un échantillon représentatif de 708 participants américains. Les résultats contredisent la littérature existante, montrant que 55% des participants préfèrent une action risquée à une action ambiguë, malgré une probabilité de victoire systématiquement plus élevée. Cette préférence n'est pas due à une mécompréhension, mais plutôt à une aversion pour l'ambiguïté elle-même, remettant en question les modèles existants.

Le deuxième chapitre se concentre sur l'influence des formats narratifs sur la pensée critique, à travers une expérience menée en ligne avec 706 participants. Les conceptions de longueur intermédiaire, telles que les publications sur Facebook, se révèlent les plus efficaces pour stimuler l'esprit critique, surtout chez les individus ayant un fort besoin de cognition. Les implications en termes de bien-être et d'économie politique soulignent l'importance d'encourager davantage de penseurs critiques dans la population, tout en tenant compte des biais potentiels.

Le troisième chapitre introduit le NICERIU (Modèle d'Inégalités Enchevêtrées Climat-Économie avec Risque et Incertitude sur l'Inégalité), un modèle climato-économique innovant. Il présente le concept du Bien-être Inclusif, qui intègre des visions du monde diverses concernant le bien-être et l'incertitude sur l'inégalité. Ce modèle propose des politiques redistributives basées sur une équivalence distribuée équitablement et un nouvel axiome de comparabilité minimale des visions du monde. La calibration du modèle sur un échantillon de 500 participants américains révèle des observations intrigantes. Lorsque les différentes visions du monde sont équitablement prises en compte, la politique de taxation optimale converge prudemment vers celle basée sur une vision spécifique, tout en présentant des différences significatives.

En résumé, cette thèse explore divers aspects souvent négligés dans les approches traditionnelles de l'économie. Elle remet en question les modèles d'aversion pour l'ambiguïté, met en évidence l'impact des formats narratifs sur la pensée critique et propose un modèle climato-économique prenant en compte l'incertitude sur l'inégalité. Les résultats obtenus invitent à une réflexion approfondie et soulignent l'importance d'intégrer divers aspects des processus de choix dans les analyses économiques.

## Summary

This thesis, rooted in experimental economics, political behavioral economics, and macroeconomic behavioral economics, tackles diverse topics concerning the decision-making processes of economic agents.

In the first chapter, we conduct an incentivized experiment on a nationally representative US sample (N=708) to test whether people prefer to avoid ambiguity even when it means choosing dominated options. In contrast to the literature, we find that 55% of subjects prefer a risky act to an ambiguous act that always provides a larger probability of winning. Our experimental design shows that such a preference is not mainly due to a lack of understanding. We conclude that subjects avoid ambiguity per se rather than avoiding ambiguity because it

may yield a worse outcome. Such behavior cannot be reconciled with existing models of ambiguity aversion straightforwardly.

In the second chapter, in an incentivized online social media experiment (N = 706), we show that different digital storytelling formats – different visual designs and writing styles to present the same set of facts – affect the intensity at which individuals become critical thinkers. Intermediate-length designs (Facebook posts) are most effective at triggering individuals into critical thinking. Individuals with a high need for cognition mostly drive the differential effects of the treatments. We further explore the welfare and political economy implications of such results. Particularly, we establish that increasing the share of critical thinkers – individuals who are aware of the ambivalent nature of a certain issue – in the population increases the efficiency of surveys (elections) but might increase surveys' bias.

In the third chapter, we present a novel climate-macroeconomic model, Nested Inequalities Climate-Economy with Risk, and Inequality Uncertainty (NICERIU), and introduce a social welfare function, the Worldview-Inclusive Welfare. This latter incorporates heterogeneous worldviews regarding welfare and uncertainty about inequality, proposing redistributive economic policies based on equality- distributed equivalence and a novel axiom of minimal comparability of worldviews. NICERIU has been calibrated using a representative sample from the US population (N=500), and the calibration outcomes reveal intriguing insights. With symmetrically weighted distinct world- views, the optimal taxation policy closely approximates conservatively the taxation policy based on a particular worldview but differs in specific ways.

In summary, this thesis explores various often overlooked aspects within traditional approaches to economics. It challenges models of ambiguity aversion, highlights the impact of narrative formats on critical thinking, and proposes a climate-economic model that incorporates uncertainty about inequality. The obtained results call for profound reflection and underscore the importance of integrating diverse aspects of decision-making processes into economic analyses.

## **Mots-clés**

Aversion à l'ambiguïté en soi – Formats narratifs – Pensée critique – Incertitude sur l'inégalité  
– Processus de raisonnement et de choix – incertitude morale

## **Keywords**

Ambiguity aversion per se -- Storytelling formats - Critical thinking – Distributional  
Uncertainty – Choice and reasoning processes - Moral uncertainty

# THE ECONOMICS OF MORAL UNCERTAINTY

ESSAYS IN BEHAVIORAL AND EXPERIMENTAL ECONOMICS

BRIAN JABARIAN

ADVISOR: PROF. JEAN-MARC TALLON, PSE  
COMMITTEE CHAIR: PROF. ROLAND BÉNABOU, PRINCETON UNIVERSITY  
COMMITTEE EXAMINER: PROF. LEEAT YARIV, PRINCETON UNIVERSITY  
COMMITTEE EXAMINER: PROF. MOHAMMED ABDELLAOUI, HEC PARIS  
COMMITTEE MEMBER: PROF. NICOLAS JACQUEMET, PSE

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UNIVERSITY PARIS 1 PANTHÉON-SORBONNE &  
PARIS SCHOOL OF ECONOMICS

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Brian Jabarian

## Abstract

This economics dissertation, “The Economics of Moral Uncertainty,” is the third part of my multidisciplinary research agenda on moral uncertainty, i.e., the intricate choice-processing problem asking, “What should we do when uncertain about what we should do?” The first two parts explore the moral problem through the lenses of human sciences and digital humanities, from a phenomenological perspective to an operational one, rendering possible the scientific inquiry I lead in this thesis. Although each part can be read independently, I summarize the first two below to provide context and elaborate on how my economics dissertation extends this research into the scientific realm.

The first part, “The Phenomenology of Moral Uncertainty,” a manuscript resulting from my undergraduate and graduate endeavors, draws upon the history of modern moral philosophy, philosophy of economics, and phenomenology. It examines the origins and characterizations of moral uncertainty, both as a conceptual construct and a lived human experience, offering hypotheses for its genesis and potential responses and emphasizing the seminal role of critical thinking. The key findings from this first stage posit that moral uncertainty has been a perennial concern in the history of moral philosophy, a natural existential phenomenon arising innately within human nature, and that critical thinking offers a promising heuristic for its management.

The second part, my doctoral dissertation in philosophy at Sorbonne, titled “Operationalizing Moral Uncertainty,” delves further into these findings. This work leverages the philosophy of sciences and economics, contemporary ethics, an interdisciplinary survey, and digital methods to design a formal framework for the reasoning rules and welfare assumptions underpinning critical thinking. A survey provides preliminary evidence for the “experience of moral uncertainty,” underscoring its relevance to economists. This second part culminates in the understanding that moral uncertainty can be operationally conceived as a choice-processing phenomenon, that prag-

matic welfare assumptions are a pre-requisite for scientific inquiry, and that despite challenges of eliciting moral uncertainty through standard incentive mechanisms, investigating its correlations with other attitudes may prove fruitful.

The third part, this doctoral dissertation in economics, builds upon these findings to explore moral uncertainty's economic and policy implications, mobilizing methodologies from experimental economics, behavioral political economy, and behavioral macroeconomics. Chapter 1, co-authored with Simon Lazarus (Princeton University), explores a phenomenon correlated with moral uncertainty established in my humanities dissertation's survey component: ambiguity aversion *per se*. It does so by designing an incentivized experiment to test the extent to which individuals exhibit ambiguity aversion, regardless of how good or bad ambiguous situations can be for them. Chapter 2, co-authored with Elia Sartori (CSEF and Università degli Studi di Napoli Federico II) designs an incentivized experiment to elicit critical thinking under moral uncertainty, encapsulating it within a testable behavioral model and exploring its political economy implications. Chapter 3, co-authored with Marc Fleurbaey (CNRS and Paris School of Economics) models the role of moral uncertainty in climate change, delineating the critical welfare economic assumptions necessary for its incorporation into climate-macroeconomic modeling.

## Résumé

Cette thèse en économie, intitulée “L’économie de l’incertitude morale” est la troisième partie de mon agenda de recherche pluridisciplinaire abordant l’incertitude morale, se présentant sous la problématique suivante: “comment effectuer un choix moral lorsque nous sommes incertains de nos doctrines morales?” Les deux premières parties ce problème à travers le prisme des sciences humaines et des humanités (digitales), allant d’une perspective phénoménologique à une perspective opérationnelle, rendant ainsi possible l’investigation scientifique que je mène dans cette thèse en sciences économiques. Même si chaque partie peut être comprise indépendamment l’une de l’autre, je les résume brièvement ci-dessous afin de fournir le contexte dans lequel ma thèse d’économie s’insère.

La première partie, “La phénoménologie de l’incertitude morale”, un manuscrit issu de mes études de master de philosophie à la Sorbonne, s’appuie sur l’histoire de la philosophie morale moderne, la philosophie de l’économie, et la phénoménologie. Il examine les origines et les caractéristiques de l’incertitude morale, à la fois comme construction conceptuelle et expérience humaine vécue, offrant des hypothèses pour sa genèse et des réponses potentielles, et soulignant le rôle primordial de la pensée critique. Les conclusions clés de cette première étape posent que l’incertitude morale a été une préoccupation constante dans l’histoire de la philosophie morale, un phénomène existentiel naturel émergeant dans la nature humaine, et que la pensée critique offre une heuristique prometteuse pour sa gestion.

La deuxième partie de cet agenda, à travers ma thèse de doctorat en philosophie à la Sorbonne intitulée “Opérationnalisation de l’incertitude morale” approfondit davantage ces conclusions. Ce travail exploite la philosophie des sciences et de l’économie, l’éthique contemporaine pour proposer un cadre formel pour les règles de raisonnement et les hypothèses de bien-être sous-tendant la pensée critique en contexte d’incertitude morale. Par ailleurs, une enquête interdisciplinaire met en évidence

l'attitude d'incertitude morale et sa corrélation avec d'autres attitudes, telle que l'aversion à l'ambiguïté, qui, elle, peut-être mesurée à travers des mécanismes incitant les participants à déclarer leur réponse authentique.

La troisième partie, cette thèse de doctorat en économie, s'appuie sur les résultats de cette thèse en philosophie, pour explorer les implications économiques et politiques de l'incertitude morale, en mobilisant des méthodologies issues de la théorie de la décision, économie expérimentale, de l'économie politique, économie comportementale et macroéconomie du climat. Le chapitre 1, écrit avec Simon Lazarus (Université de Princeton), explore un phénomène corrélé à l'incertitude morale tel qu'établi dans l'enquête de la thèse en philosophie, l'aversion à l'ambiguïté *en soi*, indépendamment des conséquences positives auxquelles des situations ambiguës conduirait de manière systématique. Le chapitre 2, écrit avec Elia Sartori (CSEF et Université de Naples - Frédéric II), conçoit une expérience incitative pour mesurer la pensée critique sous l'incertitude morale puis la formalise dans un modèle comportemental testable afin d'en explorer ses implications en économie politique. Le chapitre 3, écrit avec Marc Fleurbaey (CNRS et Ecole d'Economie de Paris), modélise le rôle de l'incertitude morale dans le changement climatique, délimitant les hypothèses économiques essentielles pour son incorporation dans la modélisation en macroéconomie du climat.

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This dissertation in economics represents the third phase of my research agenda on moral uncertainty and marks the beginning of my academic career in economics. I am eager to delve more into its economic implications and my research agenda it sparked on thinking styles, phenomenology, scientific methods, technologies, and the production of knowledge and reality in my next step as the Howard and Nancy Marks Principal Researcher at The University of Chicago Booth School of Business. My approach to economics, shaped by a liberal education and influenced by the Chicago School's style, aims to demonstrate the benefits economists can reap by engaging with socially relevant topics from other fields, maintaining an open dialogue with other researchers and disciplines, envisioning potential futures for humanity, and applying rigorous economic methodologies to assess their feasibility and policy implications.

I am deeply indebted to my supervisor, Jean-Marc Tallon, for his incisive commentary and unwavering support throughout my Ph.D. journey. A significant portion of this dissertation was developed, implemented, and written as a visiting Ph.D. student at Princeton University's Department of Economics (2018-2020), where I was also an affiliated Ph.D. visitor with The Kahneman-Treisman Center for Behavioral Science and Public Policy (2019-2020) & a Visiting Student and Research Collaborator at the Princeton School of Public and International Affairs as a VSRC (2018-2019). The intellectual environment at Princeton was crucial for fostering my interest in economics, particularly welfare, behavioral, and experimental economics. I extend my gratitude

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Cette thèse représente la troisième phase de mon agenda de recherche sur l'incertitude morale et marque le début de ma carrière de chercheur en économie. Je suis impatient de me plonger dans un riche programme économique axé sur les styles de pensée, la phénoménologie, les méthodes scientifiques et technologies émergentes dans ma prochaine étape en tant que Principal Chercheur Howard et Nancy Marks à la Booth School of Business de l'Université de Chicago. Mon approche de l'économie, façonnée par une éducation libérale et influencée par le style de l'École de Chicago, vise à démontrer les avantages que les économistes peuvent tirer en s'engageant sur des sujets socialement pertinents provenant d'autres disciplines, en maintenant un dialogue ouvert avec d'autres disciplines, en envisageant des futurs potentiels pour l'humanité et en appliquant des méthodologies économiques rigoureuses pour évaluer leur faisabilité et leurs implications politiques.

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Death and life are in the power of the tongue;  
and they that indulge it shall eat the fruit thereof.

Ketuvim, 18:21

*To my great grandmother Rachel  
and great grandfather, Sarkis  
To their daughter, my grand-mother Tamam*

*To my great grandmother Siranoush  
and great grandfather, Abraham  
To their son, my grandfather, Krikor*

*To Sarkis, son of Krikor and Tamam,  
my father*

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# Introduction

Dans le Chapitre 1, écrit avec Simon Lazarus (Université de Princeton), nous nous intéressons au problème suivant. Les individus sont-ils prêts à renoncer à des gains potentiels pour éviter des situations ambiguës, même lorsque l'ambiguïté ne peut que les avantager ? Depuis le célèbre paradoxe d'Ellsberg (Ellsberg (1961)), les expériences en sciences économiques ont mis en évidence l'aversion des individus pour l'ambiguïté, craignant que les situations ambiguës conduisent à des résultats moins favorables que des situations risquées ou certaines. Les économistes ont modélisé ces faits. Ces modèles incluent, entre autres, celui d'utilité espérée de Choquet de Schmeidler (1989), d'utilité espérée de type "Maximin" de Gilboa and Schmeidler (1989), d'utilité espérée de type "alpha-maximin" de Ghirardato et al. (2004), ainsi que d'autres propositions importantes de Klibanoff et al. (2005), Maccheroni et al. (2006) et Strzalecki (2011). Contrairement à ces travaux précédents, notre chapitre montre à travers une expérience simple et incitative que les individus évitent l'ambiguïté *même lorsqu'elle* ne peut déboucher que sur des résultats meilleurs qu'une situation risquée avec 50% de chance de gagner. A travers divers traitements, nous concluons que ce comportement n'est ni entièrement dû à une mauvaise compréhension de notre expérience, ni à des croyances incorrectes sur la situation ambiguë. Notre résultat suggère que les sujets ont une aversion inhérente à l'ambiguïté, ce qui est incompatible avec les modèles cités ci-dessus, comme nous le discutons plus en détail ci-dessous.

Au cœur de notre expérience se trouve un pari “Deux Boules” initialement proposé par [Jabarian \(2019\)](#). Il y deux urnes, chacune contenant des boules rouges et bleues. La première urne est “risquée”, contenant 50 boules rouges et 50 boules bleues. La seconde est “ambiguë”, contenant des proportions inconnues de boules rouges et bleues. Les participants sont invités à tirer deux boules avec remplacement de l’une de ces urnes. Les sujets gagnent 3\$ si les deux boules sont de la même couleur. La question qui se pose est de savoir quelle urne choisir pour maximiser ses gains espérés.

Indépendamment de la couleur choisie, choisir l’urne risquée offre une chance de 50% de gagner, tandis que choisir l’urne ambiguë garantit une chance de gagner d’au moins 50%, quelles que soient les proportions de boules rouges et bleues. Pour voir ceci, considérons l’exemple suivant. Supposons que l’urne ambiguë contienne 60 boules rouges et 40 boules bleues. Choisir cette urne assure une probabilité de gagner de  $.6^2 + .4^2 = .52$ . L’on peut facilement remarquer que plus l’on s’éloigne d’une composition symétrique (50 boules rouges et 50 boules bleues), plus les chances de gagner s’accroissent. Cette caractéristique unique de ce pari implique que presque tous les modèles existants recommandent qu’un décideur choisit l’urne ambiguë plutôt que l’urne risquée. Malgré cette recommandation, 45% des sujets de notre expérience préfèrent l’urne risquée. Les sujets sont même prêts à payer 8,5% de plus pour le pari risqué que pour le pari ambigu. Nous appelons ce résultat le *Paradoxe d’Ellsberg à Deux Boules*.

À moins que les sujets aient des croyances sur les deux tirages incohérentes avec les informations qui leur sont fournies (par exemple, les sujets croient d’une manière ou d’une autre que les tirages ne sont pas indépendants), le choix du pari *RR* au détriment de *AA* ne peut être réconcilié de manière simple avec les modèles existants d’aversion pour l’ambiguïté. Par exemple, suivant le modèle d’utilité espérée de type “Maxmin” de [Gilboa and Schmeidler \(1989\)](#), si les sujets envisagent l’ensemble du

simplexe sur  $R, B$  pour la composition d'une urne  $U$  et forment des croyances sur les deux tirages en composant chaque priori avec lui-même, cela conduirait à l'indifférence entre les paris  $RR$  et  $AA$ . Comme mis en évidence par [Gajdos et al. \(2008\)](#), l'axiome dit de "dominance" implique que  $RR$  ne peut pas être strictement préféré à  $AA$ . Si l'on suppose que l'ensemble des prioris est un sous-ensemble de  $q \in \Delta(R, B^2) | q = p \times p; p \in \Delta(R, B)$ , alors le choix  $RR$  plutôt que  $AA$  est incompatible avec l'utilité espérée de type " $\alpha$ -maxmin" pour n'importe quel  $\alpha$ . Ce choix est également incompatible avec le modèle d'utilité espérée de type "subjective" de [Savage \(1954\)](#) si les croyances sont une mesure de produit de type  $p \times p$ .

En communiquant le paradoxe, il est plus facile de le comprendre comme un choix entre deux partis distincts. Cependant, dans notre expérience, nous mesurons l'équivalent certain (CE) de chaque pari en utilisant une liste de prix multiple (MPL). Ensuite, nous effectuons une analyse comparative entre les CE de chaque parti pour déterminer si les sujets manifestent un comportement paradoxal. Cette décision méthodologique est soutenue par plusieurs raisons. L'enquête préliminaire de [Jabarian \(2021\)](#), menée sur un échantillon représentatif des États-Unis, a utilisé une mesure directe, de choix entre les deux paris, offrant une indication factuelle préliminaire à l'existence empirique de ce paradoxe. L'objectif principal de ce chapitre est de poursuivre cette exploration en diversifiant les techniques expérimentales, l'usage du CE permettant de collecter des informations supplémentaires.

Naturellement, le recours au MPL et CE nous permet d'évaluer à quel point, en termes de revenu, les participants sont prêts à choisir un pari plutôt qu'un autre. De plus, présenter aux participants les paris individuellement assure une meilleure compréhension, ce qui est opportun compte tenu de la complexité inhérente de chacun. Afin de se prémunir contre les erreurs de mesure qui pourraient tout de même persister sur la mesure du CE de chaque pari, nous mesurons les CE de chaque pari deux fois. Cette double mesure nous permet d'employer la technique ORIV

développée par (Gillen et al. (2019)). Cette dernière, en combinant les deux mesures CE de chaque pari, permet de réduire les effets d'imprécision de l'erreur de la mesure sur les corrélations entre différentes variables.

Nous discutons de cette technique plus en détail dans notre chapitre. Dans cette introduction, il est important de souligner que plusieurs facteurs peuvent être à l'origine du Paradoxe d'Ellsberg à Deux Boules. Notre design expérimental nous permet d'examiner les hypothèses essentielles. Une première hypothèse stipule que les sujets pensent, par erreur, que la probabilité de gagner diminue à mesure que le ratio des boules rouges et bleues devient plus inégal. Cependant, notre expérience montre que lorsque les sujets choisissent entre deux urnes ambiguës "simplifiées" - dont l'une est clairement plus inégalement distribuée que l'autre, les participants préfèrent celle qui est plus inégalement distribuée. Pourtant, même après un tel choix, lorsqu'ils font face à un choix entre une urne risquée et une telle urne ambiguë simplifiée, ils choisissent la première. Ce choix reste valide, quel que soit le type d'urne ambiguë simplifiée (dont les compositions sont plus ou moins symétriques). Ce résultat suggère que les sujets n'ont pas "appris" à choisir l'urne ambiguë même après avoir été exposés à des scénarios nécessitant de raisonner sur le ratio des boules rouges et bleues.

En s'appuyant sur des études précédentes remettant en question les modèles existants à travers d'autres comportements non-standards, nous examinons la relation entre le Paradoxe d'Ellsberg à Deux Boules et ces derniers. En particulier, nous explorons la relation avec l'aversion pour la complexité en répliquant l'expérience de Halevy (Halevy 2007). Cette dernière mesure les préférences entre une loterie simple avec une probabilité de gain de 50% et une loterie composée (plus complexe) ayant toutefois la même probabilité de gain. Dans cette expérience, les participants sont avers à la loterie composée alors qu'ils devraient être indifférents entre les loteries composée et simple. Nous trouvons une forte corrélation entre notre paradoxe et ce comportement

d'aversion. Cependant, nous ne pouvons pas réduire l'explication de notre paradoxe à cette simple corrélation car, le choix entre deux "ambiguës simplifiées" correspond à un choix entre deux loteries composées, et pourtant, nos participants comprennent ces loteries et choisissent à chaque fois l'une ambiguë simplifiée qui leur est la plus favorable en termes de gains espérés. Par ailleurs, nous examinons également la relation avec l'aversion classique pour l'ambiguïté en répliquant l'expérience originale d'Ellsberg (Ellsberg 1961). Nos résultats suggèrent une forte corrélation entre notre paradoxe et l'aversion classique pour l'ambiguïté.

Prenant compte de ces différentes explications, nous en venons à considérer que l'aversion à l'ambiguïté s'explique au-delà d'une simple aversion à des scénarios moins favorables ou une aversion à des loteries complexes. Dans notre cas, la préférence pour l'urne risquée semble bien correspondre à une décision délibérée d'éviter l'ambiguïté *en soi*. L'ambiguïté et l'aversion à cette dernière sont respectivement des faits naturels et économiques importants à considérer par les décideurs politiques. En effet, dans la vaste majorité de leur prise de décisions, pour ne pas dire toutes, les agents ne peuvent pas attribuer des probabilités précises aux résultats possibles et agissent ainsi en contexte d'ambiguïté. En s'appuyant sur les modèles standard cités ci-dessus, des économistes ont exploré les implications importantes de l'ambiguïté dans divers domaines économiques. En économie de l'environnement, [Millner et al. \(2013\)](#) évaluent les conséquences de l'ambiguïté sur le coût social du carbone en intégrant l'ambiguïté dans le célèbre modèle d'évaluation intégrée du climat de Nordhaus. [Lange and Treich \(2008\)](#) étudient le rôle de l'ambiguïté en contexte d'apprentissage dans les politique climatiques. En économie de la santé, [Treich \(2010\)](#) montre dans quelles conditions l'aversion pour l'ambiguïté augmente la valeur d'une vie statistique. En macro-finance, [Ju and Miao \(2012\)](#) montrent comment l'aversion pour l'ambiguïté peut expliquer le puzzle de la prime d'équité. De telles implications pourraient être étendues et approfondies à la lumière

du Paradoxe d'Ellsberg à Deux Boules.

Dans le Chapitre 2, écrit avec Elia Sartori (CSEF et Université de Naples - Frédéric II), nous nous intéressons au problème de la mesure des préférences des agents en contexte d'ambivalence. L'ambivalence fait référence aux situations qui mobilisent chez les agents des attitudes pour et contre simultanément valides et légitimes. Nous pouvons penser par exemple aux dilemmes moraux ou politiques qui ne se résolvent pas après l'accumulation des faits scientifiques. Cette absence de résolution objective rend non seulement la formation des préférences des agents complexe et ces dernières, incertaines (Kaplan (1972)). L'un des principaux risques politiques est alors la manipulation des préférences des agents qui peuvent ne pas être suffisamment ancrées en eux. Face à ce risque, les individus peuvent s'appuyer sur divers styles de raisonnement afin de former des préférences robustes aux afflux continus de narratifs qui pourraient les faire vaciller.

Ce chapitre présente une expérience incitative simple pour identifier, classer et observer les transitions cognitives que les agents effectuent entre différents styles de raisonnement durant la formation de leur préférence, allant du raisonnement naïf à la pensée critique. Cette dernière se caractérise par le fait que les individus deviennent conscients d'attitudes conflictuelles possibles à propos de la situation ambivalente et viennent à former une préférence raisonnée à travers une introspection (Halpern (2013)). Notre chapitre contribue à la littérature d'économie expérimentale en plein essor visant à identifier de tels styles de raisonnement et à examiner leur impact sur les politiques publiques (List (2022)). Il élargit également le spectre des styles de raisonnement étudiés dans la littérature d'économie comportementale, qui se concentre généralement sur le raisonnement motivé (Kunda (1990), Bénabou and Tirole (2006)).

De plus, au-delà du rôle des narratifs en tant que tel, notre étude met l'accent sur le rôle des *formats de narration* dans la transition cognitive des individus de la pensée

naïve à une pensée critique. Les formats de narration, communément appelé “storytelling” dans la littérature de marketing et communication, font référence au style visuel (“UX design”) et style d’écriture utilisés afin de communiquer une information factuelle. La prise en compte du storytelling permet d’élargir la conception des narratifs en économie, généralement définie comme une interprétation spécifique d’un fait (Shiller (2017), Eliaz and Spiegler (2020)). La manière de présenter le contenu du narratif, allant d’une simple série de tweets à un article de journal, peut influencer la prise de conscience individuelle de l’ambivalence d’un problème. En effectuant cette prise de conscience, les individus réalisent qu’ils ne peuvent s’appuyer que sur des “faits objectifs” pour décider d’être pour ou contre un sujet ambivalent. La pensée critique vient alors pallier à cette absence de vérité scientifique pour formuler des préférences raisonnées et, qui, ont plus de chance d’être robustes à n’importe quel type d’influence comme le peuvent être les préférences naïves.

Notre design expérimental comporte trois parties principales. Initialement, nous classons les participants (recrutés aux Etats-Unis selon des techniques d’échantillonnage représentatif) comme penseurs naïfs ou critiques à propos d’un sujet ambivalent en utilisant une combinaison de mesures d’auto-évaluation et de techniques de mesure incitatives. Par la suite, nous exposons les participants à l’un des trois formats de narration, chacun centré sur le même ensemble de faits pour et contre concernant le problème mais dont les formats vont d’un style simple (Twitter), moyen (Facebook), ou complexe (article de journal). En considérant les médias sociaux à travers le prisme des formats de narration, nous contribuons à un corpus de littérature en croissance qui se concentre de plus en plus sur l’impact de médias sociaux sur la formation des comportements politiques des individus, comme le vote (Gorodnichenko et al. (2021), Munir (2018), Falck et al. (2014)). Plus généralement, nos résultats mettent en évidence un canal supplémentaire par lequel les médias sociaux peuvent affecter le bien-être de la société (considéré dans notre modèle — élaboré

dans la seconde partie de notre chapitre — comme la part de penseurs critiques présent dans une société; plus la part est grande, plus le bien-être social est élevé), contribuant à la littérature en rapide croissance à propos du rapport entre médias sociaux et bien-être (Allcott et al. (2020)).

Après l'exposition à l'un de ces trois traitements, les participants sont invités à rédiger un court essai à propos du même sujet dont ils ont précédemment exprimé leur préférence et été exposé à ces différents formats de narration. L'objectif ici est de mesurer l'efficacité de ces derniers dans la transition des participants d'une pensée naïve à critique. Nous appliquons deux mesures à cet exercice de façon à pouvoir garantir un effet incitatif et d'observer la variable recherchée, objectifs qui ne peuvent être accomplis avec une seule mesure. D'une part, nous garantissons l'effet incitatif cet exercice en évaluant la qualité des essais de manière standardisée grâce à un logiciel d'intelligence artificielle, Grammarly, qui fonctionnait grâce à un modèle de LLM développé par OpenAI, ChatGPT-3. Nos données ont été collectées en mars 2020 où seul GPT-3 était alors disponible.. Cette intelligence artificielle offre un score d'évaluation de l'essai par rapport à un score moyen aux États-Unis. Nous avons choisi cette technique de mesure car elle permet d'obtenir une mesure qui soit perçue par les participants comme la moins subjective possible (ce dont ils pourraient suspecter si les essais étaient évalués par des humains) et qui soit perçu par les participants comme la plus transparente possible (Grammarly fournit pour chaque participant un rapport standardisé détaillant pourquoi tel score a été attribué; rapport que l'on fournit à la demande du participant).

D'autre part, l'absence d'une mesure objective de la pensée critique nous a conduit à recueillir les évaluations d'experts humains sur les essais des participants. Ce design s'inspire des techniques d'apprentissage par renforcement basées sur des modèles couramment utilisés par les start-ups en IA, telles qu'OpenAI. Les évaluations d'experts ont été obtenus auprès de psychologues doctorants ou ayant déjà obtenu

leur doctorat à l'université de Princeton<sup>1</sup> et spécialisés en psychologie cognitive. Les essais rédigés par les participants ont été attribués de manière aléatoire à trois évaluateurs experts indépendants chargés de noter les essais de manière binaire, "réussite" ("pass") ou "échec" ("fail"). Leur notation repose sur plusieurs facteurs: 1) leur jugement expert sur la présence d'indications claires d'une pensée critique dans le contenu; 2) des exemples d'essais de notre expérience pilote indépendante que nous avons classés auparavant; 3) un rappel de la définition de l'ambivalence sur une demi-page. Les données de ces évaluations ont ensuite été utilisées pour reclasser les participants en tant que penseurs naïfs ou critiques après les interventions de narration<sup>2</sup>.

Guidés par la littérature psychologique sur la sophistication cognitive, nous avons mesuré le besoin de cognition des participants (Cacioppo and Petty (1982)) et leur flexibilité cognitive (Martin and Rubin (1995)) tout au long de notre expérience. Ces métriques nous ont permis de réaliser une analyse d'hétérogénéité. De manière surprenante, nos résultats indiquent que les individus ayant un plus grand besoin de cognition passent plus rapidement de préférences naïves à raisonnées suite à une exposition à un niveau moyen de narration (c'est-à-dire, Facebook) qu'à un niveau simple (Twitter) ou complexe (article de journal).

Après avoir établi, au travers de cette expérience, le rôle du format de narration comme catalyseur de la pensée critique, nous avons examiné, au travers d'un modèle comportemental, ses implications pour l'organisation industrielle et l'économie politique. En particulier, nous avons exploré comment les formats de narration influencent l'efficacité des enquêtes et des élections, les rendant cruciales pour la société dans les contextes de prise de décision industrielle et politique. En effet, les

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<sup>1</sup>Parmi les doctorants sélectionnés, nous avons choisi ceux qui avaient réussi leur examens des deux premières années et qui étaient ainsi considérés comme des "Ph.D. Candidate" et non plus des "Ph.D. students".

<sup>2</sup>L'agrégation de la notation s'est faite de deux manières. Dans l'analyse principale, nous utilisons la règle d'unanimité : les trois experts doivent s'accorder de manière indépendante sur la notation. Dans l'appendix nous utilisons également la règle de la majorité.

décideurs qui utilisent des enquêtes et organisent des élections pourraient considérer les préférences raisonnées comme des données plus fiables que les préférences naïves, les pondérant de manière discriminée dans l'agrégation des préférences en vue d'une décision politique ou de politique publique.

Considérons une personnalité dont l'image sociale ou les rendements économiques dépendent de l'approbation par son audience de la position publique qu'il prend à propos d'un sujet ambivalent. Sachant que la position qu'il prendra agira comme un signal d'engagement ("commitment device") auprès de sa communauté et que ce fait peut agir comme un "événement focalisant" où les membres de sa communauté prennent alors conscience de leur propre position, un tel décideur a besoin d'anticiper la position attendue du public afin de minimiser les risques de réactions négatives qui pourraient impacter de manière durable sa réputation et ses revenus ("backlash effects"). Supposons que pour anticiper ce que son audience préférerait qu'il décide, ce dernier lance un sondage sur un échantillon représentatif de son audience juste avant de s'exprimer en public. Dans ce cas, dans notre cadre, la qualité des données récoltées dépend de la proportion de préférences déclarées ("self-reported préférences") après avoir été formée à travers un raisonnement critique.<sup>3</sup> Or là où les techniques traditionnelles de sondage ne permettent pas de discriminer entre les préférences naïves et celles critiques, notre design expérimental, facilement déployable dans les sondages traditionnels, le permet.

Par ailleurs, notre cadre d'analyse est aussi pertinent dans le cadre d'une décision politique. Envisageons un décideur institutionnel chargé d'élaborer une politique économique sur une question sociétale présentant un dilemme éthique. Le décideur peut choisir parmi un large éventail d'alternatives politiques. La politique optimale

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<sup>3</sup>Il est concevable que dans un contexte de vote stratégique, les agents puissent mal rapporter leurs préférences raisonnées volontairement même après en avoir formé une afin de brouiller le vrai signal. Cependant, nous considérons cette préoccupation comme secondaire par rapport à notre application prévue. Par conséquent, nous supposons que la formation et la déclaration d'une préférence raisonnée sont des actions congruentes.

est une fonction de la distribution des préférences raisonnées dans la société, c'est-à-dire de la proportion d'individus qui préfèrent une alternative à l'autre après avoir formé leur préférence grâce à la pensée critique. Ce cadre nécessite au décideur d'anticiper (et d'inciter) la formation des préférences raisonnées des agents avant de prendre une décision, car la distribution des préférences raisonnées agit comme critère normatif de décision.<sup>4</sup>

Dans les deux cas, industriel et politique, nous identifions un décideur s'intéressant à la distribution des préférences raisonnées : soit par crainte que leurs actions ne provoquent une réaction si elles dévient trop de la cible, soit parce qu'ils utilisent une telle distribution "faute de mieux" pour prendre des décisions politiques. Par conséquent, l'identification des styles de raisonnement et l'incitation à la pensée critique sont des éléments essentiels pour ces principes dans l'obtention d'un aperçu précis et significatif de la distribution des préférences dans leur population cible. C'est ici que le rôle des formats de narration et des médias sociaux devient central, et c'est précisément le sujet que nous explorons dans ce papier.

En conclusion, notre recherche éclaire comment les formats de narration peuvent influencer la transition entre différentes formes de raisonnement, tout en soulignant l'importance de la pensée critique dans la formation de préférences. Nous espérons que ces résultats aideront à optimiser l'efficacité des enquêtes, des élections et des autres méthodes de prise de décision qui reposent sur les préférences du public, tout en offrant des aperçus pour les futurs travaux sur le rôle des médias et des formats de narration dans la prise de décision individuelle et collective. Dans le Chapitre 3, écrit avec Marc Fleurbaey (CNRS et Ecole d'Economie de Paris), nous nous intéressons au problème de l'estimation du coût social du carbone (CSC) lorsque l'évaluateur est incertain du degré d'aversion aux inégalités qu'il devrait adopter. Le CSC attribue

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<sup>4</sup>Finalement, ces décideurs doivent adopter une politique alignée sur l'une des deux visions du monde conflictuelles. Au mieux, s'ils étaient eux-mêmes des penseurs critiques, ils reconnaîtront leur préférence raisonnée sur la question mais risqueraient de l'imposer au reste de la population s'ils ne prennent pas en compte leur préférence raisonnée.

une valeur monétaire aux dommages présents et futurs causés par l'émission d'une tonne de CO<sub>2</sub> (Pearce (2003)). Cette mesure s'avère précieuse pour les économistes et les décideurs politiques dans la réalisation d'analyses coût-bénéfice pour les investissements publics et la conception de politiques climatiques, telles que la détermination d'une taxe carbone ou d'un quota d'émissions optimal (Gollier 2023). Les calculs du CSC s'appuient sur des modèles climat-économie (IAMs)<sup>5</sup> qui unifient les activités économiques de la société avec leurs conséquences sociales et climatiques (Nordhaus (2017)).

Ces modèles IAMs dépendent de trois catégories de paramètres : économiques, environnementaux et éthiques. Les *paramètres économiques* englobent les fondamentaux structurels (par exemple, le taux de croissance), tandis que les *paramètres climatiques* se concentrent sur les phénomènes climatiques (par exemple, le niveau de la mer et le risque d'inondation). Les paramètres éthiques concernent le taux d'escompte social (TES), qui mesure la valorisation par la société du bien-être social futur à par rapport au bien-être social présent, et *l'aversion pour l'inégalité*, qui mesure l'importance accordée par la société à la réduction des inégalités intra générationnelles et, selon son interaction avec le TES, à la réduction des inégalités intergénérationnelles.

Une distinction significative existe entre les paramètres économiques et environnementaux, qui peuvent se voir attribuer des valeurs "correctes" sur la base de preuves scientifiques et factuelles, et les paramètres éthiques, qui échappent à toute évaluation scientifique et qui reposent, *in fine* sur diverses visions du monde (allant de la simple idéologie ou propagande politique au complexe argument philosophique). Cette disparité conduit à des débats sociétaux permanents et souligne la prévalence du conflit entre ces différentes visions. Le TES, en particulier, a suscité le célèbre débat Nordhaus-Stern, avec Nordhaus plaidant pour un TES élevé et

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<sup>5</sup>Connus en anglais sous le nom de "Integrated Assessment Models" (IAMs) que l'on peut traduire en français par Modèles d'Évaluation Intégrée.

Stern préférant un TES faible (Nordhaus (2007b), Nordhaus (2007a), Stern et al. (2010)). Des valeurs de TES variées produisent des estimations divergentes du CSC, l'Agence de Protection de l'Environnement (EPA (2022)) offrant une fourchette de 11\$ à 105\$ pour 2015, centrée autour de 36\$ (Van Den Bergh and Botzen (2014)). Cependant, le TES n'est pas le seul déterminant éthique du CSC, le paramètre d'aversion pour l'inégalité exerçant également une influence significative. D'ailleurs, le TES est fondamentalement lié au coefficient d'aversion pour l'inégalité, comme l'a démontré la formule de Ramsey (Ramsey (1928)) :

$$TES = \rho + \eta \times \text{taux de croissance}$$

où  $\rho$  signifie le taux pur de préférence temporelle, et  $\eta$  représente le coefficient d'aversion pour l'inégalité, qui, comme explicitement montré dans (Dennig et al. (2015a)), joue un rôle crucial dans la détermination du CSC. Comme le montre la figure 3.1, différents niveaux d'aversion pour l'inégalité entraînent des scénarios de politique de taxation sensiblement différents à long terme.

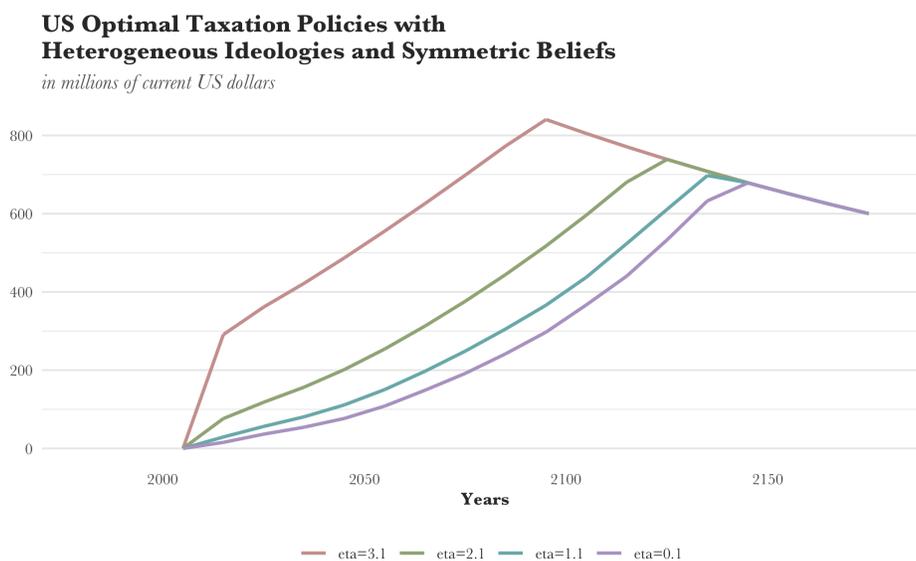


Figure 1: TAXATION OPTIMALE AUX E.U AVEC DES VISIONS DU MONDE HÉTÉROGÈNES.

Les débats sur le niveau approprié d’aversion pour l’inégalité et la distribution des ressources et des responsabilités à travers et au sein des générations ont pris le devant de la scène en matière de politique publique (Adler and Fleurbaey (2016), Saez (2021)) et d’économie du climat (Fleurbaey et al. (2019), Kornek et al. (2021)).

Les modèles d’économie du climat n’intègrent généralement pas ces désaccords. Ils tendent à être construits à partir d’une seule valeur donnée de l’aversion pour l’inégalité, déterminée de manière exogène, implicitement justifiée par une certaine vision du monde prédominante dans la littérature pour diverses raisons. Par conséquent, lorsque différents scientifiques ou décideurs politiques font face au problème, naturellement, de part leur identités et valeurs différentes, adoptent une valeur de l’aversion pour l’inégalité spécifique. Cette hétérogénéité idéologique ou philosophique conduit à des scénarios de politiques climatiques divergents et à des désaccords persistants en matière d’économie du climat.

Cette incapacité à fournir une proposition politique acceptée globalement répondant aux diverses parties prenantes (citoyens, décideurs politiques et investisseurs privés)

pose deux inconvénients majeurs dans la lutte contre le changement climatique.

Premièrement, cela retarde la mise en œuvre des politiques climatiques.

Deuxièmement, lorsque mis en place, cela en réduit sa portée, puisque rejetée par une certaine partie – plus ou moins grande – de la population. Ainsi, surmonter ces différences idéologiques est crucial pour s’engager dans des accords et des politiques pérennes climatiques internationaux. L’inefficacité de la méthode traditionnelle de débat pour parvenir à un consensus mondial est manifeste, comme le démontre le débat persistant entre Nordhaus et Stern, représentant deux franges de la société qui s’opposent, sans jamais s’accorder.

Face à cette impasse, nous suggérons une approche complémentaire, pragmatique, au débat. Nous préconisons que les décideurs politiques accueillent et acceptent dès le départ les différentes perspectives du débat, agissent avec l’incertitude morale inhérente à leur propre positionnement par rapport à la vision du monde à privilégier lorsqu’il s’agit de définir le niveau approprié d’aversion pour l’inégalité dans le contexte de la politique climatique. Cette approche tiendrait compte de l’hétérogénéité des visions du monde en considérant les différents niveaux d’aversion pour l’inégalité qui sont incarnés dans leurs croyances internes.

Étant donné que différentes visions du monde d’aversion à l’inégalité mènent à des politiques de taxation optimales distinctes, nous sommes confrontés à un défi théorique : comment pouvons-nous comparer les différentes fonctions de bien-être social qui résultent de différentes calibrations du paramètre d’aversion pour l’inégalité et par la suite établir l’existence de *poids internes*<sup>6</sup> pour chaque niveau d’aversion pour l’inégalité?<sup>7</sup>. En économie du climat, [Jaakkola and Millner \(2022\)](#) est la seule étude qui intègre une hétérogénéité du taux d’escompte social, tandis que [Millner \(2020\)](#) offre un examen initial de l’incertitude interne en économie du climat

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<sup>6</sup>Représentant le degré de croyance du décideur publique dans chaque degré d’aversion.

<sup>7</sup>Le concept d’incertitude interne s’aligne sur le débat philosophique en cours concernant l’incertitude morale ([MacAskill \(2014\)](#)), mais est plus restreint, puisqu’il n’a pas pour ambition de résoudre l’incertitude morale objective.

en utilisant un cadre utilitariste. Cependant, cette dernière approche n'aborde pas directement l'aversion pour l'inégalité, un paramètre éthique crucial des MEI. Nous introduisons le modèle NICERIU (Nested Inequalities Climate-Economy With Risk and Inequality Uncertainty), intégrant visions du monde et croyances internes subjectives sur l'aversion pour l'inégalité, nous permettant de capter l'incertitude sur ce dernier paramètre. À cet effet, nous proposons un cadre de bien-être transparent permettant de déterminer de manière explicite le bien-être social des politiques du climat, tout en prenant en compte la distribution des idéologies et des croyances internes de la société à propos de l'importance de réduire les inégalités socio-économiques. En particulier, nous développons un mécanisme d'agrégation pour comparer les scénarios politiques basés sur des idéologies hétérogènes pondérés par les croyances internes que les décideurs ont sur chaque idéologie. Ce cadre permet aux décideurs ou aux sociétés de sélectionner de manière transparente l'idéologie guidant la politique de changement climatique, et ainsi de contribuer à la prise en compte en sciences économiques du rôle des idéologies dans l'analyse des politiques optimales.

Le principal défi théorique économique dans le développement de cette plateforme réside dans l'intégration efficace de fonctions de bien-être distinctes (résultant de différentes idéologies). Pour réaliser cette intégration, nous créons une métrique standard (basée sur l'Équivalence Équitablement Distribuée, ou EDE) pour comparer les diverses fonctions de bien-être social selon les différents niveaux d'aversion pour l'inégalité et d'escompte qui les différencient. De plus, nous calibrons ces paramètres avec un sondage représentatif effectué sur la population américaine.

# Chapter 1

## A Two-Stage Ellsberg Paradox

*s/o Daniel Ellsberg*

We conduct an incentivized experiment on a nationally representative US sample (N=708) to test whether people prefer to avoid ambiguity even when it means choosing dominated options. In contrast to the literature, we find that 55% of subjects prefer a risky act to an ambiguous act that always provides a larger probability of winning. Our experimental design shows that such a preference is not mainly due to a lack of understanding. We conclude that subjects avoid ambiguity *per se* rather than avoiding ambiguity because it may yield a worse outcome. Such behavior cannot be reconciled with existing models of ambiguity aversion in a straightforward manner. <sup>1</sup>

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## 1.1 Introduction

Are people willing to give up potential gains to avoid ambiguous situations, even when ambiguity can only benefit them? Since Ellsberg's famous paradox (Ellsberg (1961)), experiments have shown that people often exhibit ambiguity aversion because they fear that ambiguous situations may yield worse outcomes. In other words, people avoid situations where they cannot assign exact probabilities to possible outcomes, even if it means possibly giving up higher payoffs for fear of uncertainty resolving in a worse outcome. Scholars have developed models to accommodate such behavior. Such models include, among others, Choquet expected utility from Schmeidler (1989), Maximin expected utility from Gilboa and Schmeidler (1989), alpha-maximin expected utility from Ghirardato et al. (2004), as well as other proposals by Klibanoff et al. (2005), Maccheroni et al. (2006), and Strzalecki (2011). By contrast with these previous works, this chapter shows, in a simple incentivized experiment, that people frequently avoid ambiguity *even when* it can only result in better outcomes. Its design allows concluding that such behavior is neither entirely due to misunderstanding nor holding incorrect beliefs about the ambiguous situation. This result suggests that subjects have an inherent dislike for ambiguity, which is inconsistent with these models.

At the heart of our experiment is a "Two-Ball" gamble from Jabarian (2019): we have two urns, each containing red and blue balls. One is a risky urn with 50 red and 50 blue balls; the other is an ambiguous urn with unknown proportions of red and blue balls, as in Ellsberg's original thought experiment. The difference is that now, subjects draw two balls with replacement from one of these urns. Subjects win \$3 if the two balls have the same color. Would you rather play this gamble with the risky or ambiguous urn?

Independently of the color chosen, drawing from the risky urn gives a 50% chance of winning, while drawing from the ambiguous urn guarantees at least a 50% chance of

winning, regardless of the proportions of red and blue balls. For example, if the ambiguous urn contains 60 red and 40 blue balls, its win probability is  $.6^2 + .4^2 = .52$ . This characteristic of the gamble entails that nearly all existing models require a decision-maker to choose the ambiguous urn over the risky urn. Despite this, 45% of the subjects in our experiment prefer the risky urn. Subjects were willing to pay 8.5% more for the risky gamble than the ambiguous one. We call this result the *Two-Ball Ellsberg Paradox*.

Unless subjects have beliefs over the two draws that are not consistent with the information given to them (say, subjects somehow believe the draws are not independent), the choice of  $RR$  over  $AA$  cannot be reconciled with existing models of ambiguity aversion straightforwardly. For instance, in the Maxmin Expected utility model of [Gilboa and Schmeidler \(1989\)](#), if subjects entertained the entire simplex over  $\{R, B\}$  for the composition of an urn  $U$  and form beliefs over the two draws by composing each prior with itself, this would lead to indifference between gambles  $RR$  and  $AA$ . As in [Gajdos et al. \(2008\)](#), Dominance implies that  $RR$  cannot be strictly preferred to  $AA$ . If one assumes that the set of priors is a subset of  $\{q \in \Delta(\{R, B\}^2) | q = p \times p; p \in \Delta(\{R, B\})\}$ , then the choice  $RR$  over  $AA$  is incompatible with  $\alpha$ -maxmin expected utility for any  $\alpha$ . This choice is also incompatible with [Savage \(1954\)](#)'s Subjective Expected Utility model if beliefs are a product measure of the type  $p \times p$ .

In exposing the paradox, it is expedient to illustrate it as a choice between two distinct gambles. Nonetheless, we ascertain each gamble's certainty equivalent (CE) within our experimental setting by employing a multiple price list (MPL). We subsequently make a comparative analysis to discern whether subjects exhibit paradoxical behavior. This methodological decision is underpinned by several reasons. The survey by [Jabarian \(2021\)](#), conducted on a representative sample from the U.S., utilized a choice setup, offering an initial empirical indication supporting the

paradox. The primary objective of this chapter is to rely on experimental methods to explore and contextualize this phenomenon, ensuring greater data quality through different techniques requiring incentivized elicitation mechanisms and CE. Naturally, eliciting CE enables us to gauge the extent of the paradox. Besides, presenting the gambles individually ensures superior comprehension, considering the inherent complexity of such gambles. Aiming to address potential concerns related to comprehension issues and measurement error, we undertake the elicitation of the CE for each gamble twice, which allows us to rectify the measurement error via the ORIV technique (Gillen et al. (2019)).

Several factors might drive the Two-Ball Ellsberg Paradox, and our experimental design allows us to investigate the essential factors. One hypothesis is that subjects mistakenly think the probability of winning decreases as the ratio of red to blue balls becomes more uneven. However, our experiment shows that when subjects choose between two urns with ambiguous compositions but one more unevenly distributed one, they prefer the more unevenly distributed one. This result suggests that subjects didn't "learn" to choose the ambiguous urn even after being exposed to scenarios requiring reasoning about the ratio of red to blue balls. The preference for the risky urn is a deliberate decision to avoid ambiguity, even at a lower win probability.

Building on previous studies questioning existing models and proposing other paradoxical behaviors, we examine the relationship between the Two-Ball Ellsberg Paradox and simple behavioral mechanisms. Specifically, we explore complexity aversion by replicating Halevy's experiment, which elicits preferences between a simple lottery with a 50% win probability and a more complex compound lottery with the same probability. We also examine the relationship with classical ambiguity aversion by replicating Ellsberg's original experiment. Our results suggest a strong correlation between classical ambiguity aversion and complexity aversion.

Ambiguity and ambiguity aversion are relevant to policymakers since, in most

real-world situations, agents cannot attach precise probabilities to the possible outcomes. Relying on the standard models cited above, researchers have explored the important implications of ambiguity in diverse economic fields. In environmental economics, [Millner et al. \(2013\)](#) demonstrate the effects of ambiguity on the social cost of carbon by integrating ambiguity within Nordhaus' famous integrated assessment model of climate economy. [Lange and Treich \(2008\)](#) investigate the learning effects of climate policy under ambiguity. In health economics, [Treich \(2010\)](#) shows under which conditions ambiguity aversion increases the value of a statistical life. In macro-finance, [Ju and Miao \(2012\)](#) show how ambiguity aversion can account for the equity premium puzzle. Such policy recommendations might need revisions based on updated models that accommodate our findings.

Although several experiments contain scenarios comparable to our Two-Ball gamble or draw similar conclusions to those we draw, our experiment sets itself apart by introducing a new class of Two-Ball drawings. These drawings feature ambiguity but guarantee a minimum win probability at least as large as a related non-ambiguous gamble. This design feature allows us to test whether subjects avoid ambiguity *per se* or avoid ambiguity due to potentially worse outcomes.

Firstly, [Epstein and Halevy \(2019\)](#) use a Two-Ball gamble in a supplemental treatment from a 2014 experiment. However, the authors don't elicit subjects' Certainty Equivalents for this gamble and don't observe the choice over a risky bet. Although not directly comparable, their results show that 21.6% prefer the 1-Ball ambiguous gamble over the 2-Ball ambiguous gamble among subjects with monotone and transitive choices – consistent with our findings when considering possible preference for a 50-50 risky gamble over a 1-Ball ambiguous gamble.

[Fleurbaey \(2017\)](#) creates a thought experiment with a risky urn ( $R$ ) and an ambiguous urn ( $A$ ). The decision-maker draws two balls sequentially from a combination of these urns and wins if the balls have the same color. Our chapter's central Two-Ball gamble

compares two draws from urn  $A$  to two from  $R$ ; we do not let subjects switch urn after the first draw. While both chapters explore situations where individuals may pay to avoid ambiguity, only our Two-Ball Ellsberg Paradox shows that individuals choose a dominated gamble to escape ambiguity. Moreover, [Yang and Yao \(2017\)](#) designed an experiment where two balls were drawn from a single urn containing red and white balls, with the payoff determined by the balls' colors. They find that up to 45% of risk-averse subjects choose urn  $A$  over urn  $R$ , violating theories that include a monotonicity axiom. These results resemble our findings, except that our central Two-Ball gamble's payoff has a mean that increases with the dispersion of the urn's contents, making urn  $A$  attractive to both risk-averse and risk-seeking individuals. Finally, very recently, [Kuzmics et al. \(2020\)](#) also examined an incentivized experiment where subjects choose between a risky urn  $R$  with a known win probability of 49% and an ambiguous urn  $A$  with green and yellow balls. They find that 48.1% of subjects bet on urn  $R$  after seeing certain informational draws, which is a dominant decision strategy. However, unlike our learning treatment, they observe that "paradoxical" choices decrease in frequency after subjects are shown explanatory videos.

Our chapter unfolds as follows. Section [1.2](#) outlines the experimental design and methodology employed. Section [1.3](#) shares the findings from our core gambles, spotlighting the Two-Ball Ellsberg Paradox. Section [1.4](#) delves into different hypotheses aiming to test whether participants truly understand the gambles. Section [1.5](#) explores different channels that might explain the Two-Ball Ellsberg Paradox, ranging from complexity aversion and other "paradoxical" preferences to the impact of the number or proportion of draws from ambiguous urns on participants' aversion to ambiguity, even when it can only boost their win probability. Section [1.6](#) offers concluding discussions and directions for future research to identify further channels to such a paradox.

## 1.2 Design, Data Collection and Setting

Our experiment was designed to answer two primary questions. First, to what extent do subjects prefer urn  $R$  over urn  $A$  in our Two-Ball gamble? Second, what possible explanations of this “paradoxical” preference can be falsified? Answering the first question only requires asking subjects about a few different gambles. However, since many possible explanations exist for a preference for urn  $R$  over urn  $A$ , our experiment includes many gambles designed to address the second question.

We used Prolific, an online survey platform, to run our experiment and collect our data. Due to its participant pool’s quality, Prolific is increasingly used in economics to conduct surveys and incentivized experiments. Our sample comprised 880 participants, selected to be nationally representative in age and gender. Of these initial 880 participants, 708 passed the basic attention-screening questions and criteria described at the end of this section.

Due to the constraints on subjects’ time and attention inherent in an online experiment, our various gambles were divided across four treatments, with each subject completing exactly one treatment. All treatments ask subjects about our central two-ball gamble (playing with the ambiguous urn versus risky). All treatments elicit subjects’ ambiguous attitudes via the classic two-urns Ellsberg paradox. Beyond this, each treatment contains some gambles specific to that treatment. Gambles similar to each other were grouped into *blocks*, and gambles within a block were presented in random order.<sup>2</sup>

In each gamble, the subject can either “win” (gain \$3) or “lose” (gain nothing). After viewing instructions explaining the conditions under which the current gamble will win or lose, the subject must report her certainty equivalent (CE) for that gamble from a multiple price list (MPL) containing dollar amounts between \$0 and \$3 in

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<sup>2</sup>The order of the blocks was also randomized; we detail the particular randomization for each treatment in Sections 1.4.1, 1.4.2, 1.4.3 and 1.5.1.

increments of 10 cents. Compared to eliciting choices, the MPL allows us to measure the intensity of subjects' preferences.

Laboratory and online experiments eliciting subjects' CEs for gambles are often prone to significant measurement error. To correct this, we rely on the *Obviously Related Instrumental Variables* (ORIV) method of Gillen et al. (2019). Compared to other methods to correct measurement errors, such as using the first elicitation as an instrument for the second, the ORIV approach generally results in lower standard errors. We, therefore, elicit subjects' CEs *twice* for most of our gambles.

Including all duplicate questions, each treatment contains 11 or 12 gambles in total. In each treatment, three<sup>3</sup> of these gambles were selected at random for incentivization: if a gamble was selected, then a random row of the MPL for that gamble was chosen, and subjects were given what they reported they preferred from that row.<sup>4</sup> Subjects received an average payment of \$3.50 from the incentivized questions, plus a fixed \$2 payment for completing the experiment.

Since the monetary stakes of the experiment were not very high, there is a reason for concern that subjects may answer at random to finish the experiment quickly. We employed three screening criteria to address this concern: (1) After the experiment instructions, but before the gambles, subjects were given a 3-question basic comprehension quiz about the instructions. Any subject who failed at least one of these questions was given a small payment and forced to leave the experiment. (2) Subjects were given a standard attention-screening question between each of the experiment's major sections. Subjects failing at least one such question were removed from our analysis. (3) If, across our two elicitations of a subject's CE for the same

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<sup>3</sup>Although incentivizing only *one* gamble would allow us to raise the monetary stakes of each question, doing so would create too large a variance in different subjects' payoffs, which was undesirable for this online experiment.

<sup>4</sup>For example, if Gamble X was selected for incentivization, and then the row "\$1.20" was selected at random for this gamble, the following happens. (A) If the subject reported she preferred a fixed \$1.20 payment to play Gamble X, then she received \$1.20. (B) If the subject reported she preferred playing Gamble X to receiving \$1.20, then we simulated Gamble X and gave her \$3 if it won and \$0 if it lost.

gamble, the subject reported two CEs that differed by more than \$1 (that is, one-third the size of the \$3 MPL table), that subject was removed from our analysis.<sup>5</sup> Out of an initial pool of 880 subjects, 172 were removed due to violating at least one of the criteria (1)-(3).

In more detail, subjects were randomly assigned to one of the following four treatments – **LEARNING**, **ROBUSTNESS**, **ORDER** and **COMPLEXITY** – that we present now.

In treatment **LEARNING**, subjects complete the blocks *BoundedA*, *Ellsberg* and **2Ball** as well as the duplicate blocks *EllsbergD* and *2BallD*. The order in which these blocks were presented was determined at random, independently for each subject assigned to this treatment, according to Figure 1.1.

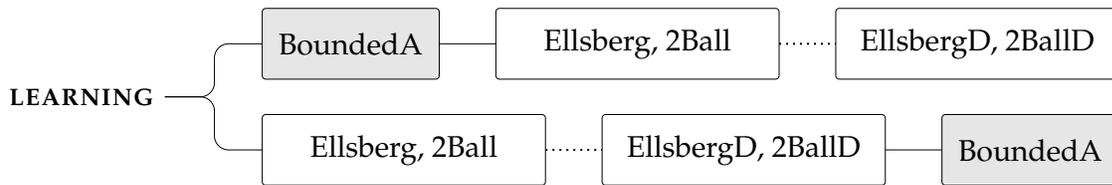


Figure 1.1: **STRUCTURE OF TREATMENT LEARNING**

In this figure, the initial split between line 1 (with *BoundedA* at the beginning) and line 2 (with *BoundedA* at the end) indicates that subjects were randomized uniformly between doing block *BoundedA* either *before* or *after* all the other blocks in the treatment. Furthermore, the fact that the boxes containing “*Ellsberg, 2Ball*” and “*EllsbergD, 2BallD*” are adjacent and shaded in the same way indicates that, within each of these two randomized groups, there is further randomization as to whether the blocks *Ellsberg* and *2Ball* are both completed *before* blocks *EllsbergD* and *2BallD* or are both completed after these two blocks. Finally, in any box containing multiple block names, those blocks were completed in a random order (e.g., block *Ellsberg* is

<sup>5</sup>Other reasonable thresholds for exclusion, such as “differed by more than \$1.50,” yield qualitatively similar results in our analysis as detailed in the Appendix.

either completed before or after block *2Ball*). Hence, Figure 1.1 indicates 16 possible orders in which subjects could complete the blocks in treatment **LEARNING**.

In treatment **ROBUSTNESS**, subjects complete the blocks *Independent*, *3Ball*, *Ellsberg* and *2Ball* as well as the duplicate blocks *EllsbergD* and *2BallD*. The order in which these blocks were presented was determined at random, independently for each subject assigned to this treatment, according to Figure 1.2. Its interpretation is analogous to that of Figure 1.1; there are 48 different orders in which the six blocks comprising Treatment **ROBUSTNESS** could be completed.



Figure 1.2: STRUCTURE OF TREATMENT ROBUSTNESS

In treatment **ORDER**, subjects complete the blocks *2BallMixed* and *Ellsberg* as well as the duplicate blocks *2BallMixedD* and *EllsbergD*. The order in which these blocks were presented was determined at random, independently for each subject assigned to this treatment, according to Figure 1.3. Its interpretation is analogous to that of Figure 1.1; there are 8 different orders in which the 4 blocks comprising Treatment **ORDER** could be completed.



Figure 1.3: STRUCTURE OF TREATMENT ORDER

In treatment **COMPLEXITY**, subjects complete the blocks *Compound*, *Ellsberg* and *2Ball* as well as the duplicate blocks *CompoundD*, *EllsbergD* and *2BallD*. The order in which these blocks were presented was determined at random, independently for each subject assigned to this treatment, according to Figure 1.4. Its interpretation is analogous to that of Figure 1.1; there are 12 different orders in which the six blocks

comprising Treatment COMPLEXITY could be completed. Table ?? in Appendix A.1.2 contains summary statistics for each elicitation of CEs for gambles C and CC.



Figure 1.4: STRUCTURE OF TREATMENT COMPLEXITY

### 1.3 Participants Exhibit the Two-Ball Ellsberg Paradox

The block *2Ball* contains this experiment’s central gambles and is present in all four of our treatments. It contains two gambles, named *RR* and *AA*:

*RR*: Draw 2 balls with replacement from urn  $R = [50 \text{ red}, 50 \text{ blue}]$ ; win if the two balls have the same color.

*AA*: Draw 2 balls with replacement from urn  $A = [\text{Unknown red}, \text{Unknown blue}]$ ; win if the two balls have the same color.

The block *Ellsberg* replicates the classic Ellsberg paradox to elicit subjects’ attitudes towards risk and ambiguity and is also present in all four of our treatments; it contains two gambles named *R* and *A*:

*R*: Choose a color. Draw a ball from urn  $R = [50 \text{ red}, 50 \text{ blue}]$ ; win if the drawn ball has the color you chose.

*A* : Choose a color. Draw a ball from urn  $A = [\text{Unknown red}, \text{Unknown blue}]$ ; win if the drawn ball has the color you chose.

The blocks *2BallD* and *EllsbergD* contain duplicate gambles of those in blocks *2Ball* and *Ellsberg*. When double-eliciting CEs, the standard practice requires the two “duplicate” gambles measuring the same CE to have slightly different wordings so

that two constitute two *independent* measurements of that CE. To accomplish this, whenever we duplicate a block of gambles, we slightly change the specified *total* number of balls in a given urn without changing the *proportion* of balls of each color. For example, in block *2BallD*, urn *R* contains 40 red and 40 blue balls rather than 50 red and 50 blue.

For each gamble *X* that is double-elicited, we use the notation  $X_i^j$  to represent the *j*-th elicitation of subject *i*'s CE for gamble *X*, and we use the notation

$$X_i = \frac{X_i^1 + X_i^2}{2}$$

to denote the *average* CE of subject *i* for gamble *X*. So, for example,  $RR_{36}^2$  represents the 2nd elicitation of subject 36's CE for gamble *RR*, and  $A_{15}$  denotes subject 15's *average* CE for gamble *A*. Figure 1.5 shows the CDFs of the empirical distributions of the CEs for *RR*, *AA*, *R*, and *A*; Table ?? in Appendix A.1.2 contains summary statistics for each elicitation of these CEs.

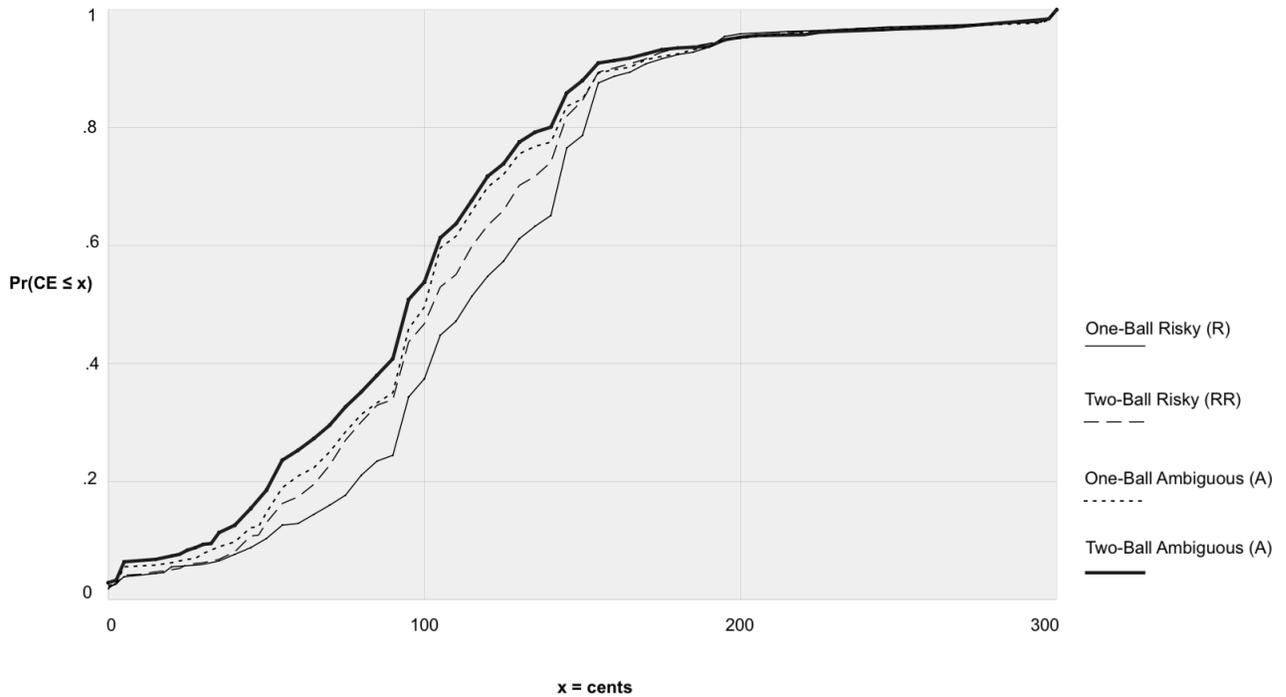


Figure 1.5: CUMULATIVE DISTRIBUTION OF CES FOR  $R, A, RR, AA$

Other than at a few extreme CE values that were reported by a total of less than 10% of subjects, these empirical CDFs lie in the same vertical order everywhere. This suggests that on average, subjects prefer the gambles in the order  $R \succ RR \succ A \succ AA$ . Nearly all widely-used models of decision making under risk and ambiguity cannot explain a preference for  $R$  over  $AA$  or a preference for  $RR$  over  $AA$ , since gamble  $AA$  has a win probability of *at least* 50% while gambles  $R$  and  $RR$  have a win probability of *exactly* 50%.

Throughout this chapter, we use the variable  $R - AA$  to measure the extent to which individuals exhibit the “Two-Ball Ellsberg Paradox.” Both  $R - AA$  and  $RR - AA$  are potentially useful measures of the extent to which subjects exhibit aversion to our ambiguous Two-Ball gamble  $AA$ . Indeed,  $R - AA$  measures this aversion as compared to a simple 50-50 lottery, and  $RR - AA$  measures this aversion as compared to a Two-Ball 50-50 lottery. Although gamble  $RR$  is mechanically more similar to  $AA$

than gamble  $R$  is, we use gamble  $R$  since it provides a more standard baseline and allows for natural comparisons with other types of aversion identified in the experimental literature. In the literature it is common to measure a subject's aversion to a newly identified phenomenon by creating some new gamble, eliciting the subject's CE  $X$  for that new gamble, and then comparing  $X$  to that subject's CE for a simple 50-50 gamble; that is, aversion is measured with the number  $R - X$ . For example, when replicating [Ellsberg \(1961\)](#)'s experiment, classical ambiguity aversion is usually measured with  $R - A$ ; and in [Halevy \(2007\)](#)'s experiment, aversion to a compound 50-50 lottery  $C$  can be measured with  $R - C$ .<sup>6</sup> Measures like  $R - A$  and  $R - C$  are much more naturally compared to  $R - AA$  than to  $RR - AA$ ; for a natural comparison with  $RR - AA$ , one would need to use strange measures like  $RR - A$  and  $RR - C$ , which cannot even be determined from experiments where the CE for gamble  $RR$  was not measured.

Although our primary measure of the Two-Ball Ellsberg Paradox is  $R - A$ , our results remain qualitatively unchanged if one substitutes  $RR - AA$  for  $R - AA$ . For example, we find that both of these variables take on a statistically significant positive value - and all the same standard models of decision making are falsified by a statistically significant positive value of  $R - AA$  as would be falsified by a statistically significant positive value of  $RR - AA$ . With this in mind, [figure 1.6](#) shows the distribution of individuals' reported CE differences  $R^j - AA^j$  in each of the two elicitation  $j$ .

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<sup>6</sup>Although  $C$  is not the notation used by [Halevy \(2007\)](#), we use this notation here since it is consistent with the notation introduced in [Section 1.5.1](#) below.

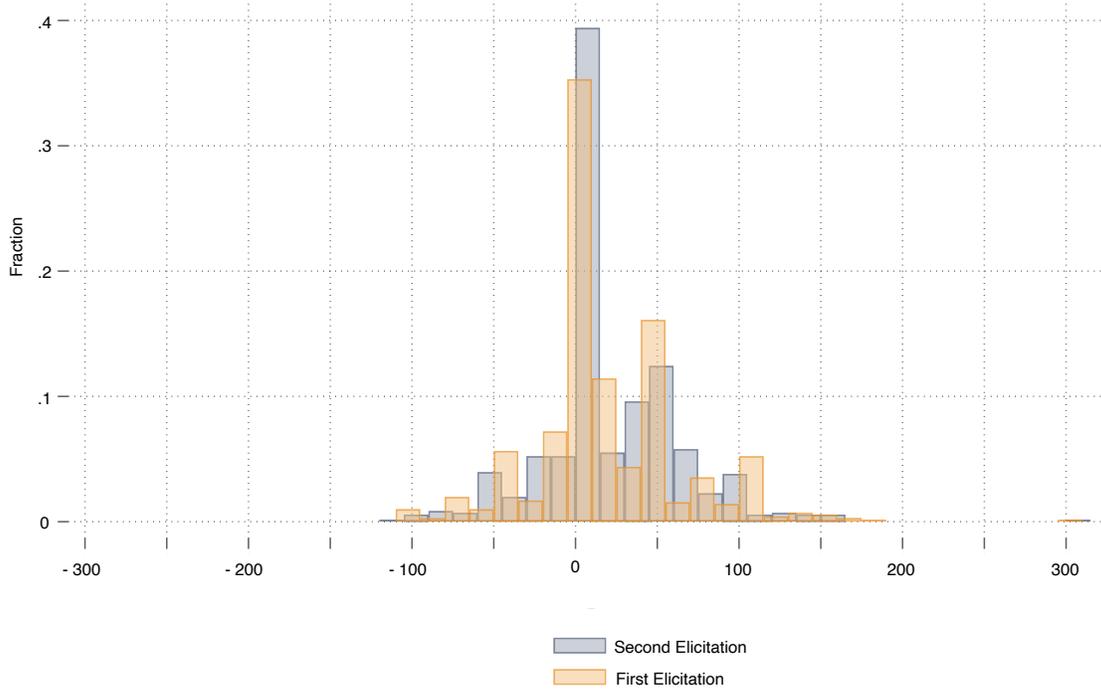


Figure 1.6: HISTOGRAM OF  $R - AA$ , BY ELICITATION

Averaging across both elicitations, a majority (54.9%) of subjects exhibited 2-Ball Ellsberg Paradox preferences by reporting a value  $R - AA$  greater than zero. The average CE for gamble  $R$  is 118.13 cents, while the average CE for gamble  $AA$  is only 101.03 cents. The 17.1 cent difference between these averages is statistically significant ( $t = 11.7$ ); individuals are willing to pay about 17% more for gamble  $R$  than they are for the higher-win-probability gamble  $AA$ .

Similarly, 44.6% of subjects prefer gamble  $RR$  over gamble  $AA$ . The average CE for  $RR$  is 109.60 cents, or 8.5% larger than  $AA$ . Its difference from  $AA$  is statistically significant ( $t = 7.4$ ).

The next three sections explore whether these Two-Ball Ellsberg Paradox preferences are explainable solely in terms of subjects misunderstanding the gambles or otherwise maintaining false beliefs about the nature of these gambles. Sections 1.4.1, 1.4.2 and

1.4.3 respectively test whether subjects maintain the false beliefs *Uneven is Bad*, *Independent Recomposition*, or *Dependent Recomposition* mentioned in the Introduction.

## 1.4 Do Subjects Understand The Two-Ball Gamble?

There are different ways to define the notion of “comprehension” in our experimental setting. We explored three core interpretations that we report in this section. In Section 1.4.1, we determine whether subjects understand that the more the ambiguous urn is unevenly composed the better it is for them in terms of win probability. In Section 1.4.2, we check whether subjects believe that the urn contents are *independently* redetermined between draws or not. In the same vein, in Section 1.4.3, we also check whether subjects believe that the urn contents are *dependently* redetermined between draws or not.

### 1.4.1 Do Subjects Understand that Unevenness is Better?

Treatment LEARNING was designed to test whether subjects behave as if they believe *Uneven is Bad*. The gambles unique to treatment LEARNING are those in block *BoundedA*. In this block, subjects play a 2-Ball gamble: two balls are drawn from an urn *A* containing 100 balls, all red or blue, but whose exact contents are unknown. The subject wins \$3 if the two balls have the same color. In each gamble in block *BoundedA*, some further information is given about the contents of urn *A*, as described below.

$BB^{40-60}$ : Urn *A* is known to contain between 40 and 60 red balls.

$BB^{60-100}$ : Urn *A* is known to contain between 60 and 100 red balls.

$BB^{95-100}$ : Urn *A* is known to contain between 95 and 100 red balls.

In treatment LEARNING, subjects complete the blocks *BoundedA*, *Ellsberg* and *2Ball* as well as the duplicate blocks *EllsbergD* and *2BallD*. The order in which these blocks

were presented was determined randomly and independently for each subject assigned to this treatment. They either faced first *BoundedA* and then randomly the Ellsberg Paradox and the Two-Ball Ellsberg Paradox (and their duplicate), or they started with the latter two blocks (and their duplicate) in random order and then faced *BoundedA*.

If subjects always believe *Uneven is Bad*, then we should certainly not find either of the preferences  $BB^{95-100} \succ BB^{60-100}$  or  $BB^{60-100} \succ BB^{40-60}$ . Subjects exhibiting such preferences is evidence that we should reject the hypothesis that subjects always believe *Uneven is Bad*.

A subtler hypothesis to explain a preference for *R* over *AA* is that subjects believe *Uneven is Bad* until they are confronted with examples that demonstrate that *Uneven is Good* - i.e. that a more uneven urn yields a *higher* win probability in a 2-Ball gamble. For example, subjects may believe *Uneven is Bad* when asked “out of the blue” about gamble *AA*, but may come to believe *Uneven is Good* only after considering e.g. gamble  $BB^{95-100}$  and realizing that an urn containing at least 95% red balls is very likely to lead to a win. We call this the *Learning Hypothesis*, as it entails that subjects are “nudged” into believing that *Uneven is Good* when exposed to certain suggestive 2-Ball gambles.

A preference  $BB^{95-100} \succ BB^{60-100} \succ BB^{40-60}$  is consistent with the Learning Hypothesis since subjects may be “nudged” into the belief *Uneven is Good* as early as the beginning of block *BoundedA*. However, if the Learning Hypothesis is true, then subjects in treatment **LEARNING** should report a smaller average value of *R* – *AA* than those in other treatments - since only those subjects in treatment **LEARNING** had any exposure to block *BoundedA*.

Figure 1.7 shows the CDFs of the empirical distributions of the CEs from treatment **LEARNING** for gambles  $BB^{40-60}$ ,  $BB^{60-100}$  and  $BB^{95-100}$ . It also shows the combined CDF (from all 4 treatments) of CEs for gamble *AA*. Table 1.1 gives summary statistics

of  $BB^{40-60}$ ,  $BB^{60-100}$  and  $BB^{95-100}$  as well as for  $AA$  using only those subjects in treatment **LEARNING**.

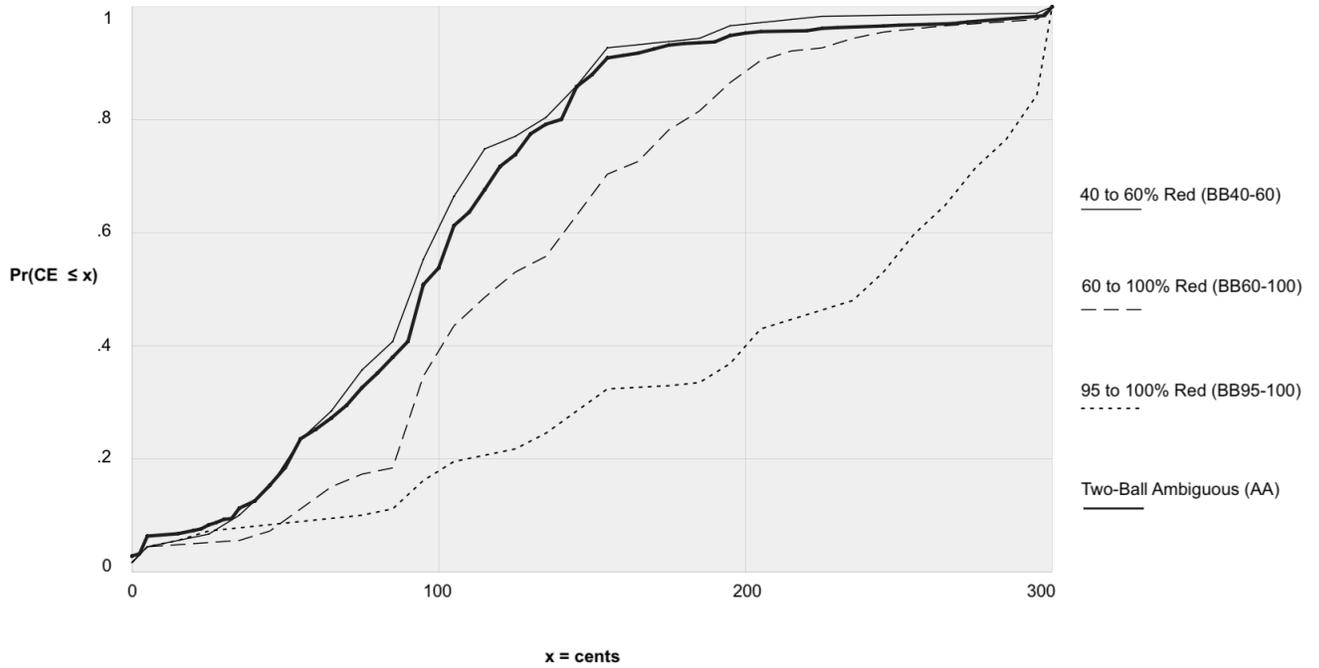


Figure 1.7: CUMULATIVE DISTRIBUTION OF CES FOR  $BB^{40-60}$ ,  $BB^{60-100}$ ,  $BB^{95-100}$ ,  $AA$ .

Table 1.1: CES FOR SUBJECTS IN TREATMENT LEARNING

	$BB^{40-60}$	$BB^{60-100}$	$BB^{95-100}$	$AA$
Mean	98.603	132.235	207.654	97.179
SD	(52.113)	(63.887)	(90.784)	(55.634)
$N$	179	179	179	179

Table 1.1 suggests that subjects do not always believe *Uneven is Bad*. Although there is no statistically significant difference between the average CE for  $AA$  and that of

$BB^{40-60}$ , subjects prefer  $BB^{60-100}$  to  $BB^{40-60}$  by an average of 33.6 cents ( $t > 9$ ). Similarly, they prefer  $BB^{95-100}$  to  $BB^{60-100}$  by an average of 75.4 cents ( $t > 13$ ). Of the 179 subjects in treatment **LEARNING**, 147 reported the “correct” ranking  $BB^{95-100} \succ BB^{60-100} \succ BB^{40-60}$ . Only 22 of the 179 subjects reported a larger CE for  $BB^{40-60}$  than  $BB^{60-100}$ ; and even among those 22 subjects, the average CE for  $BB^{95-100}$  was massively larger than the average CE for  $BB^{60-100}$  (mean of difference = 68.64,  $t = 3.36$ ). These data suggest we must reject the hypothesis “Subjects always believe *Uneven is Bad*” as an explanation for subjects’ behavior.

Now consider the Learning Hypothesis. If this latter is true, then we should find that the CE difference  $R - AA$  is significantly smaller (or, more negative) among subjects who completed block *BoundedA* before completing blocks *2Ball* and *2BallD* than it is among subjects who did not complete *BoundedA* before *2Ball* and *2BallD*. Completing block *BoundedA* should “nudge” subjects into being less susceptible to the 2-ball Ellsberg paradox.

Half of the 179 subjects randomly assigned to treatment **LEARNING** completed *BoundedA* before the blocks *2Ball* and *2BallD*, whereas *none* of the subjects randomly assigned to other treatments did so. So if the Learning Hypothesis is true, we should find a statistically significant (negative) difference between the  $R - AA$  values in the treatment **LEARNING** versus those in the other treatments.

If we let  $I^{TN}$  be the indicator variable for assignment to Treatment **LEARNING**, then in a regression of  $Z := R - AA$  on  $I^{TN}$ , the slope coefficient represents the causal effect of being in treatment **LEARNING** on the preference for  $R$  over  $AA$ . A statistically significant *negative* slope coefficient would be evidence that the Learning Hypothesis is true.

Table 1.2: LEARNING EFFECTS

	$Z^1$	$Z^2$	$Z^{avg}$
$I^{TN}$	2.615 (3.659)	-0.418 (3.917)	1.098 (3.366)
Const.	16.994 (1.840)	16.786 (1.969)	16.890 (1.692)
$N$	708	708	708

Table 1.2 shows the results of such a regression, first using individual elicitations and then the averages across elicitations. As shown, the slope coefficient is not statistically significant, and it is *positive* in the case using averages. Thus, we fail to reject the null hypothesis ( $p = .63$ ) and hence have no evidence of the Learning Hypothesis. The results of Treatment LEARNING therefore provide strong evidence that a belief in *Uneven is Bad* - even a belief in *Uneven is Bad* that could be eliminated by “learning” - does not drive the Two-Ball Ellsberg Paradox.

### 1.4.2 Do Subjects Believe Urn Contents are Independently Redetermined Between Draws?

The gambles unique to treatment ROBUSTNESS are those in blocks *Independent* and *3Ball*. Block *Independent* from treatment ROBUSTNESS was designed to test whether subjects behave as if they believe *Independent Recomposition* is true. Meanwhile, block *3Ball* contains gambles designed to explore how the “amount” of ambiguity present in a gamble affects subjects’ preferences; it is discussed in Section 1.5.2 below.

In block *Independent*, there is only one gamble, *IA*, where subjects draw a ball from each of two ambiguous urns (containing only red and blue balls) whose contents were determined independently; they win \$3 if the two balls have the same color.

In block *3Ball*, subjects draw 3 balls in total, with replacement, from some combination of a single ambiguous urn *A* and a single risky urn *R*, in a certain order. They win \$3 if *all three* balls have the same color. We summarize the gambles below:

*RRR*: 1st ball from urn *R*; 2nd ball from urn *R*; 3rd ball from urn *R*.

*AAA*: 1st ball from urn *A*; 2nd ball from urn *A*; 3rd ball from urn *A*.

*RAA*: 1st ball from urn *R*; 2nd ball from urn *A*; 3rd ball from urn *A*.

In treatment **ROBUSTNESS**, subjects complete the blocks *Independent*, *3Ball*, *Ellsberg* and *2Ball* as well as the duplicate blocks *EllsbergD* and *2BallD*. The order in which these blocks were presented was determined randomly and independently for each subject assigned to this treatment.<sup>7</sup>

If subjects believe in *Independent Recomposition*, then gamble *AA* should (according to them) be identical to gamble *IA*. We should therefore find no difference between their average CEs for gambles *AA* and *IA*. In reality, for *any* procedure generating the contents of ambiguous urns, gamble *AA* must have *at least as large* of a win probability as gamble *IA*, and *AA* must have a *larger* win probability than *IA* if the procedure is nondegenerate (i.e., assigns a nonzero probability to at least two different possible urn compositions).<sup>8</sup> Finding a preference  $IA \succ AA$  would therefore be evidence in favor of the hypothesis that subjects believe in *Dependent Recomposition*; specifically, it is consistent with them believing that ambiguous urns' contents are recomposed *adversarially* between draws (i.e., the contents of ambiguous urns are

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<sup>7</sup>This section explores the results from block *Independent*. We discuss block *3Ball* in Section 1.5.2 since this block was designed to address very different hypotheses from those currently being discussed. Block *3Ball* was included in treatment **ROBUSTNESS** due to the time constraints of our online experiment.

<sup>8</sup>If the procedure is *symmetrical*, i.e. for any  $x \in [0, .5]$  it is just as likely to have exactly a  $.5 + x$  proportion of red balls as it is to have a  $.5 - x$  proportion of red balls, then clearly gamble *IA* has a win probability of exactly 50% while gamble *AA* has a win probability of 50% only if the procedure is degenerate (and otherwise has a larger win probability). If the procedure is not symmetrical then gamble *IA* will have a win probability larger than 50%, but that of *AA* will be larger still. For example, if the procedure is "with probability .5 we make the ambiguous urn contain 50% red balls, and with probability .5 we make it contain 100% red balls," then gamble *IA* has win probability .625. In contrast, gamble *AA* has a win probability .75.

chosen based on the results of draws so far and in such a way as to *lower* subjects' chances of winning). Conversely, finding a preference  $AA \succ IA$  would be evidence consistent with subjects correctly believing that the win probability of  $AA$  is larger than that of  $IA$  and/or believing in *beneficial Dependent Recomposition*.

Figure 1.8 shows the CDF of the empirical distribution of CEs from gamble  $IA$  - the only gamble in block *Independent*. For comparison, it also shows the combined CDF (from all 4 treatments) of CEs for gamble  $AA$ .

The mean CE for gamble  $IA$  was 107.839, and the standard deviation of these CEs was 68.733. On average, the 192 subjects in treatment **ROBUSTNESS** slightly preferred  $AA$  to  $IA$ , but the difference is not statistically significant (mean = 1.73,  $t = .60$ ).

We therefore have insufficient evidence to reject the hypothesis that subjects believe in *Independent Recomposition*. A future experiment that replicates block *Independent* with a larger sample size or larger payments may be able to reject this hypothesis; see also Section 1.6 for discussion of a variation on block *BoundedA* that may be able to reject this hypothesis in a future experiment.

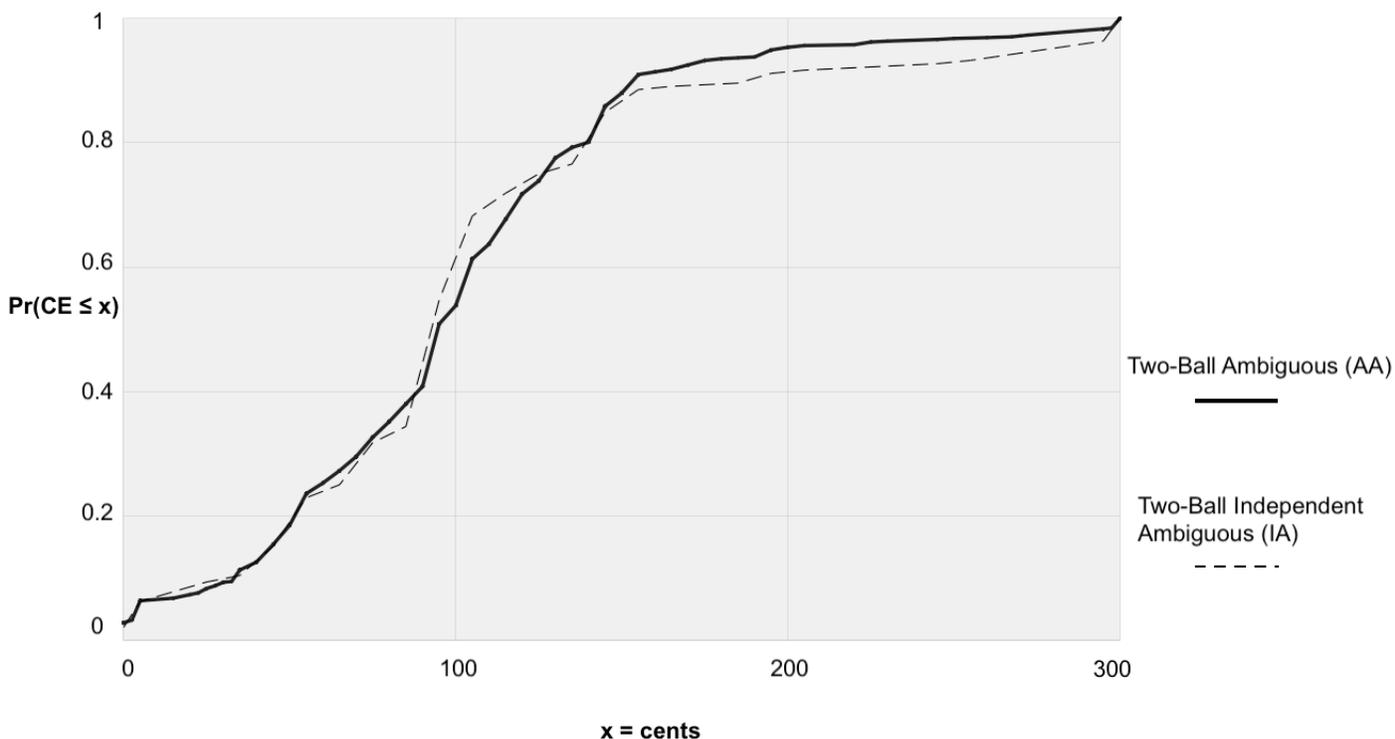


Figure 1.8: CUMULATIVE DISTRIBUTION OF CES FOR AA, IA

Since the average CE for gamble AA was slightly larger than that of gamble IA, treatment **ROBUSTNESS** provides no evidence that subjects believe in *adversarial Dependent Recomposition*. Treatment **ORDER** was designed to more generally test whether subjects believe in *Dependent Recomposition* in any form, either adversarial or beneficial; as we will see in Section 1.4.3, our findings there similarly provide no evidence of belief in *Dependent Recomposition*.

This means that subjects' preference for gamble R over gamble AA is unlikely to be due to a false belief that gamble AA has lower win probability because urn A's contents are adversarially redetermined between draws.

### 1.4.3 Do Subjects Believe Urn Contents are Dependently Redetermined Between Draws?

Treatment **ORDER** was designed to test whether subjects behave as if they believe *Dependent Recomposition* is true. The gambles unique to treatment **ORDER** are found in block *2BallMixed* - an expanded version of block *2Ball* that contains gambles not only *RR* and *AA* as before but also gambles *AR* and *RA*. In each gamble, subjects draw two balls - either from the same urn and with replacement or from distinct urns - in a certain order, and they win \$3 if the two balls have the same color. We summarize these gambles below:

*RR*: 1st ball from urn *R*; 2nd ball from urn *R*.

*AA*: 1st ball from urn *A*; 2nd ball from urn *A*.

*AR*: 1st ball from urn *A*; 2nd ball from urn *R*.

*RA*: 1st ball from urn *R*; 2nd ball from urn *A*.

Block *2BallMixedD* contains duplicate questions of those in block *2BallMixed*. In treatment **ORDER**, subjects complete the blocks *2BallMixed* and *Ellsberg* as well as the duplicate blocks *2BallMixedD* and *EllsbergD*. The order in which these blocks were presented was determined randomly and independently for each subject assigned to this treatment.

If subjects believe in *Dependent Recomposition*, then they should report different average CEs for gamble *RA* than they report for gamble *AR*. Indeed, whether subjects believe the recomposition of urn *A*'s contents is done *adversarially* or *beneficially*, gamble *AR* must have a win probability of exactly 50% since, whatever ball was drawn from the first urn, there is a 50% chance of drawing a ball of that color from urn *R* in the second draw. Meanwhile, if adversarial (beneficial) *Dependent Recomposition* is true, then gamble *RA* has a win probability that is smaller (greater) than 50%.

Conversely, if *Dependent Recomposition* does not hold, then gambles  $AR$  and  $RA$  both have a win probability of 50%. Finding that  $AR \sim RA$  is therefore evidence that subjects do not believe in *Dependent Recomposition*.

In reality, gambles  $RA$  and  $AR$  both have a win probability of exactly 50%, while gamble  $AA$  must have a win probability of *at least* 50%. Subjects exhibiting preferences  $AA \succ AR \sim RA \sim RR$  would be consistent with them fully understanding these win probabilities and basing their preferences on nothing but these win probabilities.

A preference  $RR \succ AA$  would suggest that, *if* subjects understand the win probabilities of these gambles, then they must harbor a distaste for either the *mere presence of ambiguity* in a gamble or for the *amount* of ambiguity present in a gamble (as measured by the *number or proportion of draws that come from ambiguous urns*). Our results from Section 1.4.1 strongly suggest that subjects understand that gamble  $AA$  has a win probability that is larger than 50% (and hence larger than the win probability of  $RR$ ), but they do not directly imply that subjects understand the win probabilities of gambles  $AR$  and  $RA$  to be exactly 50%.

Assuming subjects understand the win probabilities of these gambles, preferences  $RR \succ AA \succ AR \sim RA$  are consistent with subjects harboring a distaste for either the *mere presence* or the *amount* of ambiguity in a gamble, but preferences  $RR \succ AA \sim AR \sim RA$  are consistent only with subjects harboring additional distaste based on the *amount* of ambiguity in a gamble. Indeed, both gambles  $AA$  and  $RA$  have ambiguity present, but gamble  $AA$  has a larger win probability; hence an indifference between them implies that an *additional distaste for the second ambiguous draw* must be offsetting the increased win probability of gamble  $AA$ .

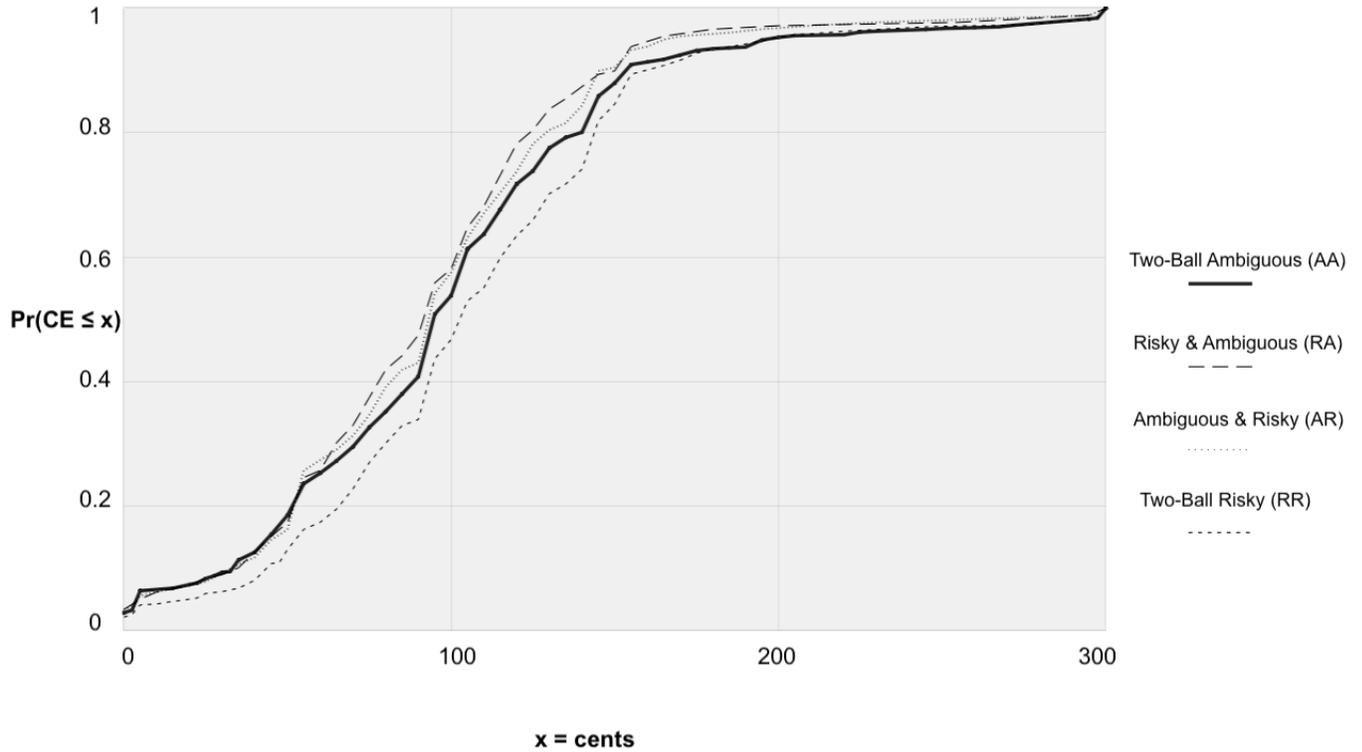


Figure 1.9: CUMULATIVE DISTRIBUTION OF CEs FOR *AA*, *RA*, *AR*, *RR*

Figure 1.8 shows the CDFs of the empirical distributions of the CEs from treatment ORDER for gambles *AR* and *RA*. For comparison, it also shows the combined CDFs (from all 4 treatments) of the CEs for gambles *AA* and *RR*.

Table ?? in Appendix A.1.2 contains summary statistics for each elicitation of CEs for gambles *RR*, *AA*, *AR*, and *RA*. Table ?? in Appendix A.1.3 contains summary statistics for each elicitation of the differences between the CEs *RR*, *AA*, *AR*, and *RA*. The average CEs for the four gambles in block *2BallMixed* are ranked in the order

$$RR > AA > AR > RA,$$

but the only statistically significant differences between these variables are those between *RR* and each of the other three. Hence, we writing an indifference wherever

we cannot rule one out, subjects' preferences are of the form

$$RR \succ AA \sim AR \sim RA. \tag{i}$$

Since  $AR \sim RA$ , we fail to reject the null hypothesis and hence we have no evidence that subjects believe in *Dependent Recomposition*.

Since  $RR \succ AA$ , we cannot conclude that subjects base their preferences entirely on the (true) win probabilities and nothing else. This finding is consistent with the preference  $R \succ AA$  observed across all treatments.

The indifference  $AA \sim AR$  may be due to a false belief in *Independent Recomposition*. As discussed in Section 1.4.2, we lack sufficient evidence to rule out this hypothesis. However, our results from Section 1.4.1 suggest that subjects largely understand the win probabilities of 2-Ball gambles, making this *Independent Recomposition* hypothesis less likely.

Assuming subjects understand the win probabilities of 2-Ball gambles, the indifference  $AA \sim AR$  suggests that subjects harbor an additional distaste for each additional draw that comes from an ambiguous urn, rather than a constant level of distaste once ambiguity is involved at all. We designed Block *3Ball* from Treatment **ROBUSTNESS**, discussed in Section 1.5.2 below, to further assist us in determining whether additional draws from ambiguous urns (even when they only *improve* win probabilities) make gambles less preferable.

Overall, what can explain the preference for gamble  $R$  over gamble  $AA$ ? The results of treatment **ORDER** provide no evidence that subjects believe in *Dependent Recomposition*, and even if subjects fully believe in *Independent Recomposition*, such a belief is not itself sufficient to produce a preference for gamble  $R$  over gamble  $AA$ . We conclude that subjects harbor a distaste for the *mere presence* of ambiguity, or more likely for the *amount* of ambiguity present, in a gamble. Section 1.5.1 explores whether

such a distaste for ambiguity is equivalent to a distaste for *complexity*.

## 1.5 How Can We Explain The Two-Ball Ellsberg Paradox?

Having established that the Two-Ball Ellsberg Paradox is not entirely due to misunderstanding, this result leaves open how to explain it. We believe that there may be several channels that might explain it and our experimental design allowed us to several of them. In Section 1.5.1, we investigate the extent to which ambiguity aversion can be considered a form of complexity aversion. In Section 1.5.2, we explored whether we could define “an amount” of ambiguity by designing a “Three-Ball Ellsberg” gamble and whether such an ‘amount’ matters to explain the Two-Ball Ellsberg Paradox.

### 1.5.1 Ambiguity Aversion as a Form of Complexity

One might argue that the preference for gamble  $R$  over gamble  $AA$  is not due to an aversion to the *ambiguity* present in gamble  $AA$  but instead to the *complexity* present in gamble  $AA$ . “Complexity” is a concept difficult to define precisely, and it is not the aim of this chapter to do so. However, experiments like [Halevy \(2007\)](#)’s have established the potential relevance of specific types of complexity, such as the compoundness of lotteries. With this in mind, we test whether the preferences for gamble  $R$  over gamble  $AA$  is indistinguishable from the preference for a simple 50-50 gamble like  $R$  over a *compound* 50-50 gamble, call it  $C$  as described in Table ???. We designed Treatment COMPLEXITY to test whether these specific types of complexity may be the primary factors generating the Two-Ball Ellsberg paradox.

The gambles unique to treatment COMPLEXITY are those in block *Compound*. In this

block, subjects play two gambles involving an urn  $C$  containing 100 balls, all red or blue. Subjects are informed that before each gamble begins, the contents of urn  $C$  are determined uniformly at random (i.e., each of its 101 possible balls compositions is equally likely to be realized). We summarize these gambles below.

$C$ : Choose a color. Draw one ball from urn  $C$ ; win if it's the color you chose.

$CC$ : Draw two balls with replacement from urn  $C$ ; win if they're the same color.

In other words, block *Compound* consists of two gambles: a compound lottery  $C$  and a "Two-Ball Compound" gamble  $CC$ . Gamble  $CC$  is the same as the ambiguous gamble  $AA$ , except its urn's contents are determined by a known lottery rather than an unknown, ambiguous procedure.

Block *CompoundD* contains duplicate questions of those in block *Compound*. In treatment **COMPLEXITY**, subjects complete the blocks *Compound*, *Ellsberg* and *2Ball* as well as the duplicate blocks *CompoundD*, *EllsbergD* and *2BallD*. The order in which these blocks were presented was determined randomly and independently for each subject assigned to this treatment.<sup>9</sup>

Figure 1.10 shows the CDFs of the empirical distributions of the CEs from treatment **COMPLEXITY** for gambles  $C$  and  $CC$ . For comparison, it also shows the combined CDFs (from all 4 treatments) of the CEs for gambles  $AA$ ,  $R$ , and  $RR$ .

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<sup>9</sup>Table ?? in Appendix A.1.2 contains summary statistics for each elicitation of CEs for gambles  $C$  and  $CC$ .

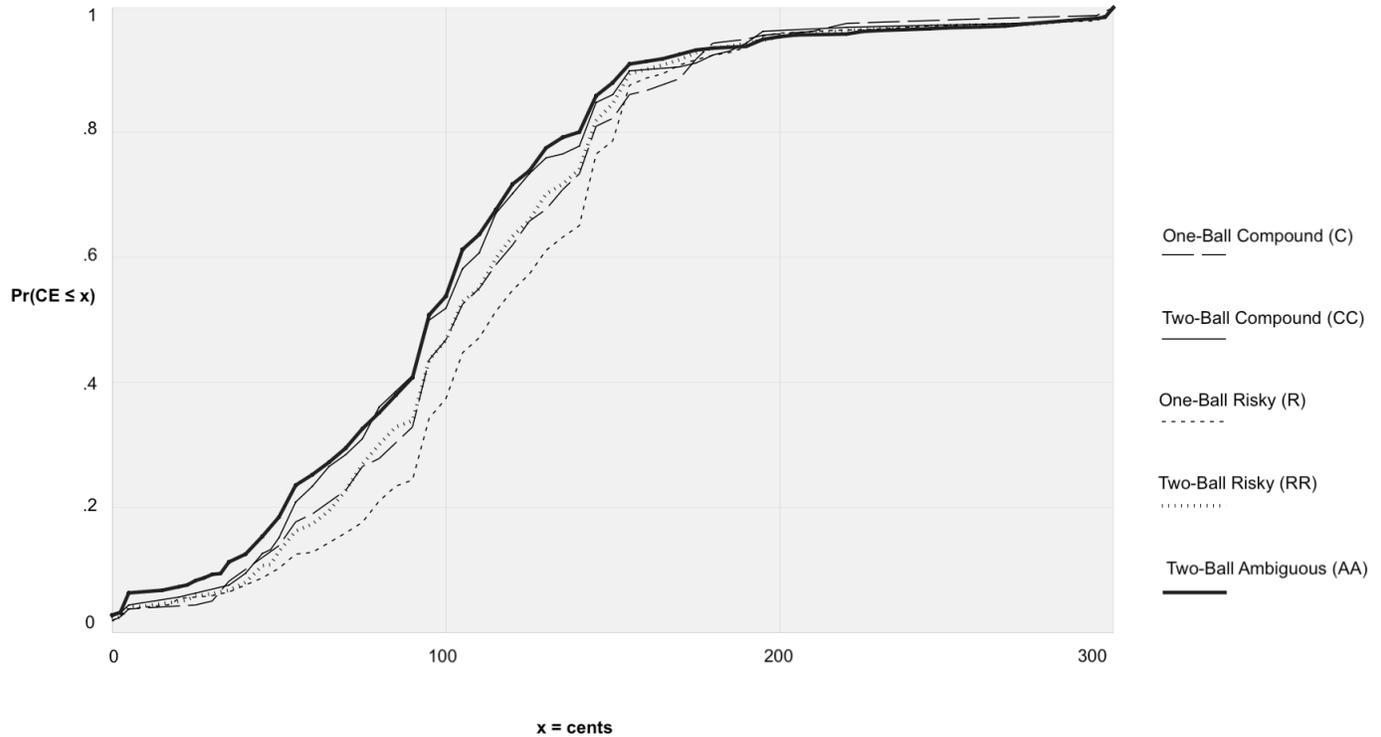


Figure 1.10: CUMULATIVE DISTRIBUTION OF CES FOR  $C$ ,  $CC$ ,  $R$ ,  $RR$ ,  $AA$

The variable  $R - A$  measures subjects' ambiguity aversion in the classic Ellsberg paradox, while  $R - RR$  measures their preference for a one-ball 50-50 gamble to a Two-Ball 50-50 gamble.  $R - C$  measures subjects' preference for a one-ball 50-50 gamble over a Compound 50-50 gamble, and  $R - CC$  measures their preference for a one-ball 50-50 gamble over a Two-Ball Compound 50-50 gamble. Table ?? in Appendix A.1.3 contains summary statistics for each elicitation of these CE differences.

Table 1.3 computes the ORIV-adjusted correlations<sup>10</sup> between our central variable  $R - AA$  and these other variables.

<sup>10</sup>ORIV corrects for measurement error. If one does not do so, computed correlations are biased towards 0. Hence, these ORIV-corrected correlations may appear larger than correlations typically computed in other studies.

Table 1.3: RELATIONSHIPS BETWEEN CE DIFFERENCES

Dependent Variable: $R - AA$				
Indep. Variable:	$R - A$	$R - RR$	$R - C$	$R - CC$
ORIV $\rho$	0.892 (0.017)	0.952 (0.012)	0.954 (0.024)	0.917 (0.032)
$N$	708	708	158	158

As the table shows, the preference for  $R$  over  $AA$  is extremely tightly correlated with each of the preferences mentioned in the previous paragraph. Thus, from the analyst’s point of view, a subject exhibiting one of these “paradoxical” preferences to a certain degree of strength (as measured by standard deviations above the population mean) makes it exceedingly likely that she will exhibit these other “paradoxical” preferences to a similar degree of strength. In particular, this finding replicates [Halevy \(2007\)](#)’s and [Gillen et al. \(2019\)](#)’s conclusions that ambiguity aversion in the classic Ellsberg paradox is tightly linked to failure to reduce compound lotteries.

Besides correlations, it is worthwhile to examine the *differences* between the variables in the table above.  $R - AA$  is larger than all of  $R - A$ ,  $R - RR$ , and  $R - C$  ( $t > 4$  in all cases) and is larger than  $R - CC$  by a statistically insignificant amount ( $t = 1.05$ ). This suggests that, according to most subjects, gamble  $AA$  is likely the “worst” of gambles  $AA$ ,  $A$ ,  $RR$ ,  $C$ , and  $CC$  - perhaps because gamble  $AA$  combines ambiguity and Two-Ball complexity. The only possible competitor for being the “worst” is gamble  $CC$ , which is identical to gamble  $AA$  except that its urn’s contents are determined *randomly* rather than in an ambiguous manner.

## 1.5.2 The “Amount” of Ambiguity Matters

Block *3Ball*, a part of treatment **ROBUSTNESS**, was designed to test whether subjects exhibit a constant distaste for the *mere presence of ambiguity* in a gamble versus whether subjects exhibit an additional distaste for larger *amounts* of ambiguity in a gamble (as measured by the *number or proportion of draws that come from ambiguous urns*). The gambles in block *3Ball* were summarized above in Table ??.

If (as suggested by our results from Section 1.4.1), subjects understand the win probabilities of the gambles, then a preference  $RAA \succ AAA$  or  $RAA \sim AAA$  indicates that the *additional amount of ambiguity* present in gamble *AAA* makes it less preferable and offsets its increased win probability, such that gamble *RAA* becomes at least as desirable as *AAA*.

Lastly, block *3Ball* allows us to compare  $RRR - RAA$  to  $RR - AA$  to see whether it is the *total number of draws that are from ambiguous urns* or instead the *proportion of draws that are from ambiguous urns* is key to subjects’ distaste for ambiguous draws. Indeed, both gambles *RAA* and *AA* feature exactly two draws from ambiguous urns, but gamble *AA* has *all* its draws from ambiguous urns while gamble *RAA* merely has *two-thirds* of its draws from ambiguous urns. 3-Ball gambles have lower win probabilities than 2-Ball gambles; for example, gamble *RRR* has *half* the win probability of gamble *RR*. Nonetheless, subjects’ CEs for gamble *RRR* need not be precisely half the size of their CEs for gamble *RR*. Thus, to compare subject *i*’s CE from a 2-Ball gambles to her CE from an analogous 3-Ball gamble, we first must multiply her 2-Ball CE by the factor  $RRR_i/RR_i$ . With this in mind, if we let

$$X_i = \frac{RRR_i}{RR_i} \cdot (RR_i - AA_i) - (RRR_i - RAA_i)$$

then observing a statistically significant positive average value of *X* indicates that a larger *proportion* of ambiguous draws is distasteful (holding constant the *number* of

ambiguous draws).

Figure 1.11 shows the CDFs of the empirical distributions of the CEs for gambles *RRR*, *AAA*, and *RAA* from treatment **ROBUSTNESS**. Table 1.4 presents summary statistics of these CEs.

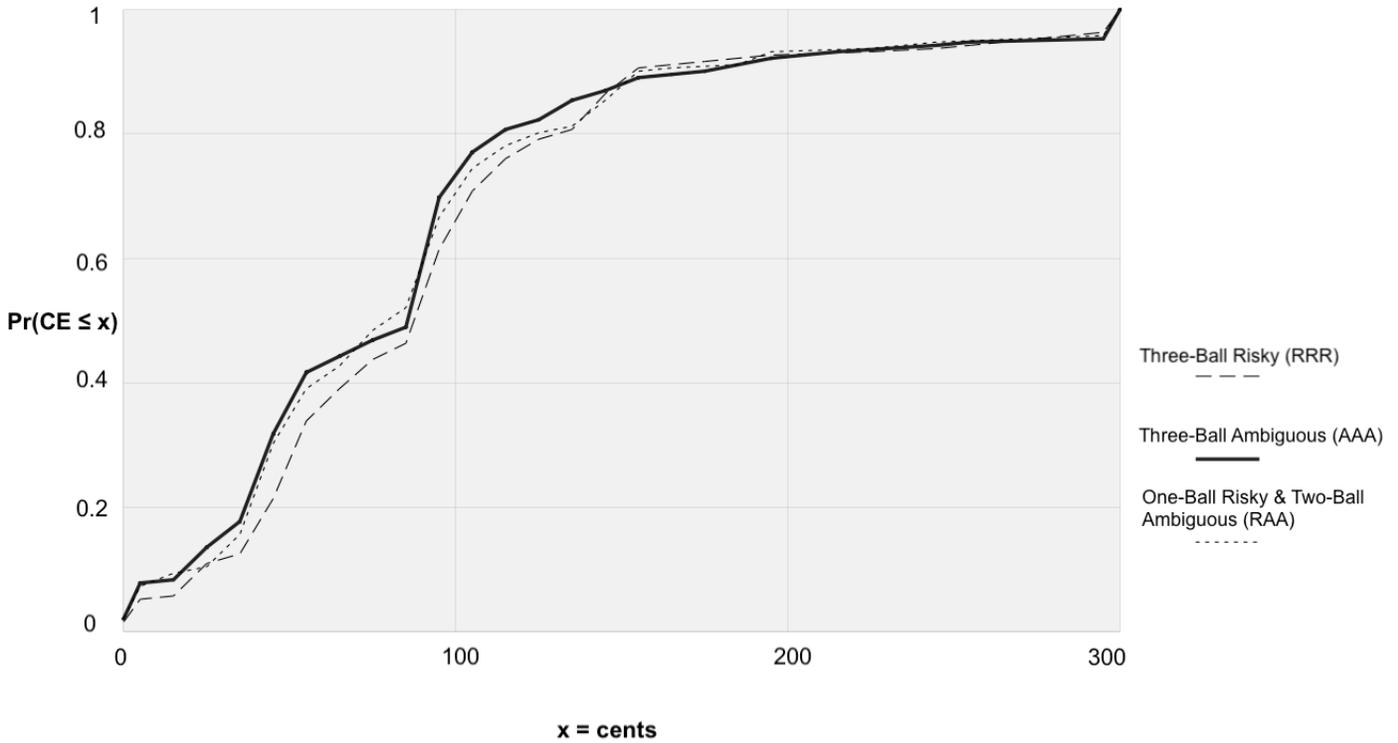


Figure 1.11: CUMULATIVE DISTRIBUTION OF CES FOR *RRR*, *AAA*, *RAA*

Table 1.4: CES FOR 3-BALL GAMBLES

	<i>RRR</i>	<i>AAA</i>	<i>RAA</i>
Mean	97.708	91.120	92.552
SD	(67.310)	(69.264)	(68.172)
<i>N</i>	192	192	192

Several striking features are apparent in these data. First, these reported CEs are too large for a classical risk-averse agent who correctly calculates the probabilities of winning.<sup>11</sup> Notice that gamble *RRR* has a win probability of exactly  $\frac{1}{4}$ , but subjects report an average CE of 97.7 cents for it - a value significantly larger than the risk-neutral CE of 75 cents ( $t = 4.67$ ). Similarly, subjects on average value gamble *RAA* at significantly more than half as much as gamble *AA* (difference of means = 37.77,  $t = 11.03$ ). Thus, subjects seemingly *overweight* the win probabilities of 3-Ball gambles.

Next, despite the general overweighting of win probabilities, comparisons between CEs for these 3-Ball gambles remain qualitatively similar to the comparisons between the CEs for Two-Ball gambles. Similarly to how subjects on average preferred *RR* to *AA*, we find that subjects on average prefer *RRR* to *AAA* (mean = 6.59,  $t = 2.16$ ), even though *AAA* must have *at least as large* of a win probability as *RRR*.

On average, subjects reported a slight preference for gamble *RAA* over gamble *AAA*; however, this difference was not statistically significant (mean = 1.43,  $t = .56$ ). As indicated above, this is consistent with a distaste for additional *amounts* of ambiguity in a gamble, as measured by either the number or proportion of draws that come from ambiguous urns.

The average value of the variable *X* defined above was *negative* and not statistically significant ( $t = -.76$ ).<sup>12</sup> This indicates that, in terms of subjects' distaste for the presence of ambiguity, the *proportion* of draws that come from ambiguous urns is less relevant than the *total number* of draws that come from ambiguous urns.

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<sup>11</sup>Our results from the simple 50-50 gamble in block *Ellsberg* suggest that subjects are on average slightly risk averse.

<sup>12</sup>Constructing the variables  $X_i$  required us to drop those 4 subjects who, in *both* elicitation, reported a CE for gamble *RR* equal to 0. Leaving these subjects in the data set would lead to division by 0. Hence, this *t*-test was run with  $n = 188$  rather than  $n = 192$ .

## 1.6 Concluding Remarks

Two-Ball gambles are a rich class of decision problems. Because they can involve ambiguity but guarantee a minimum win probability that is at least as large as that of some other gamble, they allow us to test whether subjects avoid ambiguity *per se* as opposed to avoiding ambiguity because it may yield a worse outcome.

The most striking case of preferring a gamble with lower win probability is that subjects preferred the 50-50 gamble  $R$  to the Two-Ball ambiguous gamble  $AA$ . This preference is closely correlated with the traditional Ellsberg preference for  $R$  over a 1-Ball ambiguous gamble  $A$ , and also with the preference for  $R$  over the compound 50-50 gamble  $C$ , as well as the preference for  $R$  over the Two-Ball 50-50 gamble  $RR$ . These close relationships suggest that it may be difficult to separate an aversion to ambiguity *per se* from an aversion to complexity.

It is implausible that subjects prefer  $R$  to  $AA$  simply due to a poor understanding of Two-Ball gambles. In the block *BoundedA*, subjects correctly and strongly identified that more unevenly distributed urns are more likely to win. Moreover, the lack of a “learning” effect from being in the treatment containing block *BoundedA* suggests that even without any additional examples or explanations, subjects understand 2-Ball gambles enough to make reasonably accurate comparisons of their win probabilities. Subjects exhibit a preference to avoid the *mere presence* of ambiguity in a gamble.

Using the *number of balls drawn from ambiguous urns* as a coarse measure of the “amount” of ambiguity in a gamble, subjects seem to exhibit a stronger distaste for gambles with larger amounts of ambiguity. Further models and experiments are needed to determine the manner in which people react to situations involving various types of ambiguity.

In exploring what can explain the Two-Ball Ellsberg Paradox, treatments **LEARNING** and **ORDER** show that there is no evidence of subjects holding false beliefs *Uneven is Bad* or *Dependent Recomposition*. However, in block *Independent* from treatment

**ROBUSTNESS**, we failed to find sufficient evidence to reject the hypothesis that subjects wrongly believe in *Independent Recomposition*. Later in this section, we discuss how a future experiment might more easily falsify the hypothesis that subjects believe in *Independent Recomposition*.

Even if subjects maintain some belief in *Independent Recomposition*, such a belief alone is not sufficient to generate a preference for gamble  $R$  over gamble  $AA$ . Indeed, even under *Independent Recomposition*, gamble  $AA$  must still have a win probability of at least 50%. This preference suggests that individuals harbor a distaste for the *mere presence of ambiguity* in a gamble.

In exploring whether the Two-Ball Ellsberg relates more to an aversion to complexity or to ambiguity and whether such a distinction, in treatment **COMPLEXITY**, we found that the “Two-Ball Ellsberg Paradox” preference for gamble  $R$  over gamble  $AA$  was tightly correlated with other “paradoxical” preferences such as aversion to the complexity present in compound lotteries. Although the magnitude of  $R - AA$  was larger than the magnitudes of nearly all of these other preferences, one might nonetheless argue that the preference for  $R$  over  $AA$  is due to a distaste for *complexity* rather than ambiguity.

Even in this case, we have identified the *mere presence of ambiguity* as a driver of change in people’s behavior, perhaps through the complexity it introduces or perhaps through other means. Whether explained as an instance of complexity or not, people harboring a distaste for the mere presence of ambiguity has potentially widespread implications for economics. Subjects may prefer to gamble  $R$  to  $A$  in the classic Ellsberg paradox primarily because they dislike the mere presence of ambiguity and not, for instance, entirely because they hold concern for worst-case scenarios, as [Gilboa and Schmeidler \(1989\)](#) and many other models would suggest. Models ignoring a distaste for ambiguity *per se* would incorrectly predict individuals’ behavior in a variety of situations. Hence, new models may be required.

Besides, unlike in the original Ellsberg paradox, a subject cannot eliminate the ambiguity present in gamble  $AA$  by introducing randomization in her choice of color (as in Raiffa (1961)). Indeed, gamble  $AA$  does not ask subjects to choose a color. Even if we presented subjects with a modified version of gamble  $AA$  wherein they choose either red or blue and win if and only if both balls drawn were of the chosen color (and compared this to a similarly modified version of gamble  $RR$ ), it is still the case that randomizing one's color choice does not eliminate the ambiguity in the payoff of gamble  $AA$ . If  $p$  is the (ambiguous) proportion of red balls in urn  $A$ , then this modified version of gamble  $AA$  has win probability  $p^2$  when you bet on red and win probability  $(1 - p)^2$  when you bet on blue.

Randomizing your choice of color 50-50 would thus mean that the gamble's win probability is  $.5p^2 + .5(1 - p)^2 \geq .25$ . In contrast, the modified version of gamble  $RR$  has a .25 probability of winning, regardless of the color on which you bet (or whether you randomized your choice of color). It is still the case that gamble  $AA$  has an ambiguous win probability and that it is at least as large as (and in all but one case, strictly larger than) that of  $RR$ .

Finally, we might imagine a further experiment to reject the independent recomposition hypothesis. Recall the *Independent Recomposition* hypothesis mentioned in Section 1.4.2: Do subjects imagine that our "two draws with replacement from the same ambiguous urn" are actually "two draws from two ambiguous urns whose contents were determined independently"? Our experiment can't rule out a belief in *Independent Recomposition* as a partial driver of the 2-Ball Ellsberg paradox, but here we suggest how a further experiment might do so.

A variation on block *BoundedA* may be sufficient to show that subjects do not believe in *Independent Recomposition*. Consider a version of gamble  $BB^{95-100}$  wherein instead of the gamble specifying that the urn contains between 95 and 100 red balls, it merely specifies that *at least 95 of the 100 balls in the urn are of the same color*. Suppose subjects

imagined the two draws from the specified urn as “one draw from each of two distinct urns, whose contents were each determined in the specified manner but were determined independently.” Then we should not find a strong preference for this version of gamble  $BB^{95-100}$  over gamble  $AA$ .

Indeed, suppose subjects believe in *Independent Recomposition*. In that case, they might easily imagine this new version of gamble  $BB^{95-100}$  to have a win probability close to 50%. For although it is possible in their minds that “both urns” contain at least 95 red balls (or that both contain at least 95 blue balls), it is equally possible to them that “one urn contains at least 95 red balls while the other contains at least 95 blue balls.” In other words, their CEs for this version of gamble  $BB^{95-100}$  should certainly *not* be radically larger than their CEs for gamble  $AA$ . If such a radical difference in CEs as we found between the original version of gamble  $BB^{95-100}$  and gamble  $AA$  were still found under this modified version of  $BB^{95-100}$ , this would suggest that a belief in *Independent Recomposition* is not a factor generating our results.

# Chapter 2

## Critical Thinking Via Storytelling

*s/o Amos Tversky*

In an AI-powered incentivized experiment ( $N = 706$ ), we show that different media – different sources and visual formats presenting the same set of facts – affect the intensity at which individuals become critical thinkers – individuals who realize that the issue is a dilemma, i.e., a trade-off between worldviews. Intermediate social media (Facebook posts) are more effective at triggering individuals into critical thinking than shorter social media (Twitter posts) and longer traditional media (newspaper article). Individuals with a high need for cognition mostly drive the differential effects of the treatments. In a stylized voting model, we establish that increasing the share of *critical thinkers* in the population increases the efficiency of surveys (elections) but might increase surveys' bias. <sup>1</sup>

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<sup>1</sup>We are indebted to Roland Bénabou for his guidance. We are grateful for the comments of Tore Ellingsen, Nicolas Jacquemet, Yves Le Yaouanq, Dan McGee, Pietro Ortoleva, Jean-Marc Tallon, Marie-Claire Villeval, Leeat Yariv, and Sam Zbarsky. We are grateful for the research assistance provided by Christian Kontz, Andras Molnar, Alessandro Sciacchetano, and Alfio De Angelis. We are grateful for the participation of psychologists from the Department of Psychology at Princeton University. We thank seminar audiences at Bologna, PSE. We obtained the Princeton IRB Approval #12995 on June 12, 2020. This paper was partly written while Brian visited the Department of Economics at Princeton University and the Kahneman-Treisman Center for Behavioral Science and Public Policy in 2018-2020. He thanks their hospitality. He also acknowledges financial support from the Paris School of Economics, Sorbonne Economics Center, and the Forethought Foundation for his visit to Princeton, Grant ANR-17-CE26-0003, and Grant ANR-17-EURE-001.

## 2.1 Introduction

Individuals rely on various reasoning styles to articulate their preferences regarding an inherent ambivalence, presenting advantages and disadvantages without a definitive objective resolution (Kaplan (1972)). Our primary focus is on the reasoning style known as critical thinking (Halpern (2013)), in which individuals recognize the ambivalence of the issue and, through introspection, derive a reasoned preference. This paper presents a simple incentivized experiment to identify, classify and monitor transitions between different reasoning styles, ranging from stereotypical to critical thinking. Consequently, this research contributes to the growing experimental literature that aims to identify such reasoning styles and examine their impact on policy (List (2022)). It further expands the spectrum of reasoning styles investigated in the behavioral literature, which is typically focused on motivated reasoning (Kunda (1990), Bénabou and Tirole (2006)).

In addition, our study emphasizes the role of tailored storytelling formats, where factual information is conveyed through a specific visual design and writing style – commonly known as “UX design” in the marketing and communication literature. This is instrumental in shifting individuals from stereotypical to critical thinking when hard facts are absent. The quantity and quality of information and the individual cognitive style play a central role in this process. The media is a powerful nudge in the digital economy, stimulating individuals toward critical thinking. Upon recognizing their ambivalence towards a particular issue, individuals cannot solely rely on “objective facts” to form preferences; instead, critical thinking becomes essential in formulating reasoned preferences.

Consequently, we adopt the terms “story” and “storytelling formats” to represent “media content” and “media format,” respectively. The manner of problem presentation, ranging from a simplistic tweetstorm to a detailed newspaper article, can influence individual awareness of an issue’s ambivalence. Our main findings

indicate that two similar interpretations of the same fact, presented through different visual formats and writing styles, elicit different behavioral responses in participants. This expands the conventional definition of “narratives” in economics, generally defined as a specific interpretation of a fact (Shiller (2017), Eliaz and Spiegler (2020)), by considering the specific format through which the interpretation is presented. Our experimental design involves three primary stages. Initially, we categorize participants as stereotypical or critical thinkers on a contentious topic using a combination of self-report measures and incentivized elicitation techniques. Subsequently, we expose participants to one of three storytelling interventions, each revolving around the same set of pros and cons related to the issue. The storytelling strategies range from a concise, simplistic style presented in a Twitter-like format, to a medium-level complexity style in a Facebook-like format, to an intricate, detailed style in a newspaper-like format.

In considering social media through the lens of these storytelling perspectives, we contribute to a growing body of literature that increasingly focuses on the impact of specific *formats* on shaping individual political behaviors, such as voting (Gorodnichenko et al. (2021), Munir (2018), Falck et al. (2014)). More generally, our findings highlight an additional channel (altering the share of critical thinkers) through which social networks can affect welfare, contributing to the rapidly expanding literature on social networks and welfare (Allcott et al. (2020)).

After exposure, participants are prompted to write an incentivized critical thinking essay following specific guidelines. Completing this task is incentivized using Large Language Models (LLM), particularly GPT-3, which offers an automatic comparative ranking against a U.S. average score. Given the absence of a definitive “critical thinking” measure, we instituted a secondary experiment to collect expert human feedback. This practice aligns with the model-based reinforcement learning techniques commonly employed by AI-oriented companies, such as OpenAI. Expert

feedback was obtained from cognitive psychologists with Ph.D. or higher degrees and experience in ambivalence and critical thinking. The essays authored by the participants were randomly assigned to three independent expert labelers tasked with grading the submissions as pass or fail, depending on their judgment of clear indications of critical thinking in the content. The data from these evaluations were then used to reclassify participants into stereotypical or critical thinkers after the storytelling interventions.

Using psychological literature on cognitive sophistication, we measured participants' need for cognition (Cacioppo and Petty (1982)) and cognitive flexibility (Martin and Rubin (1995)) throughout our experiment. These metrics enabled us to conduct a heterogeneity analysis. Intriguingly, our results indicate that individuals with a higher need for cognition transition more quickly from stereotypical to authentic preferences upon exposure to a medium level of storytelling (i.e., Facebook) than a lower (Twitter) or higher one (Newspaper).

Upon establishing the role of storytelling as a catalyst for critical thinking, we examined its implications for industrial organization and political economy. Specifically, we explore how storytelling techniques impact the efficiency of surveys and elections, rendering them crucial for social welfare in industrial and political decision-making contexts. Indeed, decision makers who use surveys and run elections may find critical thinking preferences to offer more reliable data than raw preferences. Consider a public figure or organization whose social image or economic returns hinge on the public endorsement of their position on a particular issue. Such a principal needs to anticipate the public's expected stance, as public endorsements serve as reputational commitments and "focusing events" that prompt individuals to evaluate their raw preferences and establish reasoned preferences critically. Therefore, the principal should gauge the public's reasoned preferences before declaring a stance, minimizing the risk of sustained backlash. Suppose that such an estimate is

based on a poll. In that case, its precision depends on the respondents reporting their reasoned preferences, which requires that these preferences have been formed in the first place.<sup>2</sup>

Furthermore, consider an institutional principal, such as a policymaker, tasked with formulating an economic policy on a societal issue that presents a binary dilemma. The principal can select from a wide spectrum of policy alternatives. The optimal policy is a function of the distribution of reasoned preferences, i.e., the proportion of individuals who prefer one alternative over the other after engaging in critical thinking. This establishes the need for the principal to anticipate (and incentivize) the formation of agents' reasoned preferences before making a decision, since the reasoned preference distribution forms its normative criterion.<sup>3</sup>

In both instances, we identify a principal who is interested in the distribution of reasoned preferences: either out of fear that their actions will provoke a backlash if they deviate excessively from the target or because they use such a distribution "for lack of anything better" as an appropriate normative criterion for the social aggregation of preferences. Elections would be efficient if all individuals reported their reasoned preferences at the poll, enabling precise estimation of the relevant unknown. However, individuals arrive at their reasoned preferences only after participating in a critical thinking process, a process not all individuals may have completed by the time the election is held.<sup>4</sup>

The remainder of this paper is organized as follows. Section 2.2 details our experimental design. Section 2.3 discusses our empirical findings. Section 2.4 presents

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<sup>2</sup>It is conceivable that in a strategic voting setting, agents might misreport their reasoned preferences even after forming one. However, we view this concern as secondary to our intended application. Hence, we assume that forming and reporting a reasoned preference are congruous actions.

<sup>3</sup>Ultimately, such policymakers must adopt a policy aligned with one of two conflicting worldviews. Most of the time, if they were critical thinkers, they would recognize their rational preference on the issue but risk imposing it on the rest of the population.

<sup>4</sup>We posit that the principal cannot "screen" voters based on their stage of critical thinking and thus only utilize "informed voters". However, our findings suggest that a survey methodology capable of categorizing agent types could significantly improve its precision.

our behavioral model, accompanied by its key positive and normative results. Finally, Section 3.3 provides a conclusion in which we discuss potential limitations and future extensions of our model and experiment.

## 2.2 Design

### 2.2.1 Overview

In a nutshell, in our experiment, we expose subject participants to different storytelling formats and elicit their pre- and post-treatment stages in the critical thinking process associated with an ambivalent issue. We then test whether the likelihood of transitioning from stereotypical thinkers, *S*, to critical thinkers, *A*, varies significantly between formats. Throughout the experiment, we also collected data about participants' cognitive styles — using standard measures from the psychological literature. This allows us to test whether the effectiveness of certain storytelling formats is achieved through identifiable cognitive traits. We used incentivized elicitation for key individual variables -pre and post-awareness states - and implemented anti-cheating policies and attention screeners to ensure optimal data collection quality.<sup>5</sup> Figure 2.1 below provides an overview of the experimental design and its primary elicitation, which we will elaborate on in subsequent sections. We gathered 900 participants from a representative US population using Prolific, a data collection platform increasingly favored by economists due to its high data quality. Following a meticulous screening for attention, cheating, and quality, as outlined in the upcoming sections, our final sample size was  $N = 706$ . The participants received a fixed payment of \$2 and a bonus payment of up to \$5, resulting in an average payment of approximately \$6.

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<sup>5</sup>The Princeton Institutional Review Board approved the experiment. See the appendix for the detailed Princeton IRB approval.

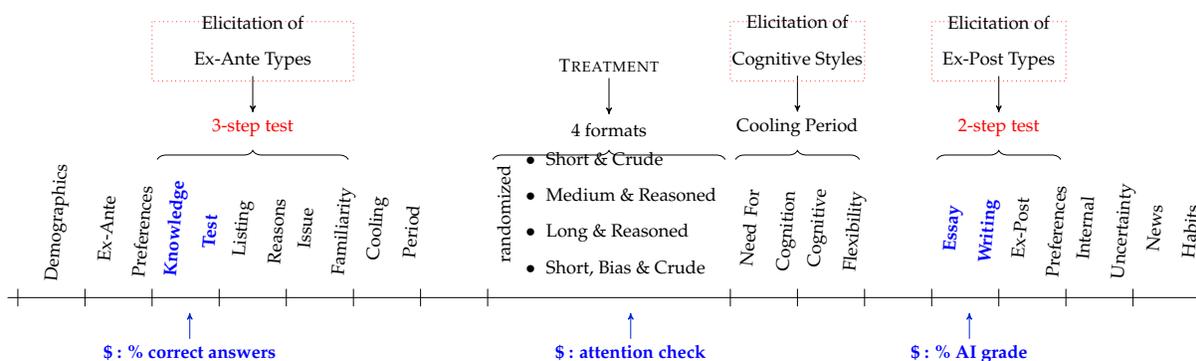


Figure 2.1: Experiment Design

## 2.2.2 Classification of Critical Thinking States

We now present – and describe the rationale for – the two strategies we employ to classify participants into reasoning states  $\{S, A\}$  before and after treatments. Table 2.1 summarizes both strategies.

**Pre-treatment classification strategy.** We use a three-pronged test to design our pretreatment classification strategy as  $\{S, A\}$ . This test is based on the following heuristic conditions critical thinkers must satisfy: i) they must have basic knowledge of the issue at hand; ii) they must have thought about the issue before; iii) they must be aware that there exist both pros and cons for the issue. All i)-iii) characteristics are needed to be a critical thinker about an issue to avoid misclassification (as it could be by only using iii)).

To generate condition i), we rely on an assessment designed by Pew Research (Vogels and Anderson (2019)) and launched on a representative US population, referred to as the *knowledge test* in Figure 2.1. In our experiment, to pass the knowledge test, participants must score at least as high or above the score of the nationally

representative US population found by Pew Research.<sup>6</sup> To elicit Condition ii), we ask participants to report whether they have thought about the issue before coming to our experiment. To elicit Condition iii), we ask them to provide evidence by providing two reasons that support their preference for the digital privacy issue and two that go against their preference. This task is instrumental in more accurately targeting the pretreatment awareness state of individuals. We refer to this task as *The list of reasons* is Figure 2.1. If (and only if) subjects are already beyond their raw preference stage, we can provide a complete classification.

We cannot rely on the same three-pronged tests to provide the post-treatment classification of the participants in terms of  $\{S, A\}$ . Since the pretreatment classification test includes condition iii) and our storytelling format treatments expose subjects to a series of pros and cons about the issue (see the next section), relying on the same condition here can misidentify critical thinking as memory effects. Indeed, subjects might not be critical thinkers, having accepted the issue as ambivalent by default, but happen to remember their list of pros and cons reported before treatment. Therefore, we need a different post-treatment classification strategy.

**Post-treatment classification strategy.** We classify participants' post-treatment critical thinking state as follows. We require participants to write an incentivized essay discussing their preferences on the issue at hand. Subjects are instructed to present the issue and articulate their argumentative stance.<sup>7</sup> Their payment is based on the quality of their essay as measured by a software powered by large language model (generative AI), Grammarly.

Although Grammarly is efficient in assessing the overall quality of writing (at the time of our experiment, still powered by models similar to GPT-3), it lacks the capacity to capture the nuances of critical thinking, especially in terms of discerning

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<sup>6</sup>It consists of 10 questions. See the Appendix for the wording details.

<sup>7</sup>See Appendix to see the specific instructions to participants.

whether the writer demonstrates an awareness of the ambivalence surrounding the issue. To address this limitation, we ask cognitive psychologists with Ph.D. degrees to provide a professional assessment of the essays. These experts are randomly assigned to participants' essays and are asked to evaluate whether the essay reflects a state of awareness or not, assigning a pass or fail grade accordingly. While participants receive payment based on the AI's evaluation, our analysis focuses on the cognitive psychologists' assessment, with AI's scores serving as a robustness check (see Section 2.3.3).

Treatment	A	S
	Knowledge Test Score $> \tau_{KTS}$	
BEFORE	Issue Familiarity = 1	Else
	Reasons List $> \tau_{RL}$	
AFTER	Psychologists Grade = Pass	Else

Table 2.1: CLASSIFICATION STRATEGY BEFORE/AFTER TREATMENT

### 2.2.3 Measuring Cognitive Styles

Since we are interested in explaining possible drivers of our results, through the experiment, we measure participants' cognitive styles and correlate those with the treatments effectiveness. We measure cognitive styles along three metrics. The first two are standard in the psychology literature: the Need for Cognitive Scale (NCS) and the Cognitive Flexibility Scale (CFS).

NCS measures a participant's willingness to think deeply. It was proposed by neuroscientists, and cognitive psychologists [Cacioppo and Petty \(1982\)](#) and have become a gold standard in cognitive psychology. It comprises a series of six questions that each receive a score between 1 and 5. We compare the aggregate score to the

sample average to classify the participants into a high or low need for cognition.<sup>8</sup>

CFS measures an agent's ability to switch between thoughts and courses of action. It was proposed by cognitive psychologist [Martin and Rubin \(1995\)](#) and is a standard scale in cognitive psychology. It comprises a series of six questions that each receive a score between 1 and 6. We compare the aggregate score to the US population's average to classify participants into high or low cognitive flexibility.<sup>9</sup>

Finally, we use the AI generated score of an essay, unrelated to the core issue of our experiment, measuring individual's abilities to coherently present an argument.

## 2.2.4 Description of Treatments

Participants are randomly assigned to one of four treatments. These treatments contain the same content (i.e., the same selection of facts about the digital issue, but they differ in the semantic style and graphic design, as elaborated in the introduction) and last the same amount of time.

In summary, such formats range from the semantically crudest presentation of facts to the most refined presentation. The TWITTER treatment presents them more crudely through a "tweet" format. The FACEBOOK treatment uses the format of "facebook posts." The NEWSPAPER treatment presents them in the most refined way through "newspaper articles." The PARTISAN TWITTER treatment uses only a partisan Twitter format (either only pros or cons)<sup>10</sup>.

Before treatment starts, participants are explicitly informed that despite their high similarity to real news, Facebook tweets and posts are fake. At the end of the

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<sup>8</sup>No average for the US population is available for this score, despite being used widely across the social sciences and psychology. In addition, it was originally developed as a 34-question version, but the authors developed a shorter, more efficient 18-question version to elicit other psychological characteristics during the same laboratory session. Since then, it has been considered the benchmark scale widely used in cognitive and social sciences. An even shorter 6-question version has been tested and validated, allowing it to be implemented in a field survey experiment in which the participant's attention is even more scarce. We will use this later.

<sup>9</sup>The average is provided by the authors: 55.

<sup>10</sup>In the appendix we detail and provide examples of each treatment.

experiment, participants were briefed and reminded that tweets and Facebook posts were fake, following common practice in behavioral and experimental economics and according to our Institutional Review Board (IRB) approval.

## 2.2.5 Incentive Mechanisms and Quality Screening

**Incentive mechanism.** In the experiment, participants receive two types of payment. First, they receive a fixed reward of \$2 for completing the experiment fully by answering the comprehension questions correctly, guaranteed. Second, they receive a bonus payment, at most \$6, as described below.

Most of the participants' bonus payments (up to \$5; participants' performance in the writing exercise, which captures their critical thinking process, determines their bonus). We ask the participants to write two short essays during this study that will be graded from 0 to 100 points using Grammarly software powered by artificial intelligence (AI).<sup>11</sup> We divide the bonus payment into two parts.

The largest part (from \$0 to \$5) is proportional to the weighted average score in the essay writing task; the second essay receives more weight (2/3) because it requires more writing (400 characters as opposed to 200 characters). The score can vary from 0 to 100 points, and the reward will be proportional to the score. If the participants get a score of 0, they win \$0. If they get a score of 50, they win \$2.50. If they get a score of 100, then they win \$5. An essay that receives a low score from the AI can still earn a high score on critical thinking and awareness, despite the writer's difficulty with English. In the instructions to psychologist graders, we define and exemplify what we mean by an "ambivalent issue," "realizing that the issue is ambivalent," and "critical thinking". We also run robust checks with philosophers.

To be eligible for the remaining bonus payment (up to \$1), participants must receive

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<sup>11</sup>We, the authors, confirm to have neither professional ties nor a business contract with this company. See the appendix for a summary of how this AI works.

at least an average score of 50/100 in the essay exercise in addition to the bonus of the writing essay. This requirement ensures that participants take the exercise seriously; cheaters and agents that are inconsistent in their preferences are not eligible for this bonus payment. The participant's performance in the knowledge test determines this additional bonus. The test consists of 10 questions and each participant receives \$0.10 for each correctly answered question.

**Monitoring Algorithms for Cheating Behavior.** We implement three attention screeners as is standard in online experimental economics. The core of our experiment is for participants to write an original essay by themselves. We need the subjects to avoid accessing external information during the writing task. As such, we implement two algorithms to monitor cheating behavior.

Before starting their experiment and on par with the IRB, we inform participants that they must not access external information during the experiment, particularly during the knowledge test and essay exercise. In addition, the essay must be original. Failing to do so would be considered "cheating behavior." As such, they would be red-flagged and prevented from receiving anything other than the fixed payment. We excluded such participants from our data analysis.<sup>12</sup>

The first algorithm tracks the number of times that the participants open a new tab on their computer during the essay exercise and how much time they spend on our essay writing web-page<sup>13</sup>. The second algorithm checks whether the participants copy-paste external information by comparing the number of written characters and the number of keyboard clicks. If the number of keyboard clicks is strictly inferior to the number of written characters, it implies that the participants have copied external information. This second algorithm cannot distinguish between original external

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<sup>12</sup>We provide both algorithms as open source in our [GitHub](#).

<sup>13</sup>For legal privacy purposes, we did not access the content of the opened tab but gathered only the following information: 'participant  $i$  has opened a new tab during the essay,  $n$  number of times, for such and such period  $t$ .

information<sup>14</sup> and plagiarism. Therefore, we use a feature in the AI software to check for plagiarism after the participants have finished the experiment.

## 2.3 Data

### 2.3.1 Storytelling formats Affect Critical Thinking

We now test whether storytelling formats have a role in the critical thinking process of individuals. To this end, we calculate, for each treatment

$i = \{newspaper, twitter, facebook\}$ , the frequency  $\hat{\lambda}_i$  with which agents subject to the format  $i$  transition from the critical thinking state  $S$  to the critical thinking state  $A$ .

Formally,

$$\hat{\lambda}_i = \frac{\#(S \rightarrow A)_i}{\#(S \rightarrow A)_i + \#(S \rightarrow S)_i}$$

We used estimated intensities to perform a difference-in-means test of the null hypotheses  $\lambda_i = \lambda_j$  for all possible combinations of treatments  $\{i, j\}$ .

Table 2.2 collects point estimates and confidence intervals. From this table we observe that the only significant difference is between *Facebook* and *Twitter*, where the former performs better in transitioning subjects from critical thinking state  $S$  to  $A$ . Through this significant result, we establish that the format affects the critical thinking process.

When exposed to a different way of presenting the same basic information, people realize the ambivalent nature of the issue at hand differently. In section –, we perform robustness checks of this result (different thresholds, etc., metrics for success) to understand potential drivers of this effect.

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<sup>14</sup>In the situation in which some participants had already written on the topic or a relevant topic and saved it on their computer before coming to the experiment.

Treatment	NEWSPAPER	TWITTER	FACEBOOK
NEWSPAPER	.	1.332 (0.054)	-0.865 (0.054)
TWITTER	.	.	-2.249** (0.053)
FACEBOOK	.	.	.

Standard errors in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 2.2: *t-ratio* DIFFERENCE-IN-MEANS

A possible explanation for the observed difference in the impact of storytelling formats on critical thinking, as highlighted in Table 2.2, is that treatment TWITTER may rely on a format that is too simplistic or naive to effectively push users toward critical thinking. This explanation can be further elaborated as follows.

First, while Twitter imposes a character limit on its content, forcing users to use concise language and simplifying complex ideas, Facebook allows for longer and more detailed posts<sup>15</sup>. This difference in content structure could affect how people process information and engage in critical thinking.

Second, the fast-paced nature of Twitter feeds and the emphasis on real-time information sharing could discourage users from pausing, reflecting, and analyzing the content they consume. This constant influx of new information might contribute to a shallower engagement with the material, reducing the likelihood of critical thinking.

Third, Twitter's focus on short, attention-grabbing headlines and sound bites may encourage users to form quick opinions based on surface-level information rather than delving deeper into the nuances of an issue. This aspect of the platform's design

<sup>15</sup>This experiment was designed and launched before Musk Twitter's area, which led to the increase of tweets lengths for Blue Twitter users, which now can be considered as our Facebook treatment.

might hinder the development of well-informed perspectives and critical thinking. Fourth, the prevalence of echo chambers on Twitter, where users primarily follow and interact with those who share their views, could further contribute to the observed limitations of the Twitter format in promoting critical thinking. This selective exposure to information might reinforce pre-existing beliefs and discourage users from challenging their assumptions.

Fifth, another factor to consider is the nature of user engagement on these platforms. Facebook is known for fostering more personal connections and allowing in-depth conversations, while Twitter primarily emphasizes short and quick information exchanges. This contrast in user engagement could contribute to the observed difference in the effectiveness of storytelling formats in critical thinking.

Finally, the role of media consumption habits might be influential in explaining the difference in critical thinking outcomes. Users of Facebook may be more inclined to read longer posts and engage in reflective thinking, whereas Twitter users might be more accustomed to quickly skimming through bite-sized information. As a result, individuals' media consumption habits could shape their receptiveness to the storytelling formats on these platforms, ultimately affecting their critical thinking process.

### **2.3.2 Heterogeneity in Cognitive Styles**

We explore whether the cognitive traits we elicited explain the differential effect by conducting a split-sample difference in means. We test whether  $\lambda_i = \lambda_j$  by partitioning our sample into high or low individuals in our cognitive metrics. The idea is that a more in-depth (like the journal article) might be more effective for individuals more prone to think deeply. The efficacy of the *Facebook* treatment was driven by its differential impact on *High Need for Cognition* agents.

Treatment	NP	TWITTER	FACEBOOK
NEWSPAPER	.	0.764 (0.070)	-2.238* (0.079)
TWITTER	.	.	-3.087** (0.075)
FACEBOOK	.	.	.

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 2.3: *t-ratio* FOR *High Need for Cognition*.

These results suggest that the subjects who are most affected by the storytelling format are those who exhibit a high need for cognition. For them, treatment **FACEBOOK** seems to provide the right format to maximally capture their attention to present an issue so that it successfully nudges them to perform the critical thinking process.

One possible explanation for the results observed in Table 2.3 could be rooted in the characteristics of people with a high need for cognition. These individuals typically exhibit a greater tendency to engage in effortful cognitive activities and prefer more complex information processing (Cacioppo and Petty (1982)). Consequently, the Facebook format could provide a more stimulating environment for critical thinking by offering a richer and more nuanced presentation of information than the Twitter format.

Furthermore, it has been suggested that individuals with a greater need for cognition are more likely to seek, attend to, and remember information consistent with their attitudes and beliefs (Hass & Linder, 1981). As a result, the Facebook format could be more effective in capturing their attention and motivating them to critically evaluate the content. This might explain why Facebook treatment significantly impacts transitioning subjects from critical thinking state S to A among those with a High

Need for Cognition.

Future research could explore the specific features of the Facebook format that contribute to its efficacy in promoting critical thinking among individuals with a high need for cognition. For example, it would be interesting to investigate the role of multimedia elements, interactivity, and the integration of various information sources in fostering an environment conducive to critical thinking.

### **2.3.3 Robustness Analysis**

We address two potential challenges to ensure the robustness of our findings, threshold sensitivity and writing similarity checks, that we present now.

**Threshold sensitivity.** Our conclusions should remain consistent regardless of the specific values of the threshold used in characteristics i) and iii) of the three-pronged test we use to classify participants prior to treatment. Recall that i) refers to the digital knowledge test and iii) refers to the reasons listing exercise.

Regarding i), at the beginning of the study, we require the participants to score at least seven correct answers out of 10 questions. Compared to the original setting provided by Pew Research, our threshold is much more demanding. The Pew Research quiz was launched in a large US representative sample of 4,272 adults living in the United States. The median number of correct answers was four. Only 20% of the adults correctly answered seven or more questions, and only 2% correctly answered all 10 questions. Despite this difference, we are still interested in determining whether our treatment effectiveness depends on scoring higher or lower than scoring 7 out of 10.

Regarding iii), in the baseline, we require participants to be able to list at least one reason for one side (pro or con) and two reasons for the other side (pro or con). We are interested in checking whether our treatment effectiveness depends on the capacity of participants to list more than one reason for each side.

**Writing similarity.** Our findings should not be influenced by the similarity in length between the essay task and any specific treatment, particularly the Facebook treatment. By comparing outcomes across different essay lengths or imposing length constraints, we can verify that the observed effects are not artifacts of such similarities, ensuring the robustness of our results.

In general, our robustness analysis confirms that the effectiveness of the treatment depends neither on the threshold sensitivity test nor on the writing similarity test.<sup>16</sup>

## 2.4 Welfare and Political Implications

In the remainder of the paper, we explore the welfare and political implications of critical thinking. In particular, we consider a stylized choice setting where the utility is the distance between the political action and a target determined by the distribution of the preferences individuals hold if they had completed a *critical thinking* process. This parameter is unknown at the beginning and can only be estimated using the outcome of a poll held at some time  $t$ , when (a part of) the citizens may still not have completed their process.

The main aim of this section is to establish – Proposition 1 – that the intensity at which citizens complete their critical process is a relevant welfare measure: whatever the time of elections, a higher intensity increases the information content of elections.

This gives us an exercise of estimating the intensity associated with different propaganda formats, the objective in the experiment presented in Section 3 to have normative content. However, we also show that the main message relies on assuming that we have a principal who can freely manipulate the results of the poll by taking her action (which we refer to as the *Positive principal*). If the election outcome constrained her action, as is most likely the case for an *Institutional principal*, then a

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<sup>16</sup>We provide the analysis in the appendix.

bias-precision trade-off emerges, which makes the comparative statics ambiguous. We separately present the two welfare benchmarks (corresponding to the two types of principals discussed in the introduction) and voters’ critical thinking process. We then put them together to derive our main result and some important caveats that shed light on the assumptions needed to get the unambiguous comparative statics.

### 2.4.1 Principal: Two Welfare Benchmarks

The relevant unknown is the distribution of reasoned preferences in a large population (continuous), namely the share  $p \in [0, 1]$  of individuals who prefer the outcome 1 to the outcome 0 after completing their critical thinking process. Welfare realizes the distance between the social action  $a$  and its target  $p$ <sup>17</sup>:

$$W(a, p) = -(a - p)^2$$

Ex-ante,  $p$  is unknown and drawn from a normal distribution  $p \sim \mathcal{N}(\mu, \sigma)$ ; absent the information from the election, the principal would then choose  $a = \mu$  and obtain the value  $-\sigma^2$ .<sup>18</sup> Before choosing  $a \in [0, 1]$ , the principal observes the proportion  $\bar{p}$  of agents that report preferring the alternative 1. We call  $\bar{p}$  the *election outcome*. and consider two types of principals that differ in the use they can make of this information.

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<sup>17</sup>Although the space of preferences — individuals’ resolution of the moral dilemma — is binary, the policy space is continuous. This corresponds to a situation where the planner can fine-tune the policy to the *distribution* of individuals’ preferences. The example in the introduction of choosing the size of the welfare program based on the share of people who hold an egalitarian (rather than a free-market) view fits this story. A different specification would  $a^* = \mathbb{I}[p > \frac{1}{2}]$  (binary action space) provide similar insight but is less tractable.

<sup>18</sup>The normality assumption gives tractable conditional expectations and closed-form welfare. It is inconsistent with the compact support  $[0, 1]$ . The analysis with ex-ante uniform  $p$  (and  $p_S$ ) is algebraically more involved but does not change the qualitative results. For tractability, we keep the normal setup, implicitly assuming that  $\sigma$  is “small enough” that the mass outside  $[0, 1]$  is negligible.

**Positive Principal.** A *Positive* principal, for which the election outcome is *not* binding, namely who can choose any  $a \in [0, 1]$  regardless of the implementation of  $\bar{p}$ . The positive principal uses the election outcome and his knowledge of the critical thinking process inside the population (next Section) to estimate  $p$ . His optimal action is the conditional expectation

$$a^* = \hat{p} := \mathbb{E}[p|\bar{p}]$$

that achieves value

$$W_P = -\mathbb{E} \left[ (\hat{p} - p)^2 \right], \quad (2.1)$$

equal to the dispersion of the conditional mean  $\hat{p}$  around  $p$ . Both expectation operators  $\mathbb{E}$  integrate under the joint distribution of  $p, \bar{p}, \hat{p}$ , which depend on the voting behavior and citizens' critical thinking process and that we derive in the next section. Connecting to the discussion in the introduction, one can think of such principals as public figures (e.g., multinational firms or social influencers with reputational concerns) who need to take a stance on an ambivalent issue. They privately run a poll (say, by asking a polling agency) and use its outcome as they wish to fine-tune their statement. Payoff depends on the (distribution of) reasoned preferences because the statement acts as a "focusing event" that pushes the relevant population into critical thinking: the preferences individuals judge the principal on are (potentially) different from those they report at the poll.

**Institutional Principal.** Second, we consider an *Institutional* principal, whose action is restricted to  $a = \bar{p}$ . One can think of such principals as democratic institutions that must comply with the election outcome (say, by empowering a parliament whose composition is proportional to  $\bar{p}$ ).<sup>19</sup> Because of the constraint in her

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<sup>19</sup>In this context, the interpretation of  $p$  differs. Rather than focusing on the potential backlash from reasoned preferences, we envision an institutional principal considering  $p$  as a normative criterion for

action, the Institutional principal achieves value

$$W_I = -\mathbb{E} \left[ (\bar{p} - p)^2 \right] \quad (2.2)$$

via the standard decomposition we obtain

$$W_I = W_P - B, \quad (2.3)$$

where

$$B = \mathbb{E} \left[ (\bar{p} - \hat{p})^2 \right] > 0$$

is the bias of election, representing how the average reported preference differs systematically from the reasoned ones. A principal  $P$  who can correct for such social tendencies only suffers from the dispersion of the estimator  $\hat{p}$  around the parameter  $p$ , while the principal  $I$  must also be concerned with the bias of the election.

## 2.4.2 Agent: Cognitive and Voting Processes

Each individual is characterized by a reasoned preference

$$y \sim \text{Ber}(p)$$

where  $p$  is the unknown welfare relevant to which the principal wants to match. For example, an individual with  $y = 1$  has a reasoned preference for the alternative 1. However, if asked at a poll, individuals do not necessarily report their reasoned preference. This is because the reasoned preference is “discovered” at the end of a *critical thinking process* that individuals undergo.

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aggregating social preferences about an ambivalent issue. Essentially, the distribution of preferences of individuals who have undergone the critical thinking process determines the “right thing to do”.

**The Cognitive Process.** Agents transition through two critical thinking states  $\{S, A\}$ , where  $S$  means *Stereotype* and  $A$  means *Awareness*. We assume that the critical thinking process follows a simple dynamic in continuous time: all individuals start at  $t = 0$  in state  $S$  and, independently of  $y$  (and other voting parameters), transition to the absorbing state  $A$  with intensity  $\lambda \in (0, \infty)$ . Therefore, at time  $t$  there will be a fraction

$$\eta_S = \exp \{-\lambda t\}$$

of agents that are still Stereotypes and  $\eta_A = 1 - \eta_S$  that transitioned to Awareness.<sup>20</sup> The parameter  $\lambda$  is key for our analysis. It represents the intensity with which individuals realize that the issue at hand is ambivalent. We estimate its value by estimating in our experiment for different propaganda formats: the idea is that the way news is presented has a role in determining the speed at which individuals move into  $A$  and that such difference interacts with other cognitive abilities.

**Voting Behavior.** We denote  $x$  the preference that individuals report in the polls and assume it depends on the reasoned preference  $y$  and on the stage of the critical thinking process  $\{S, A\}$ . Before realizing that the issue is ambivalent, the preference reported  $x_S$  is

$$x_S | y = \begin{cases} \text{Ber}(p_S) & \text{w.p. } \beta \\ y & \text{w.p. } 1 - \beta \end{cases}$$

In other words,  $x_S$  is equal to the reasoned preference with probability  $\beta \in [0, 1]$ ,

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<sup>20</sup>The assumption that  $A$  is an absorbing state, with no transitions from  $A$  to  $S$ , captures the idea that awareness is an irreversible process. A straightforward extension of the model prevents a scenario where all individuals eventually reach state  $A$ : a constant fraction  $\nu < \lambda$  exits the economy and reenters in the awareness state  $S$ . Qualitative results would remain unchanged as the associated share of stereotypes:

$$\eta_S(t) = \frac{\nu}{\lambda} + \exp(-\lambda t) \left(1 - \frac{\nu}{\lambda}\right)$$

would still be decreasing in  $\lambda, t$ .

while the complementary probability is drawn from a distribution of stereotypical preferences  $p_S \sim \mathcal{N}(\mu, \sigma)$ , independent of  $p$ . Since we still have a parameter  $\beta$  driving the correlation between average stereotypes and reasoned preferences, the assumption of independence is innocuous. It only requires the formation of stereotypical preferences involving factors not solely related to  $p$ .<sup>21</sup> For example, if  $\beta = \eta_S = 1$ , corresponding to a poll held at  $t = 0$  and where stereotypes are independent of reasoned preferences, then the election result  $\bar{p} = p_S$  is not informative about  $p$ .

The preference reported by individuals in  $A$  loses its dependence on the nuisance parameter  $p_S$  and becomes a function of the reasoned preference alone,

$$x_A | y = \begin{cases} y & \text{w.p. } \xi \\ 1 - y & \text{w.p. } 1 - \xi \end{cases}$$

The parameter  $\xi \in [\frac{1}{2}, 1]$  allows for a situation in which citizens realize that the issue is ambivalent but have not yet found their reasoned preference. We think of our two-stage critical thinking process as a reduced form of a fully identified three-stage process – detailed in the appendix – where  $A$  is an intermediate stage where agents have realized the ambivalent nature of the issue but have not formed their reasoned preference yet, i.e., they are in a phase of normative uncertainty. In this interpretation, the case  $\xi = 1$  corresponds to a situation where individuals discover their reasoned preference immediately after realizing the ambivalence of the issue, while  $\xi = \frac{1}{2}$  is a situation of permanent indecisiveness of  $A$  individuals. Note that if all individuals were in the state  $A$  (that is, a poll  $t \rightarrow \infty$ ), then the election result would be

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<sup>21</sup>The identical distribution of  $p, p_S$  is instead for tractability alone. Most derivations in the Appendix utilize nonidentically distributed normal variables  $(\mu_p, \sigma_p, \mu_{p_S}, \sigma_{p_S})$ . Specifically, condition  $\mu_p \neq \mu_{p_S}$  illustrates a scenario in which the principal is aware that stereotypical preferences exhibit systematic bias, potentially due to the ease of presenting superficially persuasive arguments in favor of one alternative. This, along with the relaxation of other symmetry assumptions inherent in our model, is further explored in Section [to be added].

$\bar{p} = \zeta \cdot p + (1 - \zeta) \cdot (1 - p)$ , which whenever  $\zeta > \frac{1}{2}$  is a strictly monotonic (hence invertible) function of  $p$ . Since the election outcome contains all information about  $p$ , then  $\hat{p} = p$ , and the Positive principal always chooses the correct action.<sup>22</sup> In general (i.e. for interior shares  $\eta$ ), the election outcome is given by:

$$\bar{p} = \eta_S (\beta p_S + (1 - \beta) p) + \eta_A (\zeta \cdot p + (1 - \zeta) \cdot (1 - p)) \quad (2.4)$$

and the parameter  $\zeta$  affects the Positive welfare too. We can now use the (joint) normality assumption to write  $\bar{p}$  and the conditional expectation  $\hat{p}$  as a linear function of the fundamental unknowns  $p, p_S$ , that is,

$$\bar{p} = \alpha_0 + \alpha_1 \cdot p + \alpha_2 \cdot p_S$$

$$\hat{p} = \gamma_0 + \gamma_1 \cdot p + \gamma_2 \cdot p_S$$

where loadings  $\alpha, \gamma$  are functions of the structural parameters  $\vartheta = [\beta, \zeta, \mu, \sigma]$  and the statistic of the critical thinking process  $\eta$  as detailed in the appendix. Moreover, once we specify the joint normal expectation operator, we can compute (the evolution of) both positive and institutional welfare ??-?? in closed form and arrive at our main result.

**Proposition 1** *i) For all values of structural parameters  $\vartheta$ ,  $W_P$  is increasing in  $t$  and  $\lambda$ .  
ii)  $W^I$  has nontrivial comparative statics in  $\lambda, t$ . If  $\beta < 1 - \zeta$ , then it is monotonically increasing; if  $\beta > \frac{(1-\zeta)((1-2\mu)^2+4\sigma^2)}{2\sigma^2}$  then it is monotonically decreasing; else it grows locally to  $t = 0$  (resp.  $\lambda = 0$ ) up to a finite time  $t^*$  (finite intensity  $\lambda^*$ ) then eventually decreases.*

Figure [to be added] gives a graphical representation of the results collected in Proposition 1, which we now discuss. The point *i* establishes that if the principal knows the value of the structural parameters  $\vartheta$  and can utilize the outcome of

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<sup>22</sup>Institutional principal still needs to consider the attenuation bias driven by  $A$ 's indecisiveness.

elections without constraints, then the faster individuals move into critical thinking (the higher  $\lambda$ ), the higher the efficiency of the elections. Indeed in all the plots of the figure, we observe that positive welfare  $W^P$  is increasing in time.<sup>23</sup> The reason behind this result is simple to grasp: as fewer and fewer individuals are  $S$ , the election outcome  $\bar{p}$  becomes less and less dependent on the nuisance unknown  $p_S$  which confounds the inference of the welfare relevant unknown  $p$ .<sup>24</sup> This is an important result for our analysis as it establishes that  $\lambda$  is a welfare measure in a well-definite sense in our setting.

However, in point *ii*), we also hint at a potential limitation of such a result in the case where the principal is constrained to act according to the election outcome due to the (potentially perverse) effect that the movement into critical thinking has on the bias of the election. The most paradoxical result – the condition that if  $\beta$  is large enough, institutional welfare actually decreases *in*  $\lambda$  – has a natural explanation. When  $\beta$  is large, then stereotypes are strong predictors of reasoned preference (at the extreme where  $\beta = 1$ , all stereotypes vote  $y$  despite not realizing the ambivalent nature of the issue),<sup>25</sup> hence moving in the Awareness state indecisiveness and associated attenuation bias, case  $\zeta < 1$  – pushes  $\bar{p}$  away from  $p$  and thus reduces efficiency. This seems – at least to us – a pathological case since it requires. but is useful to highlight the potential role of the bias. For this reason, we further investigate conditions under which the two rules coincide, that is, whether there is a level of  $\eta$  such that “by divine coincidence” the loadings  $\alpha = \gamma$  so that the positive and institutional principal have the same action rule – and hence the same value at potential limitations of this

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<sup>23</sup>As the proof relies on  $W^P$  being decreasing in the share of stereotypes  $\eta$ , the same graph would be obtained if we fix the time and let  $\lambda$  vary. The bottom-right panel explains the dynamics for high and low  $\lambda$ .

<sup>24</sup>Indeed, this result does not require the normality assumption but can be directly deduced by the expression of  $\bar{p}$ .

<sup>25</sup>In our setting there is no intrinsic social value for being critical thinkers so if all agents get their reasoned preference right we have perfect elections. However, a related phenomenon studied by [Bernheim et al. \(2021\)](#), “mental flexibility” might have social benefits beyond increasing the accuracy of elections. The challenge for us is to derive  $\lambda$  as a welfare measure even without a direct beneficial effect of critical thinking.

interpretation; we indeed show that if  $\zeta = 1$  or  $\beta < \frac{1}{2}$ , the condition for  $W^I$  monotonically increasing is vacuously satisfied.

Solving the system of equations  $\alpha \equiv \gamma$  gives a share of stereotypes  $\eta^*$  such that the two coincide. Therefore, there exists an interior time where the average reported preference is unbiased for  $p$ . Formalizing this result we obtain:

**Proposition 2** *If there is no bias in the stereotype pool and  $\beta$  is large enough, i.e. if*

$$\mu_p = \mu_{p_s} \text{ and } \frac{1 - \beta}{\beta} < \frac{\sigma_{p_s}^2}{\sigma_p^2}$$

, then there exists a finite time  $t^*$  such that  $B(t^*) = 0$ . If, in addition,

$$\zeta = 1 \text{ then } t^* = -\frac{1}{\lambda} \log \left( \frac{\sigma_x^2}{\beta (\sigma_x^2 + \sigma_y^2)} \right)$$

with immediate comparative statics.

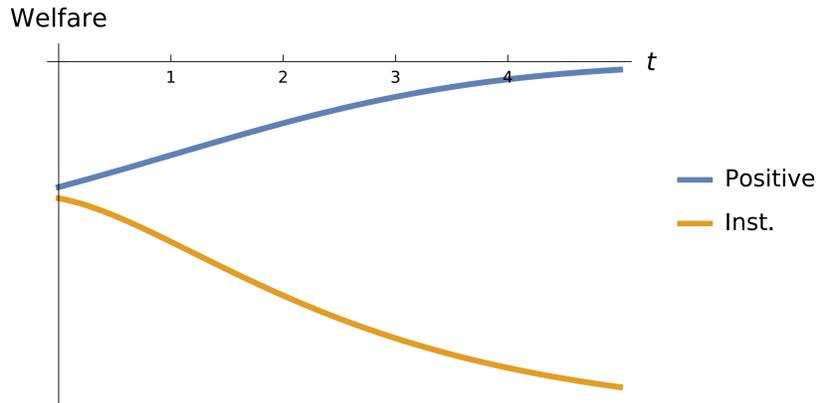


Figure 2.2:  $\beta < 1 - \zeta_{NU} \Rightarrow \eta^* = 0 \Rightarrow \text{Inst. Welfare is decreasing}$

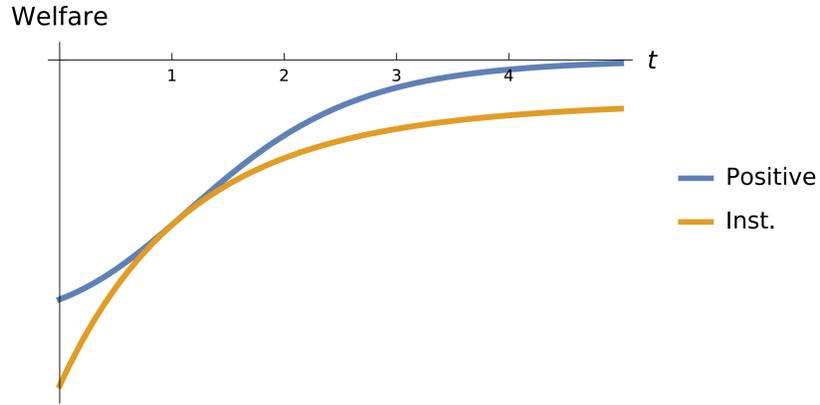


Figure 2.4:  $\eta^* = 1 \Rightarrow$  Inst. Welfare is increasing

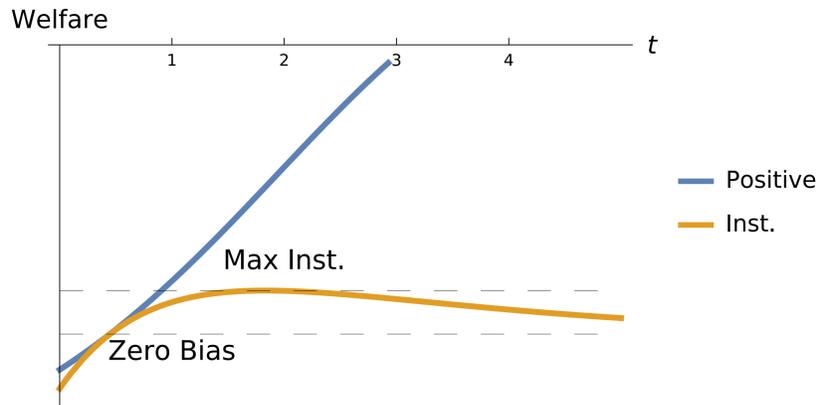


Figure 2.3:  $\eta^* \in (0, 1) \Rightarrow$  Inst. Welfare has interior maximum, after the zero-bias time  $t^*$

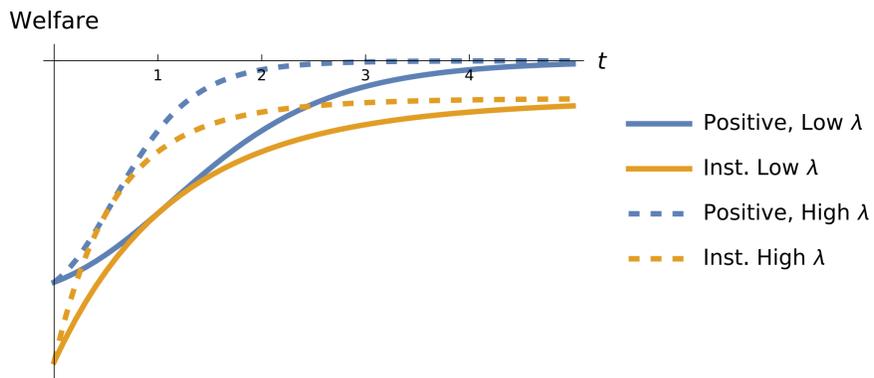


Figure 2.5:  $\lambda$  is a welfare measure.

### 2.4.3 Discussion of The Model Primitives

**Implicit Assumptions.** We have presented a relatively parsimonious model of voting while undergoing a critical thinking process (from Stereotypes to *Aware* citizens) of discovery of reasoned preferences. Its fundamental functioning is easily explained. There is a nuisance parameter  $p_s$  in the stereotypes preferences that confounds the election outcome because it adds a component that is orthogonal to the reasoned preference. As more citizens become critical thinkers the election outcome is less influenced by  $p_s$  and the principal gets a better estimate of the relevant parameter  $p$ . The share of critical thinkers increases with time and with the intensity of the critical thinking process, and this is the channel through which  $\lambda$  impacts the efficiency of elections.

The two parameters  $\beta, \zeta$  are intended to capture the inherent quality of the preference reported in the two stages of the critical thinking process. High- $\beta$  environments represent situations where, despite not realizing the ambivalent nature of the issue, stereotypes get their reasoned preference right with high probability; it also makes the assumption of independence between  $p$  and  $p_s$  immaterial. We think of  $\zeta$  instead as a reduced form parameter for a three-stage critical thinking process in which agents first realize ambivalence and then discover the reasoned preference;  $\zeta$  is inversely proportional to the length of this second transition. The flexibility added by these two parameters do not alter the qualitative evolution of welfare for a *Positive* principal, but through their impact on the (evolution of) bias, they are consequential for an *Institutional* one, possibly yielding to perplexing comparative statics. We have always maintained an implicit assumption of symmetry, since all structural parameters are not allowed to depend on the reasoned preference  $y$ . A relaxation of this assumption would require modeling  $\beta_i = \mathbb{P}[x_S = y | y = i], \zeta_i = \mathbb{P}[x_A = y | y = i]$  with a different specification for the residual uncertainty in the preference of stereotypes. Insofar as overconfidence can be interpreted as individuals' resistance to critical thinking,

evidence in [Ortoleva and Snowberg \(2015\)](#) also questions the fact that intensity  $\lambda$  is independent of  $y$ : if reasoned preference predicts cognitive traits associated with critical thinking (or the impact of different storytelling formats), then the *Aware* pool would be selected based on  $y$ , which constitutes an additional source of bias.

Extensions that allow these empirical regularities to manifest would not alter the main message of our theoretical model: If there are more *Aware* voters, polls contain more information about the distribution of reasoned preferences. This is all that matters for a principal who can “filter out” all systematic tendencies in voting, including the asymmetries in stereotype reporting and critical thinking transition, while a principal who cares about getting the election outcome as close as possible to  $p$  needs to trade off accuracy with election bias.

**Bias in Stereotypes and Critical Thinkers’ Dilemma** An immediate extension of our model is to allow the presence of bias in the stereotype pool, i.e., to let  $\mu_s \neq \mu$ , corresponding to a situation where the principal knows that a specific opinion is prevalent before individuals realize the ambivalent nature of an issue. This possibility — which seems compelling whenever one of the positions is more prone to be defended by means of superficial arguments (nationalism) — means the *Institutional* principal additionally benefits from increasing the intensity  $\lambda$  (or simply “letting time pass”) as having a larger share of *A* voters would mechanically remove this type of systematic bias.<sup>26</sup> Importantly, if this such bias became apparent to *A* citizens as well, this might affect their voting rule. In particular, think about critical thinkers who have not yet discovered their reasoned preference; their problem is particularly interesting. Because they have “lost” their stereotype preference and have not formed a reasoned one yet, they are most likely to abstain during an election and be more sensitive to costly voting (an important margin; see Cantoni and Pons). If they were aware of a

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<sup>26</sup>The evolution of welfare for the *Positive* principal would instead be unaffected by this extension, as she could “clear out” all systematic noise in the poll.

systematic bias in stereotypes (which seems realistic, since they just escaped that state), they might decide to use their vote to “compensate” for such bias.

Finally, by adding a penalty for waiting (discounting the utility from taking an action later), we can use our setting to discuss the optimal timing of elections; even the Positive principal would not postpone her decision until  $t = \infty$  where she would obtain a precise estimate of  $p$ . Studying how the timing of the optimal election varies with intensity  $\lambda$  (and other structural parameters) amounts to analyzing the problem of a principal who controls the type and duration of storytelling to which she wants to subject her agents before administering a poll to maximize its accuracy.

As for the impact of information, one implication is how different people react moving into and out of critical thinking, adding the amount of information, presenting a set of facts as bullet points, or re-elaborating those facts in a more structured piece. The challenge is that we do not observe people in critical thinking. Hence, how can we identify whether individuals are in critical thinking, and if so, how can we classify them as  $S$  or  $A$  throughout the different times of exposure to storytelling formats? We propose an experimental design and classification strategy to approximate the observation of such a critical thinking process.

## 2.5 Conclusion

In this paper, we built a simple but flexible model to measure the gain in election efficiency by becoming aware that the issue is ambivalent ( $A$ ). We experimented and determined that the format in which the news is presented affects the transition of a person to  $A$ . This effect is driven by individuals with a high need for cognition (the flexibility scale is insignificant). Realizing the ambivalent nature of an issue is an essential step in discovering one’s reasoned preference since it improves the “quality” of one’s preference from raw to reasoned. As such, critical thinking is *also* good for the

efficiency of elections.

What is broadly referred to as a storytelling format (e.g., newspapers, television, social media, social echo chambers) might impact the probability of realizing ambivalence.

Beyond “informing” and “persuading,” it also affects an individual’s critical thinking process. Additionally, the format in which news is presented—many short messages vs. more coherent but greedy attention discourse—matters. In particular, unexplored physiological drivers were correlated with standard metrics of cognition/flexibility.

Reasoned preferences  $y$  are *not observable*, and the model is not (fully) identified. We rely on a reduced form for an identified model with three cognitive stages

$S \rightarrow A \rightarrow T$  and a final transition to a reasoned preference (resolving awareness) with qualitatively similar results. First,  $A$  realized that the issue was ambivalent, but still did not find our  $y$ . Second, how did the voters in  $A$  vote? Strategic voting in the presence of stereotype bias, “I still have not resolved my awareness about [topic], but I see a lot of prejudice in favor of position 0, so I vote 1 to compensate.” Additionally, the reasoned preference  $y$  is independent of other individual types  $(\beta, \xi_A, \lambda \dots)$ .

Prejudices often coincide with a reasoned preference if the latter is 1.  $\beta_1 > \beta_0$ .

Prejudices might be correlated with the likelihood of becoming aware (Ortoleva and Snowberg (2015)).

Regarding the internal validity of our experiment, we recognize that classifying individuals’ critical thinking states is inherently challenging. We devised different classification rules for pre- and post-treatment to avoid mistaking memory for critical thinking. Second, we use a noisy measure to look at *differences between treatments*.

Regarding the external validity of our experiment, the reader should refrain from interpreting our experiment as a comparison of social media, concluding that

“Facebook is better” but that rather “the format matters.” In this interpretation, the whole class of social media becomes a storytelling format: one is exposed to a greater number of views, but they are possibly superficial. Does it help to become aware of

the ambivalence of the issue in relation to one's life experience or the in-depth study of a topic (more personal and reasoned, but time-consuming and unlikely to occur)?

## Chapter 3

# Climate Change With Distributional Uncertainty

*s/o Martin Weitzman*

This paper presents a novel climate-macroeconomic model, Nested Inequalities Climate-Economy with Risk and Inequality Uncertainty (NICERIU), and introduces a social welfare, the Worldview-Inclusive Welfare. This latter incorporates heterogeneous worldviews regarding welfare and internal uncertainty, proposing redistributive economic policies based on equality-distributed equivalence and a novel axiom of minimal comparability of worldviews. NICERIU has been calibrated using a representative sample of the US population (N=500), and the calibration results reveal intriguing insights: with symmetrically weighted distinct worldviews, the optimal taxation policy closely approximates in a more conservative way, and the taxation policy based on a particular worldview but differs in specific ways.

The Social Cost of Carbon (SCC) assigns a monetary value to the present and future damages inflicted by the emission of one ton of CO<sub>2</sub> (Pearce (2003)). This metric proves valuable for economists and policymakers in conducting Cost-Benefit Analyses for public investments and designing mitigation strategies for climate policies, such as determining an optimal carbon tax or emission quota. SCC calculations are based on climate-economy models (Integrated Assessment Models or IAMs) that unify the economic activities of society with their social and climatic consequences (Nordhaus (2017)). IAMs depend on three categories of parameters: economic, environmental, and ethical. The *economic parameters* encompass structural fundamentals (e.g., growth rate), while the *climate parameters* focus on climatic phenomena (e.g., sea level and flooding risk). Ethical parameters refer to the Social Discount Rate (SDR), which captures the extent to which society values present and future welfare, and the *aversion to inequality*, which gauges the importance placed on reducing future generations' inequalities.

A significant distinction exists between economic and environmental parameters, which can be assigned "correct" values based on factual evidence, and ethical parameters, which are subject to valuation and elude the scientific method. This disparity leads to societal debates and highlights the prevalence of conflicting worldviews. The SDR, in particular, has sparked the renowned Nordhaus-Stern debate, with Nordhaus advocating for a high SDR and Stern favoring a low SDR (Nordhaus (2007b), Nordhaus (2007a), Stern et al. (2010)). The varied SDR values produce divergent SCC estimates, with the Environmental Protection Agency (EPA (2022)) offering a range of \$11 to \$105 for 2015, centered around \$36, Van Den Bergh and Botzen (2014)). However, SDR is not the sole ethical determinant of SCC, as the inequality aversion parameter also exerts a significant influence. Importantly, the SDR is fundamentally connected to the inequality-aversion coefficient, as demonstrated by

the Ramsey formula (Ramsey (1928)):

$$SDR = \rho + \eta \times \text{growth rate}$$

where  $\rho$  signifies the pure rate of time preference, and  $\eta$  represents the inequality-aversion coefficient, which, as explicitly shown in (Dennig et al. (2015a)), plays a crucial role in determining SCC. As depicted in Figure 3.1, different levels of inequality aversion produce substantially varying taxation policy scenarios in the long term.

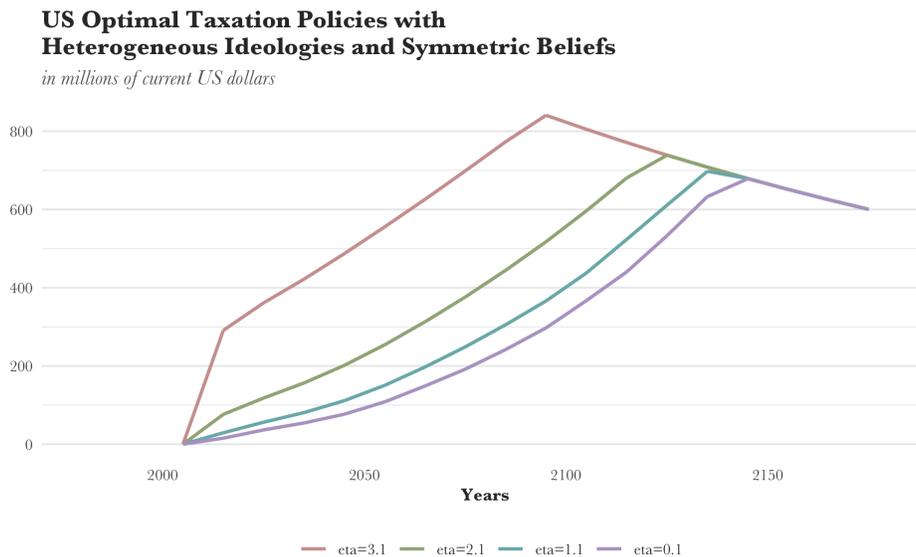


Figure 3.1: US Optimal Taxation With Heterogeneous Worldviews.

The debates surrounding the appropriate level of inequality aversion and the distribution of resources and responsibilities across and within generations have taken center stage in public policy (Adler and Fleurbaey (2016), Saez (2021)) and climate economics (Fleurbaey et al. (2019), Kornek et al. (2021)). Climate-economic models generally do not incorporate these disagreements. They tend to be built upon a single, exogenously determined inequality aversion, implicitly justified by a

particular “worldview.” Consequently, when different scientists or policymakers adopt heterogeneous levels of inequality aversion, it leads to divergent policy scenarios and more entrenched disagreements stemming from ideological heterogeneity. This failure to provide a globally accepted policy proposal that appeals to diverse stakeholders (citizens, policymakers, and private investors) poses two drawbacks in combating climate change. First, it postpones the implementation of climate policies. Second, it diminishes their scope. Therefore, overcoming these ideological differences is crucial to commit to international climate agreements and policies that positively impact the mitigation of climate change and foster tangible progress.

The traditional method of debate has proven ineffective in achieving a global consensus, as evidenced by the ongoing Nordhaus-Stern debate. Instead, we propose that decision-makers embrace internal uncertainty regarding which worldview to rely upon when defining the appropriate level of inequality aversion for climate policy and adopting such internal uncertainty as a heuristic signal to other stakeholders that decision-makers are striving to deliver a “worldview inclusive” climate policy recommendation that accounts for worldview heterogeneity by considering alternative levels of inequality aversion embodied within their internal beliefs. Considering that different inequality-averse worldviews lead to distinct optimal taxation policies, we face a welfare economic dilemma: How can we compare the various social welfare functions that arise from different calibrations of the inequality-aversion parameter and subsequently establish the existence of *internal weights* for each level of inequality-aversion? The concept of internal uncertainty is in alignment with the ongoing philosophical debate on moral uncertainty (MacAskill (2014)). Within climate economics, Jaakkola and Millner (2022) is the only study that integrates social discount rates, while Millner (2020) offers an initial examination of moral uncertainty in climate economics using a utilitarian framework. However, this

latter approach does not directly address inequality aversion, a crucial parameter of IAMs.

We introduce the Nested Inequalities Climate-Economy with Risk and Inequality Uncertainty model (NICERIU), incorporating political worldviews and subjective internal beliefs regarding inequality aversion, allowing us to capture uncertainty about this latter parameter. For this purpose, we propose a transparent welfare framework to derive the social welfare of climate mitigation policies, considering the distribution of ideologies and internal societal beliefs over the latter. In particular, we develop an aggregator mechanism to compare heterogeneous ideology-based policy scenarios weighted by the internal beliefs decision makers hold over each ideology. This framework lets decision makers or societies select the ideology guiding climate change policy transparently, and thus we contribute to fostering *ideology awareness* in policy analysis.

The primary economic theory challenge in developing this platform lies in effectively incorporating distinct welfare functions (resulting from different ideologies). To achieve this integration, we create a standard metric (based on Equally Distributed Equivalence, or EDE) to compare various social welfare functions conditional on their inequality aversion and discounting parameters. Furthermore, we must calibrate these moral parameters. To do this, we introduce an additional parameter in IAMs, individual internal beliefs for each parameter, to capture uncertainty. We suggest focusing on internal uncertainty concerning the inequality aversion parameter within a broader welfare analysis framework, the Equally Distributed Equivalence (EDE), which addresses several limitations of the utilitarian approach (Fleurbaey (2010)). The remainder of the paper is organized as follows. Section 3.1 presents NICERIU, deriving its welfare representation and functional form. Section 3.2 provides macroeconomic simulations and calibrations of our model. Section 3.3 offers concluding remarks.

## 3.1 The Model

Our NICERIU model extends the NICER model (Nested Inequalities Climate-Economy With Risk) proposed by [Bernstein et al. \(2017\)](#) to incorporate heterogeneous worldviews about intragenerational inequality-aversion and internally uncertain subjective beliefs over them. NICER extends NICE (Nested Inequalities Climate-Economy) proposed by [Dennig et al. \(2015b\)](#) to integrate risk. NICE extends the original RICE model (Regional Integrated Climate-Economy Model) proposed by [Nordhaus \(1977\)](#) to integrate subregional inequality.

Hence, NICERIU builds on these models. They all consist of equations that determine the evolution of regional per capita consumption  $c_{irst}$  as a function of different exogenous parameters, a tax policy vector for all, and additional parameters depending on their versions. First, NICE deals with subregional income groups. As such, it can address intragenerational inequalities in an empirically certain world. Second, NICER deals with subregional income groups and states of the world. As such, it can address intragenerational inequalities in an empirically uncertain world. Third, NICERIU deals with subregional income groups, states of the world, and worldviews about intragenerational inequality aversion. This model can tackle intragenerational inequalities in an empirically and ideologically uncertain world.

### 3.1.1 Worldview-Inclusive Social Welfare

Like other models, the NICERIU model is solved by letting a benevolent policymaker choose the globally uniform tax path that maximizes universal welfare according to the worldview subject to constraints describing consumption and savings behavior, technology, and climate-economy interactions, in the following form:

$$W = \sum_{\eta \in \mathcal{V}} \alpha_{\eta} \cdot v_{\eta}$$

where  $W$  represents the social welfare objective the planner maximizes,  $\eta \in \mathcal{V}$  represents a worldview (or degree) of inequality aversion in a possible set of degrees of inequality aversion  $\mathcal{V}$ ,  $\alpha_\eta$  represents the planner's subjective beliefs regarding the importance of a particular worldview  $\eta$ . Finally, the  $v_\eta$  represents the social welfare of climate policy conditional on a specific worldview of inequality aversion:

$$v_\eta(c) = \sum_t \frac{1}{(1+\rho)^t} \sum_r \frac{L_{rt}}{5} \sum_i \frac{\mathbb{E}_s[c_{irst}^{1-\eta}] - \underline{c}^{1-\eta}}{1-\eta}$$

where,  $L$  is the population and  $c$  is consumption per capita. Subscripts  $i \in \{1, 2, \dots, 5\}$ ,  $r \in \{1, 2, \dots, 12\}$ ,  $s \in \{1, 2, \dots, S\}$ , and  $t \in \{1, 2, \dots, T\}$  denote the regional quintile, the region, the state of the world, and the time, respectively. The parameter  $\eta$  governs inequality aversion (and risk aversion) and  $\rho$ , the pure time discounting rate;  $c_{irst}$  denotes the evolution of regional per-capita consumption, a function of exogenous parameters a tax policy vector, subregional income groups, and states of the world. Following [Bernstein et al. \(2017\)](#), as in NICER, the empirical uncertainty is captured by the creation of a state space,  $s \in \{1, 2, \dots, S\}$ , where each element is an equiprobable outcome. In each state, we assign values to the respective exogenous parameters according to a predetermined distribution. Consequently, this uncertainty is propagated to per capita income, yielding a consumption variable,  $c_{irst}$ .<sup>1</sup>

Within the scope of climate policy research, the prevalent practice is to calculate carbon pricing by applying Negishi weights. This approach is favored primarily to circumvent the intragenerational redistributive implications that may arise from a social welfare function, which accounts for inequality aversion. For NICER, the authors employ an aggregate model which effectively precludes intragenerational distributional considerations. In contrast with these approaches, our welfare-based macro-climate economy model allows decision-makers to show distributional

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<sup>1</sup>The parameters subject to uncertainty include: the growth rate of Total Factor Productivity (TFP) for each region, the convergence of TFP across regions, climate sensitivity, as well as the coefficients of the linear damage function.

concerns and to display internal uncertainty about those concerns.

To make this model work analytically, we need to be capable of comparing the carbon price from each  $v_\eta$  and to justify the existence of such distributional weights  $\alpha_\eta$  over each of these degrees of inequality-aversion,  $\eta$  and thus  $v_\eta$ . As we shall see in the next sections, this is not an easy problem and require a detour from welfare economics to provide rational foundations for such comparisons between worldview-based welfare functions and the existence of worldview-inclusive social welfare. To compare different  $v_\eta$ ,  $W$ , and at the end, consumption paths, we need to assume some rational properties over them and define an environment where such comparisons occur. This is what we turn to now.

Suppose a set  $X$  of *consumption paths* exists. Society must choose between lotteries over consumption paths, i.e., elements of  $\Delta(X)$ . We let  $E$  denote the set of *equally distributed consumption paths*. these consumption paths are distributed equally among all individuals in that generation.  $\Delta(X)$  and  $\Delta(E)$  denote the set of lotteries over consumption paths and the set of lotteries over equally distributed consumption paths.

Society consists of a set of *worldviews* denoted,  $\mathcal{V}$ . Each worldview  $\eta$  has an associated preference relation  $\succsim_\eta$  on  $\Delta(X)$ , and society has an associated preference relation  $\succsim$  on  $\Delta(X)$ . The preference relations  $\succsim_\eta$  naturally induce preferences over  $X$  itself.

When  $c, c' \in X$ , we will write expressions such as  $c' \succsim_\eta c$  to mean “worldview  $\eta$  weakly prefers the degenerate lottery that always grants consumption path  $c'$  to the degenerate lottery that always grants consumption path  $c$ ”.

Transitioning to the examination of individual worldviews, we propose the following hypothesis.

**Hypothesis 1 (Worldviews satisfy vNM)** For each  $\eta \in \mathcal{V}$ , the relation  $\succsim_\eta$  satisfies the vNM axioms on  $\Delta(X)$ .

For each worldview within society, the associated preference relation adheres to the von Neumann-Morgenstern (vNM) axioms when evaluating lotteries over consumption paths. The vNM axioms are foundational principles that ensure rationality and coherence in preferences over uncertain outcomes. In this context, it means that each worldview exhibits rational and coherent preferences over lotteries, which a utility function can represent. We assume that  $v_\eta(c)$  introduced above represents such a function. For each worldview,  $\eta$ , the social welfare function  $v_\eta(c)$  aims to aggregate individual welfare levels or utility values in a way that reflects the preferences and value judgments specific to that worldview  $\eta$ , such as its particular stance on inequality aversion, applied to a given consumption path  $c$ . As we move from individual worldviews to society as a whole, we hypothesize a similar adherence to vNM principles:

**Hypothesis 2 (Societal preference satisfies vNM)** *The societal relation  $\succsim$  satisfies the vNM axioms on  $\Delta(X)$ .*

The social preference relation, which aggregates the preferences of all worldviews, similarly conforms to the vNM axioms when applied to lotteries over consumption paths. This axiom asserts that the collective preferences of society exhibit rationality and coherence, allowing for representation by a utility function analogous to individual worldviews. We assume  $W(c)$ , introduced above, represents such a function, aggregating individual welfare levels to reflect society's redistributive preference given the distribution of inequality-averse levels and internal beliefs over them. By computing the expected value of  $W(c)$ , the decision maker can evaluate and compare the expected social welfare implications of different climate mitigation policies or other policy scenarios.

Having established the properties of individual and societal preferences, we proceed to state a fundamental axiom regarding the aggregation of these preferences.

**Axiom 1 (Pareto Principle)** *Let  $L, M \in \Delta(X)$ . If  $L \succsim_{\eta} M$  holds for each  $\eta \in \mathcal{V}$ , then  $L \succsim M$  must also hold. If, in addition,  $L \succ_{\eta} M$  holds for at least one  $\eta \in \mathcal{V}$ , then  $L \succ M$  must hold.*

This axiom establishes that if every worldview prefers or is indifferent between the lottery  $L$  and the lottery  $M$ , the societal preference relationship must also favor or be indifferent between  $L$  and  $M$ . Furthermore, suppose that at least one worldview prefers  $L$  to  $M$  while the others express indifference. In that case, the societal preference relationship must strictly prefer  $L$  to  $M$ . This axiom embodies the Pareto principle, which posits that if all constituent parties share a preference, the relation of societal preference should reflect that unanimity.

### 3.1.2 Welfare Measurement With Distributional Concerns

To compute the expected value of the welfare function,  $W(c)$ , we need to compare the heterogeneous values of  $v_{\eta}$  for different worldviews,  $\eta$ , which is challenging.

To grasp the extent of this challenge, we can draw an analogy with the challenge of comparing the well-being of individuals with different risk aversions. The challenge arises in the context of individuals with heterogeneous risk aversions due to their heterogeneous attitudes toward risk and uncertainty. For example, a risk-averse individual would prefer a certain outcome over a gamble with the same expected value, while a risk-neutral individual would be indifferent. These varying attitudes towards risk make it difficult to compare the well-being of individuals directly using their respective utility functions. To fully grasp this example, let  $U_i$  be the vNM utility function for individual  $i$  with a specific risk aversion. Let  $f$  and  $g$  be a certain outcome and a gamble, respectively, with the same expected value. A risk-averse individual  $i$  would prefer a certain outcome, which can be represented as:  $U_i(f) > U_i(g)$ .

Meanwhile, a risk-neutral individual  $j$  would be indifferent between the two, represented as  $U_j(f) = U_j(g)$ . These varying attitudes toward risk make it difficult to

compare the well-being of individuals directly using their respective utility functions, as  $U_i(f) \not\leq U_j(f)$  and  $U_i(g) \not\leq U_j(g)$  may not hold for all  $i$  and  $j$ .

Similarly, in the case of heterogeneous worldviews, each worldview, denoted by  $\eta$ , has its associated preference relation  $\succsim_\eta$ , which reflects different underlying value judgments or priorities. These differences in values make it challenging to directly compare the welfare implications of each worldview using their respective utility functions. For instance, let  $c_1$  and  $c_2$  be two different consumption paths. For worldview  $\eta_1$ , we might have  $W_{\eta_1}(c_1) \succsim_{\eta_1} W_{\eta_1}(c_2)$ . For worldview  $\eta_2$ , we might have  $W_{\eta_2}(c_1) \succsim_{\eta_2} W_{\eta_2}(c_2)$ . These differences in values make it challenging to directly compare the welfare implications of each worldview using their respective utility functions, as  $W_{\eta_1}(c_1) \not\leq W_{\eta_2}(c_1)$  and  $W_{\eta_1}(c_2) \not\leq W_{\eta_2}(c_2)$  may not be applicable for all  $\eta_1$  and  $\eta_2$ .

The scaling of vNM utility functions is a contentious issue in welfare economics. There is no universally accepted method for scaling these functions to facilitate meaningful comparisons between individuals with different risk aversions or worldviews with different preference relations. The vNM utility functions are unique only up to an affine transformation, which means that different scalings of the same utility function can represent the same preferences.

Several methods have been proposed in the literature to address this scaling problem, such as assigning values to specific reference points or computing derivatives at certain consumption levels. However, these methods come with their assumptions and limitations, making it difficult to establish a consensus on the best way to scale vNM utility functions to compare welfare across different risk aversions or worldviews.

*The interval approach.* The most prevalent method scales the vNM function by assigning values between  $[0, 1]$  to two chosen points,  $c^*$  and  $c^{**}$ . Let  $v_\eta(c)$  be the vNM

utility function for a specific worldview  $\eta$ . To rescale this function using the first method, we assign values between  $[0, 1]$  and two chosen points,  $c^*$  and  $c^{**}$ . These points represent specific consumption paths or outcomes, with  $c^*$  typically representing a lower limit or a reference point, and  $c^{**}$  representing an upper limit or an ideal point. In our context of worldviews and consumption paths, the rescaled utility function is defined as:

$$v_{\eta}^*(c) = \frac{v_{\eta}(c) - v_{\eta}(c^*)}{v_{\eta}(c^{**}) - v_{\eta}(c^*)}$$

Depending on the size of  $c^{**}$ , the value  $v_{\eta}(c)$  may either increase or decrease with  $\eta$ . By construction, the rescaled utility function  $v_{\eta}(c)$  takes on a value of 0 for the lower bound  $c^*$  and a value of 1 for the upper bound  $c^{**}$ . This transformation allows for meaningful comparisons between different vNM utility functions, as the scaling is standardized regarding the chosen reference points. It is important to note that the choice of reference points,  $c^*$  and  $c^{**}$ , can significantly impact the comparisons made using rescaled utility functions. If  $c^*$  is chosen to represent a particularly favorable consumption path, then the value of  $v_{\eta}(c)$  will increase with  $\eta$ . On the contrary, if  $c^{**}$  is chosen to represent a less favorable consumption path, the value of  $v_{\eta}(c)$  will decrease with  $\eta$ . This highlights the importance of carefully selecting reference points when employing this first method for scaling vNM utility functions.

*The sensitivity approach.* The second method for scaling vNM utility functions, inspired by Fleurbaey and Zuber in the context of risk aversion, focuses on the sensitivity of the utility function to changes in consumption at a specific constant level,  $c^*$ . This approach seeks to provide a standardized comparison of utility functions by considering their first-order behavior at a chosen point. Let  $v_{\eta}(c)$  be the utility function of the vNM for a specific worldview  $\eta$ . In the second method, we select a particular constant level of consumption,  $c^*$ , and compute the derivative of

the utility function related to consumption at this point, denoted by  $v'_\eta(c^*)$ . This derivative represents the marginal utility of consumption at the chosen reference point. The rescaled utility function,  $v_\eta^*(c)$ , is then defined as:

$$v_\eta^*(c) = \frac{v_\eta(c)}{v'_\eta(c^*)}$$

Transformation of the utility function using this approach ensures that the rescaled utility function,  $v_\eta^*(c)$ , reflects the relative marginal utility of consumption at the chosen reference point  $c^*$ . This method allows meaningful comparisons between different vNM utility functions by considering the sensitivity of the utility functions to changes in consumption.

In the context of risk aversion, the Fleurbaey and Zuber approach aims to ensure that individuals with consumption levels above the threshold  $c^*$  have a lower social priority than those with consumption levels below the threshold, regardless of their risk aversion. However, when comparing worldviews, there is no inherent motivation for transferring resources between utility functions, since they do not represent individuals. Therefore, the second method might be harder to justify in this context. However, the second method guarantees that the value of  $v_\eta(c)$  decreases in  $\eta$  for all constant consumption paths other than  $c^*$ . This property may still be relevant for comparing worldviews, as it provides insights into how the prioritization of different consumption paths varies across worldviews when considering the sensitivity of their utility functions to changes in consumption.

*The Equally-Distributed Equivalent Approach.* The third scaling strategy for von Neumann-Morgenstern (vNM) utility functions involves the computation of an Equally-Distributed Equivalent (EDE) of a given consumption path, as proposed by Fleurbaey [Fleurbaey \(2010\)](#). The EDE methodology, initially conceived by Kolm ([Kolm \(1968\)](#)) and Atkinson ([Atkinson \(1970\)](#)), aggregates and compares disparate

consumption paths while considering the distribution of consumption levels between individuals and regions. The EDE of a growth path signifies a constant, uniformly distributed consumption level generating the same welfare as the consumptions spread across and within regions. This method bears similarity to comparing individuals based on certainty equivalents in the context of risk aversion, with the certainty equivalent representing a guaranteed consumption level producing the same utility as a risky outcome.

However, when applying the EDE approach, there is ambiguity about which value function should be used to calculate the expected value. Specifically, the risk aversion component is critical to determining certainty equivalents, but may not be directly applicable when computing EDEs. As such, calculating the expected EDE without considering risk aversion poses a challenge. In this methodology, the rescaled utility function,  $v_{\eta}^*(c)$ , is defined as:

$$v_{\eta}^*(c) = v^*(EDE_{\eta}(c))$$

In concrete terms, the *equally distributed equivalent* of a consumption path must be defined before determining the optimal carbon tax. For  $\eta \in \mathcal{V}$  and  $c \in X$ , we want  $EDE_{\eta}(c)$  to represent an *equally distributed* consumption path  $e$  such that the worldview  $\eta$  perceives  $e$  as having equivalent value to  $c$ . To ensure the existence and uniqueness of the EDE, we posit the following.

**Definition 1** For any  $y \geq 0$ , let  $\mathbf{y} \in E$  denote the consumption path wherein all individuals in all generations receive consumption level  $y$ .

For each  $\eta \in \mathcal{V}$ , we propose the following:

- (Monotonicity) If  $x \geq y$  then  $\mathbf{x} \succsim_{\eta} \mathbf{y}$
- (Continuity) If  $(x_n, y_n) \rightarrow (x, y)$  and for each  $n$  we have  $\mathbf{x}_n \succsim_{\eta} \mathbf{y}_n$ , then  $\mathbf{x} \succsim_{\eta} \mathbf{y}$
- For any consumption path  $c \in X$  we have  $c \succsim_{\eta} \mathbf{0}$

- For any consumption path  $c \in X$ , there exists a  $y > 0$  sufficiently large so that  $\mathbf{y} \succ_{\eta} c$

The final proposition excludes *maxmin* Rawlsian worldviews, where individuals exhibit “infinite risk aversion” over the possibility of being born as any individual in any generation. However, these propositions still allow for any arbitrary *finite* degree of risk aversion of this kind. These propositions facilitate a formal definition of the EDE:

**Definition 2 (EDE)** Let  $\eta \in \mathcal{V}$  and  $c \in X$ .  $EDE_{\eta}(c)$  is defined as the unique  $e \in E$  such that  $e \sim_{\eta} c$ .

The EDE approach is adopted preferentially within our welfare framework due to its capacity to address critical dimensions not adequately addressed by other methods, thus improving its suitability for evaluating the welfare implications of diverse climate policies and worldviews. The EDE methodology empowers policy makers with a comprehensive understanding of the intricate trade-offs between economic growth, distributional considerations, and environmental sustainability, thus fostering informed decision-making in the realm of climate change policy.

Crucially, the EDE approach adeptly navigates the issue of utilitarian indifference to utility distribution, characteristic of second-best policy scenarios. The EDE method foregrounds the distributional attributes of consumption paths, focusing on a constant, uniformly distributed consumption level that procures the same welfare as diverse consumption levels distributed within and across regions. On the contrary, the first and second methods lack an explicit emphasis on distributional aspects, potentially leading to a deficient representation of the overall welfare implications of different policies.

Moreover, the EDE methodology adeptly circumvents the irrationality of ex-ante egalitarianism, whereby a specific option may be deemed acceptable despite all its potential realizations being perceived as undesirable (spurious Pareto/ignorance). By

standardizing welfare measurement through the EDE, the third method fosters more meaningful comparisons across different vNM utility functions arising from different worldviews. On the contrary, the first and second methods are susceptible to scaling inconsistencies, potentially hampering their ability to provide an accurate basis for comparing various utility functions.

In addition, the EDE approach precludes the violation of individual preferences devoid of inequalities, characteristic of ex-post egalitarianism (paternalism). The EDE method exhibits less susceptibility to the selection of distinct reference points or derivatives, which are required in the first and second methods. For example, in the first method, the choice of  $c^*$  and  $c^{**}$  can substantially influence the scaling results, whereas in the second method, the choice of  $c^*$  impacts the derivative computations. The EDE method circumvents these issues by concentrating on the constant and uniformly distributed consumption level that generates the same welfare as the consumptions distributed across and within regions.

Furthermore, the EDE methodology achieves a robust version of Pareto under risk, accommodating all degrees of aversion to inequality. Additionally, EDE enables the quantification of inequalities, a valuable feature for applied research. The EDE approach presents an intuitively appealing strategy to compare different consumption paths and worldviews, considering the constant, uniformly distributed consumption level that yields the same welfare as the consumptions spread across and within regions. This approach is analogous to comparing individuals based on certainty equivalents in a risk-averse context, providing an understandable basis for evaluating diverse policy options.

The EDE methodology provides a more suitable framework for analyzing the welfare implications of varying climate policies and worldviews compared to alternative methods. It enables policymakers to make well-informed decisions, considering the intricate trade-offs between economic growth, distributional considerations, and

environmental sustainability.

### 3.1.3 Minimal Comparability of Worldviews

In practical and applied research, comparing different  $v_\eta$  is only feasible when they share a minimal identity and belong to a subfamily within  $\mathcal{V}$ . For example, comparing the value judgments of various forms of prioritarianism ideologies in climate economics is possible. This comparison enables the computation of expected social welfare for two environmental policies and guides the decision-maker on the preferable option based on this set of ideologies. Similarly, comparisons can be made between different libertarian or egalitarian ideologies. However, comparing a libertarian ideology with an egalitarian one is challenging, as they are unlikely to reach an ideological agreement on a single consumption path. This observation leads to the following axiom:

**Axiom 2 (Minimal Comparability of Worldviews)** *If  $N, M \in \Delta(E)$ , then for any two worldviews  $\eta, \eta' \in \mathcal{V}$  we have  $N \succsim_\eta M \iff N \succsim_{\eta'} M$ .*

The axiom 2 is critical in the comparative analysis of different worldviews in welfare economics, as it ensures that all worldviews agree on their relative rankings over *equally distributed* consumption paths, despite their inherent differences.

Consequently, this axiom ensures that any disparities between worldviews arise solely from their attitudes towards *inequality*.

Requiring minimal comparability of worldviews in the context of equally distributed consumption paths allows for meaningful and actionable policy recommendations.

While there may be ideological differences, focusing on consensus areas allows policymakers to identify and prioritize policies that garner broad support.

Additionally, Axiom 2 promotes transparent welfare analysis, allowing researchers and policymakers to understand the implications of different worldviews more easily.

Axiom 2 also ensures that welfare comparisons remain internally consistent across different worldviews, as the relative rankings of equally distributed consumption paths are agreed upon by all worldviews. Consequently, this axiom is vital in facilitating meaningful welfare comparisons by isolating the source of disparities between worldviews and their attitudes towards *inequality*. By focusing on equally distributed consumption paths, the axiom neutralizes other potential sources of disagreement, such as the trade-offs between growth and environmental sustainability.

For example, consider three policy-makers  $A, B, C$  and two policy options  $X, Y$  that yield different consumption paths. Suppose we have two different worldviews,  $\eta$  and  $\eta'$ , with associated welfare functions  $W_\eta$  and  $W_{\eta'}$ . Axiom 2 ensures that both worldviews concur on their relative rankings over equally distributed consumption paths. Now, let's look at the consumption paths generated by policy  $X$  and policy  $Y$  for policy-makers  $A, B$ , and  $C$ :

Policy  $X$ :

$$N_X = \begin{bmatrix} n_{XA} \\ n_{XB} \\ n_{XC} \end{bmatrix}$$

Policy  $Y$ :

$$M_Y = \begin{bmatrix} m_{YA} \\ m_{YB} \\ m_{YC} \end{bmatrix}$$

Let's assume that the equally distributed equivalent consumption paths for policies  $X$  and  $Y$  are as follows:

$$EDE_X = \begin{bmatrix} e_X \\ e_X \\ e_X \end{bmatrix}, \quad EDE_Y = \begin{bmatrix} e_Y \\ e_Y \\ e_Y \end{bmatrix}$$

With Axiom 2, we can establish that if  $EDE_X \succsim_{\eta} EDE_Y$ , then  $EDE_X \succsim_{\eta'} EDE_Y$ . In other words, if worldview  $\eta$  prefers or is indifferent between EDEs of policy  $X$  and policy  $Y$ , then worldview  $\eta'$  must also prefer or be indifferent between these EDEs. This condition allows for more coherent welfare comparisons across worldviews, ensuring that both worldviews agree on the relative rankings of equally distributed consumption paths. Without Axiom 2, different worldviews could potentially lead to contradictory welfare evaluations, thus making the comparison and subsequent policy decision more complex. By ensuring minimal comparability of worldviews, Axiom 2 reduces such complexities and provides a more robust foundation for welfare analysis in climate economics.

Adopting the EDE approach alongside Axiom 2 ensures a comprehensive and consistent framework for welfare analysis in climate economics. By focusing on equally distributed consumption paths and establishing the minimal comparability of worldviews, this framework enables meaningful welfare comparisons and facilitates informed policy decision-making. It respects the nuances of different worldviews and considers the distributional aspects of consumption paths, fostering a balanced approach to climate economics.

### 3.1.4 The Optimal Carbon Tax

Leveraging the Minimal Comparability of Worldviews axiom introduced above to compare the value judgments of different variants of prioritarianism worldviews, we can compute the expected social welfare of two environmental policies based on two different inequality-aversion worldviews. Using Axiom 2 we can compare variants of

libertarian worldviews or egalitarian worldviews. However, we cannot compare a libertarian and egalitarian worldview, as it seems too demanding to imagine them reaching an ideological agreement on one consumption path.

**Theorem 1** *From Hypotheses 1-2 and Axioms 1-2, There exists a function  $v^* : E \rightarrow \mathbb{R}$  such that for each  $\eta \in \mathcal{V}$ , if we define  $v_\eta : X \rightarrow \mathbb{R}$  by*

$$v_\eta(c) = v^*(EDE_\eta(c))$$

*then  $\succsim_\eta$  is represented on  $\Delta(X)$  by the vNM utility function*

$$V_\eta(N) = \sum_{c \in X} N(c) \cdot v_\eta(c).$$

Theorem 1 establishes the existence of a function  $v^*$  that maps EDE values to the real numbers. This function allows us to define a vNM utility function,  $V_\eta(N)$ , which represents the preferences of each worldview  $\eta \in \mathcal{V}$ . The theorem ensures that the vNM utility functions capture the preferences of different worldviews when evaluating lotteries over consumption paths.

**Theorem 2 (Worldview-Inclusive Welfare)** *From Hypotheses 1-2 and Axioms 1-2, there exist constants  $(\alpha_\eta)_{\eta \in \mathcal{V}}$  such that the function*

$$W(N) = \sum_{\eta \in \mathcal{V}} \alpha_\eta \cdot V_\eta(N)$$

*is a vNM representation for the societal preference relation  $\succsim$  on  $\Delta(X)$ .*

Theorem 2 extends the individual vNM utility functions from Theorem 1 to a societal preference relation,  $\succsim$ , by introducing constants  $(\alpha_\eta)_{\eta \in \mathcal{V}}$ . These constants represent the relative importance of different worldviews within society. The function  $W(N)$  aggregates the vNM utility functions across all worldviews, comprehensively

capturing the inequality-averse social welfare.

Within the framework of Theorem 2, constants  $(\alpha_\eta)_{\eta \in \mathcal{V}}$  are introduced, which encapsulate the relative importance or weight of each worldview  $\eta \in \mathcal{V}$  within society. These constants play a crucial role in aggregating individual vNM utility functions across all worldviews, ensuring that the societal preference relation  $\succsim$  reflects a balanced consideration of various perspectives. The rationale for including these constants stems from the need to account for the diversity of worldviews and their varying degrees of influence on societal preferences.

By assigning appropriate weights to each worldview, we ensure that the aggregated social welfare function captures the overall preferences of society more comprehensively. Consistency is maintained through Axioms 1-2, which ensure that the welfare comparisons remain coherent across different worldviews. Specifically, Axiom 2 establishes the minimal comparability of worldviews, allowing us to find common ground when considering equally distributed consumption paths. This consensus ensures that the relative rankings of equally distributed consumption paths are agreed upon by all worldviews, promoting internal consistency in welfare comparisons.

By incorporating the diversity of worldviews and accounting for distributional concerns, theorem 2 allows for a more robust and coherent comparison of welfare implications across various policies. Hence it plays a vital role in enhancing the applicability and reliability of the EDE approach in welfare analysis, particularly in the context of policy evaluation with uncertain worldviews, where different worldviews significantly influence preferences and policy recommendations. Firstly, the theorem enables the aggregation of individual vNM utility functions across all worldviews, ensuring that the societal preference relation  $\succsim$  reflects a balanced consideration of various perspectives. Secondly, by utilizing the EDE approach and the constants  $(\alpha_\eta)_{\eta \in \mathcal{V}}$ , this theorem allows for the examination of welfare implications

that take into account both the diversity of worldviews and concerns for inequality. Thirdly, this theorem's aggregated social welfare function can inform policy decisions. It provides a comprehensive basis for comparing the welfare implications of different climate policies across diverse worldviews and distributional concerns. This discussion sets the stage for the application of Axiom 2 to the NICERIU model, leading to the specification of the value function as

$$v_{\eta}^*(c) = v^*(EDE_{\eta}(c))$$

with  $EDE_{\eta}(c)$  represented as

$$EDE_{\eta}(c) = \left[ \frac{\sum_t \frac{1}{(1+\rho)^t} \sum_r \frac{L_{rt}}{5} c_{irst}^{1-\eta}}{\sum_t \frac{1}{(1+\rho)^t} \sum_r \frac{L_{rt}}{5}} \right]^{\frac{1}{1-\eta}}$$

The expression for  $EDE_{\eta}(c)$  captures the EDE of consumption path  $\mathbf{c}$ , reflecting the present value of consumption, adjusted for the population size and growth rate.

Given this specification, for a constant consumption path  $\mathbf{c}$ , and for all  $v_{\eta}, v_{\eta'} \in \mathcal{V}$ , we have that

$$v^*(\mathbf{c}) \equiv v_{\eta}(\mathbf{c}) = v_{\eta'}(\mathbf{c}) \tag{3.1}$$

The EDE of  $\mathbf{c}$  is then

$$\begin{aligned} EDE_{\eta}(\mathbf{c}) &= \left[ \frac{\sum_t \frac{1}{(1+\rho)^t} \sum_r \frac{L_{rt}}{5} \mathbf{c}^{1-\eta}}{\sum_t \frac{1}{(1+\rho)^t} \sum_r \frac{L_{rt}}{5}} \right]^{\frac{1}{1-\eta}} \\ &= \mathbf{c} \end{aligned} \tag{3.2}$$

Consequently, we obtain

$$\begin{aligned} v^*(EDE_\eta(\mathbf{c})) &= v(EDE_\eta(\mathbf{c})) \\ &= v_{\eta'}(EDE_\eta(\mathbf{c})) \end{aligned} \tag{3.3}$$

This leads us to the planner's selection of social welfare:

$$W(c) = \mathbb{E}_s \sum_{\eta \in \mathcal{V}} \alpha_\eta v^* \left( \left[ \frac{\sum_t \frac{1}{(1+\rho)^t} \sum_r \frac{L_{rt}}{5} C_{irst}^{1-\eta}}{\sum_t \frac{1}{(1+\rho)^t} \sum_r \frac{L_{rt}}{5}} \right]^{\frac{1}{1-\eta}} \right)$$

The social welfare function of the planner aggregates the utilities of different worldviews according to their respective values  $\alpha$ , taking into account the EDE of each consumption path. This function effectively represents societal preferences, demonstrating the application of Axiom 2 in bridging different worldviews and making welfare comparisons under uncertainty.

## 3.2 Taxation Simulations and Calibrations

Following the theoretical underpinnings established in previous sections, we now turn our attention towards practical implementation. Our objective in this section is to bring the derived theoretical constructs into the computational realm.

The framework we employ here aims to determine an optimal taxation policy. To achieve this, we will take advantage of the social welfare function  $W(c)$ , established earlier. In this exercise, we take into account a symmetric weighting scheme for worldviews, characterized by constants  $\alpha_\eta$ . The symmetry of the weights emphasizes equal consideration of each distinct worldview in deriving the optimal taxation policy, thus upholding the principle of impartiality in our approach.

Moreover, to capture the range of possible societal attitudes toward inequality, we

consider four distinct degrees of inequality aversion, denoted by  $\eta$ , namely, 0.1, 1.1, 2.1, and 3.1. Each  $\eta$  presents a different scenario of social preference over distributional outcomes, providing a rich set of scenarios to evaluate and compare the derived tax policies. Developing a Julia version of our social welfare function permits rigorous computational exploration and enhances our understanding of the interaction between different worldviews, inequality aversion, and optimal taxation. Furthermore, it allows robust policy simulations, which can help policymakers understand the implications of various taxation schemes under divergent societal preferences.

This computational exercise, which involves four distinct degrees of inequality aversion ( $\eta$ ) and a symmetric weighting scheme, as illustrated in Figure 3.2, reveals a fascinating result. The optimal taxation policy that emerges from our model, taking into consideration the variety of worldviews represented by the values of  $\eta$  (0.1, 1.1, 2.1, 3.1), when equal weight ( $\alpha = 0.25$ ) is given to each of these perspectives, is almost identical to a taxation policy based on a single degree of inequality aversion:  $\eta = 2.1$ . This result has significant implications both theoretically and practically, underscoring the robustness of our model and its potential policy applications.

From a theoretical point of view, this result suggests that the distributional considerations encapsulated by the values  $\eta$  and their associated weights in the social welfare function are not simply additive in their influence on the optimal tax policy derived. Instead, the aggregate result resembles closely a policy driven by a single, specific degree of inequality aversion ( $\eta = 2.1$ ). This observation signals the intriguing interplay between different societal attitudes towards inequality and their resulting impact on optimal taxation.

In terms of practical implications, the equivalence between the aggregated outcome and the policy based on  $\eta = 2.1$  simplifies the complexity inherent in considering a multitude of societal attitudes toward inequality. It suggests that policymakers

seeking an optimal taxation strategy could, in this context, focus on a taxation policy based on the single  $\eta$  value of 2.1, and still cater to a society characterized by a variety of inequality aversions.

However, this finding should not lead us to generalize is rushed. While it is tempting to infer that a single  $\eta$ -based policy might adequately represent a diversity of societal inequality aversions, one must be cautious. Our result is contingent on the specific  $\eta$  values selected and the assumption of equal weights. Changing these parameters could lead to different outcomes. Thus, our exploration serves as an important reminder of the value of theoretical reasoning and computational modeling in navigating the intricate landscape of optimal taxation policy. It calls for more comprehensive analysis and robust simulations to fully grasp the nuances of optimal taxation under different societal preferences.

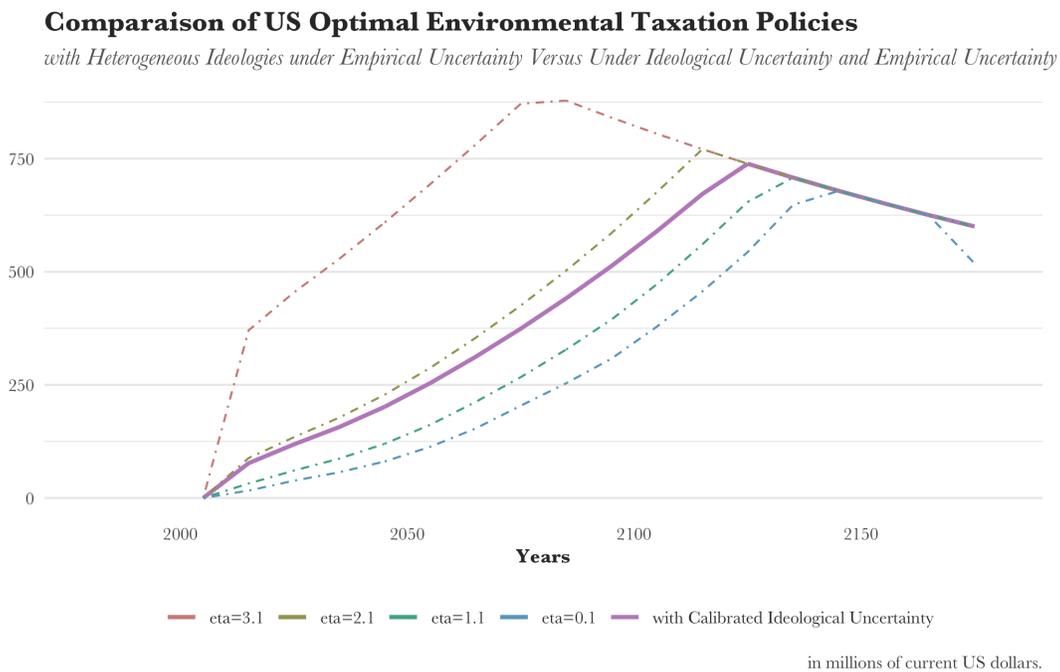


Figure 3.2: US Optimal Carbon Taxation with symmetric internal beliefs.

Simulation **with** empirical uncertainty and symmetric distribution of internal beliefs (0.25 on each  $\eta$ )

The precision with which our model's optimal taxation policy curve falls slightly below the taxation policy derived from a single  $\eta = 2.1$  offers an intriguing detail to our previous findings. This subtlety suggests that the integration of diverse perspectives on inequality aversion, even when given equal weights, yields a policy leaning towards slightly less taxation compared to the policy based solely on  $\eta = 2.1$ . From a theoretical standpoint, this deviation is indicative of the multidimensional considerations that surface when aggregating over a set of varied inequality aversions. The slight downward adjustment in the optimal tax rate suggests that the mixture of attitudes towards inequality - encapsulated in the values  $\eta$  and their symmetric weights - exerts a moderating effect on the taxation policy. Although the overall policy is closely similar to that determined by  $\eta = 2.1$ , the lower taxation rate signifies that the perspectives represented by the other values  $\eta$ , specifically those less averse to inequality, have a measurable impact on the overall outcome.

In practice, this result implies that an optimal taxation policy that accounts for a diversity of inequality aversions tends to be slightly more moderate in its taxation approach than one based solely on a  $\eta = 2.1$  worldview. The minor reduction in the tax rate could be a reflection of the societal trade-off between equity and efficiency, signaling a nuanced compromise to accommodate diverse perspectives on inequality. This could also be interpreted as a signal of the elasticity of social attitudes toward inequality, with potential implications for economic behavior and policy compliance. However, as previously noted, this nuanced result underscores the importance of careful interpretation of the model and the value of further robust analysis. While the slight reduction in taxation might seem minor, in a complex socio-economic environment, such marginal differences could have significant aggregate effects. Therefore, a more extensive exploration would be beneficial to better understand and validate these findings within different socioeconomic contexts.

To guarantee the appropriate assignment of weights to each worldview, several key

considerations must be taken into account. By adhering to these guidelines, we can ensure that the aggregated social welfare function accurately represents the overall preferences of society. First, the assignment of weights should reflect the relative prevalence or acceptance of each worldview within society. This can be achieved by surveying the population, gathering expert opinions, or analyzing historical trends to discern the distribution of worldviews and assign weights accordingly. This ensures that the aggregated social welfare function is democratically representative of the society's diverse perspectives. In addition, a normative evaluation of each worldview may be necessary to determine its ethical or moral significance. The assignment of weights may incorporate considerations of fairness, justice, or other normative criteria to ensure that the aggregation process respects widely accepted ethical principles. In addition, the assignment of weights may be subject to continuous revision and calibration based on new information or shifting societal values. By regularly reevaluating the distribution of worldviews and adjusting the weights accordingly, the aggregated social welfare function remains up-to-date and relevant to the evolving preferences of society. Finally, the assignment of weights should be transparent and open to scrutiny. By clearly documenting the methodology, data sources, and assumptions used in determining the weights, we can facilitate an open dialogue on the appropriateness of the chosen weights and ensure the credibility of the aggregated social welfare function.

By following these considerations, we can guarantee the appropriate assignment of weights to each worldview, ensuring that the aggregated social welfare function accurately captures the overall preferences of society and respects the diversity of worldviews when evaluating climate policies and other welfare implications.

We use the Normative Uncertainty Survey (Jabarian (2021)) to calibrate our model. The Normative Uncertainty Survey aims to elicit moral uncertainty over various attitudes relevant to social sciences (ambiguity, risk, climate, health, business ethics,

social values, social trade-offs, and political opinions). Its main statistical characteristics are the following. Representative Population of the United States (sex, ethnicity, income, age, education, employment, religion);  $N = 1000$ . Its main methodology relies on the two-stage elicitation of self-reports. The first stage elicits self-reports of the evaluations. The second stage involves self-reporting about internal uncertainty. Participants were randomly assigned to different sets of first-order evaluations. Regarding climate dilemmas, 500 participants faced them.

The dilemma is written in such a way that only two policy options, each associated with one and only one level of inequality aversion, are available to participants.

Related to our previous modeling, the set  $\mathcal{V}$  would contain only two  $\eta$ , a low and a high.

Hence, the decision-maker chooses between two worldview-based optimal policies, conditional on their degree of inequality aversion. They seek the optimal policy that is inclusive of the worldview, conditional on being uncertain between both degrees of inequality aversion. Within this framework, relying on NUS data, we can use the first stage data, namely, the population's policy preferences between both options, as the decision maker's weights  $\alpha$ , associated with each degree aversion level. This strategy allows us to avoid relying on idiosyncratic choices of these weights, otherwise solely at the decision-maker's discretion.

In the NUS, Jabarian finds that 49.62% of the participants prefer the policy option associated with a low concern for inequality aversion (low  $\eta$ ), while 50.38% prefer the option with a high concern for inequality aversion.<sup>2</sup> Such a result leads to an optimal policy similar to that in our previous simulation, as illustrated in Figure C.3 in the appendix.<sup>3</sup>

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<sup>2</sup>As shown in the robustness analysis from the NUS, such data are not explained by observational data. In particular, they are not explained by the unemployment rate nor the voting share in different US states. Namely, being unemployed or having voted for Trump in the latest elections does not explain self-reported answers in favor of more or less inequality-averse climate policies.

<sup>3</sup>We can also use the second-stage data, namely the population's level of internal uncertainty regarding each level of inequality aversion to derive the decision maker's weights. This is what we do in the

### 3.3 Concluding Remarks

This paper explores the implications of various inequality-aversion concerns in determining an optimal carbon taxation policy. By embracing a multifaceted approach toward understanding societal preferences, we account for diverse attitudes towards inequality using a novel method that aggregates the von Neumann-Morgenstern utility functions across different worldviews.

We develop a comprehensive macroclimate NICERIU model to calculate a socially optimal carbon tax policy while considering the heterogeneity and uncertainty in societal attitudes towards inequality, a vital yet often overlooked dimension in environmental policy decision making.

Specifically, we employ the Equally Distributed Equivalent (EDE) approach combined with a novel axiom, Minimal Comparability of Worldviews, which, together. This approach allows us to perform robust welfare analysis in an uncertain world, offering a nuanced lens through which policy evaluation can be conducted. In the context of carbon taxation, this approach facilitates the comparison of welfare implications across different policies and inequality aversions.

To enhance the practical applicability of our model, we perform a series of taxation simulations. The simulations are conducted for four distinct degrees of inequality aversion, each assigned an equal weight in our societal welfare function. The optimal carbon tax policy derived from this model is closely aligned with the policy determined by a single degree of inequality aversion  $\eta = 2.1$ , but falls slightly below it. This nuance underscores the need to account for diverse inequality aversions in policymaking and highlights the subtle impacts of such heterogeneity on tax policy outcomes.

Our paper contributes to the literature by offering a novel perspective on understanding and incorporating social preferences in policy evaluation. The results

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Appendix.

highlight the importance of considering the diversity of worldviews in policy design, while also providing valuable insights for designing more effective and socially equitable environmental policies.

# Bibliography

- Adler, Matthew D and Marc Fleurbaey (2016), *The Oxford handbook of well-being and public policy*. Oxford University Press.
- Allcott, Hunt, Luca Braghieri, Sarah Eichmeyer, and Matthew Gentzkow (2020), "The welfare effects of social media." *American Economic Review*, 110, 629–676.
- Andreoni, James and Michael A. Kuhn (2019), "Is it safe to measure risk preferences? assessing the completeness, predictive validity, and measurement error of various techniques." *Working Paper*, URL [https://static1.squarespace.com/static/5c79b3d29b8fe82f5cb96360/t/5cc0debb71c10bd5d9ab45f3/1556143804348/mCRB\\_WP.pdf](https://static1.squarespace.com/static/5c79b3d29b8fe82f5cb96360/t/5cc0debb71c10bd5d9ab45f3/1556143804348/mCRB_WP.pdf).
- Anscombe, F. J. and R. J. Aumann (1963), "A definition of subjective probability." *Ann. Math. Statist.*, 34, 199–205, URL <https://doi.org/10.1214/aoms/1177704255>.
- Atkinson, Anthony B (1970), "On the measurement of inequality." *Journal of economic theory*, 2, 244–263.
- Bénabou, Roland and Jean Tirole (2006), "Incentives and prosocial behavior." *American Economic Review*, 96, 1652–1678.
- Bernheim, B Douglas, Luca Braghieri, Alejandro Martínez-Marquina, and David Zuckerman (2021), "A theory of chosen preferences." *American Economic Review*, 111, 720–54.
- Bernstein, Joshua, Francis Dennig, Maddalena Ferranna, and Marc Fleurbaey (2017), "Risk, inequality, and climate change." In *EAERE conference available at* <http://fleximeets.com/eaere23/getpaper.php>.
- Cacioppo, John T and Richard E Petty (1982), "The need for cognition." *Journal of personality and social psychology*, 42, 116.
- Dennig, Francis, Mark B Budolfson, Marc Fleurbaey, Asher Siebert, and Robert H Socolow (2015a), "Inequality, climate impacts on the future poor, and carbon prices." *Proceedings of the National Academy of Sciences*, 112, 15827–15832.
- Dennig, Francis, Mark B. Budolfson, Marc Fleurbaey, Asher Siebert, and Robert H. Socolow (2015b), "Inequality, climate impacts on the future poor, and carbon

- prices." *Proceedings of the National Academy of Sciences*, 112, 15827–15832, URL <http://www.pnas.org/lookup/doi/10.1073/pnas.1513967112>.
- Eliaz, Kfir and Ran Spiegler (2020), "A model of competing narratives." *American Economic Review*, 110, 3786–3816.
- Ellsberg, Daniel (1961), "Risk, ambiguity, and the savage axioms." *The Quarterly Journal of Economics*, 75, 643–669, URL <http://www.jstor.org/stable/1884324>.
- EPA (2022), "Supplementary material for the regulatory impact analysis for the supplemental proposed rulemaking, standards of performance for new, reconstructed, and modified sources and emissions guidelines for existing sources: Oil and natural gas sector climate review." *Federal Register*, Vol. 87, Docket ID No. EPA-HQ-OAR-2021-0317, URL <https://www.federalregister.gov/documents/2022/12/06/2022-24675/standards-of-performance-for-new-reconstructed-and-modified-sources-and-emissions-guidelines-for>.
- Epstein, Larry G and Yoram Halevy (2019), "Ambiguous correlation." *The Review of Economic Studies*, 86, 668–693.
- Falck, Oliver, Robert Gold, and Stephan Heblich (2014), "E-lections: Voting behavior and the internet." *American Economic Review*, 104, 2238–2265.
- Fleurbaey, Marc (2010), "Assessing risky social situations." *Journal of Political Economy*, 118, 649–680.
- Fleurbaey, Marc (2017), "Rationality under risk and uncertainty." *unpublished working paper*.
- Fleurbaey, Marc, Maddalena Ferranna, Mark Budolfson, Francis Dennig, Kian Mintz-Woo, Robert Socolow, Dean Spears, and Stéphane Zuber (2019), "The social cost of carbon: valuing inequality, risk, and population for climate policy." *The Monist*, 102, 84–109.
- Gajdos, Thibault, Takashi Hayashi, J-M Tallon, and J-C Vergnaud (2008), "Attitude toward imprecise information." *Journal of Economic Theory*, 140, 27–65.
- Ghirardato, Paolo, Fabio Maccheroni, and Massimo Marinacci (2004), "Differentiating ambiguity and ambiguity attitude." *Journal of Economic Theory*, 118, 133 – 173, URL <http://www.sciencedirect.com/science/article/pii/S0022053104000262>.
- Gilboa, Itzhak and David Schmeidler (1989), "Maxmin expected utility with non-unique prior." *Journal of Mathematical Economics*, 18, 141 – 153, URL <http://www.sciencedirect.com/science/article/pii/0304406889900189>.
- Gillen, Ben, Erik Snowberg, and Leeat Yariv (2019), "Experimenting with measurement error: Techniques with applications to the caltech cohort study." *Journal of Political Economy*, 127, 1826–1863, URL <https://doi.org/10.1086/701681>.

- Gorodnichenko, Yuriy, Tho Pham, and Oleksander Talavera (2021), "Social media, sentiment and public opinions: Evidence from #brexit and #uselection." *European Economic Review*, 136.
- Halevy, Yoram (2007), "Ellsberg revisited: An experimental study." *Econometrica*, 75, 503–536, URL <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-0262.2006.00755.x>.
- Halpern, Diane F (2013), *Thought and knowledge: An introduction to critical thinking*. Psychology Press.
- Jaakkola, Niko and Antony Millner (2022), "Nondogmatic climate policy." *Journal of the Association of Environmental and Resource Economists*, 9, 807–841.
- Jabarian, Brian (2019), "The moral burden of ambiguity aversion." *P&PA Discussion Series, PEA Soup*, May 2019, URL <http://peasoup.us/2019/05/ppa-discussion-thomas-rowe-and-alex-voorhoeves-egalitarianism-under-severe-uncertainty-with-critical-precis-by-brian-jabarian/>.
- Jabarian, Brian (2021), "Operationalizing moral uncertainty." *Doctoral Thesis in Philosophy*, University Panthéon-Sorbonne, Paris 1.
- Ju, Nengjiu and Jianjun Miao (2012), "Ambiguity, learning, and asset returns." *Econometrica*, 80, 559–591.
- Kaplan, Kalman J (1972), "On the ambivalence-indifference problem in attitude theory and measurement: A suggested modification of the semantic differential technique." *Psychological Bulletin*, 77, 361–372.
- Karni, Edi and Zvi Safra (1987), "'preference reversal' and the observability of preferences by experimental methods." *Econometrica*, 55, 675–685, URL <http://www.jstor.org/stable/1913606>.
- Klibanoff, Peter, Massimo Marinacci, and Sujoy Mukerji (2005), "A smooth model of decision making under ambiguity." *Econometrica*, 73, 1849–1892, URL <http://www.jstor.org/stable/3598753>.
- Kolm, S-C (1968), "The optimal production of social justice'." *INTERNATIONAL LIBRARY OF CRITICAL WRITINGS IN ECONOMICS*, 158, 251–294.
- Kornek, Ulrike, David Klenert, Ottmar Edenhofer, and Marc Fleurbaey (2021), "The social cost of carbon and inequality: when local redistribution shapes global carbon prices." *Journal of Environmental Economics and Management*, 107, 102450.
- Kunda, Ziva (1990), "The case for motivated reasoning." *Psychological bulletin*, 108, 480.
- Kuzmics, Christoph, Brian Rogers, and Xiannong Zhang (2020), "Is ellsberg behavior evidence of ambiguity aversion?" *Available at SSRN 3437331*.

- Lange, Andreas and Nicolas Treich (2008), "Uncertainty, learning and ambiguity in economic models on climate policy: some classical results and new directions." *Climatic Change*, 89, 7–21.
- List, A John (2022), "Enhancing critical thinking skill formation: Getting fast thinkers to slow down." *The Journal of Economic Education*, 53, 100–108.
- MacAskill, William (2014), *Normative uncertainty*. Ph.D. thesis, University of Oxford.
- Maccheroni, Fabio, Massimo Marinacci, and Aldo Rustichini (2006), "Ambiguity aversion, robustness, and the variational representation of preferences." *Econometrica*, 74, 1447–1498, URL <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-0262.2006.00716.x>.
- Martin, Matthew M and Rebecca B Rubin (1995), "A new measure of cognitive flexibility." *Psychological reports*, 76, 623–626.
- Millner, Antony (2020), "Nondogmatic social discounting." *American Economic Review*, 110, 760–75.
- Millner, Antony, Simon Dietz, and Geoffrey Heal (2013), "Scientific ambiguity and climate policy." *Environmental and Resource Economics*, 55, 21–46.
- Munir, Saba (2018), "Social media and shaping voting behavior of youth: The scottish referendum 2014 case." *The Journal of Social Media in Society*, 7, 253–279.
- Nordhaus, William (2007a), "Critical assumptions in the stern review on climate change." *Science*, 317, 201–202.
- Nordhaus, William (2017), "Integrated assessment models of climate change." *NBER Reporter*, 3, 16–20.
- Nordhaus, William D (1977), "Economic growth and climate: the carbon dioxide problem." *The American Economic Review*, 341–346.
- Nordhaus, William D (2007b), "A review of the stern review on the economics of climate change." *Journal of economic literature*, 45, 686–702.
- Ortoleva, Pietro and Erik Snowberg (2015), "Overconfidence in political behavior." *American Economic Review*, 105, 504–35.
- Pearce, David (2003), "The social cost of carbon and its policy implications." *Oxford review of economic policy*, 19, 362–384.
- Raiffa, Howard (1961), "Risk, ambiguity, and the savage axioms: comment." *The Quarterly Journal of Economics*, 75, 690–694.
- Ramsey, Frank Plumpton (1928), "A mathematical theory of saving." *The economic journal*, 38, 543–559.

- Saez, Emmanuel (2021), "Public economics and inequality: uncovering our social nature." In *AEA Papers and Proceedings*, volume 111, 1–26.
- Savage, Leonard J (1954), *The foundations of statistics*. New York: John Wiley and Sons. Revised and Enlarged Edition, New York: Dover Publications, 1972.
- Schmeidler, David (1989), "Subjective probability and expected utility without additivity." *Econometrica*, 57, 571–587, URL <http://www.jstor.org/stable/1911053>.
- Shiller, Robert J (2017), "Narrative economics." *American economic review*, 107, 967–1004.
- Stern, Vivien, S Peters, V Bakhshi, et al. (2010), *The stern review*. Government Equalities Office, Home Office London, UK.
- Strzalecki, Tomasz (2011), "Axiomatic foundations of multiplier preferences." *Econometrica*, 79, 47–73, URL <https://onlinelibrary.wiley.com/doi/abs/10.3982/ECTA8155>.
- Treich, Nicolas (2010), "The value of a statistical life under ambiguity aversion." *Journal of Environmental Economics and Management*, 59, 15–26.
- Van Den Bergh, Jeroen CJM and Wouter JW Botzen (2014), "A lower bound to the social cost of CO<sub>2</sub> emissions." *Nature climate change*, 4, 253–258.
- Vogels, Emily A and Monica Anderson (2019), "Americans and digital knowledge."
- Yang, Chun-Lei and Lan Yao (2017), "Testing ambiguity theories with a mean-preserving design." *Quantitative Economics*, 8, 219–238.

# Appendix A

## Appendices for Chapter 1

### A.1 Main Tables

#### A.1.1 Raw Variable Names

Table A.1: RAW VARIABLE NAMES

Name	Description	Win Probability
$R^j$	$j$ th elicitation of CE for 50-50 urn of <i>Ellsberg</i>	.5
$A^j$	$j$ th elicitation of CE for ambiguous urn of <i>Ellsberg</i>	$x$
$RR^j$	$j$ th elicitation of CE for 50-50 urn in <i>2BallMixed</i>	.5
$AA^j$	$j$ th elicitation of CE for ambiguous urn in <i>2BallMixed</i>	$x^2 + (1 - x)^2 \geq .5$
$AR^j$	$j$ th elicitation of CE for "1st urn=A, 2nd=R" gamble of <i>2BallMixed</i>	.5
$RA^j$	$j$ th elicitation of CE for "1st urn=R, 2nd=A" gamble of <i>2BallMixed</i>	.5
R3	CE for <i>3Ball</i> with all three urns = R	.25
A3	CE for <i>3Ball</i> with all three urns = A	$x^3 + (1 - x)^3 \geq .25$
RAA	CE for <i>3Ball</i> with 1st urn = R, latter two urns = A	$.5[x^2 + (1 - x)^2] \geq .25$
IA	CE for <i>Independent</i> (Two-Ball gamble with independent ambiguous urns)	$x_1x_2 + (1 - x_1)(1 - x_2)^\dagger$
$C^j$	$j$ th elicitation of CE for single-urn gamble of <i>Compound</i>	$p$
$CC^j$	$j$ th elicitation of CE for Two-Ball gamble of <i>Compound</i>	$p^2 + (1 - p)^2 \geq .5$
$BB^{40-60}$	CE for <i>BoundedA</i> with ambiguous urn containing 40-60 red balls	$x^2 + (1 - x)^2 \in [.5, .52]$
$BB^{60-100}$	CE for <i>BoundedA</i> with ambiguous urn containing 60-100 red balls	$x^2 + (1 - x)^2 \geq .52$
$BB^{95-100}$	CE for <i>BoundedA</i> with ambiguous urn containing 95-100 red balls	$x^2 + (1 - x)^2 \geq .905$

In the final column,  $x$  denotes a number between 0 and 1 that is determined by an ambiguous procedure that is not known by subjects. In reality,  $x$  was determined to be one of  $0, .01, .02, \dots, .99, 1$  uniformly at random.  $x_1$  and  $x_2$  denote numbers between 0 and 1 that were determined ambiguously but using the same procedure as each other. Lastly,  $p$  is a number between 0 and 1 that subjects *know* will be determined uniformly at random among  $0, .01, .02, \dots, .99, 1$ .

† Note that the win probability for gamble  $IA$  will equal .5 if the procedure determining  $x_1$  and  $x_2$  is symmetrical about .5 - that is if the urns are just as likely to contain a certain number of red balls as that to contain that same number of blue balls. Otherwise, this win probability will be greater than .5.

### **A.1.2 Summary Statistics for Raw Variables**

### **A.1.3 Summary Statistics for Derived Variables**

## A.2 Experimental Design Details

### A.2.1 Treatments Blocks and Gambles

Our experiment contains four treatments, each comprising a specific number of *blocks* of gambles. A block contains either one or several similar gambles. Before each block, subjects view the relevant instructions. Each elicitation within a given block contains (1) a reiteration of the block’s instructions, (2) the new details of that particular elicitation, highlighted in yellow, and (3) a report of the subjects’ CE for that elicitation.<sup>1</sup> Subjects must report their CE before moving on to the next elicitation screen. Elicitations are uniformly, independently, and randomly ordered between the subjects within a given block. Each treatment may only contain 11 or 12 elicitations to accommodate online cognitive fatigue and prevent attention deficits.

Each treatment is divided into *blocks* consisting of one or multiple questions about a gamble for which the subjects must report their CEs.

In each question, “winning” the gamble means a payoff of 300 tokens (= \$3), and “losing” means a payoff of 0 tokens. The notation “[ $x$  red,  $y$  blue]” means an urn that contains exactly  $x$  red balls,  $y$  blue balls, and no other balls. Similarly, “[Unknown red, Unknown blue]” means the urn contains an unknown number of red and blue balls and no other balls. For notational convenience,  $R = [50 \text{ red}, 50 \text{ blue}]$  and  $A = [\text{Unknown red}, \text{Unknown blue}]$ .

Subjects were informed that the contents of urn  $A$  would vary from question<sup>2</sup> to question (i.e., the contents of ambiguous urns are re-determined between questions). In practice, the contents of each urn  $A$  were determined by drawing an integer  $X$  uniformly at random between 0 and 100. A virtual urn containing  $X$  red balls and  $100 - X$  blue balls was created. Subjects were not informed of this procedure to determine the contents of ambiguous urns.

To perform ORIV, we double-elicited subjects’ CEs for all gambles of central importance to our analysis; however, due to time constraints and concerns that subjects may “zone out” and provide especially noisy answers if asked too many repeated similar questions, we could not double-elicited CEs for all gambles. We focused on double eliciting the most relevant gambles to our paper. We will attach the symbol **D** to the name of an elicitation when we refer to a duplicate of this later.

Table A.4 summarizes the structure of each treatment. Each item in bold is one of the blocks described in Section A.2.1. Multiple items within parenthesis ( ) mean that the order of these items is determined uniformly at random, independently for each subject. Items within brackets [ ] are not randomized; they always appear in the order listed within them.

In each treatment, we double-elicited subjects’ CEs for the two classic **Ellsberg** gambles as well as the two Two-Ball gambles in the **2Ball** block (which also appear within its longer version **2BallMixed**). Thus, using data from all four treatments, we can robustly determine if subjects prefer  $RR$  (or  $R$ ) over  $AA$ , even though the latter is

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<sup>1</sup>Certain elicitations require the subject to choose a color (i.e., red or blue) to place a bet. For these elicitations, the subject must select a color before they can report their CE, which appears on the screen.

<sup>2</sup>In the remaining of our paper, we will use the words “elicitations” and “questions” as synonyms.

more likely to win. Furthermore, by comparing a subject’s responses to these Two-Ball gambles with their responses to the classic **Ellsberg** gambles, we can determine the relationship between ambiguity aversion, risk aversion, and “falling for” the Two-Ball Ellsberg paradox.

Treatment	Contents of Treatment
PARADOXES	[(Ellsberg, 2BallMixed), (EllsbergD, 2BallMixedD)]
COMPLEXITY	[(Ellsberg, 2Ball, Compound), (EllsbergD, 2BallID, CompoundD)]
NUDGING	( BoundedA, [(Ellsberg, 2Ball), (EllsbergD, 2BallID)] )
ROBUSTNESS	( (Ellsberg, 2Ball), (3Ball, Independent), (EllsbergD, 2BallID) )

Table A.4: TREATMENTS

### A.2.2 Elicitation Protocol: Multiple Price List

As mentioned in the introduction, we elicit the subjects’ CEs using MPLs to determine their preferences over various acts. Each question introduces a gamble, as detailed above. When agents do not make choices that correspond to the expected utility theory predictions, using the MPL mechanism may be problematic. For example, **Karni and Safra (1987)** demonstrated that incentive-compatible mechanisms could not elicit CEs if the independence axiom does not hold. Despite this concern, the MPL mechanism has been used extensively in experiments where agents face risk or ambiguity when making choices, many of which included the possibility of their choices over lotteries not satisfying the predictions of expected utility theory. This is perhaps because the MPL offers several advantages over other mechanisms.

**Andreoni and Kuhn (2019)** argue that the MPL mechanism is extremely easy for subjects to understand and yields more consistent choices than other standard mechanisms for eliciting risk preferences. Furthermore, it provides externally valid predictions once adjusted for measurement error.

Our experiment’s MPL table contains 31 rows corresponding to fixed prize values between 0 and 300 tokens in increments of 10 tokens. There are 32 possible locations where a subject can place their “cutoff” (below which they prefer the gamble and after which they prefer the fixed prize). If a value  $x \in \{0, 10, \dots, 290\}$  exists such that the subject prefers the gamble to receive  $x$  tokens but prefers receiving  $x + 10$  tokens to the gamble, then this was recorded numerically as “the subject’s CE is  $x + 5$ .” If the

subject preferred 0 tokens to the gamble, the CE was 0. Finally, if the subject preferred the gamble to 300 tokens, the CE was 300.

In each row, subjects select either the left column (“Receive fixed payment”) or the right column (“Play the gamble”). To make the process less time-consuming and enforce the consistency of choices, the subject’s selection in each row is automatically completed based on a limited number of clicks. For example, suppose a subject clicks to indicate a preference for 150 tokens instead of the gamble. In that case, the JavaScript algorithm automatically completes rows 160 through 300 to indicate that the subject prefers receiving tokens to the gamble. Similarly, if the subject prefers the gamble instead of receiving 140 tokens, the software automatically completes rows 0 through 130 to indicate a preference for playing the gamble over receiving tokens. Subjects can revise their choices (consistent with the autocompletion rules above) before moving on to the next question.

Each question contains, at most, one row in which the subject’s preference switches from preferring the gamble to preferring a specific amount of tokens. The subject’s CE for the gamble must lie between the token amounts in this row and the previous row. We then record the subject’s CE as the *midpoint* between the two rows, i.e., a number ending in 5. If the subject prefers the gamble over 300 tokens or 0 tokens to the gamble, then no such “switching” row exists. Nonetheless, if the subject prefers the gamble over a fixed payment of 300 tokens, their CE may be 300 tokens, as the gamble cannot pay more than 300 tokens. Similarly, if the subject prefers 0 tokens to the gamble, their CE is 0. We record the subject’s CE as 300 or 0 in these cases.

### **A.2.3 Payment Method: Fixed Sum and Incentive Mechanism**

Fourteen questions are selected uniformly at random for payment from among all the questions in a given treatment to make this mechanism incentive compatible. Some experiments eliciting risk attitudes select only a single question for payment, avoiding the possibility of subjects using their choices in different questions to hedge their payoffs; however, doing so creates a significant variance in the monetary payments that different subjects receive, which was undesirable for this experiment. If a question is selected for payment, then one row of that question’s MPL table is selected randomly, and the subject is given whatever their preference is in that row. For example, if row 120 was selected and the subject preferred the gamble to 120 tokens, then the gamble is simulated, and the subject wins the prize (usually 300 tokens) or receives 0 tokens if they lose. If the subject preferred 120 tokens to the gamble, they would receive 120 tokens.

To eliminate the possibility of wealth effects and ensure that subjects did not “learn” the distribution used to resolve ambiguity, the payoffs for each question (as well as which questions were selected for payment) were not determined until after the subject completed the entire experiment. Subjects were invited to practice with the MPL mechanism (before the experiment) and observe a summary of the results; they were informed that these practice questions would not be selected for payment. Furthermore, none of these questions involved ambiguity; hence, none presented an opportunity to learn how this experiment resolved ambiguity.

At the end of the experiment, subjects were presented with a table summarizing the questions selected for payment, the row selected in that question's MPL, the subject preference in that row, and (if they preferred the gamble) whether they won the gamble. Moreover, the subject's total payment was \$1 for every 100 tokens earned, in addition to a fixed payment of \$2 for participation.

#### **A.2.4 Double Elicitations, Measurement Error, and Attention Screeners**

As mentioned in the introduction, laboratory experiments eliciting subjects' CEs for gambles are often subject to significant measurement errors. Such errors can create significant bias in estimated correlations and regression coefficients if not considered. Methods to correct for such measurement error involve eliciting subjects' CEs *twice* for each gamble of interest.

Although many techniques can then be used to eliminate the bias in estimating coefficients and correlations; the ORIV proposed in [Gillen et al. \(2019\)](#) generally estimates these parameters with lower standard errors. Hence, we rely on the latter. Essentially, this estimation entails using multiple instrumentation strategies simultaneously, then combining the results.

Due to the complex nature of some of the questions, it is concerning that some subjects may not comprehend the questions or may give random responses to complete the experiment quickly. Although most of the financial reward comes from incentivized MPL questions, there is a small fixed reward for merely completing the experiment. To avoid this concern, subjects were screened based on three criteria:

- (1) After receiving general instructions concerning the experiment, subjects were given a basic comprehension quiz with three questions regarding those instructions. Subjects unable to correctly answer the three questions were removed from the experiment. They received a small fixed amount for their two-minute participation and were made aware of this scenario when they offered their consent.
- (2) Between each of the experiment's major sections, subjects were given a standard attention-screening question.
- (3) If, in the course of our double elicitation of a subject's preferences, two reported CEs for the same question differed by more than 100 tokens – that is, one-third the size of the 300-token table – then the subject was deemed to be paying insufficient attention to the experiment.<sup>3</sup>

Subjects failing criterion (1) were immediately removed from the experiment and received a minimum payment.<sup>4</sup> Subjects failing at least one of the attention-screening

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<sup>3</sup>Other thresholds for exclusion, such as "differed by more than 150 tokens," yield qualitatively similar results to those below.

<sup>4</sup>See the section [A.3](#) for details.

questions in (2) were subsequently removed. Finally, subjects deemed to be paying insufficient attention were removed according to (3). As a result, out of an initial 880 subjects, 172 were excluded from our data set.

**How we compute ORIV.** Each individual  $j$  has a true value  $x^*$ , drawn from a distribution with variance  $\sigma_{x^*}^2$ . The  $(x^*)^j$ 's are independent across individuals. We attempt to measure  $x^*$  twice. However, we don't observe  $x^*$ , but instead observe

$$x_i^j = (x^*)^j + \epsilon_i^j, \quad (1)$$

where  $i = 1, 2$  denotes the elicitation number and  $j$  denotes the person. We assume that the  $\epsilon_i^j$ 's are all iid, independent of the  $x^*$ 's, and drawn from a distribution with mean 0 and variance  $\sigma_\epsilon^2$ .

There is a second variable  $y^*$ , where

$$(y^*)_i^j = \alpha^* + \beta^*(x^*)^j + (\eta^*)_i^j, \quad (2)$$

where the  $(\eta^*)_i^j$ 's are iid, independent of the  $x^*$ 's and  $\epsilon$ 's, and drawn from a distribution with mean 0 and variance  $\sigma_\eta^2$ . We cannot directly measure  $y^*$ , so instead we measure

$$y_i^j = (y^*)_i^j + v_i^j \quad (3)$$

where the  $v_i^j$ 's are iid, independent of the  $x^*$ 's and  $\eta^*$ 's, and have mean 0 and variance  $\sigma_v^2$ .

We are interested in estimating the correlation

$$\rho^* = \text{Corr}(y^*, x^*),$$

where we have suppressed the subscript and superscript  $i, j$  for convenience here. We have that

$$\text{Cov}(y^*, x^*) = \text{Cov}(\alpha^* + \beta^*x^* + u, x^*) = \beta^*\sigma_{x^*}^2$$

by independence. Plugging this into the definition of correlation, this means that

$$\rho^* = \frac{\beta^*\sigma_{x^*}}{\sigma_{y^*}}. \quad (7)$$

So to consistently estimate  $\beta^*$ , we need only to consistently estimate  $\beta^*$ ,  $\sigma_{x^*}$ , and  $\sigma_{y^*}$ .  $\beta^*$  can be consistently estimated with an IV approach or with ORIV, so we'll focus on how to estimate the other two.

For  $\sigma_{x^*}$ , notice that by (1),

$$\sigma_{x^*}^2 = \sigma_x^2 - \sigma_\epsilon^2. \quad (8)$$

Since  $\sigma_x^2$  can be estimated from our data on  $x$ , we need only estimate  $\sigma_\epsilon^2$  here. To do so, define

$$D_x^j := x_1^j - x_2^j \quad (9)$$

then note that

$$D_x^j = \epsilon_1^j - \epsilon_2^j,$$

so that

$$V(D_x^j) = \sigma_\epsilon^2 + \sigma_\epsilon^2$$

i.e.

$$\sigma_\epsilon^2 = \frac{V(D_x)}{2}. \quad (10)$$

For  $\sigma_{y^*}$ , notice that by (3),

$$\sigma_{y^*}^2 = \sigma_y^2 - \sigma_v^2. \quad (11)$$

We know that Now defining

$$D_y^j := y_1^j - y_2^j, \quad (12)$$

we have that

$$D_y^j = v_1^j - v_2^j.$$

This implies that

$$V(D_y^j) = 2\sigma_v^2$$

i.e.

$$\sigma_v^2 = \frac{V(D_y)}{2}. \quad (13)$$

Substituting (8) and (11) into (7) gives

$$\rho^* = \beta^* \sqrt{\frac{\sigma_x^2 - \sigma_\epsilon^2}{\sigma_y^2 - \sigma_v^2}}.$$

Next, substituting (10) and (13) into this gives

$$\rho^* = \beta^* \sqrt{\frac{\sigma_x^2 - \frac{V(D_x)}{2}}{\sigma_y^2 - \frac{V(D_y)}{2}}}$$

or equivalently

$$\boxed{\rho^* = \beta^* \sqrt{\frac{2\sigma_x^2 - V(D_x)}{2\sigma_y^2 - V(D_y)}}}. \quad (14)$$

$\beta^*$  can be consistently estimated using IV or ORIV.  $\sigma_x^2$  can be consistently estimated

from the data using the formula

$$s_x^2 = \frac{1}{2N} \sum_{i=1}^2 \sum_{j=1}^N (x_i^j - \bar{x})^2$$

where  $\bar{x} = \frac{1}{2N} \sum_{i=1}^2 \sum_{j=1}^N x_i^j$ . Meanwhile,  $V(D_x)$  can be estimated using

$$s_{D_x}^2 = \frac{1}{N} \sum_{j=1}^N [(x_1^j - x_2^j) - (\bar{x}_1 - \bar{x}_2)]^2$$

which (if our assumption that  $\epsilon$  is iid and has mean 0 is true) should be approximately equivalent to

$$s_{D_x}^2 = \frac{1}{N} \sum_{j=1}^N (x_1^j - x_2^j)^2.$$

$\sigma_y^2$  and  $V(D_y)$  can be estimated similarly.

This time, don't assume a linear model. Instead, only assume that

$$x_i^j = (x^*)^j + \epsilon_i^j$$

and

$$y_i^j = (y^*)^j + \nu_i^j,$$

where the  $\epsilon$ 's and  $\nu$ 's are all independent across measurements and individuals, and all have mean 0. Then we have that

$$\rho^* = \frac{\text{Cov}(x^*, y^*)}{\sigma_{x^*} \sigma_{y^*}} = \frac{\text{Cov}(x^* + \epsilon, y^* + \nu)}{\sqrt{\sigma_{x^*}^2 \sigma_{y^*}^2}},$$

which, using the fact that  $\text{Cov}(x_1, x_2) = \text{Cov}(x^* + \epsilon_1, x^* + \epsilon_2) = \sigma_{x^*}^2$ , implies that

$$\rho^* = \frac{\text{Cov}(x, y)}{\sqrt{\text{Cov}(x_1, x_2) \text{Cov}(y_1, y_2)}}.$$

## A.3 Prolific Data Collection Details

### A.3.1 Fair Attention Check

We used attention checks. This has been developing these last few years. However, amid those attention checks, some are valid and others are not. Those not valid are..;Those valid, called "fair attention checks" are... We used these latter ones, following Prolific standards.

### A.3.2 Preventing Duplicates

Submissions to studies on Prolific are guaranteed to be unique by the firm<sup>5</sup>. Our system is set up such that each participant can have only one submission per study on Prolific. Each participant will be listed in your dashboard only once, and can only be paid once. On our side, we also prevent participants from taking up our experiment several times in two steps. First, we enable the functionality “Prevent Ballot Box Stuffing,” which permits to. . . Second, we check the participant ID and delete the second submission from the data set of the same ID if we find any.

**Drop-out Rates.** Here, put the drop out (or in the main text).

### A.3.3 High vs. Low-quality Submissions

Participants joining the Prolific pool receive a rate based on the quality of their engagement with the studies. If they are rejected from a study, then they receive a malus. If they receive too much malus, then they are removed by the pool from the company<sup>6</sup>. Based on this long term contract, participants are incentivized to pay attention and follow the expectations of each study. Hence, a good research behavior has emerged on Prolific according to which participants themselves can voluntarily withdraw their submissions if they feel they did a mistake such as rushing too much, letting the survey open for a long period without engaging with it, and so on<sup>7</sup>. According to these standards, we kept submissions rejections as low as possible, following standard in online experimental economics. Participants who fail at least one fair attention check are rejected and not paid. Following Prolific standards, participants who are statistical outliers (3 standard deviations below the mean) are excluded from the good complete data set.

### A.3.4 Payments And Communication

We make sure to review participants’ submissions within 24-48 hours after they have completed the study. If we accept their submission, they receive their fixed and bonus payment within this time frame. Otherwise, we reject their submissions and send them a personalized e-mail<sup>(8)</sup>, detailing the reason for the rejection, leaving participants the opportunity to contact us afterward if they firmly believe the decision to be unfair (motivate their perspective). Participants can also contact us at any time if they encounter problems with our study or have questions about it.

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<sup>5</sup>See Prolific unique submission guarantee policy [here](#).

<sup>6</sup>See Prolific pool removal Policy [here](#).

<sup>7</sup>See Prolific update regarding this behavior [here](#).

<sup>8</sup>Partially-anonymized through Prolific messaging app which puts the researcher’s name visible to the participants and only the participants visible to the researcher.

## A.4 Variables Dictionary

### A.4.1 Independent Variables

#### INDEPENDENT VARIABLE NAMES

Stata/Paper	Data File	Elicitation Description
$K^1$	Balc1a	1st elicitation of risk preferences in one-stage Ellsberg
$K^2$	Final1a	2nd elicitation of risk preferences in one-stage Ellsberg
$U^1$	Balc1d	1st elicitation of ambiguous preferences in one-stage Ellsberg
$U^2$	Final1c	2nd elicitation of ambiguous preferences in one-stage Ellsberg
$KK^1$	Balu1a	1st elicitation of risk preferences in two-stage Ellsberg
$KK^2$	Matu1a	2nd elicitation of risk preferences in two-stage Ellsberg
$UU^1$	Balu1b	1st elicitation of ambiguous preferences in two-stage Ellsberg
$UU^2$	Matu1b	2nd elicitation of ambiguous preferences in two-stage Ellsberg
$UK^1$	Balu1c	
$UK^2$	Matu1c	
$KU^1$	Balu1d	
$KU^2$	Matu1d	
$KKK$	Balu2a	elicitation of risk preferences in 3-stage Ellsberg
$UUU$	Balu2b	elicitation of ambiguous preferences in 3-stage Ellsberg
$KUU$	Balu2c	
$II$	Balu4	2-Stage gamble with independent ambiguous urns
$C^1$	Lotte1	1st Halevy compound 50-50 lottery
$C^2$	Final2a	
$CC^1$	Lotte2	1st 2-stage Halevy
$CC^2$	Final2b	
$BB^{40-60}$	Cmu1b	2-stage Ellsberg with bounded U ( $40 \leq R \leq 60$ )
$BB^{60-100}$	Cmu2b	2-stage Ellsberg with bounded U ( $60 \leq R \leq 100$ )
$BB^{95-100}$	Cmu4b	2-stage Ellsberg with bounded U ( $95 \leq R \leq 100$ )
$R^1$	Answered "red" on Mp1	
$R^2$	Answered "red" on Mp2	Picked the CORRECT color in practice question 2
$R^3$	Answered "red" on Mp3	Picked the WRONG color in practice question 3
$P^1$	Q78	Indicator variable for get $P^1 = 1$ , i.e., correct := "32 Blue balls and 95 Red balls"
$P^2$	Q1777	Indicator variable for get $P^2 = 1$ , i.e., correct := "2"
$P^3$	Q80	Indicator variable for get $P^3 = 1$ , i.e., correct := "\$1"
$A^1$	Q13	Indicator variable for get $A^1 = 1$ , i.e., correct := "orange"
$A^2$	Q22	Indicator variable for get $A^2 = 1$ , i.e., correct := "11"
$A^3$	Q30	Indicator variable for get $A^3 = 1$ , i.e., correct := "blue"

## A.4.2 Dependent Variables

### DEPENDENT VARIABLE NAMES

Stata/Paper	Definition	Description
$E^j$	$K^j - U^j$	Certain equivalent difference in $j$ -th elicitation of 1-stage Ellsberg
$T^j$	$KK^j - UUU^j$	Certain equivalent difference in $j$ -th elicitation of 2-stage Ellsberg
$H^j$	$K^j - C^j$	Certain equivalent difference in $j$ -th elicitation of 50-50 vs. Halevy compound 50-50
$L^j$	$KK^j - CC^j$	Certain equivalent difference in $j$ -th elicitation of $KK$ vs. $CC$
$F^{0-2}$	$.5(UU^1/KK^1) + .5(UU^2/KK^2)$	Ratio of certainty equivalents for $UU$ and $KK$ (averaged across 2 elicitations)
$F^{0-3}$	$UUU/KKK$	Ratio of certainty equivalents for $UUU$ and $KKK$
$F^{1-3}$	$KUU/KKK$	Ratio of certainty equivalents for $KUU$ and $KKK$
$I^E$	$E^1 + E^2 > 0$	Indicator variable for having a larger Certain equivalent for $K$ than $U$
$I^T$	$T^1 + T^2 > 0$	Indicator variable for having a larger Certain equivalent for $KK$ than $UU$
$I^H$	$H^1 + H^2 > 0$	Indicator variable for having a larger Certain equivalent for $K$ than $C$
$I^L$	$L^1 + L^2 > 0$	Indicator variable for having a larger Certain equivalent for $KK$ than $CC$
$I^B$	Treatment = $C$ & did "Bounded $U$ " first	Indicator variable for having the "learning" section first
$I^R$	$R^2 = 1$ and $R^3 = 0$	Indicator variable for choosing the correct color in both practice questions
$I^A$	all $A^j = 1$	Indicator variable for get all 3 attention screeners correct

Note on the naming convention for first few items:  $E$ =Ellsberg,  $T$ =Two-stage,  $H$ =Halevy,  $L$  = compound Lottery

## A.5 Which Savage models are refuted by our results?

Our main paper shows how our experimental results falsify any model of decision-making that uses the framework of [Anscombe and Aumann \(1963\)](#) and contains a monotonicity axiom. However, some models of decision-making instead use the framework of [Savage \(1954\)](#), wherein no such concept as "objective probability" exists. Indeed, in the Savage framework, each "state" must encompass how *all* uncertainty will be resolved. If a decision-maker's preferences over acts satisfy certain properties, the Savage model then defines *subjective probabilities* that represent that decision-maker's "beliefs" about how likely are the various states - whether or not those subjective probabilities match some "objective" probabilities that one could calculate for those states.

If we allow arbitrary subjective probabilities - i.e. subjective probabilities that have no relationship with the facts of the experiment that are described to the decision-maker (DM) - then there is nothing stopping the DM from believing things such as "A draw from urn  $R$  will always be Black, and two consecutive draws from urn  $A$  will always be of opposite colors." Such beliefs would be consistent with the axioms of probability theory (and they would induce a preference for gamble  $R$  over gamble  $AA$ ) but they would in no way reflect the realities of the experiment.

Thus, our experimental results are certainly consistent with Savage’s theory if we do not introduce any further axioms constraining the DM’s preferences over acts to be consistent with the realities of the gambles presented to her. Therefore, we will demonstrate that if we introduce some axioms to *minimally constrain the DM’s preferences to be consistent with the realities of our gambles*, then the preferences exhibited by individuals in our experiment are not consistent with Savage’s theory.

Below, we use the colors White ( $W$ ) and Black ( $B$ ) for balls in urns, and the letters  $R$  and  $A$  respectively denote the “risky” (50 White balls, 50 Black balls) and “ambiguous” (unknown proportions of White and Black balls) urns from our experiment.<sup>9</sup>

Our framework is as follows. A *state* is a tuple  $(n, r, a_1, a_2)$  where  $n \in \{0, 1, \dots, 100\}$  and  $r, a_1, a_2 \in \{W, B\}$ .  $n$  represents the number of White balls in urn  $A$ , while  $r$  represents the color of ball (Black or White) that would be drawn from urn  $R$  and  $a_1$  and  $a_2$  respectively represent the 1st and 2nd balls that would be drawn from urn  $A$ . We let  $\Omega$  denote the set of all such states.

We wish to prove that if a DM’s preferences satisfy Savage’s axioms along with a few axioms that express the fact that “the DM’s preferences have to be consistent with the information we’ve given her about our gambles,” then she cannot strictly prefer gamble  $R$  to gamble  $AA$ .

Let “1” denote winning the monetary prize (\$3 in our experiment) and “0” denote not winning the monetary prize. Let  $\succsim$  be the DM’s preferences. As in Savage’s framework, let  $1_E 0$  denote the act that pays out the monetary prize in states in the event  $E$  and pays out nothing otherwise. We assume the following axioms:

**A0.**  $\succsim$  satisfies Savage’s axioms, and also  $1 \succ 0$  (i.e., the constant act paying out the monetary prize is preferred to the constant act paying out nothing).

By Savage’s Theorem, we know that A0 implies that the DM has a subjective probability measure  $\mathbb{P}$  on states and a utility function  $U : \{0, 1\} \rightarrow \mathbb{R}$  such that  $U(1) > U(0)$ . In our case where there are only the two prizes 1 and 0, we know by Savage’s axiom P4 that for any two events  $A$  and  $B$ ,

$$\mathbb{P}[A] \geq \mathbb{P}[B] \iff 1_A 0 \succsim 1_B 0. \quad (1)$$

Thus, to show that our DM’s preferences must satisfy  $AA \succsim R$ , it suffices to show that

$$\mathbb{P}\left[\{(n, r, a_1, a_2) \in \Omega : \text{act } AA \text{ wins}\}\right] \geq \mathbb{P}\left[\{(n, r, a_1, a_2) \in \Omega : \text{act } R \text{ wins}\}\right]. \quad (2)$$

To show this, we need to introduce some axioms that specify that the DM’s preferences must reflect the information given to her about the gambles.

**A1.** Let  $[R = W]$  denote the event that we draw a White ball from urn  $R$ , i.e.

$[R = W] = \{(n, r, a_1, a_2) \in \Omega : r = W\}$ . Similarly, let

$[R = B] = \{(n, r, a_1, a_2) \in \Omega : r = B\}$  be the event that we draw a Black ball from urn

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<sup>9</sup>In our experiment, balls are Red or Black. However, since the letter  $R$  denotes the “risky” urn, to avoid confusion about whether and “ $R$ ” means a color of a ball or a type of urn, here we speak of the color White instead of Red.

R. Then

$$1_{[R=W]}0 \sim 1_{[R=B]}0.$$

By (1), A1 implies that  $\mathbb{P}[R = W] = \mathbb{P}[R = B]$ , which means that

$$\mathbb{P}\left[\{(n, r, a_1, a_2) \in \Omega : \text{act } R \text{ wins}\}\right] = .5.$$

Thus, to prove (2) and be finished, it suffices to show that

$$\mathbb{P}\left[\{(n, r, a_1, a_2) \in \Omega : \text{act } AA \text{ wins}\}\right] \geq .5. \quad (3)$$

This will follow from our last axiom:

**A2.** (Some axiom that implies that conditional on the ambiguous urn's number of white balls  $N$ , the two draws  $A_1$  and  $A_2$  from urn  $A$  are independent of each other and are identically distributed.)

(In fact, these draws are also independent of the draw from urn  $R$ , but we don't need this to complete our proof.)

For any  $i \in \{0, 1, \dots, 100\}$ , let  $[N = i]$  denote the event that urn  $A$  contains exactly  $i$  white balls, i.e.

$$[N = i] = \{(n, r, a_1, a_2) \in \Omega : n = i\}.$$

Similarly, for any  $x \in \{W, B\}$ , let  $[A_1 = x]$  denote the event that the first ball drawn from urn  $A$  will have color  $x$ , and let  $[A_2 = x]$  be the event that the second ball drawn from urn  $A$  has color  $x$ .

Given A2, we can argue the following:

$$\begin{aligned} & \mathbb{P}\left[\{(n, r, a_1, a_2) \in \Omega : \text{act } AA \text{ wins}\}\right] \\ &= \mathbb{P}\left[\{(n, r, a_1, a_2) : (a_1, a_2) = (W, W) \text{ or } (a_1, a_2) = (B, B)\}\right] \\ &= \mathbb{P}\left[\left([A_1 = W] \cap [A_2 = W]\right) \cup \left([A_1 = B] \cap [A_2 = B]\right)\right] \\ &= \mathbb{P}([A_1 = W] \cap [A_2 = W]) + \mathbb{P}([A_1 = B] \cap [A_2 = B]) \end{aligned}$$

(since these events are disjoint, and  $\mathbb{P}$  must satisfy the axioms of probability)

$$= \sum_{i=0}^{100} \left[ \mathbb{P}([A_1 = W] \cap [A_2 = W] \mid N = i) + \mathbb{P}([A_1 = B] \cap [A_2 = B] \mid N = i) \right] \cdot \mathbb{P}[N = i].$$

In this last line, we do not worry about the fact that these conditional probabilities are not defined if the individual's subjective probability  $\mathbb{P}[N = i]$  is 0. Indeed, in this case, the term in large brackets (that contains all the conditional probabilities) will be multiplied by  $\mathbb{P}[N = i] = 0$  and hence will not contribute anything to the sum. Thus, interpreting the expression in this way, this last line is a legitimate application of the

Law of Total Probability.

To proceed from here, we just notice that A2 grants independence between the two draws from urn  $A$  once we know condition on the composition of urn  $A$ . Thus, we can factor the probabilities:

$$= \sum_{i=0}^{100} \left[ \mathbb{P}(A_1 = W|N = i) \cdot \mathbb{P}(A_2 = W|N = i) + \mathbb{P}(A_1 = B|N = i) \cdot \mathbb{P}(A_2 = B|N = i) \right] \cdot \mathbb{P}[N = i].$$

Using the fact from A2 that the draws from urn  $A$  are conditionally identically distributed, this equals

$$= \sum_{i=0}^{100} \left[ \mathbb{P}(A_1 = W|N = i)^2 + \mathbb{P}(A_1 = B|N = i)^2 \right] \cdot \mathbb{P}[N = i].$$

Finally, using the fact that  $\mathbb{P}$  must satisfy the axioms of probability and that the events  $[A_1 = W]$  and  $[A_1 = B]$  are mutually exclusive and exhaustive, this equals

$$= \sum_{i=0}^{100} \left[ \mathbb{P}(A_1 = W|N = i)^2 + (1 - \mathbb{P}(A_1 = W|N = i))^2 \right] \cdot \mathbb{P}[N = i].$$

Since the inequality  $p^2 + (1 - p)^2 \geq .5$  holds for any  $p \in [0, 1]$ , this implies the inequality

$$\geq \sum_{i=0}^{100} .5 \cdot \mathbb{P}[N = i] = .5,$$

where the last equality follows since the events  $[N = 0], [N = 1], \dots, [N = 100]$  are mutually exclusive and exhaustive. Thus, we have show that (3) holds, as desired.

## A.6 Future Research: Is it really a distaste for the mere presence of ambiguity?

### A.6.1 New Experiment 1

**Description of Gamble.** “Urn *R* has 50 red and 50 blue; urn *A* has 100 balls in total, all red or blue, with *at least 50 of them red*. You win if you draw a red ball. Do you prefer to play this gamble with urn *R* or urn *A*?” Or, perhaps we guarantee instead that “Urn *A* contains between 50 and 60 red balls; the rest of its 100 balls are blue.”

**Expected finding.** People prefer urn *A* since it has at least as high of a chance of winning as urn *R* does.

**Possible Critique from this finding.** People don’t exhibit any distaste for the mere presence of ambiguity; they merely fail to calculate odds correctly when you make things opaque/complicated enough. All of our 2Ellsberg findings are an artifact of the fact that we’ve framed the gambles one way rather than a more straightforward way.

**Responses to these critiques.** Notice that people *do* “correctly” identify that  $BB^{95-100} \succ BB^{60-100} \succ BB^{40-60}$ . Furthermore, their preference for *RR* over *AA* is robust to being “nudged” by the *BoundedA* block. This all suggests that the original preference for *RR* over *AA* cannot entirely be due to “a lack of understanding that more unequal urns are better in a 2-ball gamble.”

But what, then, could explain why our results show a distaste for ‘ambiguity that can only help you’ while New Experiment 1 shows the opposite? Perhaps the key difference is that New Experiment 1 frames things in a way that immediately suggests a probabilistic dominance of urn *A* over urn *R*, while our *AA* vs. *RR* question does not. Indeed, perhaps most people do not employ probabilistic thinking in pretty much any scenarios - they only use probabilities when “forced” to do so by the odds of winning being given to them (nearly) explicitly. A comparison between urns *A* and *R* in New Experiment 1 forces the observation that “the minimum win probability in urn *A* is at least as high as the win probability in urn *R*,” but in 2Ellsberg it does not suggest this observation since the conditional win probabilities (for each ball composition of urn *A*) are ‘hidden’.

### A.6.2 New Experiment 2

**Description of Gamble.** Elicit CEs for an *AA* gamble but this time specify that urn *A* has one of the following three ball compositions:

- 50 red balls and 50 blue balls.
- 75 red balls and 25 blue balls.
- 25 blue balls and 75 red balls.

Also, elicit people's CEs for 2-ball gambles from risky urns (call them urns *R*, *S*, and *T*) that are 50-50, 75-25 and 25-75 in composition. Randomize the order of whether you ask about gambles *RR*, *SS* and *TT* before or after gambles *AA* and *RR*. In each of the 75-25 cases, urn *A* has a .625 probability of winning. It would be interesting (and a counterexample to Savage, etc.) if people prefer the 75-25 risky urns to the 50-50 risky urn but prefer the 50-50 risky urn *A* above. This experiment has the advantage of being simpler than our current experiment - it only has 3 possibilities instead of 101. We could try also running the same experiment but with e.g. 60-40 and 40-60 in place of 75-25 and 25-75 above. Try also e.g. 90-10 and 10-90. See how extreme you have to make the asymmetry before people exhibit a preference for *RR* over *AA*.

### A.6.3 Can People be “Nudged” into Avoiding Dominated Options?

In treatment **LEARNING**, we exposed subjects to gambles that could help them understand that *more uneven urns have higher win probabilities in two-ball gambles* (if they did not already understand this). Exposure to these gambles constitutes a very indirect form of learning - subjects were never *told* that more uneven urns are better; instead they were given a chance to figure this out for themselves if they had not done so already. We found that this indirect learning did not at all reduce subjects' “paradoxical” choice of the dominated gamble *R* over the ambiguous gamble *AA*. We therefore concluded that subjects' choice to avoid *AA* is not due to a lack of understanding but instead due to a distaste for the presence of ambiguity.

In contrast, [Kuzmics et al. \(2020\)](#) found that subjects' paradoxical choice for avoiding draws from ambiguous urns - even at the cost of choosing a dominated option - *can* be reduced by providing information that clarifies how a certain option, potentially involving ambiguous draws, yields a larger win probability than the unambiguous option. Specifically, in two of their experimental treatments they show subjects two videos, both containing factually correct information, prior to eliciting subjects' choices. One video, “V1,” argues why a [Raiffa \(1961\)](#)-style choice to bet on a single draw from an ambiguous urn, choosing the color on which to bet based on the result of a coin flip, will increase the probability of winning relative to an unambiguous 49% win probability gamble. Meanwhile, the other video “V2” merely argues that, given that the subject has already bet on a particular color in an ambiguous urn, no conclusion can be reached about the subject's probability of winning. V1 is meant to provide information that might encourage a choice of a “better” option (the Raiffa-style one that involves drawing from an ambiguous urn), while V2 is meant to provide information that might encourage avoiding options involving ambiguous draws.

The authors include these videos in parts of two treatments. In their “coin” treatment the authors allow subjects to commit to placing a bet on the ambiguous urn based on the result of a coin flip carried out for them automatically, while in their “no coin” treatment they do not offer this option but merely suggest that subjects could imagine flipping a coin for themselves. In parts of both treatments they show subjects videos V1 and V2 before eliciting choices; in some other parts they do not show these videos.

In the “coin” treatment they find that exposure to V1 and V2 *decreases* the proportion of subjects who choose a dominated option (that involves no ambiguity), while in the “no coin” treatment they find that such exposure *increases* it. The authors therefore argue that subjects’ choices to avoid options involving ambiguity - even if it means choosing dominated options - is not due to a deliberate *preference* but instead due to a lack of understand of the options before them.

What might explain the difference in results between our experiment and that of these authors? One possible explanation is that subjects *do* (at least mostly) understand the options before them in both experiments and that videos V1 and V2 mostly create an “experimenter demand” rather than additional understanding - with the experimenter demand for the Raiffa option in V1 being stronger than the experimenter demand for the unambiguous option in V2. Indeed, in the “coin” treatment subjects can explicitly demonstrate compliance with the experimenters’ suggestions by having their choice to bet using the Raiffa coin toss be recorded as such, while in the “no coin” treatment they have no such option and instead opt to record themselves satisfying the (weaker) suggestion of V2 to avoid ambiguous draws. In contrast, our experiment does not make any explicit arguments suggesting why subjects might want to choose one option or another; it merely presents them with choice problems that can help create understanding if it does not exist already. Such learning induces no change in behavior since it does not create experimenter demand.

It is also possible that this disparity between our results and these authors’ results is simply due to a difference in the nature of the experiments: perhaps subjects generally understand the gambles in our experiment without the need of any explanation, while the same is not true of [Kuzmics et al. \(2020\)](#)’s experiment. In this case, further research is warranted to determine the difference between those circumstances in which subjects can be “nudeged” into choosing dominant-but-ambiguous options and those in which they cannot.

## A.7 Experimental Instructions

### A.7.1 Starting Blocks Screenshots

Before you start, please switch off phone/e-mail/music so you can focus on this study.

Thank you !

Please enter your Prolific ID here:

---

Please pay careful attention to the **compensation section** in the consent form on the next page, before deciding whether you give your consent to this study or not.



## CONSENT FORM

### Title of Research

A Two-Stage Ellsberg Paradox

### Principal Investigator

Leeat Yariv

### Principal Investigator's Department

Department of Economics.

### Purpose of the research

You are invited to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done; also what it will involve. Please take the time to read the following information carefully. Please ask the researcher if there is anything that is not clear. The aim of this research is to test how subjects make decisions in the face of risk and ambiguity.

### Study Procedures

You will be exposed to a series of questions. Your total expected time commitment for this study is 30 min.

### Benefits and Risks

The possible benefit to the participants is to become more aware of how risk and ambiguity might affect their decision-making. The risk of potential discomfort is minimal.

### Confidentiality

All records from this study will be kept confidential. Your responses will be kept private. We will not include any information that will make it possible to identify you in any report we might publish. Research records will be stored securely in a locked cabinet, alternatively on password-protected computers. The research team will be the only party that will have access to your data.

### Compensation

Your fixed payment is as described below. Your potential bonus payment is as described in the next pages. Paid by the Principal Investigator, using Prolific's procedure.

After agreeing to the consent form, you will read six pages.

These pages describe the instructions of this study.

After you read these instructions, you will be asked three comprehension questions related to them.

If you **DO NOT** answer these questions correctly you will not be able to participate in this study and redirected to the Prolific website. Nonetheless, you will receive a fixed payment of \$0.50.

If you **DO** answer these questions correctly, then you will be able to participate into this study and you are guaranteed to receive a fixed payment of \$2 to complete this study. On top, you will also receive the possibility to get a bonus payment of up to \$6 based on later instructions.

### Who to contact with questions:

1. PRINCIPAL INVESTIGATOR to contact: Leeat Yariv, lyariv@princeton.edu
2. If you have questions regarding your rights as a research subject, if problems arise which you do not feel you can discuss with the Investigator, please contact the Institutional Review Board at:

Assistant Director, Research Integrity and Assurance  
Phone: (609) 258-8543  
Email: irb@princeton.edu

3. I understand the information that was presented. I understand that:

A. My participation is voluntary. I may withdraw my consent. I may also discontinue participation in the project at any time. My refusal to participate will not result in any penalty.

B. I do not waive any legal rights nor release Princeton University, its agents, nor you from liability for negligence.

Yes, I give my consent to be a subject of your research

No, I do not give my consent to participate in your research



## How this experiment works

In this experiment, you will receive two types of rewards:

- A **fixed reward: \$2** for completing the experiment with having answered the comprehension questions correctly- guaranteed.
- A **bonus payment: Each 100 tokens you earn is worth \$1** at the end of the experiment.

You will be presented with hypothetical gambles like the following. "We will toss a fair coin. If it's heads, you win 300 tokens. If it's tails, you win nothing."

You will then be asked how many tokens it would be worth to you to play this gamble. You will be presented with a table, each row of which asks whether you would prefer playing the gamble or receiving a certain fixed amount of tokens. The fixed numbers of tokens range from 0 to 300 in units of 10.

**Please take your time to answer each question.**



## Instructions

The picture below shows the answer you should give **if you think a certain gamble is worth between 110 and 120 tokens.**

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input checked="" type="radio"/>
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Fixed payment: 210 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input checked="" type="radio"/>	<input type="radio"/>
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Fixed payment: 240 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input checked="" type="radio"/>	<input type="radio"/>

**After you fill out the table, the computer will do the following:**

- **Pick a row of the table at random** (i.e. randomly pick 0, 10, 20, ... , 290 or 300).
- Check if you said you preferred to get that many tokens or to play the gamble.
- If you preferred the tokens, **the computer will award you that many tokens.**
- If you preferred the gamble, **the computer will simulate the gamble (here, flip a coin) and pay you the prize (300 tokens) if you won the simulated gamble.**

For example, if you answered the question as in the picture above, then:

- If the computer picked **row 70**, it will **simulate the gamble** and award you **300 tokens if you win** and **0 if you lose.**
- If the computer picked **row 110**, it will **simulate the gamble** and award you **300 tokens if you win** and **0 if you lose.**
- If the computer picked **row 120**, you will **get 120 tokens for sure.**
- If the computer picked **row 250**, you will **get 250 tokens for sure.**



## How your bonus payment is determined

- You will answer **11-12 primary questions**, divided into sections. You'll also be given a few simple **attention checks** to make sure you're paying attention, and a set of **2-3 final questions**.
- Among all 11-12 **primary questions**, **2 questions will be randomly selected** for use in determining your **bonus payment**.
- In each selected question, you will be **awarded tokens based on your answer**, according to the rules explained above.
- You will not be awarded tokens for questions the computer doesn't randomly select.

This all means that **it is always in your best interest to truthfully report your preferences** about whether you prefer the gamble or a given amount of tokens.



## Urns

In this experiment, you will be asked questions about urns containing Red and Blue balls. We will describe urns as follows:

- [50 Red, 50 Blue] means that the urn contains 50 Red balls and 50 Blue balls.
- [95 Red, 32 Blue] means that the urn contains 95 Red balls and 32 Blue balls.
- [Unknown Red, Unknown Blue] means that the urn contains an unknown number of Red balls and an unknown number of Blue balls.

These **unknown numbers** are determined as follows.

- We generated a **list of somewhat random numbers** according to a procedure that we won't specify.
- On **each question screen** that contains an urn with an unknown number of balls of a certain color, the computer forms a **new urn** by consulting our list of numbers to determine how many balls of each color go in the urn.
- For example, **an urn [Unknown Red, Unknown Blue] may turn out to contain [10 Red, 24 Blue] on one question screen, but contain [56 Red, 13 Blue] on the next screen.**



In this study, [95 Red, 32 Blue] means that the urn contains:

- 50 Red balls and 50 Blue balls
- 95 Blue balls and 95 Red balls
- 95 Blue balls and 32 Red balls
- 32 Red balls and 95 Brown balls
- 95 Red balls and 95 Blue balls
- 32 Blue balls and 95 Red balls



In this study, how many questions will be randomly selected to determine your bonus payment?

- 0
- 2
- 5
- 1
- 3
- 4



In this study, how much money is 100 tokens worth?

- \$1
- \$1.1
- \$2
- \$1.01
- \$0.90
- \$0.99



**Sorry, you answered one of the comprehension questions incorrectly.**

**Please proceed to the next page to be redirected to Prolific. You will receive a \$0.50 payment for your participation.**



**Congratulations! You answered the three comprehension questions correctly! You are guaranteed a \$2 fixed payment to complete this study.**

**Go to the next page to start the study.**

**Pay careful attention during the following questions in order to increase your chances of getting a higher bonus payment.**



---

# Practice Rounds

## Instructions

There are three questions in this section. For the sake of practice, after completing this section, you will receive **immediate feedback** explaining how the computer would have decided your payment for these questions. (You will not actually be paid for these practice questions.)

**After the practice section, you will not be shown how your payment was computed until the very end of the experiment.**

In each question of this practice section, you will be presented with an urn. The gamble is as follows: you get to pick a color (either **red** or **blue**) and then we will draw one ball at random from the urn. **You win 300 tokens if the ball we drew was the color you chose.**



In each question of this practice section, you will be presented with an urn. The gamble is as follows: you get to pick a color (either red or blue) and then we will draw one ball at random from the urn. You win 300 tokens if the ball we drew was the color you chose.

Suppose the urn is [10 Red, 90 Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
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Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
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Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
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Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In each question of this practice section, you will be presented with an urn. The gamble is as follows: you get to pick a color (either red or blue) and then we will draw one ball at random from the urn. You win 300 tokens if the ball we drew was the color you chose.

Suppose the urn is [70 Red, 30 Blue]. Which do you prefer?

RED
  BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input checked="" type="radio"/>
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Fixed payment: 280 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input checked="" type="radio"/>	<input type="radio"/>



In each question of this practice section, you will be presented with an urn. The gamble is as follows: you get to pick a color (either red or blue) and then we will draw one ball at random from the urn. You win 300 tokens if the ball we drew was the color you chose.

Suppose the urn is [50 Red, 50 Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input checked="" type="radio"/>
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Fixed payment: 270 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input checked="" type="radio"/>	<input type="radio"/>



**The computer has finished calculating your reward. Go to the next page to see how much you earned.**



Question number	Chosen row	Decision	Gamble outcome	Earnings
Mp1	110	Gamble	Lose	0
Mp2	30	Gamble	Lose	0
Mp3	10	Gamble	Win	300

**Total payoff (hypothetical):**  
**300**



## A.7.2 Treatment 1 Screenshots

# Section 1

### Instructions

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. **You win 300 tokens if the two balls we drew had the SAME COLOR** (either both red or both blue).



In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [50 Red, 50 Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
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Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
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Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
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Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [50 Red, 50 Blue] and 2nd urn = [Unknown Red, Unknown Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = [50 Red, 50 Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

## Section 2

### Instructions

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. **You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.**



In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [50 Red, 50 Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [Unknown Red, Unknown Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

Based on the text below, what would you say the color of grass is?

This is a simple question. When asked for the color of grass, you need to select blue.

Brown	<input type="radio"/>
Blue	<input checked="" type="radio"/>
Purple	<input type="radio"/>
Yellow	<input type="radio"/>
Orange	<input type="radio"/>
Green	<input type="radio"/>
Other	<input type="radio"/>



Based on the text below, what would you say  $2 + 7 = ?$

This is a simple question. When asked for the result of  $2+7$ , you need to select 11.

$2+7=2$	<input type="radio"/>
$2+7=11$	<input type="radio"/>
$2+7=9$	<input type="radio"/>
$2+7=10$	<input type="radio"/>
$2+7=7$	<input type="radio"/>
$2+7=5$	<input type="radio"/>
Other	<input type="radio"/>



## Section 3

### Instructions

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. **You win 300 tokens if the two balls we drew had the SAME COLOR** (either both red or both blue).



In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

**Suppose the 1st urn = [40 Red, 40 Blue] and 2nd urn = 1st urn. Which do you prefer?**

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = [40 Red, 40 Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [40 Red, 40 Blue] and 2nd urn = [Unknown Red, Unknown Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

# Section 4

## Instructions

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. **You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.**



In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [Unknown Red, Unknown Blue]. Which do you prefer?

RED
  BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [25 Red, 25 Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

# Final Section

## Instructions

In this section, you will be **reminded of 2-3 questions you already answered**, as well as what you answered in those questions. For each question, we want you to tell us **how certain you are** about the answer you gave.



**Recall the following question:**

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [40 Red, 40 Blue] and 2nd urn = [Unknown Red, Unknown Blue]. Which do you prefer?

In this question, you said that the gamble is worth between 140 and 150 tokens to you. How certain are you of this answer?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



I am certain that this gamble is worth between 140 tokens and 150 tokens to me.



**Recall the following question:**

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

**Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?**

**In this question, you said that the gamble is worth between 140 and 150 tokens to you. How certain are you of this answer?**

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



I am certain that this gamble is worth between 140 tokens and 150 tokens to me.



**Recall the following question:**

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

**Suppose the 1st urn = [40 Red, 40 Blue] and 2nd urn = 1st urn. Which do you prefer?**

**In this question, you said that the gamble is worth between 140 and 150 tokens to you. How certain are you of this answer?**

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



I am certain that this gamble is worth between 140 tokens and 150 tokens to me.



## A.7.3 Treatment 2 Screenshots

### Section 1

#### Instructions

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. **You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.**



In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [Unknown Red, Unknown Blue]. Which do you prefer?

RED

BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [50 Red, 50 Blue]. Which do you prefer?

RED
  BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

## Section 2

### Instructions

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. **You win 300 tokens if the two balls we drew had the SAME COLOR** (either **both red** or **both blue**).



In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [50 Red, 50 Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

## Section 3

### Instructions

In this section, you will be presented with gambles involving a new urn, **urn N**. Urn N is created in the following manner. **We choose a whole number  $x$  between 0 and 100 uniformly at random** (i.e., each of the 101 numbers 0, 1, 2, ..., 100 has a  $1/101$  chance of being chosen). We put exactly  $x$  **red balls** in the urn and fill the remainder of the urn with  $100 - x$  **blue balls** (so that the urn has 100 total balls).



In this section, you will be presented with gambles involving a new urn, urn N. Urn N is created in the following manner. We choose a whole number  $x$  between 0 and 100 uniformly at random (i.e., each of the 101 numbers 0, 1, 2, ..., 100 has a  $1/101$  chance of being chosen). We put exactly  $x$  red balls in the urn and fill the remainder of the urn with  $100 - x$  blue balls (so that the urn has 100 total balls).

**Consider the following gamble: you pick a color, and then we draw a ball at random from urn N. You win 300 tokens if the ball we draw is the COLOR YOU CHOSE. Which do you prefer?**

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with gambles involving a new urn, urn N. Urn N is created in the following manner. We choose a whole number  $x$  between 0 and 100 uniformly at random (i.e., each of the 101 numbers 0, 1, 2, ..., 100 has a  $1/101$  chance of being chosen). We put exactly  $x$  red balls in the urn and fill the remainder of the urn with  $100 - x$  blue balls (so that the urn has 100 total balls).

**Consider the following gamble: we draw a ball at random from urn N, then put that ball back in urn N. Then we draw a second ball at random from urn N. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue). Which do you prefer?**

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

Based on the text below, what would you say  $2 + 7 = ?$

This is a simple question. When asked for the result of  $2+7$ , you need to select 11.

- $2+7=5$
- $2+7=10$
- $2+7=7$
- $2+7=11$
- Other
- $2+7=2$
- $2+7=9$



## Section 4

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### Instructions

In this section, we create a new urn, **urn Z**. Urn Z is created in the following manner. **We choose a whole number  $x$  between 0 and 100 uniformly at random** (i.e., each of the 101 numbers 0, 1, 2, ..., 100 has a  $1/101$  chance of being chosen). We put exactly  $x$  **red balls** in the urn and fill the remainder of the urn with  $100 - x$  **blue balls** (so that the urn has 100 total balls).



In this section, we create a new urn, urn Z. Urn Z is created in the following manner. We choose a whole number  $x$  between 0 and 100 uniformly at random (i.e., each of the 101 numbers 0, 1, 2, ..., 100 has a  $1/101$  chance of being chosen). We put exactly  $x$  red balls in the urn and fill the remainder of the urn with  $100 - x$  blue balls (so that the urn has 100 total balls).

**Consider the following gamble: we draw a ball at random from urn Z, then put that ball back in urn Z. Then we draw a second ball at random from urn Z. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue). Which do you prefer?**

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, we create a new urn, urn Z. Urn Z is created in the following manner. We choose a whole number  $x$  between 0 and 100 uniformly at random (i.e., each of the 101 numbers 0, 1, 2, ..., 100 has a  $1/101$  chance of being chosen). We put exactly  $x$  red balls in the urn and fill the remainder of the urn with  $100 - x$  blue balls (so that the urn has 100 total balls).

**The gamble is as follows. You pick a color, and then we draw a ball at random from urn Z. You win 300 tokens if the ball we draw is the COLOR YOU CHOSE. Which do you prefer?**

RED
  BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

Based on the text below, what would you say the color of grass is?

This is a simple question. When asked for the color of grass, you need to select blue.

Purple	<input type="radio"/>
Other	<input type="radio"/>
Yellow	<input type="radio"/>
Blue	<input type="radio"/>
Orange	<input type="radio"/>
Brown	<input type="radio"/>
Green	<input type="radio"/>



# Section 5

## Instructions

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. **You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.**



In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [25 Red, 25 Blue]. Which do you prefer?

RED
  BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [Unknown Red, Unknown Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

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## Section 6

### Instructions

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. **You win 300 tokens if the two balls we drew had the SAME COLOR** (either both red or both blue).



In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [40 Red, 40 Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

# Final Section

## Instructions

In this section, you will be **reminded of 2-3 questions you already answered**, as well as what you answered in those questions. For each question, we want you to tell us **how certain you are** about the answer you gave.



**Recall the following question:**

In this section, we create a new urn, urn Z. Urn Z is created in the following manner. We choose a whole number  $x$  between 0 and 100 uniformly at random (i.e., each of the 101 numbers 0, 1, 2, ..., 100 has a  $1/101$  chance of being chosen). We put exactly  $x$  red balls in the urn and fill the remainder of the urn with  $100 - x$  blue balls (so that the urn has 100 total balls).

Consider the following gamble: we draw a ball at random from urn Z, then put that ball back in urn Z. Then we draw a second ball at random from urn Z. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue). Which do you prefer?

In this question, you said that the gamble is worth between 150 and 160 tokens to you. How certain are you of this answer?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



I am certain that this gamble is worth between 150 tokens and 160 tokens to me.



**Recall the following question:**

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?

In this question, you said that the gamble is worth between 150 and 160 tokens to you. How certain are you of this answer?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



I am certain that this gamble is worth between 150 tokens and 160 tokens to me.



## A.7.4 Treatment 3 Screenshots

### Section 1

#### Instructions

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. **You win 300 tokens if the two balls we drew had the SAME COLOR** (either both red or both blue).



In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [40 Red, 40 Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

## Section 2

### Instructions

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. **You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.**



In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [Unknown Red, Unknown Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [25 Red, 25 Blue]. Which do you prefer?

RED

BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

## Section 3

### Instructions

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. **You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.**



In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [50 Red, 50 Blue]. Which do you prefer?

RED
  BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [Unknown Red, Unknown Blue]. Which do you prefer?

RED

BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

# Section 4

## Instructions

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. **You win 300 tokens if the two balls we drew had the SAME COLOR** (either both red or both blue).



In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [50 Red, 50 Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

Based on the text below, what would you say the color of grass is?

This is a simple question. When asked for the color of grass, you need to select blue.

Other	<input type="radio"/>
Yellow	<input type="radio"/>
Brown	<input type="radio"/>
Blue	<input type="radio"/>
Purple	<input type="radio"/>
Orange	<input type="radio"/>
Green	<input type="radio"/>



# Section 5

## Instructions

In each question of this section, an **urn U** will be formed as follows. Urn U contains an **unknown number of red balls** and an **unknown number of blue balls**, but **urn U contains exactly 100 balls in total**. In each question, further details about the specific number of red balls in urn U will be provided. The gamble in each question is as follows. We draw a ball at random from urn U, then return that ball to urn U. We then draw a second ball at random from urn U. **You win 300 tokens if the two balls we draw from urn U had the SAME COLOR** (either **both red** or **both blue**).



In each question of this section, an urn U will be formed as follows. Urn U contains an **unknown number of red balls** and an **unknown number of blue balls**, but urn U contains exactly 100 balls in total. In each question, further details about the specific number of red balls in urn U will be provided. The gamble in each question is as follows. We draw a ball at random from urn U, then return that ball to urn U. We then draw a second ball at random from urn U. You win 300 tokens if the two balls we draw from urn U had the SAME COLOR (either **both red** or **both blue**).

**Suppose urn U is known to contain between 40 and 60 red balls. Which do you prefer?**

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In each question of this section, an urn U will be formed as follows. Urn U contains an **unknown number of red balls** and an **unknown number of blue balls**, but urn U contains exactly 100 balls in total. In each question, further details about the specific number of red balls in urn U will be provided. The gamble in each question is as follows. We draw a ball at random from urn U, then return that ball to urn U. We then draw a second ball at random from urn U. You win 300 tokens if the two balls we draw from urn U had the SAME COLOR (either **both red** or **both blue**).

**Suppose urn U is known to contain between 60 and 100 red balls. Which do you prefer?**

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In each question of this section, an urn U will be formed as follows. Urn U contains an **unknown number of red balls** and an **unknown number of blue balls**, but urn U contains exactly 100 balls in total. In each question, further details about the specific number of red balls in urn U will be provided. The gamble in each question is as follows. We draw a ball at random from urn U, then return that ball to urn U. We then draw a second ball at random from urn U. You win 300 tokens if the two balls we draw from urn U had the SAME COLOR (either **both red** or **both blue**).

**Suppose urn U is known to contain between 95 and 100 red balls. Which do you prefer?**

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

Based on the text below, what would you say  $2 + 7 = ?$

This is a simple question. When asked for the result of  $2+7$ , you need to select 11.

- $2+7=2$
- $2+7=9$
- Other
- $2+7=5$
- $2+7=7$
- $2+7=11$
- $2+7=10$



# Final Section

## Instructions

In this section, you will be **reminded of 2-3 questions you already answered**, as well as what you answered in those questions. For each question, we want you to tell us **how certain you are** about the answer you gave.



**Recall the following question:**

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?

In this question, you said that the gamble is worth between 160 and 170 tokens to you. How certain are you of this answer?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



I am certain that this gamble is worth between 160 tokens and 170 tokens to me.



**Recall the following question:**

In each question of this section, an urn U will be formed as follows. Urn U contains an **unknown number of red balls** and an **unknown number of blue balls**, but urn U contains exactly 100 balls in total. In each question, further details about the specific number of red balls in urn U will be provided. The gamble in each question is as follows. We draw a ball at random from urn U, then return that ball to urn U. We then draw a second ball at random from urn U. You win 300 tokens if the two balls we draw from urn U had the SAME COLOR (either **both red** or **both blue**).

**Suppose urn U is known to contain between 60 and 100 red balls. Which do you prefer?**

**In this question, you said that the gamble is worth between 160 and 170 tokens to you. How certain are you of this answer?**

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



I am certain that this gamble is worth between 160 tokens and 170 tokens to me.



## A.7.5 Treatment 4 Screenshots

### Section 1

#### Instructions

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. **You win 300 tokens if the two balls we drew had the SAME COLOR** (either both red or both blue).



In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [40 Red, 40 Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

## Section 2

### Instructions

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. **You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.**



In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [Unknown Red, Unknown Blue]. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 120 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input checked="" type="radio"/>	<input type="radio"/>



In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [25 Red, 25 Blue]. Which do you prefer?

RED
  BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 140 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input checked="" type="radio"/>	<input type="radio"/>



Based on the text below, what would you say your favorite fruit is?

This is a simple question. When asked for your favorite fruit, you need to select orange.

Banana	<input type="radio"/>
Apple	<input type="radio"/>
Peach	<input type="radio"/>
Orange	<input type="radio"/>
Grapefruit	<input type="radio"/>
Strawberry	<input type="radio"/>
Other	<input type="radio"/>



## Section 3

### Instructions

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. **You win 300 tokens if the two balls we drew had the SAME COLOR** (either both red or both blue).



In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [50 Red, 50 Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

# Section 4

## Instructions

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. **You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.**



In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [Unknown Red, Unknown Blue]. Which do you prefer?

RED
  BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with an urn. The gamble is as follows: you get to choose a color (either red or blue), then we will draw a ball at random from the urn. You win 300 tokens if the ball we drew was the COLOR YOU CHOSE.

Suppose the urn is [50 Red, 50 Blue]. Which do you prefer?

RED
  BLUE

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

Based on the text below, what would you say  $2 + 7 = ?$

This is a simple question. When asked for the result of  $2+7$ , you need to select 11.

$2+7=11$	<input type="radio"/>
$2+7=10$	<input type="radio"/>
$2+7=9$	<input type="radio"/>
$2+7=5$	<input type="radio"/>
$2+7=2$	<input type="radio"/>
Other	<input type="radio"/>
$2+7=7$	<input type="radio"/>



## Instructions

In this section, you will be presented with a "1st urn", a "2nd urn" and a "3rd urn" (possibly, some or all of these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. We return that ball to its urn, then draw a ball at random from the 3rd urn. **You win 300 tokens if the THREE balls we drew had the SAME COLOR** (either all red or all blue).



In this section, you will be presented with a "1st urn", a "2nd urn" and a "3rd urn" (possibly, some or all of these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. We return that ball to its urn, then draw a ball at random from the 3rd urn. You win 300 tokens if the THREE balls we drew had the SAME COLOR (either all red or all blue).

Suppose the 1st urn = [50 Red, 50 Blue] and 2nd urn = [Unknown Red, Unknown Blue] and 3rd urn = 2nd urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input checked="" type="radio"/>
Fixed payment: 130 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input checked="" type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input checked="" type="radio"/>	<input type="radio"/>



In this section, you will be presented with a "1st urn", a "2nd urn" and a "3rd urn" (possibly, some or all of these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. We return that ball to its urn, then draw a ball at random from the 3rd urn. You win 300 tokens if the THREE balls we drew had the SAME COLOR (either all red or all blue).

**Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn and 3rd urn = 1st urn. Which do you prefer?**

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

In this section, you will be presented with a "1st urn", a "2nd urn" and a "3rd urn" (possibly, some or all of these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. We return that ball to its urn, then draw a ball at random from the 3rd urn. You win 300 tokens if the THREE balls we drew had the SAME COLOR (either all red or all blue).

Suppose the 1st urn = [50 Red, 50 Blue] and 2nd urn = 1st urn and 3rd urn = 1st urn. Which do you prefer?

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

# Section 5

## Instructions

In this section, the gamble is as follows. There are two urns. **U1** = [Unknown Red, Unknown Blue] and **U2** = [Unknown Red, Unknown Blue]. The contents of urns U1 and U2 are determined **independently** of each other. We will draw a ball at random from urn U1, then draw a ball at random from urn U2. **You win 300 tokens if the two balls we drew from these separate urns had the SAME COLOR** (either **both red** or **both blue**).



In this section, the gamble is as follows. There are two urns, U1 = [Unknown Red, Unknown Blue] and U2 = [Unknown Red, Unknown Blue]. The contents of urns U1 and U2 are determined independently of each other. We will draw a ball at random from urn U1, then draw a ball at random from urn U2. You win 300 tokens if the two balls we drew from these separate urns had the SAME COLOR (either both red or both blue).

**Which do you prefer?**

	Receive fixed payment	Play the gamble
Fixed payment: 0 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 10 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 20 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 30 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 40 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 50 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 60 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 70 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 80 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 90 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 100 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 110 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 120 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 130 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 140 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 150 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 160 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 170 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 180 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 190 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 200 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 210 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 220 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 230 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 240 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 250 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 260 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 270 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 280 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 290 tokens	<input type="radio"/>	<input type="radio"/>
Fixed payment: 300 tokens	<input type="radio"/>	<input type="radio"/>

# Final Section

## Instructions

In this section, you will be **reminded of 2-3 questions you already answered**, as well as what you answered in those questions. For each question, we want you to tell us **how certain you are** about the answer you gave.



**Recall the following question:**

In this section, you will be presented with a "1st urn" and a "2nd urn" (possibly, these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. You win 300 tokens if the two balls we drew had the SAME COLOR (either both red or both blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn. Which do you prefer?

In this question, you said that the gamble is worth between 270 and 280 tokens to you. How certain are you of this answer?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



I am certain that this gamble is worth between 270 tokens and 280 tokens to me.



**Recall the following question:**

In this section, you will be presented with a "1st urn", a "2nd urn" and a "3rd urn" (possibly, some or all of these are the same urn). The gamble is as follows. We draw a ball at random from the 1st urn. We return this ball to its urn, then draw a ball at random from the 2nd urn. We return that ball to its urn, then draw a ball at random from the 3rd urn. You win 300 tokens if the THREE balls we drew had the SAME COLOR (either all red or all blue).

Suppose the 1st urn = [Unknown Red, Unknown Blue] and 2nd urn = 1st urn and 3rd urn = 1st urn. Which do you prefer?

In this question, you said that the gamble is worth between 270 and 280 tokens to you. How certain are you of this answer?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



I am certain that this gamble is worth between 270 tokens and 280 tokens to me.



# A.7.6 Ending Blocks Screenshots

The computer has finished calculating your reward. Go to the next page to see how much you earned.



Question number	Row computer chose	What you preferred	Gamble outcome	Earnings
Balu1b	140	Gamble	Lose	0
Final1c	40	Gamble	Win	300

**Total payoff:**  
**300**



Thank you for your participation. You will now be redirected to Prolific website.



# Appendix B

## Appendices for Chapter 2

### B.1 Proofs of The Main Model

#### B.1.1 Preliminary Results on $\hat{p}$ and alike

The following three steps explicitly show how to analyse the evolution of the cognitive state process over time for each agent and how this relates to the parameters of the model.

1)  $\mu_S = \exp\{-\lambda_1 t\}$  and  $\mu_C = 1 - \mu_S$  represent the masses.  $\lambda_1$  represents the intensity with which agents pass from the cognitive state  $S$  to the cognitive state  $A$  over time. Moreover, we define the unknown parameter  $\bar{p}$  as function of  $\mu$  and  $p$

$$\begin{aligned}\bar{p}(\mu, p) &= \mu_S (\mathbb{E}[x_S | p]) + \mu_C (\mathbb{E}[x_C | p]) \\ &= \mu_S (\beta p_S + (1 - \beta) p) + \mu_C (\xi_C p + (1 - \xi_C) (1 - p)) \\ &= \mu_S (\beta p_S + (1 - \beta) p) + \mu_C (1 - p - \xi_C (1 - 2p))\end{aligned}$$

Thus

$$\bar{p}(\mu, p) = \mu_S (\beta p_S + (1 - \beta) p) + \mu_C (1 - p - \xi_C (1 - 2p)) \quad (\text{B.1})$$

From which we can derive the expression for  $p$  as a function of  $p_S$

$$\begin{aligned}\bar{p} &= \mu_S \beta p_S + \mu_S (1 - \beta) p + \mu_C - \mu_C p - \mu_C \xi_C + 2\mu_C p \xi_C \\ \bar{p} &= \mu_S \beta p_S + \mu_C - \mu_C \xi_C + p [\mu_S (1 - \beta) - \mu_C (1 - 2\xi_C)] \\ &= \mu_S \beta p_S + \mu_C - \mu_C \xi_C + p [\mu_S (1 - \beta) - \mu_C (1 - 2\xi_C)]\end{aligned}$$

Thus  $p$  is defined as

$$p = \frac{\bar{p} - \mu_S \beta p_S - \mu_C (1 - \xi_C)}{\mu_S (1 - \beta) - \mu_C (1 - 2\xi_C)} \quad (\text{B.2})$$

Finally, we can define the parameter  $\hat{p}$  that is defined as the expectation of  $p$

conditioning on  $\bar{p}$

$$\hat{p} = \frac{\bar{p} - [\mu_S \beta \mathbb{E}[p_S | \bar{p}] + \mu_C (1 - \zeta_C)]}{\mu_S (1 - \beta) + \mu_C (2\zeta_C - 1)} \quad (\text{B.3})$$

Thus  $\bar{p}$  is defined as

$$\hat{p} = \mathbb{E}[p | \alpha_1 p + \alpha_2 p_S = \bar{p}] \quad (\text{B.4})$$

$$\begin{aligned} \hat{p} &= \frac{\beta^2 \mu_S^2 \mu_X \sigma_Y^2 + \sigma_X^2 (1 - \bar{p} - \zeta_C + \mu_S (-1 + \beta \mu_Y + \zeta_C)) (1 - 2\zeta_C + \mu_S (-2 + \beta + 2\zeta_C))}{\beta^2 \mu_S^2 \sigma_Y^2 + \sigma_X^2 (1 - 2\zeta_C + \mu_S (-2 + \beta + 2\zeta_C))^2} \\ &= \frac{\beta^2 \mu_S^2 \mu_X \sigma_Y^2 + \sigma_X^2 (\bar{p} - [\mu_S \beta \mu_Y + (1 - \mu_S) (1 - \zeta_C)]) (1 - 2\zeta_C + \mu_S (-2 + \beta + 2\zeta_C))}{\beta^2 \mu_S^2 \sigma_Y^2 + \sigma_X^2 (1 - 2\zeta_C + \mu_S (-2 + \beta + 2\zeta_C))^2} \end{aligned}$$

2) It is worth noting that the NWF can be expressed as the sum of the PWF and a biased term due to the elections. Indeed,

$$\begin{aligned} NWF &= -\mathbb{E}[(p - \bar{p})^2] = -\mathbb{E}[(p - \hat{p} + \hat{p} - \bar{p})^2] \\ &= -\mathbb{E}[(p - \hat{p})^2 + 2(p - \hat{p})(\hat{p} - \bar{p}) + (\hat{p} - \bar{p})^2] \\ &= -\left[ \mathbb{E}[(p - \hat{p})^2] + 2\mathbb{E}[(p - \hat{p})(\hat{p} - \bar{p})] + \mathbb{E}[(\hat{p} - \bar{p})^2] \right] \\ &= -\left[ \mathbb{E}[(p - \hat{p})^2] + 2(\hat{p} - \bar{p}) \underbrace{\mathbb{E}[(p - \hat{p})]}_0 + \mathbb{E}[(\hat{p} - \bar{p})^2] \right] \\ &= -\left[ \underbrace{\mathbb{E}[(p - \hat{p})^2]}_{\text{Precision of elections}} + \underbrace{\mathbb{E}[(\hat{p} - \bar{p})^2]}_{\text{Bias of elections}} \right] \end{aligned}$$

Thus it can be rewritten as

$$NWF = PWF + Bias$$

At this stage, we define the two welfare functions given the distributions of the parameters

3) What the theoretical analysis wants to show is the evolution of the welfare functions over time and the main differences between the evolution of the PWF and the NWF. In particular, in order to study the evolution, we take the first derivative of the two functions with respect to  $\mu_S$ . It is necessary and sufficient to show the sign of this derivative in order to have an all rounded understanding of the evolution of the two functions. Indeed,  $\mu_S$  as defined above depends negatively on  $t$  and  $\lambda_1$ . Hence, once we define the relation between the functions and  $\mu_S$ , we immediately get to know the

relation between the functions and the time/lambda. Thus let's start from showing the behavior of the PWF

$$\frac{\partial PWF}{\partial \mu_S} = \frac{2\beta^2 \mu_S \sigma^2 (-1 + 2\zeta_C) [1 - 2\zeta_C + \mu_S (-2 + \beta + 2\zeta_C)]}{\left\{ 2\mu_S^2 \left[ \beta^2 + 2\beta(-1 + \zeta_C) + 2(-1 + \zeta_C)^2 \right] + (1 - 2\zeta_C)^2 - 2\mu_S(-1 + 2\zeta_C)(-2 + \beta + 2\zeta_C) \right\}^2} \propto 1 - 2\zeta_C$$

Since almost everything is bigger or equal than 0, if we want to study the sign of the above formula, then we just have to analyse the sign of the following term

$$1 - 2\zeta_C + \mu_S (-2 + \beta + 2\zeta_C) < 0$$

$$0 < \mu_S < \frac{2\zeta_C - 1}{\underbrace{-2 + \beta + 2\zeta_C}_{\geq 1?}}$$

**Proposition 3**  $W_P$  is increasing in  $t$  and  $\lambda$  if

$$\frac{2\zeta_C - 1}{-2 + \beta + 2\zeta_C} > 1 \iff 1 > \beta$$

Let's study the right hand side of the inequality

$$2\zeta_C - 1 \geq -2 + \beta + 2\zeta_C$$

$$\beta \leq 1$$

Therefore, we can conclude that PWF is decreasing in  $\mu_S$  for each time  $t$ , because

$$0 < \mu_S < \frac{2\zeta_C - 1}{-2 + \beta + 2\zeta_C}, \quad \forall \mu_S \in [0, 1]$$

In other words, the PWF is an increasing function of both  $t$  and  $\lambda_1$ .

### B.1.2 Proof of Proposition 1

**Proof 1** Notice preliminary that using the chain rule the following result is valid for both welfare functions

$$\frac{dW}{d\lambda} = \frac{dW}{d\eta} \cdot \underbrace{\frac{d\eta}{d\lambda}}_{<0} \implies \frac{dW}{d\lambda} \propto -\frac{dW}{d\eta}$$

and therefore welfare moves in  $\lambda$  (and  $t$ ) contrary to how it moves in the share of stereotypes. First, for positive welfare,  $\frac{dW}{d\eta}$  is always negative for the following computations

$$\frac{\partial PWF}{\partial \mu_S} = \frac{2\beta^2 \mu_S \sigma^2 (-1 + 2\xi_C) [1 - 2\xi_C + \mu_S (-2 + \beta + 2\xi_C)]}{\left\{ 2\mu_S^2 \left[ \beta^2 + 2\beta(-1 + \xi_C) + 2(-1 + \xi_C)^2 \right] + (1 - 2\xi_C)^2 - 2\mu_S (-1 + 2\xi_C) (-2 + \beta + 2\xi_C) \right\}^2} \propto 1 - 2\xi_C + \mu_S (\beta - 2(1 - \xi_C))$$

Since almost everything is bigger or equal than 0, if we want to study the sign of the above formula, then we just have to analyse the sign of the following term

$$1 - 2\xi_C + \mu_S (-2 + \beta + 2\xi_C) < 0$$

$$0 < \mu_S < \underbrace{\frac{2\xi_C - 1}{-2 + \beta + 2\xi_C}}_{\geq 1?}$$

Let's study the right hand side of the inequality

$$2\xi_C - 1 \geq -2 + \beta + 2\xi_C$$

$$\beta \leq 1$$

Therefore, we can conclude that PWF is decreasing in  $\mu_S$  for each time  $t$ , because

$$0 < \mu_S < \frac{2\xi_C - 1}{-2 + \beta + 2\xi_C}, \quad \forall \mu_S \in [0, 1]$$

Furthermore,  $\frac{dW}{d\eta}$  has a nontrivial solution. That is by studying the sign of the derivative of welfare elections with respect to  $\mu_S$  we obtain

$$\frac{\partial NWF}{\partial \mu_S} = - \left[ 4\beta^2 \mu_S \sigma^2 + 4\beta(-1 + \mu_S) \sigma^2 (-1 + \xi_C) + 4\beta \mu_S \sigma^2 (-1 + \xi_C) + 2(-1 + \mu_S) \left[ (1 - 2\mu)^2 + 4\sigma^2 \right] (-1 + \xi_C)^2 \right]$$

The sign of the term in brackets is

$$4\beta^2 \mu_S \sigma^2 + 4\beta \sigma^2 (-1 + \xi_C) (-1 + 2\mu_S) + 2(-1 + \mu_S) \left[ (1 - 2\mu)^2 + 4\sigma^2 \right] (-1 + \xi_C)^2 > 0$$

$$\mu_S \left[ 4\beta^2 \sigma^2 + 8\beta \sigma^2 (-1 + \xi_C) + 2(-1 + \xi_C)^2 \left[ (1 - 2\mu)^2 + 4\sigma^2 \right] \right] > 4\beta \sigma^2 (-1 + \xi_C) + 2(-1 + \xi_C)^2 \left[ (1 - 2\mu)^2 + 4\sigma^2 \right]$$

$$\mu_S > \underbrace{\frac{4\beta \sigma^2 (-1 + \xi_C) + 2(-1 + \xi_C)^2 \left[ (1 - 2\mu)^2 + 4\sigma^2 \right]}{4\beta^2 \sigma^2 + 8\beta \sigma^2 (-1 + \xi_C) + 2(-1 + \xi_C)^2 \left[ (1 - 2\mu)^2 + 4\sigma^2 \right]}}_{\text{Threshold} < 1?}$$

Saying that the threshold is less than one also means that  $\frac{\partial NWF}{\partial \mu_S} < 0 \iff \mu_S > \text{Threshold}$ . We want to study this threshold. The conditions given in the text correspond to such threshold being below 0 and above, 1, respectively.

$$\begin{cases} \text{COND1} \rightarrow \text{Threshold} < 0 & \text{Always decreases in time} \\ \text{COND2} \rightarrow \text{Threshold} > 1 & \text{Always increase in time} \\ \text{COND3} \rightarrow \text{Threshold} \in (0, 1) & \text{Increases first, decreases later} \end{cases}$$

COND1 occurs according to the following expression

$$\beta > \frac{(1 - \xi_C) \left( (1 - 2\mu)^2 + 4\sigma^2 \right)}{2\sigma^2}$$

then welfare is always decreasing.

For COND2 to occur the numerator of the threshold must be higher than the denominator. Hence, since there are only two terms differing between numerator and denominator, the following must be true

$$\begin{aligned} 4\beta\sigma^2 (-1 + \xi_C) &> 4\beta^2\sigma^2 + 8\beta\sigma^2 (-1 + \xi_C) \\ 4\beta\sigma^2 (-1 + \xi_C) &> 4\beta\sigma^2 (\beta + 2\xi_C - 2) \\ \beta &< 1 - \xi_C \end{aligned}$$

then welfare is always increasing.

Finally, COND3 can be discussed intuitively. Since  $\mu_S$  is monotonically decreasing in time, there must be by continuity a  $t^{\max}$  such that

$$\begin{cases} \frac{\partial W^N}{\partial \mu_S} < 0 & \text{for } t < t^{\max} \\ \frac{\partial W^N}{\partial \mu_S} < 0 & \text{for } t > t^{\max} \end{cases}$$

therefore,  $t^{\max}$  is a maximum interior of  $W^N$  when  $\text{Threshold} \in (0, 1)$

### B.1.3 Proof of Proposition 2

**Proof 2** Firstly, define the parameters associated with  $\bar{p}$

$$\bar{p} = \mu_T p + \mu_S (\beta p_S + (1 - \beta) p) + \mu_C [1 - p + \xi_C (2p - 1)]$$

where

$$\begin{aligned} \alpha_0 &= \mu_C (1 - \xi_C) \\ \alpha_1 &= 1 - \beta\mu_S - 2\mu_C (1 - \xi_C) \\ \alpha_2 &= \beta\mu_S \end{aligned}$$

Then  $\hat{p}$  is given by

$$\hat{p} = \frac{\frac{\bar{p} - [\alpha_0 + \alpha_2 \mu_y]}{\alpha_1} \alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2 \mu_x}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

where

$$\gamma_0(t, \lambda) = \frac{\alpha_2^2 \sigma_y^2 \mu_x - \alpha_2 \alpha_1 \sigma_x^2 \mu_y}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

$$\gamma_1(t, \lambda) = \frac{\alpha_1^2 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

$$\gamma_2(t, \lambda) = \frac{\alpha_2 \alpha_1 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

The bias is zero if and only if the following system has a solution

$$\begin{cases} \alpha_1 = \gamma_1 \\ \alpha_2 = \gamma_2 \end{cases}$$

that is

$$\begin{cases} \alpha_1 = \frac{\alpha_1^2 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} \\ \alpha_2 = \frac{\alpha_2 \alpha_1 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} \end{cases}$$

It is immediate to check that  $\gamma_1(t, \lambda) = \alpha_1(t, \lambda) \iff \gamma_2(t, \lambda) = \alpha_2(t, \lambda)$ , so we actually have a single equation and we need to claim that exists a time such that

$$\begin{aligned} \frac{\alpha_1^2 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} = \alpha_1 &\iff \frac{(1 - \beta \mu_S - 2\mu_C (1 - \xi_C))^2 \sigma_x^2}{(1 - \beta \mu_S - 2\mu_C (1 - \xi_C))^2 \sigma_x^2 + (\beta \mu_S)^2 \sigma_y^2} = (1 - \beta \mu_S - 2\mu_C (1 - \xi_C)) \\ &\iff (1 - \beta \mu_S - 2\mu_C (1 - \xi_C)) \sigma_x^2 = (1 - \beta \mu_S - 2\mu_C (1 - \xi_C))^2 \sigma_x^2 + (\beta \mu_S)^2 \sigma_y^2 \\ &\iff (1 - \beta \mu_S - 2\mu_C (1 - \xi_C)) \sigma_x^2 (\beta \mu_S + 2\mu_C (1 - \xi_C)) = (\beta \mu_S)^2 \sigma_y^2 \\ &\iff \frac{(1 - \beta \mu_S - 2\mu_C (1 - \xi_C)) (\beta \mu_S + 2\mu_C (1 - \xi_C))}{(\beta \mu_S)^2} = \frac{\sigma_y^2}{\sigma_x^2} \\ &\iff \frac{(1 - \beta \mu_S - 2(1 - \mu_S)(1 - \xi_C)) (\beta \mu_S + 2(1 - \mu_S)(1 - \xi_C))}{(\beta \mu_S)^2} \end{aligned}$$

When  $\mu_S = 0$  there cannot be the zero-bias time, because as  $t \rightarrow \infty$  this explodes (? can we show this is always increasing in  $\mu_S$ ) because in the limit there is always bias. On the other hand, there could be a zero-bias time that coincides with  $t^* = 0$ . Indeed, when  $\mu_S = 1$

$$\frac{1 - \beta}{\beta} = \frac{\sigma_y^2}{\sigma_x^2}$$

An even more special case is when  $\xi_C = 1$ . Indeed,

$$\begin{aligned} \frac{(1 - \beta\mu_S)^2 \sigma_x^2}{(1 - \beta\mu_S)^2 \sigma_x^2 + (\beta\mu_S)^2 \sigma_y^2} &= (1 - \beta\mu_S) \\ (1 - \beta\mu_S) \sigma_x^2 &= (1 - \beta\mu_S)^2 \sigma_x^2 + (\beta\mu_S)^2 \sigma_y^2 \\ \left( \frac{1 - \beta\mu_S}{\beta\mu_S} \right) &= \frac{\sigma_y^2}{\sigma_x^2} \end{aligned}$$

Substituting the expression of  $\mu_S$  as a function of  $t$  and  $\lambda$

$$\frac{\sigma_x^2}{\beta (\sigma_x^2 + \sigma_y^2)} = e^{-t\lambda_1}$$

that becomes

$$t^* = -\frac{1}{\lambda_1} \log \left( \frac{\sigma_x^2}{\beta (\sigma_x^2 + \sigma_y^2)} \right)$$

where the argument of the log must be smaller than 1

$$\frac{\sigma_x^2}{\beta (\sigma_x^2 + \sigma_y^2)} < 1$$

that is

$$\frac{(1 - \beta)}{\beta} < \frac{\sigma_y^2}{\sigma_x^2}$$

## B.2 Experimental Design Details

### B.2.1 Treatments Details and Examples

In the **NEWSPAPER** treatment, the participants are exposed to two news articles: one that is for and one that is against the issue. In the **FACEBOOK** treatment, participants were exposed to six Facebook posts: two for and two against an issue as well as two irrelevant posts. In treatment **TWITTER**, participants are exposed to twenty-four tweets: ten for digital privacy, ten against digital privacy, and four irrelevant tweets. Each tweet has an average length of 40 characters, corresponding to 20 words.<sup>1</sup> We

<sup>1</sup>This corresponds to the average length of tweets on twitter.com, see the Appendix for details.

give participants 5 seconds to read each tweet before the next one automatically pops until the last one, which is in line with the average reading speed in the US population. In the **PARTISAN TWITTER** treatment, participants are exposed to 13 tweets: 10 for and 3 irrelevant ones or 10 against and 3 irrelevant ones. Within each treatment, tweets, Facebook posts, and news articles arrive in a random order sequentially (one by screen) and remain on screen for a given fixed amount of time (the participant cannot move to the next screen by him or herself). Each participant is randomly assigned to one of the treatments.

## B.2.2 Detailed Data Collection

**Preventing duplicates.** Submissions to studies on Prolific are guaranteed to be unique by the firm<sup>2</sup>. Our system is set up such that each participant can have only one submission per study on Prolific. That is, each participant will be listed in your dashboard only once, and can only be paid once. On our side, we also prevent participants to take up several times our experiment in two steps. First, we enable the functionality “Prevent Ballot Box Stuffing” which permits to... Second we check participant ID and delete the second submission from the data set of the same ID if we find any.

**Drop-out rates.** Here put the drop out (or in the main text).

**High vs low-quality submissions.** Participants joining the Prolific pool receive a rate based on the quality of their engagement with the studies. If they are rejected from a study then they receive a malus. If they receive too much malus, then they are removed by the pool from the company<sup>3</sup>. Based on this long term contract, participants are incentivized to pay attention and follow the expectations of each study. Hence, a good research behavior has emerged on Prolific according to which, participants themselves can voluntarily withdraw their submissions if they feel they did a mistake such as rushing too much, letting the survey opened for a long period of time without engaging with it, and so on<sup>4</sup>. According to these standards, we kept submissions rejections as low as possible, following standard in online experimental economics. Participants who fail at least one fair attention check are rejected and not paid. Following Prolific standards, participants who are statistical outliers (3 standard deviations below the mean) are excluded from the good complete data set.

**Payments and communication.** We make sure to review participants’ submissions within within 24-48 hours after they have completed the study. This means that within this time frame, if we accept their submission, they receive their fixed and bonus payment. Otherwise, we reject their submissions and send to them a

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<sup>2</sup>See Prolific unique submission guarantee policy [here](#).

<sup>3</sup>See Prolific pool removal Policy [here](#).

<sup>4</sup>See Prolific update regarding this behavior [here](#).

personalized e-mail<sup>5</sup>), detailing the reason of the rejection, leaving participants the opportunity to contact us afterwards if they firmly believe the decision to be unfair (motivate their perspective). Participants can also contact us at any time if they encounter problems with our study or just have questions about it.

### **B.2.3 Detailed Elicitations**

#### **Political Preferences**

**Ex-ante and ex-post political preferences.** Before the treatment, we survey participants' preferences (self-reported) on political issues: guns, crime, climate, welfare, and digital privacy issues. We use the standard congressional metrics, including digital issues. We elicit more than only digital preferences to ensure that participants do not guess at this stage which preferences we focus on in the remaining of the experiment (treatment and critical thinking essay), to minimize their social desirability bias. After the treatment on digital privacy, we survey again participants to elicit their preferences about digital privacy. We use the following scale.

1. On the issue of gun regulation, do you support or oppose the following proposal?
2. On the issue of environmental policies, do you support or oppose the following proposal?
3. On the issue of crime policies, do you support or oppose the following proposal?
4. On the issue of digital policies, do you support or oppose each of the following proposals?

#### **Digital Knowledge Test**

see the online appendix about participant's experimental instructions.

#### **Issue Familiarity**

1. In the remainder of the experiment, we will focus on the following political issue. Please state again your preference.
2. Have you thought deeply about this issue before participating in this study?  
[Yes/No]

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<sup>5</sup>Partially-anonymized through Prolific messaging app which put the researcher's name visible to the participants and only the participants ID visible to the researcher.

## **Listing Reasons**

If *yes* to the previous question, then participants see this question:  
You answered “Yes” to the previous question. you will be asked now to provide, at most, two reasons which justify your position and two reasons which justify the opposite position. If you do not know any reasons, please select “I am unable to list any logical reason at the moment”. you do not need to agree with these reasons: they just need to be a logical justification for or against your position. your payment WILL NOT depend on your answer to this question. However, your honest answer is of paramount importance for the success of this study.

### 1. Reasons which justify your position

- Reason 1: [write text here]
- Reason 2: [write text here]
- I am unable to list any logical reason at the moment

### 2. Reasons which oppose your position

- Reason 1: [write text here]
- Reason 2: [write text here]
- I am unable to list any logical reason at the moment

## **Internal Uncertainty**

How certain are you of your preference regarding the digital privacy issue? By “Certain”, we mean that you feel confident enough to vote for your political preference if asked to you in a real life political committee. Select among the following options:

- Completely Uncertain
- Rather Uncertainty
- Rather Certain
- Completely Certain

## **Need for Cognition**

For each sentence below, please select how uncharacteristic or characteristic this is for you personally.

## **Cognitive Flexibility**

## **Habits of News Consumptopn**

see the online appendix about participant’s experimental instructions.

## B.2.4 Detailed Description of Graders' Instructions

We recruited 20 psychologists (doctoral level or above) specializing in cognitive psychology at Princeton University. Each grader was randomly assigned a “grading treatment” (i.e., a set of essays to grade). Such a set of essays was randomly built, containing essays from all four treatments. Additionally, graders were not informed about which treatment the subjects were assigned. Psychologists must grade a very short paragraph (around 300 words or fewer) as follows. The grading consists of giving a passing grade if psychologists judge that the participant “realizes that the issue is ambivalent,” a failing grade otherwise. What may happen is to confound high cognitive sophistication (i.e., the ability to write well-written essays in English), facilitated by the fact that they read some arguments right before this essay exercise with their self-reasoning skill “realizing that the issue is ambivalent”, which is the variable that we want to elicit. This is a specific case that is still challenging for AI-based grading software and the main reason why human expertise is uniquely useful.

We define “realizing that the issue is ambivalent” as the awareness of an individual to recognize that there can be perfectly logical but opposite arguments in favor of and against the same issue that renders the decision-making process complex. Such attitudinal ambivalence leads to temporarily conflicting preferences; namely, one preference for the issue at hand and one preference against the issue at hand. There are different ways of measuring this “awareness,” as documented in the social psychology and cognitive psychology literature. In our study, we capture this awareness by observing individuals reasoning and elaborating in a personal way on the pros and cons of the same issue in a textual format.

Each grader was paid a fixed fee of \$50 for each grading session. Each grader could participate up to three times in our experiment, and no grader could be assigned twice to the same grading treatment. For robustness, each essay was corrected three times by different psychologists. Despite “triple-eliciting” such grades, this metric can still be prone to measurement error. Accordingly, we suggest interpreting the estimated *levels* of  $\lambda$  with caution. However, our focus is on the difference between the treatments. Therefore, such measurement error does not affect this difference. see the online appendix about participant’s experimental instructions.

## B.2.5 Heterogeneous Critical Thinking Classification

### Critical Thinking Classification Results

Table B.1 shows the classification results of individuals as Stereotype and Aware.

Treatment	$S_0 \rightarrow S_1$	$S_0 \rightarrow A_1$	$A_0 \rightarrow A_1$
NEWSPAPER	111	49	12
TWITTER	135	43	15
FACEBOOK	111	60	11
<i>N</i>	357	152	38

Table B.1: TABLE 2: CLASSIFICATION RESULTS BEFORE / AFTER TREATMENT

### Awareness With Cognitive Styles Heterogeneity with Unanimity

#### Awareness With Cognitive Flexibility, with Unanimity

Treatment	NP	TWITTER	FACEBOOK
NEWSPAPER	.	1.301 (0.091)	1.661 (0.095)
TWITTER	.	.	0.422 (0.093)
FACEBOOK	.	.	.

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.2: *t*-ratio FOR High Need for Cognition WITH UNANIMITY

Treatment	NP	TWITTER	FACEBOOK
NEWSPAPER	.	0.320 (0.066)	-0.388 (0.065)
TWITTER	.	.	-0.965 (0.064)
FACEBOOK	.	.	.

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.3: TABLE 6: *t*-ratio FOR Low Need for Cognition WITH UNANIMITY

#### Awareness With Need for Cognition, with Unanimity

Treatment	NP	TWITTER	FACEBOOK
NEWSPAPER	.	1.061 (0.084)	-2.238* (0.084)
TWITTER	.	.	-1.300 (0.083)
FACEBOOK	.	.	.

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.4: TABLE 6: *t-ratio* FOR *High Need for Cognition* WITH UNANIMITY

Treatment	NP	TWITTER	FACEBOOK
NEWSPAPER	.	0.455 (0.069)	0.705 (0.069)
TWITTER	.	.	0.258 (0.069)
FACEBOOK	.	.	.

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.5: TABLE 6: *t-ratio* FOR *Low Need for Cognition* WITH UNANIMITY

### Awareness With Cognitive Styles Heterogeneity with Majority

#### Awareness With Cognitive Flexibility, with Majority

Treatment	NP	TWITTER	FACEBOOK
NEWSPAPER	.	0.658 (0.076)	-0.924 (0.087)
TWITTER	.	.	-1.609 (0.081)
FACEBOOK	.	.	.

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.6: TABLE 6: *t-ratio* FOR *High Flexibility*

Treatment	NP	TWITTER	FACEBOOK
NEWSPAPER	.	1.132 (0.062)	-0.388 (0.064)
TWITTER	.	.	-1.564 (0.061)
FACEBOOK	.	.	.

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.7: TABLE 7: *t-ratio* FOR *Low Flexibility*

Awareness With Need for Cognition, with Majority

Treatment	NEWSPAPER	TWITTER	FACEBOOK
NEWSPAPER	.	0.764 (0.070)	-2.238* (0.079)
TWITTER	.	.	-3.087** (0.075)
FACEBOOK	.	.	.

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.8: TABLE 4: *t-ratio* FOR **HIGH** NEED FOR COGNITION

Treatment	NEWSPAPER	TWITTER	FACEBOOK
NEWSPAPER	.	1.094 (0.066)	0.703 (0.067)
TWITTER	.	.	-0.396 (0.063)
FACEBOOK	.	.	.

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.9: TABLE 5: *t-ratio* FOR **LOW** NEED FOR COGNITION

## B.2.6 Threshold changes

Treatment	NEWSPAPER	TWITTER	FACEBOOK
NEWSPAPER	.	1.278 (0.054)	-0.923 (0.054)
TWITTER	.	.	-2.262* (0.053)
FACEBOOK	.	.	.

Standard errors in parentheses  
\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.10: *t-ratio* DIFFERENCE-IN-MEANS WITH THRESHOLD OF KTS = 8 AND REASON COUNTER = 2

Treatment	NEWSPAPER	TWITTER	FACEBOOK
NEWSPAPER	.	1.222 (0.054)	-0.799 (0.054)
TWITTER	.	.	-2.067* (0.053)
FACEBOOK	.	.	.

Standard errors in parentheses  
\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.11: *t-ratio* DIFFERENCE-IN-MEANS WITH THRESHOLD OF KTS = 7 AND REASON COUNTER = 3

Treatment	NEWSPAPER	TWITTER	FACEBOOK
NEWSPAPER	.	1.136 (0.049)	-0.703 (0.052)
TWITTER	.	.	-1.985* (0.049)
FACEBOOK	.	.	.

Standard errors in parentheses  
\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.12: *t-ratio* DIFFERENCE-IN-MEANS WITH THRESHOLD OF KTS = 7 AND REASON COUNTER = 2

Treatment	NEWSPAPER	TWITTER	FACEBOOK
NEWSPAPER	.	1.428 (0.049)	-0.507 (0.052)
TWITTER	.	.	-1.985* (0.049)
FACEBOOK	.	.	.

Standard errors in parentheses  
\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.13: *t-ratio* DIFFERENCE-IN-MEANS WITH THRESHOLD OF KTS = 6 AND REASON COUNTER = 3

## B.2.7 AI Digital Grade

The last robustness check that we perform is to split the sample conditioning on the the grade of the essay on the digital topic evaluated by the algorithm of the AI.Indeed, the essay is written after undertaking the experiment and it might influence the writing quality of the essay. In particular, our reasoning is that if no difference in proportion is statistically significant, this means that there is no systematic difference between those who were treated through Facebook and those through Twitter, and indeed from Table 17 this is the case.

Treatment	NEWSPAPER	TWITTER	FACEBOOK
NEWSPAPER	.	1.716 (0.078)	0.234 (0.081)
TWITTER	.	.	-1.565 (0.074)
FACEBOOK	.	.	.

Standard errors in parentheses  
\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.14: *t-ratio* WITH HIGH AI DIGITAL GRADES

Treatment	NEWSPAPER	TWITTER	FACEBOOK
NEWSPAPER	.	0.098 (0.061)	-1.093 (0.067)
TWITTER	.	.	-1.207 (0.065)
FACEBOOK	.	.	.

Standard errors in parentheses  
\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B.15: *t-ratio* WITH LOW AI DIGITAL GRADES

## B.3 Model With Three-State Critical Thinking

We propose an additional model where agents can be at three different states of critical thinking: not engaging with critical thinking, performing critical thinking (either in its first or second state), and having finished performing critical thinking. In our two-stage model, we considered performing critical thinking as having finished performing it. In this scenario, we propose a three-stage (not fully identified) model that considers the three stages distinctively.

In this economy, the object of interest is the distribution of reasoned preferences over a binary policy space in a large population. Each individual  $j$  inside the population is characterized by a three-dimensional type

$$(x_j, y_j, i_j) \in \mathcal{J} := \{0, 1\} \times \{0, 1\} \times \{0, 1\}$$

where  $x_j$  represents the stereotypical preference individual  $j$  would self-report when presented with an ambivalent issue for the first time – that is, by definition, before undergoing a critical thinking phase;  $y_j$  differs potentially from  $x_j$  as it represents the reasoned preference that  $j$  holds after completing their period of critical thinking; the cognitive type  $i_j$  refers to the cognitive type  $i_j$ , interacting with the format, determines how easily individual  $j$  moves into (and out of) critical thinking.

Individuals go through a three-step process of “critical thinking” as they form their preferences. The process begins with a “stereotypical-self” state, followed by a period of critical thinking, and ultimately leading to a “reasoned-self” state. We assume that this process is irreversible and that once individuals reach a reasoned-self state, they no longer question their preferences. There is no additional “information” that has to come and change their worldview: the process of critical thinking provides a final and reasoned answer to ambivalent issues. When asked to report their preferences on a policy issue, individuals in either their stereotypical self or reasoned self state will vote according to their respective preferences,  $x_j, y_j$ , respectively. Those who are still in the critical thinking phase will abstain from voting.

The transition between the different phases is determined by an individual’s cognitive style and the characteristics of the storytelling format. Hence, the storytelling format is instrumental in the agent’s transition from a stereotypical state to the reasoned one. By constructing our model, this transition is captured by the critical thinking phase. An economy of reasoned preferences is preferable from efficiency and welfare perspectives to an economy of stereotypical preferences. We formally present such an economy below.

### B.3.1 Model Identification

Using reported preferences of individuals that do the  $S(\text{Stereotype}) \rightarrow T(\text{Type})$  transition (i.e. we observe ex ante  $x_S$  then  $y$ ), we get

$$\mathbb{E}[x_S | y = 1] = (1 - \beta) + \beta p_S$$

$$\mathbb{E} [x_S | y = 0] = \beta p_S$$

which gives the estimators

$$\hat{\beta} = 1 - (\bar{x}_{S|1} - \bar{x}_{S|0})$$

and

$$\hat{p}_S = \frac{\bar{x}_{S|0}}{\hat{\beta}}$$

clearly  $\hat{p} = \bar{y}$ . Finally, using the reported preferences of individuals that do the  $A \rightarrow T$  (*Type*) transition we can estimate  $\zeta_A$  as

$$\mathbb{E} [x_A | y = 1] = \zeta_A$$

$$\mathbb{E} [x_A | y = 0] = 1 - \zeta_A$$

so  $\hat{\zeta}_A = \bar{x}_{NU|1}$  or  $\hat{\zeta}_A = 1 - \bar{x}_{NU|0}$ . Notice that we can test the assumed symmetry by testing that  $\hat{\zeta}_A = \hat{\zeta}_A$ . Since in our dataset we have few agents that start in  $A$  this test has almost no power.

### B.3.2 General Results

The basic decomposition

$$W_E = W_P + Bias$$

$$-\mathbb{E} [(p - \bar{p})^2] = -\left( \mathbb{E} [(p - \hat{p})^2] + \mathbb{E} [(\hat{p} - \bar{p})^2] \right)$$

is still clearly valid. However,  $\bar{p}$  is now given by

$$\begin{aligned} \bar{p} &= \mu_T p + \mu_S (\beta p_S + (1 - \beta) p) + \mu_A [1 - p + \zeta_A (2p - 1)] \\ &= \alpha_0 (t, \lambda) + \alpha_1 (t, \lambda) p + \alpha_2 (t, \lambda) p_S \end{aligned}$$

with

$$\begin{aligned} \alpha_0 &= \mu_A (1 - \zeta_A) \\ \alpha_1 &= 1 - \beta \mu_S - 2\mu_A (1 - \zeta_A) \\ \alpha_2 &= \beta \mu_S \end{aligned}$$

where  $\hat{p}$  (that was wrong in the previous file since for non-normal random variables we do not know the expectation of  $p$  given the convex combination  $\beta p_S + (1 - \beta) p$ ) is

given by

$$\hat{p} = \frac{\frac{\bar{p} - [\alpha_0 + \alpha_2 \mu_y]}{\alpha_1} \alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2 \mu_x}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} = \tilde{\alpha}_0(t, \lambda) + \tilde{\alpha}_1(t, \lambda) p + \tilde{\alpha}_2(t, \lambda) p_S$$

$$\frac{\frac{\alpha_0(t, \lambda) + \alpha_1(t, \lambda) p + \alpha_2(t, \lambda) p_S - [\alpha_0 + \alpha_2 \mu_y]}{\alpha_1} \alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2 \mu_x}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

so

$$\tilde{\alpha}_1(t, \lambda) = \frac{\alpha_1^2 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

$$\tilde{\alpha}_2(t, \lambda) = \frac{\alpha_2 \alpha_1 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

when is it

$$\tilde{\alpha}_1(t, \lambda) = \alpha_1(t, \lambda) \iff \frac{\alpha_1^2 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} = \alpha_1 \iff$$

$$\text{Same } \sigma = \alpha_1(1 - \alpha_1) = \alpha_2^2 \iff (1 - \beta \mu_S)(\beta \mu_S) = (\beta \mu_S)^2$$

It is immediate to check that  $\tilde{\alpha}_1(t, \lambda) = \alpha_1(t, \lambda) \iff \tilde{\alpha}_2(t, \lambda) = \alpha_2(t, \lambda)$  so we actually have a single equation and we need to claim that  $\exists$  time such that

$$\frac{\alpha_1^2 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} = \alpha_1 \iff \frac{(1 - \beta \mu_S - 2\mu_A(1 - \xi_A))^2 \sigma_x^2}{(1 - \beta \mu_S - 2\mu_A(1 - \xi_A))^2 \sigma_x^2 + (\beta \mu_S)^2 \sigma_y^2} = (1 - \beta \mu_S - 2\mu_A(1 - \xi_A))$$

$$\iff (1 - \beta \mu_S - 2\mu_A(1 - \xi_A)) \sigma_x^2 = (1 - \beta \mu_S - 2\mu_A(1 - \xi_A))^2 \sigma_x^2 + (\beta \mu_S)^2 \sigma_y^2$$

$$\iff (1 - \beta \mu_S - 2\mu_A(1 - \xi_A)) \sigma_x^2 (\beta \mu_S + 2\mu_A(1 - \xi_A)) = (\beta \mu_S)^2 \sigma_y^2$$

$$\iff \frac{(1 - \beta \mu_S - 2\mu_A(1 - \xi_A)) (\beta \mu_S + 2\mu_A(1 - \xi_A))}{(\beta \mu_S)^2} = \frac{\sigma_y^2}{\sigma_x^2}$$

now substituting  $\mu_S, \mu_A$  we have the LHS is increasing to  $\infty$  in  $t$ , therefore there is a unique solution provided that it starts below  $\frac{\sigma_y^2}{\sigma_x^2}$ , that is if  $\frac{1-\beta}{\beta} < \frac{\sigma_y^2}{\sigma_x^2}$  ( $\beta$  is large enough) as  $\mu_S \rightarrow 0$ , this explodes (there is always bias in the limit), while at the beginning there is zero bias iff

$$\frac{1 - \beta}{\beta} = \frac{\sigma_y^2}{\sigma_x^2}$$

$$[\text{example, } \sigma_x^2 = \frac{1}{2}, \sigma_y^2 = \frac{1}{6} \beta = \frac{3}{4} \implies \frac{1-\beta}{\beta} = \frac{1}{3}]$$

this is the zero-bias time. Even more special cases  $\xi_A = 1$

$$\frac{(1 - \beta\mu_S)^2 \sigma_x^2}{(1 - \beta\mu_S)^2 \sigma_x^2 + (\beta\mu_S)^2 \sigma_y^2} = (1 - \beta\mu_S)$$

$$(1 - \beta\mu_S) \sigma_x^2 = (1 - \beta\mu_S)^2 \sigma_x^2 + (\beta\mu_S)^2 \sigma_y^2$$

$$\left( \frac{1 - \beta\mu_S}{\beta\mu_S} \right) = \frac{\sigma_y^2}{\sigma_x^2}$$

Since the LHS is decreasing in  $\mu_S$  and the RHS is increasing, then there is at most one solution. It has none if

$$\frac{1 - \beta}{\beta} > \frac{\sigma_y^2}{\sigma_x^2}$$

Furthermore we get

$$W_P = -\mathbb{E} \left[ (p - \hat{p})^2 \right] = -\frac{\alpha_2^2 \sigma_y^2 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

$$\text{If } \sigma_x^2 = \sigma_y^2 = \sigma^2 = -\frac{\alpha_2^2}{\alpha_1^2 + \alpha_2^2} \sigma^2$$

$$\xi_A = 1 = \frac{(\beta\mu_S)^2}{2\beta\mu_S [1 - \beta\mu_S] + 1} \sigma^2??$$

### Aside: No Bias

Condition for no bias is that coefficients in  $\bar{p}$  are the same as in  $\hat{p}$  that is,

$$\text{If } \exists t : B(t) = 0$$

$$\alpha_0 + \alpha_1 p + \alpha_2 p_S$$

$$\frac{\frac{\alpha_1 p + \alpha_2 p_S - \alpha_2 \mu_y}{\alpha_1} \alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2 \mu_x}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} = \frac{\alpha_2^2 \sigma_y^2 \mu_x - \alpha_2 \alpha_1 \sigma_x^2 \mu_y}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} + \frac{\alpha_1^2 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} p + \frac{\alpha_2 \alpha_1 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} p_S$$

$$\alpha_0 = \frac{\alpha_2^2 \sigma_y^2 \mu_x - \alpha_2 \alpha_1 \sigma_x^2 \mu_y}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} = \mu \frac{\alpha_2^2 \sigma_y^2 - \alpha_2 \alpha_1 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

$$\alpha_1 = \frac{\alpha_1^2 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

$$\alpha_2 = \frac{\alpha_2 \alpha_1 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

notice that if  $\beta = \frac{1}{2}$  then at  $t = 0$  we have a solution iff  $\sigma$  are the same at  $t = 0$ ,

$$\alpha_0 = 0$$

$$\alpha_1 = \frac{1}{2}$$

$$\alpha_2 = \frac{1}{2}$$

$$\alpha_0 = \frac{\alpha_2^2 \sigma_y^2 \mu_x - \alpha_2 \alpha_1 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

$$\alpha_1 = \frac{\alpha_1^2 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

$$\alpha_2 = \frac{\alpha_2 \alpha_1 \sigma_x^2}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

and

$$\mathbb{E} [\hat{p}|p] = \frac{\mathbb{E} \left[ \frac{\alpha_1 p + \alpha_2 p_S - \alpha_2 \mu_y}{\alpha_1} \right] \alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2 \mu_x}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} = \frac{\alpha_1^2 \sigma_x^2 p + \alpha_2^2 \sigma_y^2 \mu_x}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2}$$

and

$$\mathbb{E} [\hat{p}] = \frac{\alpha_1^2 \sigma_x^2 \mu_x + \alpha_2^2 \sigma_y^2 \mu_x}{\alpha_1^2 \sigma_x^2 + \alpha_2^2 \sigma_y^2} = \mu_x$$

### Welfare Expressions

The general formula is in the mathematica file, under the restriction  $\mu_x = \mu_y$  and  $\sigma_x = \sigma_y$  we get

$$W_E = - \left[ (\alpha_0 - (1 - \alpha_1 - \alpha_2) \mu)^2 + \left( (1 - \alpha_1)^2 + \alpha_2^2 \right) \sigma^2 \right]$$

We have welfare at  $t = 0$ , where  $\mu_S = 1$ . Namely

$$W_E = -\beta^2 \left( \underbrace{(\mu_x - \mu_y)^2}_{\text{Prior Bias}} + \sigma_x^2 + \sigma_y^2 \right)$$

$$W_P = -\beta^2 \frac{\sigma_x^2 \sigma_y^2}{\sigma_x^2 (1 - \beta)^2 + \sigma_y^2 \beta^2}$$

Then,

$$\frac{W_E}{W_P} = \frac{(\mu_x - \mu_y)^2 + \sigma_x^2 + \sigma_y^2}{\frac{\sigma_x^2 \sigma_y^2}{\sigma_x^2(1-\beta)^2 + \sigma_y^2 \beta^2}}$$

$$\text{Assume equal } \sigma = \frac{(\mu_x - \mu_y)^2 + 2\sigma^2}{(1-2\beta+2\beta^2)} = \underbrace{\frac{(\mu_x - \mu_y)^2}{\sigma^2}}_{>0} + 2(1-2\beta+2\beta^2) > 2\left(\frac{1}{2}\right) = 1$$

so if  $\mu_x = \mu_y$  (no prior bias), then  $W_E(0) = W_P(0)$  iff  $\sigma_x = \sigma_y$ .

## Results

$W_E > W_P$  this is because the bias/variance decomposition

$$\begin{aligned} W &= -\mathbb{E} \left[ (p - \bar{p})^2 \right] = -\mathbb{E} \left[ ((1 - \mu_T - \mu_A [2\xi_A - 1] - \mu_S (1 - \beta)) p + \beta \mu_S p_S + \mu_A (1 - \xi_A))^2 \right] \\ &= -\mathbb{E} \left[ (p - \hat{p} + \hat{p} - \bar{p})^2 \right] = - \left( \mathbb{E} \left[ (p - \hat{p})^2 \right] + \mathbb{E} \left[ (\hat{p} - \bar{p})^2 \right] + \cancel{2\mathbb{E} \left[ (p - \hat{p})(\hat{p} - \bar{p}) \right]} \right) \\ &= - \left( \underbrace{\mathbb{E} \left[ (p - \hat{p})^2 \right]}_{\text{Precision of election}} + \underbrace{\mathbb{E} \left[ (\hat{p} - \bar{p})^2 \right]}_{\text{Bias of elections}} \right) \end{aligned}$$

finally holds, the election have a bias.

The full characterization of the derivative (assuming equal  $\mu$  and  $\sigma$ )

$$\frac{d}{dt} W_E|_{t=0} = -4\beta\lambda_1\sigma^2(1 - \beta - \xi_A)$$

Instead assuming only equal  $\mu$  we have

$$\frac{d}{dt} W_E|_{t=0} = -2\beta\lambda_1 \left( \beta\sigma_y^2 - \sigma_x^2 (2(1 - \xi_A) - \beta) \right)$$

so

$$\frac{d}{dt} W_E|_{t=0} > 0 \iff 1 - \beta < \xi_A$$

or in general

$$\frac{\beta}{2(1 - \xi_A) - \beta} < \frac{\sigma_x^2}{\sigma_y^2}$$

a sensible condition. Also,  $\lambda_1$  magnifies either the positive or the negative change local to 0 and in particular if  $1 - \beta > \xi_A$  then more  $\lambda_1$  is bad for welfare local to  $t = 0$ .

To the contrary,

$$\frac{d}{dt}W_P|_{t=0} = \frac{2(1-\beta)\beta^2\lambda_1\sigma^2(2\bar{\xi}_A-1)}{\text{sthg}^2} > 0$$

and the welfare of the unconstrained principal is [but this is just a conjecture not falsified by Math plots] always increasing in both  $\lambda_1, t$ .

**Conjecture**

$W_P$  is increasing in  $t$  (and  $\lambda_1$ )— We show that

$$\begin{aligned} \frac{d}{dt} W_P &\propto - \left[ \underbrace{2(1 - \zeta_A) \mu_S}_{+} \underbrace{\frac{d}{dt} \mu_A}_{?} + \underbrace{(1 - 2(1 - \zeta_A) \mu_A)}_{+} \underbrace{\frac{d}{dt} \mu_S}_{-} \right] \\ &= \underbrace{\exp \{ -(\lambda_1 + \lambda_2) t \}}_{+} \lambda_1 (2(1 - \zeta_A) - \exp \{ \lambda_2 t \}) 2(1 - \zeta_A) - \exp \{ \lambda_2 t \} < 2(1 - \zeta_A) - 1 \\ &= 1 - 2\zeta_A < 0 \end{aligned}$$

when computed in

$$\frac{d}{d\lambda_1} W_P \propto - \left[ \underbrace{2(1 - \zeta_A) \mu_S}_{+} \underbrace{\frac{d}{d\lambda_1} \mu_A}_{?} + \underbrace{(1 - 2(1 - \zeta_A) \mu_A)}_{+} \underbrace{\frac{d}{d\lambda_1} \mu_S}_{-} \right]$$

which has the same sign as

$$\frac{d}{d\lambda_1} W_P \propto - \exp \{ \lambda_2 t \} \lambda_2^2 t + 2\lambda_2 [(\exp \{ \lambda_2 t \} \lambda_1 t) + (1 - \zeta_A) \exp \{ (\lambda_2 - \lambda_1) t \} - (1 - \zeta_A) (1 + \lambda_1 t)] - \dots$$

Furthermore, analyse  $\zeta_A$ :

$$\begin{aligned} \zeta_A &= - \exp \{ \lambda_2 t \} \lambda_2^2 t + 2\lambda_2 [(\exp \{ \lambda_2 t \} \lambda_1 t)] - \lambda_1^2 t (\exp \{ \lambda_2 t \}) \\ &= -t \exp \{ \lambda_2 t \} (\lambda_2 - \lambda_1)^2 + 2\lambda_2 (1 - \zeta_A) [\exp \{ (\lambda_2 - \lambda_1) t \} - (1 + \lambda_1 t)] + 2\lambda_1^2 t (1 - \zeta_A) \\ &= \underbrace{-t \exp \{ \lambda_2 t \} (\lambda_2 - \lambda_1)^2}_{\text{negative}} + 2\lambda_2 (1 - \zeta_A) [\exp \{ (\lambda_2 - \lambda_1) t \} - (1 + \lambda_1 t) + 2\lambda_1^2 t] \end{aligned}$$

Now if the second addendum is negative then we are done; so assume it is positive, that is

$$\exp \{ (\lambda_2 - \lambda_1) t \} - (1 + \lambda_1 t) + 2\lambda_1^2 t > 0$$

then the sum is smaller than

$$\underbrace{-t \exp \{\lambda_2 t\} (\lambda_2 - \lambda_1)^2}_{<0} + \lambda_2 \left[ \exp \{(\lambda_2 - \lambda_1) t\} (1 + \lambda_1 t) + 2\lambda_1^2 t \right] \quad (\text{B.5})$$

$$= \lambda_1^2 t - \exp \{\lambda_2 t\} (\lambda_2 - \lambda_1)^2 t + \lambda_2 \quad (\text{B.6})$$

$$= \lambda_1^2 t + \lambda_2 \exp \{(\lambda_2 - \lambda_1) t\} - \left[ \exp \{(\lambda_2 - \lambda_1) t\} \right] \quad (\text{B.7})$$

so it remains to show that this is always negative; if  $\lambda_1 \approx 0$

$$-\lambda_2 (1 - \exp \{\lambda_2 t\} (1 - \lambda_2 t)) < -\lambda_2^2 t < 0$$

$W_E$  has interesting comparative statistics due to the interaction with bias. In particular, it seems that for  $\beta > \text{stgh}$ , then [if there is no prior bias,  $\mu_x = \mu_y$ ] there is a time  $t$  such that  $Bias(t) = 0$  because the evolution of  $\mu_S, \mu_A$  is such that  $\alpha^E = \alpha^P$ . This seems interesting, possibly a result to put in a proposition.

Based on our model, we can draw three main results and one additional interesting result.

**Inefficiency of twitter economy and non-monotonicity in election times.** The first result relates to the political institutions of the digital economy. From our model is that a Twitter-Facebook economy where everyone can speak their mind is not necessarily good: indeed we want only those that went through critical thinking to vote. Following this point, the naturally arising question, *when do we want to hold elections?* Our model clearly implies non-monotonicity in time for election periods.

**Typology of voting-users and adverse selection.** The second result relates to the typology of voting-users. The “clients” of news outlets, in a micro-foundation of the  $\lambda$  functions are either low  $i$  partisans (that look at it for fun) or frustrated critical thinking voting-users that look for some facts (positive predictions). On a related but different point, we can identify the *adverse selection in the vote-force* (under some conditions the strengths of the stereotype pool weakens), and how the format amplifies / reduces this issue (always true that it is better if only types vote, at least in the symmetric case).

**Partisan format and compensation effect.** The third and most intriguing result relates to the format. We can study the *impact of different storytelling formats* (more in depth, helps the high  $i$ , but how it correlates with  $\alpha$ ): more in depth, but keep it somehow primitive. In particular and more interestingly, we can allow for *asymmetries*: either there is a “better” policy (say  $\beta = 1$ , so upon reflecting everyone agrees 1 is right), or stereotypes of one side are less likely to enter critical thinking

(evidence that conservatives are overconfident), how does this change the outcome, as well as the incentives for the critical thinking agents (that may vote for those that are less confident because of the bias in the type pool). The problem of asymmetries is that a partisan format, or is the fact that one stereotype is more attractive than the other to make the problem of agents in critical thinking more problematic: remember they are smart but unwise, so they cannot ignore the fact of a stereotyped partisan pool, either because stereotypes are more resistant, or because the shifts the stereotypes. Hence, we propose to explain such a situation by an effect that we label the “Compensation Effect”: When you perceive the device to be partisan in one direction, you vote in the opposite direction when in critical thinking.

**The benefits of making voting costly.** A resulting and potentially controversial consequence of such an asymmetry is that *voting costs* in this situation may be positive because they can also exclude the strategic types that recognize the stereotype pool is partisan and cannot morally abstain or vote against their type. They can use the excuse not to go to vote.

## B.4 Experiment With A Three Cognitive-State Model

In the experiment, we gathered data to decompose the critical thinking process into three stages: *S*, *A*, *T*. Here, *S* remains unchanged. Now, *A* denotes an intermediate, transitory stage during which agents experience internal uncertainty regarding the formation of their reasoned preferences. Finally, *T* denotes the stage in which agents have completed the critical thinking process and have formed their reasoned preferences.

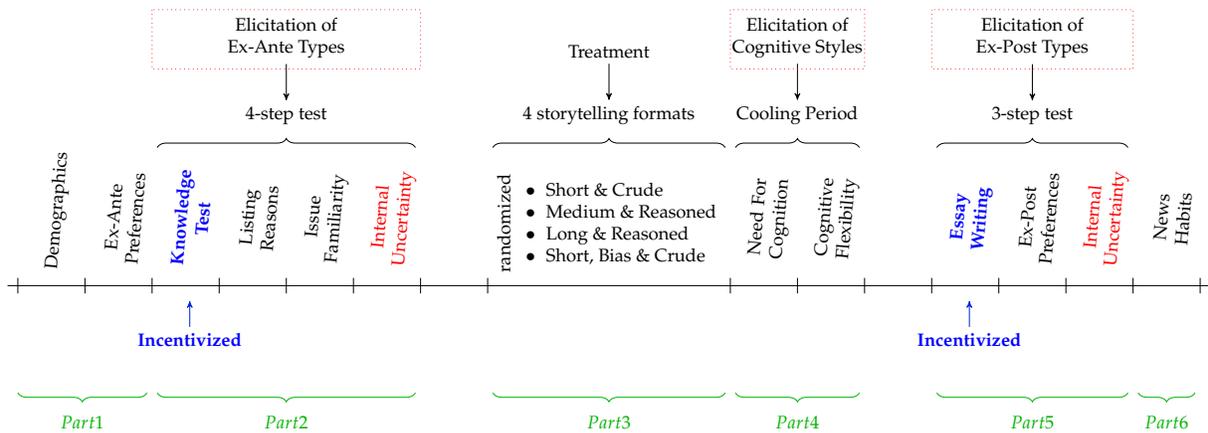


Table B.16 shows the classification strategy of participants as Stereotype, Aware, and Type.

Treatment	$T$	$A$	$S$
BEFORE	Knowledge Test Score $> \tau_{KTS}$ Issue Familiarity = 1 <b>Internal Uncertainty <math>\neq 0</math></b> Reasons List $> \tau_{RL}$	Knowledge Test Score $> \tau_{KTS}$  Issue Familiarity = 1	
AFTER	Psychologists Grade = Pass	Else	

Table B.16: CLASSIFICATION STRATEGY BEFORE / AFTER TREATMENT

The analysis presents the frequencies of the three states of participants before and after the treatment

	$S_1$	$A_1$	$T_1$
$S_0$	475	153	39
$A_0$	0	21	2
$T_0$	0	0	30

Table B.17: TABLE: FREQUENCIES BEFORE / AFTER TREATMENT

## B.4.1 Efficiency, Voting and Welfare

### The Efficiency of the Political System

Our notion of efficiency is that we want the election to reproduce the distribution of reasoned types in the economy. If the criterion seems arbitrary, think positively about what is “right” to do on an issue where intelligent people can “agree to disagree”. We postulate that everyone has their own “innate” part of the truth, but they may not have discovered it yet through critical thinking. So, our criterion is

$$W = -\mathbb{E} [d(p_{ELE}, p_{SP})]$$

where  $p_{ELE}$  is the proportion of votes for policy 1 resulting during an election, while  $p_{SP}$  is the proportion of informed preferences that favor policy 1 in the population and  $d$  the Euclidean distance. In general,  $W$  is increasing in the average electorate power  $\bar{\alpha}$ . Each voter, depending on his cognitive stage will have a certain power,

$$\alpha(j, CS) := \begin{cases} 1 & \text{if } CS = SP \\ \frac{1}{2} & \text{if } CS = PR \\ \mathbb{I} [x_j = y_j] & \text{if } CS = UP \end{cases} \quad (\text{B.8})$$

where  $SP$  refers to stereotypical preferences,  $PR$  refers to random preferences, and  $UP$

refers to reasoned preferences. In doing computations, it will be convenient to let

$$\alpha_j = Pr [x_j = y_j]$$

be the degree of stability<sup>6</sup> and  $\alpha$  may be correlated with  $i$ . For the moment, let's assume all agents share the same  $\alpha$  which becomes a primitive of the model. Notice  $\bar{\alpha}$  is a sufficient statistic for welfare. By substituting (B.8), we get the average power is given by<sup>7</sup>

$$\bar{\alpha} = p_S \alpha_S + p_A \frac{1}{2} + p_T 1$$

Since individuals in the type pool vote by definition their type, critical thinking agents abstain (hence are non-predictive), while stereotypes have a power that is inherited (primitive). We have a depiction of the vote strength throughout the life of a voter. Hence, to study welfare it is sufficient to characterize the evolution of  $\bar{\alpha}$  over time and as a function of . So we want

$$((\bar{\alpha}_t)_{t=0}^{\infty}) (m, \rho, \lambda)$$

Since elections have to occur at a certain time we may put discounting.<sup>8</sup>

### Moving Into Critical Thinking

Before moving into critical thinking, individuals are unaware, so by definition, they stay bombarded by what their stereotype predicts as a news source and by what the format has to offer. Here has a purely entertaining value, in a sense that  $\lambda_1(x, m)$  is the intensity with which a stereotype  $x$  facing format for  $m$  shifts into critical thinking. A functional form is

$$\lambda_1(i, m) = m \left( i - \frac{1}{2} \right) + \tilde{\lambda}_1(m)$$

where  $m$  is a measure of the quality of the format. this is one functional form that satisfies the key properties

$$\begin{aligned} \frac{\partial}{\partial i} \lambda_1(i, m) &> 0 \\ \frac{\partial}{\partial l} \lambda_1(i, m) &> 0 \iff i > \frac{1}{2} \end{aligned}$$

<sup>6</sup>Alternatively, we may call self-informed vs self-uniformed preferences and call the degree of stability the probability both preferences coincide.

<sup>7</sup>Here we are crucially assuming that the model is symmetric; if stereotypes are heterogeneously affected by , we may have critical thinking agents not abstaining.

<sup>8</sup>Here the fiction is of an infinitely lived population having to decide on an ambivalent issue. Alternatively, we may have a model where citizens die and are re-born with their stereotype (we are not pursuing that right now)

$$\frac{\partial^2}{\partial l \partial i} \lambda_1(i, m) > 0$$

higher cognitive sophistication agents (high  $i$ ) are more susceptible to quality format. For low cognitive sophistication agents, it is more efficient to provide high quantity low quality information; the idea is that worldly explanation will just bore him, while they may be pushed into thinking by a random fact.<sup>9</sup>

### Moving Out of Critical Thinking

**Assumption.** Inside critical thinking we are all the same, there is no cognitive superiority. Also, it is independent of the degree of stability  $\alpha$ . So  $\lambda_2$  is only a function of the structure of the format, more realistically an increasing function in the accuracy of the news format.

### B.4.2 The Evolution of The Distribution of Voters

We work under the assumption that  $\bar{\alpha}$ , the average power of the electorate is a sufficient statistic for welfare. We argue that voting costs put an intra-temporal efficiency wedge. What we are most interested in is the inter-temporal wedge generate by (quality of the format  $m$ ) which affects the intensities with which people move in and out of critical thinking. Recall,

$$\bar{\alpha}_t = p_{S,t} \alpha_{S,t} + p_{A,t} \frac{1}{2} + p_{T,t} 1$$

since agents in critical thinking abstain (or vote randomly), and types are by definition truthful.

It is therefore sufficient to have the evolution of  $p_t \in \Delta 3$  and  $\alpha_S$ , the strength of the stereotype pool.

#### The Evolution of $p_t$

Given the assumptions. In particular, since getting out of critical thinking is independent of the types in it, it follows

$$dp_{T,t} = \lambda_2 p_{A,t}$$

from the stereotype pool we lose each period a fraction of those that move into A. Since the intensity depends on both the structure and the distribution of the

---

<sup>9</sup>Think of  $i$  as the sophistication of an agent. Unsophisticated agents are pushed into critical thinking only by hearing the term "topic X" in the news. So if we pool facts to present a coherent argument we just lose by halving the times a certain topic is discussed. For a low type, the probability of entering into critical thinking accumulates with the number of crude facts exposed, hence negatively with the quality. A good agent is capable of understanding a complicated text and moves to critical thinking with the probability increasing in the degree of sophistication of the piece he is subject to. The simple facts are relative of no use to you.

sensitivity parameter  $i$ ,  $f_{I,t}(i)$  according to

$$dp_{S,t} = - \left[ \int_I \lambda_1(i, m) f_{I,t}(i) di \right] p_{S,t}$$

Those two equations pin down the evolution of the probabilities in the three pools. Notice that they are simple deterministic functions, which are initialized at point  $(1, 0, 0)$ . So, we get

$$\frac{dp_{S,t}}{p_{S,t}} = d \log(p_{S,t}) = - \left[ \int_I \lambda_1(i, m) f_{I,t}(i) di \right]$$

$$\log(p_{S,t}) = \log(p_{S,0}) + \int_0^t d \log(p_{S,s}) ds$$

$$p_{S,t} = \exp \left[ \log(p_{S,0}) + \int_0^t d \log(p_{S,s}) ds \right]$$

$$p_{S,t} = \exp \left[ - \int_0^t \left[ \int_I \lambda_1(i, m) f_{I,s}(i) di \right] ds \right]$$

From that it will be easy to derive the law of motions of  $p_{A,t}$

$$dp_{A,t} = \left[ \int_I \lambda_1(i, m) f_{I,t}(i) di \right] p_{S,t} - \lambda_2 p_{A,t}$$

$$p_{A,t} = \exp(-\lambda_2 t) \left[ \int_0^t \int_I \lambda_1(i, m) f_{I,s}(i) di \right] p_{S,s} \exp(\lambda_2 s) ds$$

### The Evolution of $\alpha_S$

Now, the question is how  $\alpha_S$  evolves. We need the joint measure of  $\alpha$  and  $i$

$$\frac{d\mu_t}{dt}(\alpha, i) = - \int_I \lambda_1(i, m) d\mu_t(\alpha, i)$$

At time  $t$  the distribution over  $\alpha$  of active stereotypes is

$$\mu_{t,A}(\alpha) = \sum_{i \in I} \mu_{t,I}(i) Pr(\alpha | i)$$

since the conditional distributions do not change, it only matters the change in distribution over  $I$ . We want a parsimonious way to parametrize how much high genotypes predict high  $\alpha$ . Consider the following:

$$A = \{\alpha_H, \alpha_L\}$$

and

$$Pr(\alpha_H | i) = \rho i + (1 - \rho)(1 - i)$$

where  $\rho \in (0, 1)$  parametrizes how much strong genotypes (quit fast the pool) are associated with strong stereotypes. Therefore, the average is

$$\begin{aligned} & \int_I (\alpha_H \rho i) + (1 - \rho) \alpha_L (1 - i) \, d\mu_{t,I}(i) = \\ & \int_I [(\rho \alpha_H - (1 - \rho) \alpha_L) i + (1 - \rho) \alpha_L] \, d\mu_{t,I}(i) = \\ & (1 - \rho) \alpha_L \mu_t + (\rho \alpha_H - (1 - \rho) \alpha_L) \underbrace{\int_I i \, d\mu_{t,I}(i)}_{\mathbb{E}_t(i)} = \\ & \mu_{S,t} [(1 - \rho) \alpha_L + (\rho (\alpha_H - \alpha_L) - \alpha_L) \mathbb{E}_t(i)] \end{aligned}$$

Since, by construction  $\mathbb{E}_t(i) < 0$ , higher genotypes exit the pool earlier, if  $\rho = 0$  (negative correlation), this improves the power of the stereotypical pool. Now, let's characterize the evolution of the expected value. Since

$$f \mu_t(i) = \mu_0(i) \exp\{-t \lambda_1(m, i)\}$$

Hence,

$$\mu_{S,t} \mathbb{E}_t(i) = \int i f_0(i) \exp\{-t \lambda_1(m, i)\} \, di$$

Clearly, if  $\lambda_1(m, i)$  is constant in  $i$ , then the conditional expectation remains constant and only the mass declines.

Let's find a functional form assumption that makes the integral tractable. With the simplest

$$\lambda_1(m, i) = \left(x - \frac{1}{2}\right) m + C$$

where  $C > \frac{1}{2}m$  ensures intensities are positive.

$$\int_0^1 x f(x) \exp\{-t \left(x - \frac{1}{2}\right) m\} \, dx$$

**The Summary Evolution.** We want to characterize

$$\bar{\alpha}_t = \bar{\alpha}_{S,t} + \frac{1}{2} p_{A,t} + p_{T,t}$$

where

$$\bar{\alpha}_{S,t} = \int_A \alpha f_{A,t}(\alpha) \, d\alpha$$

since we know the evolution of  $i$  is

$$f_{I,t}(i) = f_0(i) \exp(-t \lambda_1(m, i))$$

it is easier to express the above integral as

$$= \int_I \left[ \underbrace{\int_A \alpha P(\alpha | i) d\mu_0(\alpha)}_{g(i)} \right] f_{I,t}(i) di = \int_I \mathbb{E}[\alpha | i] f_0(i) \exp(-t\lambda_1(m, i)) di$$

now let's try to simplify this integral with convenient functional forms. We use  $i \sim U[0, 1]$ , and  $\lambda_1(m, i) = m(x - \bar{x}) + C$  so that

$$\int_I \mathbb{E}[\alpha | i] f_0(i) \exp(-t\lambda_1(m, i)) di = a + b \int_0^1 e^{-ci} di$$

for some appropriate parameters  $a, b, c$

**The Mass Evolution.** The mass in stereotype at  $t$  is

$$p_{S,t} = \int_I f_0(i) \exp(-t\lambda_1(m, i)) di$$

The mass in Awareness at  $t$  is

$$\dot{p}_{S,t} = \int_X -\lambda_1(x, m) f_X(x, t) dx = \int_X -\lambda_1(x, m) f_X(x) \exp(-t\lambda_1(m, i)) dx$$

and

$$\dot{p}_{A,t} = -\dot{p}_{S,t} - \lambda_2(m) p_{A,t}$$

Assuming we have a constant  $\lambda_1$ , then

$$p'(t) = -\lambda_2 p(t) + \lambda_1 e^{-\lambda_1 t}, \quad p(0) = 0$$

giving

$$p_A(t) = \frac{\lambda_1 e^{(\lambda_2 - \lambda_1)t} - \frac{\lambda_1}{\lambda_2 - \lambda_1} (\lambda_2 - \lambda_1)}{e^{\lambda_2} (\lambda_2 - \lambda_1)} = \frac{\lambda_1 [e^{(\lambda_2 - \lambda_1)t} - 1]}{e^{\lambda_2 t} (\lambda_2 - \lambda_1)} = \frac{\lambda_1}{\lambda_2 - \lambda_1} \frac{[e^{(\lambda_2 - \lambda_1)t} - 1]}{e^{\lambda_2 t}} = \frac{\lambda_1}{\lambda_2 - \lambda_1} [e^{-\lambda_1 t} - e^{-\lambda_2 t}]$$

while  $\dot{p}_{S,t} = -\lambda_1 e^{-\lambda_1 t}$  so  $p_{S,t} = e^{-\lambda_1 t}$  and

$$p_{T,t} = e^{-\lambda_1 t} - \frac{\lambda_1}{\lambda_2 - \lambda_1} [e^{-\lambda_1 t} - e^{-\lambda_2 t}]$$

So that

$$\bar{\alpha}_t = \alpha_S \left(1 - e^{-\lambda_1 t}\right) + \frac{1}{2} \frac{\lambda_1}{\lambda_2 - \lambda_1} \left[e^{-\lambda_1 t} - e^{-\lambda_2 t}\right] + e^{-\lambda_1 t} - \frac{\lambda_1}{\lambda_2 - \lambda_1} \left[e^{-\lambda_1 t} - e^{-\lambda_2 t}\right]$$

## B.5 Experimental Instructions

### B.5.1 Starting Blocks Screenshots

This study contains animations which are not supported by some browsers.

Please make sure that you run this study in Google Chrome.



#### Browser Meta Info

*This question will not be displayed to the recipient.*

<b>Browser</b>	Chrome
<b>Version</b>	85.0.4183.121
<b>Operating System</b>	Macintosh
<b>Screen Resolution</b>	1680x1050
<b>Flash Version</b>	-1
<b>Java Support</b>	
<b>User Agent</b>	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_6) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/85.0.4183.121 Safari/537.36



You are using Chrome, you can click on next.



Before you start, please switch off phone/e-mail/music so you can focus on this study.

Thank you !

Please enter your Prolific ID here:



# CONSENT FORM

## **Title of Research**

Reasoning and Political Behavior

## **Principal Investigator**

Roland Bénabou

## **Principal Investigator's Department**

Department of Economics.

## **Purpose of the research**

You are invited to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done; also what it will involve. Please take the time to read the following information carefully. Please ask the researcher if there is anything that is not clear. The aim of this research is to test how subjects make decisions in the face of risk and ambiguity.

## **Study Procedures**

You will be exposed to a series of questions. Your total expected time commitment for this study is 30 min.

## **Benefits and Risks**

The possible benefit to the participants is to become more aware of how risk and ambiguity might affect their decision-making. The risk of potential discomfort is minimal.

## **Confidentiality**

All records from this study will be kept confidential. Your responses will be kept private. We will not include any information that will make it possible to identify you in any report we might publish. Research records will be stored securely in a locked cabinet, alternatively on password-protected computers. The research team will be the only party that will have access to your data.

## **Compensation**

## Compensation

- **You will be guaranteed to receive a fixed payment of \$2 to complete this study.**
- **On top, you will also receive the possibility to get a bonus payment of up to \$6 based on later instructions.**
- **After agreeing to the consent form, you will read the instructions of this study.**
- **After you read these instructions, you will be asked two comprehension questions related to them.**
- **You will be able to start the experiment only when you get the two comprehension questions right.**

## Who to contact with questions:

1. PRINCIPAL INVESTIGATOR to contact: Roland Bénabou, [jabarian@princeton.edu](mailto:jabarian@princeton.edu)
2. If you have questions regarding your rights as a research subject, if problems arise which you do not feel you can discuss with the Investigator, please contact the Institutional Review Board at:

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Assistant Director, Research Integrity and Assurance

Phone: (609) 258-8543

Email: irb@princeton.edu

3. I understand the information that was presented. I understand that:

A. My participation is voluntary. I may withdraw my consent. I may also discontinue participation in the project at any time. My refusal to participate will not result in any penalty.

B. I do not waive any legal rights nor release Princeton University, its agents, nor you from liability for negligence.

Yes, I give my consent to be a subject of your research

No, I do not give my consent to participate in your research

**The most important factor for the success of our research is that you answer honestly. In case you do not know an answer, please indicate it. Please do not check other sources while you are doing this experiment. Also, remember, in most questions there are no right or wrong answers.**

I attest I WILL answer honestly to the questions

I attest I CANNOT answer honestly to the questions



## Reward Structure

In this study, you will receive two types of payments:

A fixed reward: \$2 for completing fully the experiment with having answered the comprehension questions correctly - guaranteed.

A bonus payment, at most \$6, determined as described below.

### How your bonus payment is determined

- Most of your bonus payments (up to 5\$) will be determined by your performance in a writing essay exercise.
- You will be asked to write two essays during this study, which will be graded from 0 to 100 points.
- Your bonus payment (from \$0 to \$5) will be proportional to a WEIGHTED AVERAGE SCORE where the second essay receives more weight (2/3) because it requires more writing.
- You need to receive at least an average score of 50/100 in the essay exercise to be eligible to the next bonus payment:
  - At the beginning of this study, you will have a knowledge test about one political topic.

- At the beginning of this study, you will have a knowledge test about one political topic.
- The test consists of 10 questions you will receive \$0.10 for each question answered correctly. That is to say, if you answer correctly 10 questions, then you can earn \$1.

**How much your score will pay:**

The score can vary from 0 to 100 points and your reward will be proportional to it.

For example:

If you get a score 0 then you win \$0.

If you get a score 50 then you win \$2.50.

If you get a score 100 then you win \$5.



How much bonus payment can you receive at maximum?

\$2

\$4

\$5

\$6

How much score do you need in the essay exercise to be eligible for an additional bonus payment?

10/100

30/100

40/100

50/100

60/100

How much score do you need in the essay exercise to be eligible for an additional bonus payment?

10/100

30/100

40/100

50/100

60/100

70/100

80/100

90/100

100/100



# Section 1

## Instructions

In this section, you will be asked questions about political topics and you will be given a knowledge test on one of these political topics.



**On the issue of gun regulation, do you support or oppose the following proposal?**

Prohibit state and local governments from publishing the names and addresses of all gun owners.

I support

I do not support

The federal budget deficit is approximately \$1 trillion this year. If Congress were to balance the budget it would have to consider cutting defense spending, cutting domestic spending (such as Medicare and Social Security), or raising taxes to cover the deficit.

Which of these options do you prefer?

Cut  
Defense  
Spending

Cut  
Domestic  
Spending

Raise  
Taxes

**On the issue of digital policies, do you support or oppose each of the following proposals?**

Employers should finance the additional education to their workers, necessary to succeed in the digital economy.

I support

I do not support

**On the issue of digital policies, do you support or oppose each of the following proposals?**

People should be paid by tech companies for sharing their data online.

I support

I do not support

**On the issue of digital policies, do you support or oppose each of the following proposals?**

Universal income should be the main solution to the net job loss that AI, in particular automation, is causing.

I support

I do not support

**On the issue of environmental policies, do you support or oppose the following proposal?**

Strengthen enforcement of the Clean Air Act and Clean Water Act even if it costs US jobs.

I support

I do not support

**On the issue of crime policies, do you support or oppose the following proposal?**

Increase the number of police on the street by 10 percent, even if it means fewer funds for other public services.

I support

I do not support

Based on the text below, what would you say your favorite fruit is?

This is a simple question. When asked for your favorite fruit, you need to select orange.

Orange

Peach

Other

Banana

Apple

Grapefruit

Strawberry



# Section 2 - Essay Exercise

## Instructions

- In this section, you will be asked to write an essay about 400 characters.
- On the next screen, you will be shown detailed instructions, please read them carefully as,
- most of your bonus in this study is determined by your performance in the essay exercise.



**Please make sure to know that our software will detect if you try to plagiarize or do plagiarize, that is to say, if you do not produce an original content and copy paste an existing text.**

**Click on next to start writing your essay.**



**The score of your essay will only depend on the first and second parts of your essay. That is to say, three different essays in their political recommendation can have the same score.**

- For example
  - Essay 1 describing very well the issue, justifying effectively its position and giving a certain recommendation for digital privacy
  - Essay 2 describing very well the issue, justifying effectively its position and giving a certain recommendation against digital privacy
  - Essay 3 describing very well the issue, justifying effectively its position and explicitly stating that the writer needs more information to give a decisive recommendation
  - All these essays will receive the maximum score.

#### **How your essay will be graded**

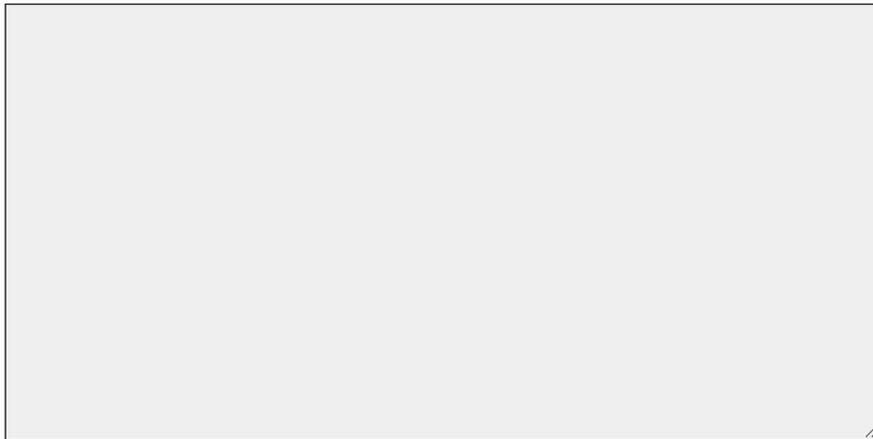
- Your essay will be graded automatically by the Artificial Intelligence-powered software Grammarly, which will produce a report detailing your score. We confirm as researchers, having not business ties with this company.
- Your essay will be graded a second time by one Professor of Philosophy, randomly selected from a pool of University Professors from US universities who were not involved in the design of this study.
- Your reward from the essay will depend only on the grade provided by the software Grammarly and **not on** the grade provided by the Professor.

**According to you, should we strengthen enforcement of the "Clean Air Act and Clean Water Act" even if it costs US jobs?**

Answer this question above. To do so, write an essay between 200 and 400 characters in which you describe what is meant by "climate change" and why it is an issue of relevance in the political debate. Formulate in a brief manner a policy recommendation that you think should be taken in face of such an issue. If you cannot do so, please elaborate on the additional information you would need to make a recommendation.

Please write your essay in the box below.

Character count: 0/400

A large, empty rectangular box with a thin black border, intended for the user to write their essay. The box is currently blank.

## Knowledge Test - Instructions

We will now ask you a series of questions testing your knowledge about digital privacy.

### How your bonus payment from the knowledge test in Section 2 is determined

- The knowledge test is composed of 10 questions.
- You win \$0.10 for each question which is answered correctly.
- That is to say, if you answer correctly 10 questions, then you can earn \$1.

**You will be notified at the end of the experiment your potential gain from these two sections, conditional on having receive a good score in your essay.**



**If a website uses cookies, it means that the site ...**

- Is not a risk to infect your device with a computer virus
- Can see the content of all the files on the device you are using
- Can track your visits and activity on the site
- Will automatically prompt you to update your web browser software if it is out of date
- Not sure

**Which of the following is the largest source of revenue for most major social media platforms?**

- Providing consulting services to corporate clients
- Hosting conferences for social media influencers
- Allowing companies to purchase advertisements on their platforms
- Exclusive licensing deals with internet service providers and cellphone manufacturers
- Not sure

**When a website has a privacy policy, it means that the site...**

- Adheres to federal guidelines about deceptive advertising practices
- Does not retain any personally identifying information about its users
- Will not share its users' personal information with third parties
- Has created a contract between itself and its users about how it will use their data
- Not sure

**What does it mean when a website has "https://" at the beginning of its URL, as opposed to "http://" without the "s"?**

- The content on the site is safe for children
- The site is only accessible to people in certain countries
- The site has been verified as trustworthy
- Information entered into the site is encrypted
- Not sure

**Where might someone encounter a phishing scam?**

- In an email
- On social media
- In a text message
- All of the above
- None of the above
- Not sure

**Which two companies listed below are both owned by Facebook?**

- Snapchat and WhatsApp
- WhatsApp and Instagram
- Twitter and Snapchat
- Twitter and Instagram
- Not sure

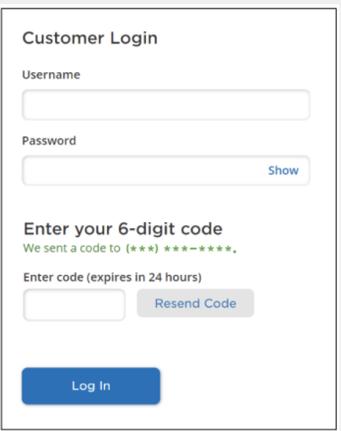
**The term “net neutrality” describes the principle that ...**

- Online advertisers cannot post ads for housing or jobs that are only visible to people of a certain race
- Internet service providers should treat all traffic on their networks equally
- The government cannot censor online speech
- Social media platforms must give equal visibility to conservative and liberal points of view
- Not sure

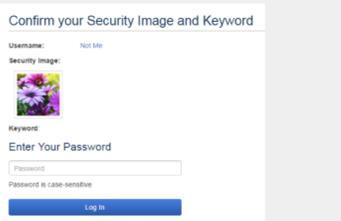
**Many web browsers offer a feature known as “private browsing” or “incognito mode.” If someone opens a webpage on their computer at work using incognito mode, which of the following groups will NOT be able to see their online activities?**

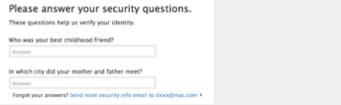
- Their company’s internet service provider
- A coworker who uses the same computer
- The group that runs their company’s internal computer network
- The websites they visit while in private browsing mode
- Not sure

Some websites and online services use a security process known as two-step or two-factor authentication. Which of the following images is an example of two-factor authentication?

 A screenshot of a "Customer Login" form. It has fields for "Username" and "Password" with a "Show" button. Below is a section titled "Enter your 6-digit code" with a message "We sent a code to (\*\*\*) \*\*\*-\*\*\*\*." and a "Resend Code" button. A "Log In" button is at the bottom.

 A screenshot of a "morning overlook" reCAPTCHA. It asks the user to "Type the two words" and shows a distorted image of the words "morning" and "overlook". It includes a reCAPTCHA logo and the text "reCAPTCHA I'm human, not a robot".

 A screenshot of a "Confirm your Security Image and Keyword" form. It shows a "Username" field with "Not Set", a "Security Image" of a flower, and a "Keyword" field. Below is an "Enter Your Password" section with a "Password" field and a "Log In" button.

 A screenshot of a "Please answer your security questions" form. It asks "Who was your best childhood friend?" and "In which city did your mother and father meet?". It includes "Answer" fields and a "Forgot your answer? Send reset security info email to dave@mac.com" link.

All of the above

Not sure

Who is this technology leader?



- Elon Musk, co-founder of Tesla
- Jack Dorsey, co-founder of Twitter
- Sergey Brin, co-founder of Google
- Travis Kalanick, co-founder of Uber
- Not sure

**In the remainder of the experiment, we will focus on the following political issue. Please state again your preference.**

People should be paid by tech companies for sharing their data online.

I support

I do not support

**Have you thought deeply about this issue before participating in this study?**

Yes <input type="radio"/>	No <input type="radio"/>
------------------------------	-----------------------------



**How certain are you of your preference regarding the digital privacy issue? Select among the following options**

Completely Uncertain <input type="radio"/>	Rather Uncertain <input type="radio"/>	Rather Certain <input type="radio"/>	Completely Certain <input type="radio"/>
--	---	---	--

**By "Certain", we mean that you feel confident enough to vote for your political preference if asked to you in a real life political committee.**



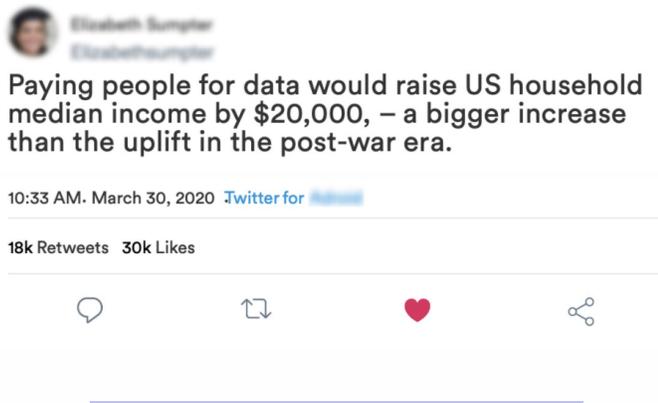
## B.5.2 Treatment Arguments Screenshots

add screenshots

## B.5.3 Treatment Twitter Screenshots

### Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Rafi Bergmann  
Rafi\_Bergmann33

Paying users for their data will allow tech companies to learn which apps people value and how they're used and build better products and will increase their market power.

8:50 AM · April 3, 2020 · [Twitter for iPhone](#)

432 Retweets · 3k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Taylor Swift  
Taylor Swift

Sorry but I don't get it. So we get a virus, and I lose my job. Then what? #theendoftheworld.

8:50 AM · April 3, 2020 · Twitter for iPhone

432 Retweets 3k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Every single day, humans produce a huge amount of data. Google processes over 40,000 searches every second and around 1.4 billion people use Facebook every day. Every minute, 16 million text messages are sent, 154,200 calls are made on Skype, 156 million emails are sent.

10:23 AM · April 17, 2020 [Twitter for iPhone](#)

1k Retweets 2k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Martina Stipanov  
Martina\_stipanov

If tech companies pay us for our data, who is ready for paying a subscription to use their online services? Clearly not me, I am too poor and I need my email access to do work.

10:33 AM · March 30, 2020 · [Twitter for iPhone](#)

18k Retweets 30k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Leticia Ribeiro Martins  
LeticiaRibeira\_Martins

**Paying users for their data? No. Users would simply not be paid that much for their data, maybe some cents.**

1:45 AM · May 13, 2020 [Twitter for iPhone](#)

11k Retweets 22k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Johanna Stewart  
@JohannaStewart

Data unions could help us all by simply call on its members to stop using Facebook or Google for a day if the companies do not negotiate.

8:50 AM · April 3, 2020 · [Twitter for iPhone](#)

432 Retweets 3k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Hey. Who can tell when the NBA would start again?

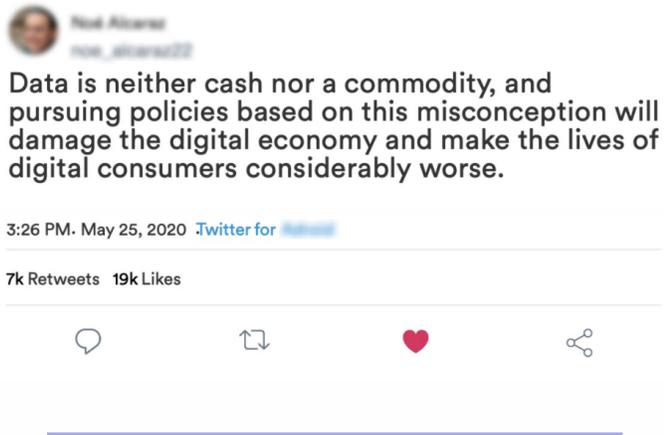
5:13 PM · May 29, 2020 · Twitter for [iPhone](#)

16k Retweets 29k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Samira Alsalami  
@samira\_alsalami

Data sharing has benefits that reach well beyond consumers and businesses and for our society: broad ecosystems of data sharing, from financial services to health care to college admissions. How do you separate between data as private goods and data as public goods?

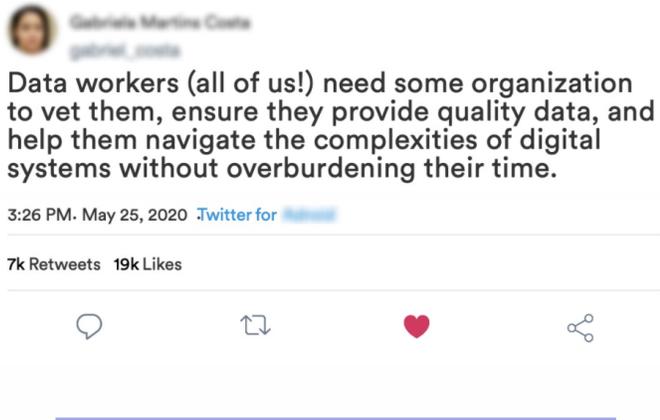
10:23 AM · April 17, 2020 · [Twitter for iPhone](#)

1k Retweets 2k Likes



**Reminder**

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



The Fourth Industrial Revolution requires tonnes of data for the business models of the future and we are providing those data for free? Not right. #Datadignity.

11:47 AM · March 22, 2020 · [Twitter for iPhone](#)

850 Retweets 1.8k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



I pray for #GeorgesFloyd but stop saying that all cops are bad! My dad is a hero!

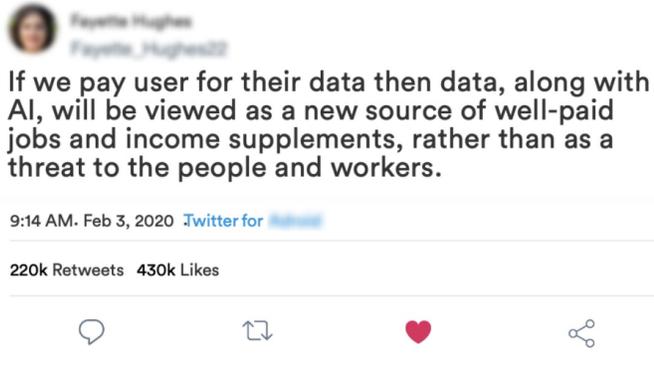
9:14 AM · Feb 3, 2020 · Twitter for [Android](#)

220k Retweets 430k Likes



**Reminder**

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



A screenshot of a Twitter post. At the top left is a circular profile picture of Fayette Hughes, with the name 'Fayette Hughes' and the handle '@Fayette\_Hughes22' next to it. The main text of the tweet reads: 'If we pay user for their data then data, along with AI, will be viewed as a new source of well-paid jobs and income supplements, rather than as a threat to the people and workers.' Below the text, it says '9:14 AM · Feb 3, 2020' followed by a blue link 'Twitter for Android'. Underneath that, it shows '220k Retweets' and '430k Likes'. At the bottom of the tweet are four icons: a speech bubble for replies, a retweet symbol, a red heart for likes, and a share symbol.

## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Elita Akhtakhanova  
@akhtakhanova

Getting companies to pay transparently for the information will not just provide a better deal for the users whose data is scooped up as they go about their online lives. It will also improve the quality of the data on which the information economy is being built.

12:07 AM · Feb 7, 2020 · [Twitter for iPhone](#)

195k Retweets 342k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



in the real world, companies can't provide goods or services without earning income, either through direct payments from customers or through indirect payments from advertisers and sponsors

5:35 AM · May 25, 2020 · [Twitter for iPhone](#)

155k Retweets 247k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Olav Holten  
olav\_holten

To be able to pay users for their data, tech companies will lead to collect even more data as Facebook is doing now, which is concerning for our digital privacy.

5:13 PM · May 29, 2020 · [Twitter for iPhone](#)

16k Retweets 29k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Nina Avilsson  
@nina\_avilsson

Users will not receive the same amount for their data because marketers would pay more for access to high-income users' data and less for low-income users, including students, the elderly and individuals in low income nations.

5:35 AM · May 25, 2020 · [Twitter for iPhone](#)

155k Retweets 247k Likes



## Reminder

You are exposed to information about sharing personal data. Pay careful attention to the information as you will need it in the remainder of the experiment.



Tomasz Majewski  
Tomasz\_Majewski20

We need to ensure that privacy interests are not extinguished when people share information, not turn privacy into a commodity.

9:14 AM · Feb 3, 2020 [Twitter for iPhone](#)

220k Retweets 430k Likes



## B.5.4 Treatment Facebook Screenshots

add screenshots

## B.5.5 Treatment Biased Twitter Screenshots

add screenshots

## B.5.6 Ending Blocks Screenshots

### Reported News Consumption Habits

For each sentence below, please select how uncharacteristic or characteristic this is for you personally.

	Not at all characteristic of me	A little characteristic of me	Somewhat characteristic of me	Very characteristic of me	Entirely characteristic of me
I really enjoy a task that involves coming up with new solutions to problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would prefer complex to simple problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to have the responsibility of handling a situation that requires a lot of thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thinking is not my idea of fun.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How often do you use the internet to inform yourself about political issues?

Several times a day

about once a day

A few days a week

Every few weeks

Less often

Don't know

None of the above

Which of the following social media do you use to inform yourself about political issues?

Twitter

Facebook

Others

None of the above

Which of the following media do you use to inform yourself about political issues?

Newspapers (the New York Times, Wall Street Journal, etc.)

Media Outlets (CNN, Fox News, etc.)

Radio

Others

None of the above

Based on the text below, what would you say the color of grass is?

This is a simple question. When asked for the color of grass, you need to select blue.

Yellow

Blue

Other

Purple

Brown

Green

Orange



## Section 4: Incentivized Critical Thinking Essay Exercise

# Section 4 - Essay Exercise

### Instructions

- In this section, you will be asked to write an essay about 800 characters.
- On the next screen, you will be shown detailed instructions, please read them carefully as,
- Most of your bonus in this study is determined by your performance in the essay exercise.



**Please make sure to know that our software will detect if you try to plagiarize or do plagiarize, that is to say, if you do not produce an original content and copy paste an existing text.**

**Click on next to start writing your essay.**



**The score of your essay will only depend on the first and second parts of your essay. That is to say, three different essays in their political recommendation can have the same score.**

- For example
  - Essay 1 describing very well the issue, justifying effectively its position and giving a certain recommendation for digital privacy
  - Essay 2 describing very well the issue, justifying effectively its position and giving a certain recommendation against digital privacy
  - Essay 3 describing very well the issue, justifying effectively its position and explicitly stating that the writer needs more information to give a decisive recommendation
  - All these essays will receive the maximum score.

#### **How your essay will be graded**

- Your essay will be graded automatically by the Artificial Intelligence-powered software Grammarly, which will produce a report detailing your score. We confirm as researchers, having not business ties with this company.
- Your essay will be graded a second time by one Professor of Philosophy, randomly selected from a pool of University Professors from US universities who were not involved in the design of this study.
- Your reward from the essay will depend only on the grade provided by the software Grammarly and **not on** the grade provided by the Professor.

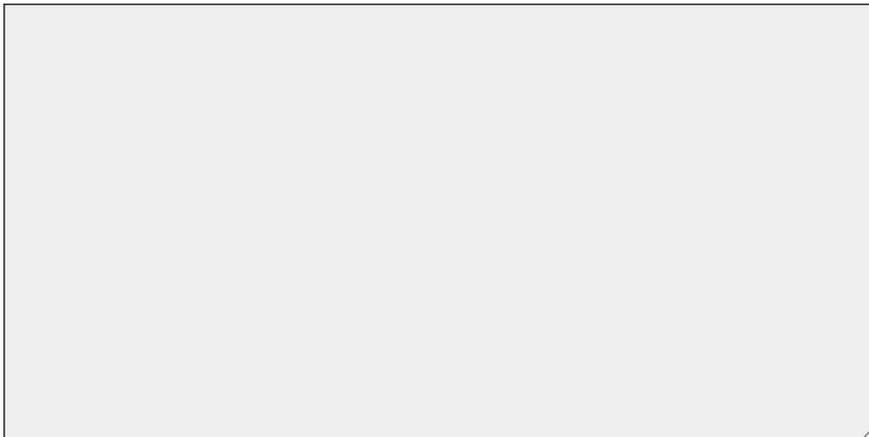


**According to you, should we compensate people for sharing their data?**

Answer this question above. To do so, write an essay in which you describe what is meant by "digital privacy" and why it is an issue of relevance in the political debate. Formulate in a brief manner either a policy recommendation that you think should be taken in face of such an issue or, if you cannot do so, elaborate on the additional information you would need to make a recommendation.

Please write your essay in the box below.

Character count: 0/800

A large, empty rectangular box with a thin black border, intended for writing an essay. The box is currently blank.

The following statements deal with your beliefs and feelings about your own behavior. Read each statement and respond by selecting how much you agree or disagree with each statement.

	<b>Strongly agree</b>	<b>Agree</b>	<b>Slightly agree</b>	<b>Slightly disagree</b>	<b>Disagree</b>	<b>Strongly disagree</b>
In any given situation, I am able to act appropriately.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have the self-confidence necessary to try different ways of behaving.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have difficulty using my knowledge on a given topic in real-life situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I never get to make decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I seldom have choices when deciding how to behave.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to listen and consider alternatives for handling a problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I avoid new and unusual situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can find workable solutions to seemingly unsolvable problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have many possible ways of behaving in any given situation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can communicate an idea in many different ways.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to work at creative solutions to problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My behavior is a result of conscious decisions that I	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Do you support the following issue?**

People should be paid by tech companies for sharing their data online.

I support

I do not support



**How certain are you of your preference now? Select among the following options.**

Completely Uncertain <input type="radio"/>	Rather Uncertain <input type="radio"/>	Rather Certain <input type="radio"/>	Completely Certain <input type="radio"/>
--	---	---	--

**By "Certain", we mean that you feel confident enough to vote for your political preference if asked to you in a real life political committee.**



Did the information provided in this survey helped you to make up your mind regarding the digital privacy issue (i.e., whether people should be compensated for sharing their data)?

Yes

No



Your performance and payoff from the knowledge test of Section 2

<b>Section</b>	<b>Score</b>	<b>Potential Rewards earned</b>
2	/10	



Did you encounter any technical issue during the experiment? Please explain in details.



As a debrief, we would like to inform you that the Tweets and Facebook posts you saw during this study were neither real tweets nor real Facebook posts but prepared by the researchers of this study.

The purpose of this study was to explore how you would react to the same information presented in different formats, that is to say, in Facebook posts formats or tweets formats, depending on the treatment to which you were randomly assigned.

If you have any question about this experiment, as a reminder, you can contact Brian Jabarian: [jabarian@princeton.edu](mailto:jabarian@princeton.edu)

And, If you have questions regarding your rights as a research subject, if problems arise which you do not feel you can discuss with the Investigator, please contact the Institutional Review Board at:

Assistant Director, Research Integrity and  
Assurance

Phone: (609) 258-8543  
Email: [irb@princeton.edu](mailto:irb@princeton.edu)

Click on the next button to go back to your Prolific account and receive your payment.



---

Thank you for your participation. You will now be redirected to Prolific website.



## **B.6 Experimental Instructions for Expert Labelers**

Essays were randomly assigned to one of the six grader treatments. Then, each psychology were randomly assigned to one of the six grader treatment. All psychologists participate into at least one treatment, no psychologist participated twice in the same treatment and all six treatments were taken by at least three different psychologists.

## **B.7 Treatment Grader 1**

<p>Instructions for Graders  <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <h3>Instructions for Graders</h3> <p>Thank you for accepting to participate into our survey. Please read carefully this page before going to the next section.</p> <p><b>*Obligatoire</b></p> <p>1. Adresse e-mail *</p> <p>_____</p>	<p>Instructions for Graders  <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <h3>Instructions for Graders</h3> <p><b>The aim of your participation</b></p> <p>In the following, you will have to grade very short paragraph (around 300 words or less) as follows. <b>We need an expert in reasoning to grade them as there is no "objective quality" of an essay.</b></p> <ul style="list-style-type: none"> <li>• If you judge that participants "realize that the issue is ambivalent" then you will give them a passing grade, <b>P</b>.</li> <li>• Otherwise, you will give them a failing grade, <b>F</b>.</li> </ul> <p><b>Challenge to overcome while grading</b></p> <p>What may happen is to confound high cognitive sophistication, i.e., the ability to write well-written essays in English, facilitated by the fact that they read some arguments right before this essay exercise with the self-reasoning skill "realizing that the issue is ambivalent", which is the variable we want to elicit.</p> <p><b>Time</b></p> <ul style="list-style-type: none"> <li>• We expect you to spend around 10 minutes to read very carefully the instructions and the examples.</li> </ul>
<p>1 of 41  <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <ul style="list-style-type: none"> <li>• And we expect you to spend no more than 1 min to grade each essay.</li> <li>• The total time you spend should not exceed 62 min.</li> </ul> <p><b>Defining the fact of "realizing that the issue is ambivalent"</b></p> <p>We define "realizing that the issue is ambivalent" as the awareness of an individual to recognize that there can perfectly logical but opposite arguments in favor and against the same issue which renders the decision-making process complex. Such an ambivalent attitude leads to hold temporary conflicting preferences, one preference for the issue at hand and one preference against the issue at hand. There can be different ways of defining and capturing this "awareness" as documented in the social psychology and cognitive psychology literature. In our study, we capture this awareness by observing individuals <b>reasoning and elaborating in a personal way on the pros and cons of the same issue in a written format.</b></p> <p>Before writing their essay, participants were shown a list of the pros and cons of the same issue. Then, they had to write an essay, following these guidelines:</p> <p><b>The score of your essay will only depend on the first and second parts of your essay. Two different essays in their political recommendation can have the same score.</b></p> <ul style="list-style-type: none"> <li>• For example             <ul style="list-style-type: none"> <li>◦ Essay 1 describing very well the issue, justifying effectively its position and giving recommendation for digital privacy</li> </ul> </li> </ul>	<p>2 of 41  <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <ul style="list-style-type: none"> <li>◦ Essay 2 describing very well the issue, justifying effectively its position and giving recommendation against digital privacy</li> <li>◦ Essay 3 describing very well the issue, justifying effectively its position and explaining why the writer needs more information to give a decisive recommendation</li> <li>◦ All these essays will receive the maximum score.</li> </ul> <p><b>How your essay will be graded</b></p> <ul style="list-style-type: none"> <li>• Your essay will be graded automatically by the Artificial Intelligence-powered software that will produce a report detailing your score. We confirm as researchers, having not business interest in the software, that the software is not biased.</li> <li>• Your essay will be graded a second time by one Professor of Philosophy, randomly selected from a list of University Professors from US universities who were not involved in the design of this software.</li> <li>• Your reward from the essay will depend only on the grade provided by the software. The grade will be provided by the Professor.</li> </ul> <p>Answer this question above. To do so, write an essay in which you describe what is meant by "realizing that the issue is ambivalent" and why it is an issue of relevance in the political debate. Formulate in a brief manner a political recommendation that you think should be taken in face of such an issue. If you cannot do so, please elaborate on what you would need to make a recommendation.</p> <p>As you can see from these instructions, we did not ask participants to merely list again the pros and cons of the same issue but rather, to engage in <b>critical thinking</b> over them. As we said earlier, there is no algorithm yet that can distinguish between participants who critically engage with pros and cons in their writing and those who don't. This is why we thought psychologists are the</p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <p>most qualified in social sciences to give a judgment on this matter based on your professional experience as a researcher but also as a teacher at a top university. It is important to bear in mind that because of the absence of an objective criterion to measure "critical thinking on an ambivalent issue", we count on you to follow the definition of ambivalence defined above (despite your potential philosophical disagreement with us) and your subjective judgment as an expert on this matter, which is crucial for the success of our study.</p> <p><b>Cognitive sophistication and examples.</b> To assess for the "cognitive sophistication" of each participant, we rely on an AI software, Grammarly. This software processes millions of writing users to define them a writing score, measuring their quality of writing, beyond simple grammar errors. In your task, we will not show you the scores assigned by Grammarly to each essay as those scores are not always good predictors of the variable of interest as we show you on the next screen. We excluded from our data set participants who did not perform the writing task seriously or cheated (i.e., those who did not produce an original piece but rather copied pasted existing sentences from the web).</p> <p><b>Below, we are showing two different examples that show</b></p> <p>5 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <p><b>Example 2: An essay written by a cognitively naive participant but who does realize that the issue is ambivalent.</b></p> <p>Digital privacy means access to people's personal information, on countless media. Some examples are: Social Media, databases of medical institutions, smart phones, merchant data from credit card readers, and just browsing the internet to name a few. In this day and age it's accurate to say that "digital privacy doesn't exist. Data is stored all the time and is regularly accessed by corporations and as we learned from Edward Snowden, your own government. It's even possible for someone to hack into your personal home security camera or smart phone camera. Having this kind of lack of privacy could put people at serious risk. But in the normal day to day, our data is being constantly being bought and sold for various reasons. Some people think that people should be paid for the use of their data, but as mentioned in some of the articles I read it's more complicated than is sounds, and I do not have the education, nor experience to formulate a policy on this. My opinion is yes, people should be paid, but I think the overall priority, policy-wise should be on privacy in respect to spying, of people and listening to individuals on their personal calls without warrants. That needs to be addressed first.</p> <p><b>Below, we show you two further examples.</b></p> <p><b>Example 3: An essay written by a cognitively sophisticated participant (score 78 on 100 by Grammarly) but who does not realize that the issue is ambivalent.</b></p> <p>Digital privacy is the process of using the internet and connected devices without compromising your information. So yes, people should be compensated for sharing whatever data it is that they would share online. People are giving out their personal</p> <p>6 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <p>information and I feel that it is very important that they should be compensated no matter how little because it is not easy to do so. Most people find it difficult to give out their personal data but if they are compensated, they would be free and willing to share it out without much worry. So the political sector should find a way to put up the policy and see how they can implement this. It is not an easy thing to do. They need to be fast about it too. Everybody should be paid for giving out their information. It is very critical and needs to be paid to be received.</p> <p><b>Example 4: An essay written by a cognitively naive participant (score 50 on 100) but who does realize that the issue is ambivalent.</b></p> <p>Yes, I think we should compensate people for sharing their data. There are several reasons to support my perception.</p> <p>First, personal data, such as demographic, psycho-graphic, and behavioral information are all person related. They belong to individual person. It is up to the individual consumer to decide what they are going to handle the data, including using and distributing. When the data is generated and collected, the final ownership and control of the data should be with the individual, not the company that collects it.</p> <p>Second, most the firms use the data for commercial purpose. They use the data for research to develop products and services for profit. As part of the input, the personal and private data drives the revenue and profit. As the owner of the data, individual consumer should get part of the share of the benefit.</p> <p>Third, when companies are using and storing data, a lot of breaches have happened. This exposed the individual consumers to a lot of risks. They should be compensate for this risk as well.</p> <p>Having said these, I believe the data owner, i.e. the individual consumers should be compensated for sharing their data.</p> <p>7 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <p><b>how the AI software's score is not aligned with our definition of "realizing that the issue is ambivalent".</b></p> <ul style="list-style-type: none"> <li>• "Example 1" below received a score of 96 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively sophisticated but who, however, "failed" to realize that the issue is ambivalent.</li> <li>• "Example 2" below received a score of 51 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively naive but who, however, "succeeded" to realize that the issue is ambivalent.</li> </ul> <p><b>Example 1: An essay written by a cognitively sophisticated participant but who does not realize that the issue is ambivalent.</b></p> <p>The issue of compensating users for their data centers around the rise of the fourth industrial revolution, one dealing with advancements in AI and machine learning technology. These technologies require harvesting masses of user data to create and inform human-like machine thinking and decision-making. However, because this requires reading private user data, many people have begun to demand compensation from data-mining companies for taking their personal data. In some ways, this makes sense - user data is invaluable to companies, so users ought to be paid accordingly for furthering so much research and development. In other ways, users will likely be paid cents at the maximum - is the payment even worth it? A policy that compensates users who personally hand over sensitive and private data, as opposed to compensating all users who are giving barely sensitive, market research data, makes the most sense for this issue.</p> <p>8 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjY2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjY2MuVo...</a></p> <p>Grade the following essay</p> <p>2. 5e49df1a95b8c46bd19f1eb *</p> <p>Digital privacy is a hot topic. As we live more and more of our lives online, our footprints get larger and much more detailed. Every website we visit takes a bit of us and keeps it forever, selling it to the highest bidder.</p> <p>The notion of paying us for our digital information is a new one to me. While I automatically thing that paying us is much better than not, I admit that I don't know enough about this to have an informed opinion. I would need to know who would pay us, how would that happen, how much is data actually worth as an individual? Also, will paying for our data mean that they will feel emboldened to take other data that isn't for sale?</p> <p>Other questions would be what happens to the data of those who don't choose to opt-in? Will their information be off-limits when it had earlier been freely taken?</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>9 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjY2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjY2MuVo...</a></p> <p>3. 55cf5cc434e9060005e56c39 *</p> <p>The problem is: Currently, internet users give up their data unknowingly and uncompensated. Internet giants and little-known marketing companies use this data to make a lot of money, and they invade privacy and create databases of "everything about everybody" along the way. This data can be used against individuals and used for political purposes. What if people knew when they were giving up personal data, and to whom, and were compensated with money?</p> <p>If companies were required to pay for data: Internet users would have an incentive to understand what they do on the internet. Companies would be forced to be transparent about their use of data and their business model.</p> <p>Arguments against: It could become the travesty that "privacy policies" are now: a sea of confusion and gobbledegook. Since no one understands the business models of the internet giants, they would impose the most confusing and self-dealing offers that they could, and no one would understand them well enough to stop them.</p> <p>What is needed before making a recommendation: Exposure of the business models and workings of the internet giants and marketing companies, by law if needed. It will be more clear what to do when it is more clear what they are doing to us.</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>4. 5706cba83409da00081a0b5d *</p> <p>Data in the modern technological world in which we live today is invaluable for both consumers and the megacompanies of today. The data that is provided to companies such as Amazon, Google, and Facebook use to market products to the consumer comes at little to no cost to the corporations. Right now as you are reading this essay your data is being tracked and sold to various companies across the world. You are providing this data for free. Why should companies succeed and make millions on the backs of consumers with no consequences or monetary rewards going to the consumer? Before these corporations' meteoric rise companies like Nielsen had to pay for consumer data. So I ask the question, "Why not now?" Why should companies be receiving more accurate and in-depth data than Nielsen collected with no money coming back to the consumer?</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>10 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjY2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjY2MuVo...</a></p> <p>5. 57dd87ea722df500017f42c7 *</p> <p>I believe we should make the big tech companies compensate people for sharing their data. My reasoning is that they are making billions off of personal data, and using that power to influence behavior and policy in society. The phenomenon of surveillance capitalism is taking over our economic world, and it has undue influence on every walk of life. Tax them till they stop and quit this powerful influence on society. My reasons are simple. They have too much power, and that much power is known to corrupt. Taxing their vast incomes will help justly distribute the wealth of society among the people.</p> <p>The influence that social media had in the elections of 2016 and 2018 was what I would call "criminal". We know that Facebook uses algorithms to influence people's moods and change their behaviors. We know that large corporations purchase this power from Facebook to change the course of elections. There is much more going on behind the scenes.</p> <p>I say, tax them out of existence. We do not need them. MySpace never harvested data, never influenced elections, and only made social discourse easy and pleasant. Facebook needs to be stopped. Google needs to be destroyed, before they enslave us all.</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>6. 585aefed73f2620001c21d75 *</p> <p>Our data, and big tech's fair use of that data, has been a big topic of discussion politically, on the internet, and in everyday life. Some individuals argue that tech's free use of our personal data benefits the world in ways that we don't normally think about thus making it a net benefit to society. Other people argue that these companies are getting rich off of the large amounts of data these companies collect and that we as consumers should see a cut of that because after all, it's our own personal data. An argument that I've seen against companies paying us for the use of our data is that it will just end up making their services more expensive or go from a free service to a paid service. This would end up negating the payments we get for our data because of the fact we have to now pay for the service. After all these companies typically let us use it for free because of the fact they get access to our data in return. An argument for making these corporations pay for our data is that it would boost the world's economy by quite a big margin because consumers would have more money to spend from these data paychecks. For my take on it, I was previously in support of companies being made to pay us for the use of our data. After some time thinking about it I don't really see myself in support of it anymore. The reason for this is that I think many of these services we enjoy everyday are free or lower cost because the firms get to use our data and monetize it. I wouldn't want to end up having to pay for a service like Facebook due to them having to compensate us for our data because today it's already free.</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>11 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjY2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjY2MuVo...</a></p> <p>7. 58ab75c4ef58e9000119d16c *</p> <p>In recent years, companies' access to users' data has become an increasingly important topic. As technology continues to advance through social media, Artificial Intelligence (AI), and data-driven advertising, people are growing more and more concerned about their privacy and their rights to their own data. Some people think that companies like Facebook and Twitter should be paying users' for their data since they use that data for revenue. Others think that data is public property, and that companies should not be expected to pay their users.</p> <p>On one hand, introducing the concept of technology companies paying individuals for the use of their data would prepare every-day people for the rising use of AI that will inevitably decrease the availability of jobs. If people were paid for the usage of their data, they would have a leg to stand on once jobs start to disappear as they are given to AI instead of humans. There is also the argument that everyone should have a right to their own privacy of data, and that if companies are using that data for their own profit, then users should be compensated.</p> <p>Others argue that if technology companies were to start paying users for the usage of their data, then those companies would inevitably start charging people to use the service. If selling users' data is their main source of profit, then it would likely turn into a subscription service if they had to start paying users for that data. If social media and other technology companies were to turn into subscription services, they would become inaccessible to lower income individuals. Speaking of socioeconomic differences, people also argue that technology companies would pay more for data from individuals of a higher socioeconomic class, thus increasing the wealth gap even more.</p> <p>Both sides of the issue bring up important things to consider. Since our world is heading further into technology as we progress, more conversations need to happen about individuals' rights to their data and privacy. More importantly, our policymakers need to address what our country will do when AI starts taking jobs from human individuals. At this current moment, it would not be a good idea to require technology companies to pay users for their data - it will turn that technology into a pay-to-use service, and it is unacceptable for that technology to be inaccessible to low income individuals. However, we need to figure out how we are going to move forward in an ever-changing world. Perhaps paying users for data will become the way to put humans on the same playing field as AI when it comes to intelligence/labor that we can offer.</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>12 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpiBVJNj2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpiBVJNj2MuVo...</a></p> <p>8. 5a28604a564bd00016463f2 * As a people, why should we not be compensated for our data? Every day advertising companies learn about our favorite foods, our favorite shows, our favorite books, our exercise routines, our shopping habits, even our sexual preferences, kinks, and fetishes. Why should all of that private information be relinquished without those companies paying a price? The platforms that collect that data get paid for sharing it and showing us the ads based on what information they gather. SO WHY SHOULDN'T WE GET PAID? Executives of these companies make millions while unemployed house wives browse Facebook and share recipes on Pinterest. Shouldn't that house wife get a piece of the money they are helping to generate for these companies? If I'm going to make you a few hundred bucks shopping on Amazon during my toilet time, how about you throw me a few bucks while showing me an ad for penis pills on my news feed.  <i>Une seule réponse possible.</i> <input type="radio"/> Pass <input type="radio"/> Fail  Grade the following essay</p> <p>9. 5af6432e57516b0001410a55 * Given the data-driven nature of our current society, we should absolutely be compensating internet users for their data. With millions of internet users' data being collected by technology companies, personal data becomes a valuable commodity, with value that can be translated into cash. Companies use personal data to increase their revenue by selling ads and to develop artificial intelligence. As artificial intelligence becomes more sophisticated, it is likely that some people's jobs will become obsolete while tech companies prosper. Therefore, it is only ethical to pay the people who have accelerated these companies' growth. Additionally, the internet is currently full of concerns over people's privacy and the terms of consent given to websites. Providing people with the opportunity to sell data allows them to be more autonomous over the information they decide to share or keep private.  <i>Une seule réponse possible.</i> <input type="radio"/> Pass <input type="radio"/> Fail  Grade the following essay</p> <p>13 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpiBVJNj2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpiBVJNj2MuVo...</a></p> <p>10. 5b2ab72dc293b9000173325b * Given the current situation regarding companies and their data collection habits, I do believe that a company should compensate users when that data can be sold and/or is used for marketing/advertising, specifically when a company is making a profit off that data. For example, I don't mind if a company's AI or algorithms and learning things about me that can then be used to improve my experience. But, I'd much prefer that if a company is selling my data then they compensate me for it. I understand this option would present a plethora of challenges and details that would need to be worked out and it would be a massive undertaking, but in general, it seems like the most moral and ethical answer given the state of things today.  As for the security concerns, I'm personally a bit nonchalant when that is used as the main argument against taking some type of action online. Our data is stolen all the time. Credit cards get compromised and passwords get hacked. I firmly believe that anyone with credible hacking skills could find any information they wanted on you anytime. I also think it's good practice to imagine that absolutely anything you do while online can be found, and thus that is the contract you've made with yourself when you decided to use the internet.  <i>Une seule réponse possible.</i> <input type="radio"/> Pass <input type="radio"/> Fail  Grade the following essay</p> <p>11. 5b836aa6413ac100010d165c * Digital privacy is a topic that has grown considerably in importance over the past 30 years as more of the world has joined in participating on various websites across the internet. The huge proliferation of social media and other data gathering websites has brought privacy concerns to the forefront of these discussions. Websites that gather unique information, even if aggregated and "anonymized", still collect and hold tremendous amounts of information from their users. Digital Privacy conversations seek to clarify what this data can be used for and what, if any, compensation should be provided to the users. Compensating users is not a cut and dry issue. It could be argued that users are already compensated by the service itself - they are, in most cases, voluntarily providing the information for free because they seek the benefit of the service. However, because of the tremendous value of these information platforms (Mark Zuckerberg, CEO of Facebook is one of the richest people on earth), some have argued that some of these profits should be shared with the people creating the data that the platforms are monetizing. I believe that it may be beneficial for users to understand better the value of the information they provide and receive some portion of the proceeds. We already see this playing out in some digital platforms such as YouTube, which pays its content creators a portion of the ad revenue on the videos that users submit.  <i>Une seule réponse possible.</i> <input type="radio"/> Pass <input type="radio"/> Fail</p> <p>14 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpiBVJNj2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpiBVJNj2MuVo...</a></p> <p>Grade the following essay</p> <p>12. 5bd8d7dc196e7000013cdc2e * I find the collection of data interesting but I saw a few previous statements warned against turning privacy into a commodity. I feel like I am on the fence about it. I am all for being paid for data that they are taking anyway! I would like to think that we would still have some choices but maybe when we support this, we are giving everything away? I don't know enough about the different parties to comment on that part or how it is relevant to the debate. I'm sure I am not seeing the big picture and how this could benefit politicians. I see it from a business stand point. It would help personalize services and make some things easier and more convenient. It would also make things kinda creepy. haha Facebook kinda creeps me out sometimes when I mention something and next thing I know there's an ad for it or I see an ad on my email server. Similar things happen with my phone and I have seen warnings against "smart tvs" listening in on private conversations.  <i>Une seule réponse possible.</i> <input type="radio"/> Pass <input type="radio"/> Fail  Grade the following essay</p> <p>13. 5c264f0d70073200012cd5bb * People should be compensated if their data is going to be shared with third parties. Tech companies make millions (if not, billions) on user's data. Without users, such companies would be obsolete. Companies such as Facebook, Instagram, Google, and Twitter are notorious for overstepping their boundaries in terms of privacy protection for their users. And the United States government has done little to protect users' personal information. Therefore, if the companies are still allowed to sell user's information to third party advertisements, then the people should also make a profit because it is their information that is being shared.  We are living in a more globalized and technically advanced world than our predecessors. As some structures (i.e. shopping, schools) become more and more reliant on technology, it would be best to adapt and adjust to the changes that come with such advancements. I am not sure if the United States' government will place stronger privacy restrictions or protect our rights; therefore, it would be best if were at least compensated for sharing our data.  <i>Une seule réponse possible.</i> <input type="radio"/> Pass <input type="radio"/> Fail  Grade the following essay</p> <p>15 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpiBVJNj2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpiBVJNj2MuVo...</a></p> <p>14. 5c297a144479410001515282 * In today's digital age, online privacy is a concern for many users. Many companies utilize users' data for their own benefit without any compensation. While users agree to these terms when signing up for websites, not all users are educated on how their data is used. This has caused a debate as to whether users' should be compensated for their data. If users were compensated for their data, they would be provided a greater level of transparency for what happens to their personal information. Although, there are concerns as to how this could be successfully implemented with the cost and paperwork required.  Users would have a better idea of how their data would be utilized if they were compensated for it. This would allow users to make their own decisions about what websites they would like to use, if they knew the value of it. People would also have a new source of income, which would be beneficial to people who require additional income. While the amount of compensation may be little, this amount could improve one's financial situation. However, there is the question as to how this could be implemented with the paperwork required. If companies had to pay people for their data, this would require contracts with each individual user. There could also be an issue if a user is underage or if one had multiple accounts. Also, this would place more value on users with more money, which could make it difficult for websites to be accessible to everyone.  Before a final recommendation can be made, it is important that there is a detailed plan for how this might be implemented and how companies would be held accountable for their actions. It is also crucial that all of the pros and cons of this policy be analyzed in order to understand the possible effects it could have on society.  <i>Une seule réponse possible.</i> <input type="radio"/> Pass <input type="radio"/> Fail  Grade the following essay</p> <p>15. 5c2e08142347600011a3eda * Yes, I fully support that people should be compensated for sharing their data, because all the data they gather is used towards their benefits for all kinds of reasons, whether it is for research or surveys. Why should they be allowed to use people's private data and gain profits without compensate the people... Having said that, I do not believe that our privacy data is not being used everywhere with all kinds of sites. Even if they say they don't. I have experienced a few times of sites that I have shared my data with either email me on adds or calling me to sell me some sort of insurance coverage or to update their data also. I believe the governments of countries have their hands into this also. They can make agreement's with let's say FB and share our data just for their personal use.  <i>Une seule réponse possible.</i> <input type="radio"/> Pass <input type="radio"/> Fail</p> <p>16 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <p>Grade the following essay</p> <p>16. 5c36e0c5e38bc40001f82a4d *</p> <p>The technological revolution of the past 30 years has moved faster than any of us could ever realize. As we leapt and learned to keep up with new tech, the companies that provide it worked even harder to learn about us. One could even say that the secondary function of this technology is to mine as much data from our lives as possible. Each and every service we use actively pulls apart as much information about our day to day life as it can, then stores that data and sells it to the highest bidder or uses it to advertise to us directly. If so much profit comes from this private information that belongs to us, shouldn't we be compensated for it or at least share in the profits?</p> <p>Of course most people would jump at the opportunity to get money for doing what they're already doing. Some would say that payment for data would finally be the solution for job loss due to tech, just shy of a Universal Basic Income. Groups that support this are already discussing the formation of unions and ways to ay hardball with big tech companies while negotiating. Those against the idea say the payout wouldn't be very much and that tech companies would only be interested in the data of their wealthiest users as they are more likely to spend. Most significantly is the assertion that users would have to start paying for the services they've been able to use for free.</p> <p>At the heart of this issue it seems to me that the biggest issue at hand is choice. As it stands the users have no way knowing what data is taken from them or how it's used. I believe a policy should be brought forth that guarantees that the end user is able to know what data is being used and how. To that end, if the user doesn't want that data being used once they're informed they should have the right to have that data deleted. Ideally there would be an option for choice. You could choose to use the free version of the app or service, knowing full well you are paying for it's use with your data. Alternatively, you could opt to pay a subscription fee that would allow you to use the same service but with zero data collection or advertising.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>17 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <p>17. 5c54fdde68c74d00013d237e *</p> <p>Users are being used and abused by tech companies such as Facebook and Amazon. People should have more control over their data and how it gets used. Just because someone wants to look at a new pair of shoes online doesn't mean that person wants that information to be shared with 12 different shoe companies. While users agree to a privacy policy when using a service, most privacy policies are written and communicated in a way that the average person has no idea what they are agreeing to. The value that a user is getting out of any given interaction is currently less than the value the company is getting. I don't believe that all of a user's data should receive monetary compensation, but the kinds of data that are used to advertise or train artificial intelligence should have a certain amount of compensation. The users' data is the real product of these companies. They make money off of our data and we should be well-informed of how that's happening and we should receive compensations for that.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>18. 5c700c6dc6bfa390001ba9ba5 *</p> <p>There is currently a debate raging about companies sharing our data and if we should be compensated for it. It's an interesting problem, and one in which people are often divided in the extreme. It spans political concerns such as economic and worker rights and issues of ownership like what is and isn't a commodity to be bought and sold.</p> <p>Some say that we should be compensated for this as it's a major income source for these companies and it's sourced from us. Others say that it's stripping our freedoms and will further erode our right to privacy. There's much debate as to whether we'd be compensated fairly, and this stretches to multiple levels. There may not be adequate compensation across the board and some suggest that economic hierarchies in society would dictate how people are paid.</p> <p>Initially, when posed the question I thought of course we should be compensated. But after hearing what both sides had to say, I realized the implications. This is another way for our system to commodify and control, and I'm not in support of it.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>18 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <p>19. 5c82d0ac51b0e00015cbd2fc *</p> <p>Every day, millions -- perhaps even billions -- of data points are generated by users of internet services such as email, social media, and technology hubs such as Google. Every search, click, and comment generates information that technology companies are eager to leverage in order to expand their businesses. Whether that expansion takes the form of tweaking technological offerings in order to capture a larger market share, or using customer data in order to target ads at consumers, there is an argument to be made that users should be compensated for sharing their data.</p> <p>Those on the side of compensating end users for the data they generate argue that companies are benefiting financially from the use of that data "right now" -- data that their users have provided for free. They also argue that compensating users for the data they generate will lead to greater transparency about how that data is used, thus increasing privacy protections for end consumers.</p> <p>Those who argue against this proposal point out the fact that managing, tracking, and compensating this absolute torrent of data will prove to be a logistical and legal nightmare, leading to greater costs for any technology company that undertakes such a venture. They also argue that the commodification of customer data may lead to privacy breaches, as companies potentially seek to scrape ever more detailed (and perhaps invasive) data from the information their customers share.</p> <p>Personally, I believe that companies should pass along a portion of all sales made using customer data back to the customers who originated that data. The fact that technology companies are profiting off of the labor of their customers, off of their private information, strikes me as deeply unjust. In fact, should the Herculean effort required to track, manage, and compensate customers prove too much for the average technology company to handle, I would not be terribly disappointed if companies thus decided that they no longer wished to track any customer data at all.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>19 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFplBVJNjy2MuVo...</a></p> <p>20. 5c917c0cd2c7770001064e77 *</p> <p>Should we get paid to share our personal data? This question can cut both ways. I am in favor of compensation for sharing our data. We all are constantly online in one form or another. There is no escaping it. On whichever platform we choose, our data and browsing history is being mined. Be it on Facebook, Snapchat, Internet Explorer, Chrome, and on and on...they are all collecting data. We might as well profit from it. Whether it be a simple look on the web, or a heavy session on Facebook, our data is collected. The collection cannot be blocked on social media; the only way to protect our data is to browse online using a proxy, and even then that is not truly secure. As we move forward, more data will be collected and exploited. More companies will get rich off our usage, with us common folk not making a cent.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>20 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>21. 5c9244da40643d0001c39982 *</p> <p>Compensating people for sharing their data online is an interesting, yet complex proposal to a situation that affects millions of individuals worldwide. As the current economic climate in the United States shows that there are both severe income disparities as well as considerations in how digital data is collected, used, and sold, the idea of paying people for their shared data becomes a political talking point for both of these issues.</p> <p>If payment for data were to become an enacted policy, then individuals would have greater control over what was being done with their information online. The ability to opt out of all of their information being sold to a third party would diminish. One common complaint is users suddenly receiving emails and 'spam mail' from companies they did not directly contact, and being able to regain control over that point in data control would cut down on those contacts. Additionally, being paid for data would provide additional income to individuals for sharing their data. In an economy where many people are struggling to survive and live, additional income could be a welcome addition to earn additional income to contribute to basic living costs like housing, insurance, and food.</p> <p>As a contrast, payment for data is not a simple policy that would benefit all individuals equally. There is not a strong outline for how individuals would be paid: would individuals who share more data be considered more attractive candidates for payment, and thus be compensated on a greater scale? Similarly, would individuals who identify in a higher income bracket also be compensated on a greater level, with the thought being that group would be more likely to have discretionary income to spend? What is also not clear is if payment for data sharing would cause all social media and digital companies to enact a payroll to use their services. Social media is part of the work landscape for many individuals. To be denied access because they can't afford to pay multiple subscriptions to utilize the social media outlets they need (and potentially their email) would have devastating consequences, and would further separate the class divides.</p> <p>My political recommendation would not be to implement such a policy. As stated above, the issue is not a simple black and white issue. There are multiple levels of concern and nuance that need to be addressed. In making this decision, politicians need to fully inspect and address how payment for data would be equal for all, how users who do not want to share data would not be punished in some way, and how companies would pay for data yet still make their services accessible for all individuals. More comprehensive analysis of how data is shared should be conducted, as the answer to this issue may not be paying individuals for data sharing.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>21 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>22. 5cb744d54161a1000153c708 *</p> <p>I feel that people should absolutely be compensated if they would like to share their personal data. As of now, we are giving our data away freely to companies who use it to sell advertisements. Then those advertisements that are sold are separated and shown to me if they are relevant.</p> <p>I feel like every key stroke we make in the digital age is used for something ad-related when we use social media and companies are making money off of their users. Why can't they give some of that back to us, especially when we click those links or purchase from those advertisers. When Facebook sells an ad, then I click on the ad, Facebook has gotten paid twice, but I'm still the product and I'm still not getting anything out of the deal. It's definitely time to change that!</p> <p>Not only would people feel more comfortable with potentially giving out more data, companies like Facebook and Google can charge more for ads to those companies so that their cuts don't take a hit. This would help the American family out because they often don't make enough money and would potentially provide close to what a universal wage could, except it wouldn't come from the government. It would be coming from the tech sector and saving lots of money while helping keep Americans afloat.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>23. 5cb757da2f63fb0017b94aba *</p> <p>I strongly support that tech companies should compensate people for sharing their data, mostly because said companies profit immensely from this information. The general public is being studied, targeted, used as "test subjects" for free, while tech companies sell all the available data to other companies for marketing and sales purposes, gaining huge amounts of money. Internet users are constantly bombarded with targeted publicity that their past free data sharing makes possible. This situation is unfair and unethical. If this issue is looked at from another angle - our individual right to privacy and choice - we come to the same conclusion: it's only fair that people be compensated for sharing their data. The solution of the actual difficulties of implementing this compensation is totally up to the tech companies, and should never be allowed to be used as an excuse for using all this valuable data for free.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>22 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>24. 5cf177b939f5f900016c0fca *</p> <p>Yes, I think we should compensate people for sharing their data. There are several reasons to support my perception.</p> <p>First, personal data, such as demographic, psycho-graphic, and behavioral information are all person related. They belong to individual person. It is up to the individual consumer to decide what they are going to handle the data, including using and distributing. When the data is generated and collected, the final ownership and control of the data should be with the individual, not the company that collects it. Second, most of the firms use the data for commercial purposes. They use the data for research to develop products and services for profit. As part of the input, the personal and private data drives the revenue and profit. As the owner of the data, individual consumer should get part of the share of the benefit. Third, when companies are using and storing data, a lot of breaches have happened. This exposed the individual consumers to a lot of risks. They should be compensated for this risk as well.</p> <p>Having said these, I believe the data owner, i.e. the individual consumers should be compensated for sharing their data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>25. 5d0dd940312297000137d2a7 *</p> <p>In the following essay, I will comment on my views of potential compensation for people sharing their data on the internet, which I support. People have been sharing their data on the internet and other sources since the creation of them. We have rarely, if ever been offered compensation for precious data, which in many cases we are unaware of collection. Companies use our data to make money for gain by selling it. Sometimes it is lost to thieves who also sell it, to our personal detriment and ruin. Why not give us an option to profit? Have a clear policy on how data is used, and prohibit usage that is not optioned for a person's potential compensation. It seems more like a win/win for everyone, or at least a start.</p> <p>By the way, there's a spelling error for address in the survey above.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>23 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>26. 5d1e2c7cb37fa600189cd759 *</p> <p>I believe that we absolutely should compensate people for sharing their data. The fact is that the data is already available and being used by various companies and organizations without providing one cent of compensation to the people it rightfully belongs to. Data is utilized for important purposes that will advance our society in an economic and technological sense and a majority of people would agree that the data is essential to progress. People should be compensated for their personal data to the level of value that it will provide, which is relatively high in most cases. All this entails is giving people the payout that they are entitled to and addressing that they are providing a valuable service. This will benefit the economy and raise household income, which can only improve quality of life.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>27. 5d2c54fad093b001983dc57 *</p> <p>Every year companies make millions of dollars by selling their consumers personal data. This leads to the issue of whether or not consumers should be allowed to control their own data or sell it. Those in favor of having the choice to control their own data and keep it private or sell it to companies argue that since it is their data that is being sold by companies, they should be the ones to choose whether to share that information and be paid for their information or to not share any of their information. While those in favor of the current policy believe that if people are given a choice about protecting and selling their own data, it would lead to major crash in the economy due to companies not being able to influence consumers choices. Therefore, I feel that that in being in favor of allowing consumers to have control over their own data, consumers should be able to choose to keep their data in the current policy or remove their data and have the ability to sell the information they feel comfortable.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>24 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpiBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpiBVJNjy2MuVo...</a></p> <p>28. 5d52b6965a0c95001aa44b4c *</p> <p>The question of compensation for data is a complex one, a question that ultimately calls for neutral regulation of data sharing, monetization, and profit allocation. Users deserve compensation for the profits made by corporations and other online entities through the collection of their data. Internet users put in time, energy, and trust when sharing data online, and should, at the very least, share in the financial gains and profits engendered through these efforts.</p> <p>There are dangers involved in paying users for their data, however. The main danger is that if users are compensated for their data, that very data's worth will reduce, followed by a mass reduction of online options, tools, and features that collect data that users have also come to depend on.</p> <p>This is where the tension lies, and this is where the lack of regulation becomes starkly visible. People deserve compensation for their data, but this, however, this cannot happen without ensuring they are not simultaneously taken advantage of or in some ways punished.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>29. 5d625b4550d0d0017805839 *</p> <p>I believe that we should compensate people for their data because it is used to produce revenue for the company gathering and selling information. There be a set amount it shouldn't matter if it is from a low or high side to your income <a href="#">family</a>, doesn't have to be a large amount it can be something that is collected and then deposited into a PayPal type account who wants a certain amount has been reached they should be something that is optional, people should have the right to decide if they want to sell their information or not if not they should then decide if they want your information to be sold or not and if not rather they are accepting or not accepting of it being used regardless of being paid I think that on a political stance by agreeing to have the information paid for it does cause some repercussions in the availability of free apps and services so that may be a negative connotation. But I also believe that there will be a lot less people complaining about their privacy and information that is being used.</p> <p>I truly feel that not everyone would require compensation for their data being collected but to have the option is a part of America which is having the freedom to choose what to do with your information your privacy and how to say in your security especially online.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpiBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpiBVJNjy2MuVo...</a></p> <p>30. 5d9be30b027b5602c520d93b *</p> <p>Digital privacy is a fallacy. People make an assumption that what they do online in their personal time is private. On the surface, you can be alone in a room searching whatever you please. However, your browser, your service provider, even the government are all watching. You create nuggets of information that so many people want to examine. Typically, the information is not traced back to the individual, unless you have broken a law. The assumption that what you do online is private is dangerous and foolish.</p> <p>The data a person produces is valuable. The internet was built as a hub of information and it has so drastically exploded in the past 20 years that people rely on it for almost everything. We 'google' and the data we produce is sorted into zip codes and the companies that want to sell to us buy that package. It makes no sense that the genesis of the data does not get paid.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>31. 5d9ca0e1bfbbba0014629292 *</p> <p>Digital privacy means what is done with the information we as consumers put into websites and how the companies running those websites use that information stores and uses that information. If a company uses that information to formulate advertisements specifically catered to it's users, I believe those users should be compensated. As it is a service many do not knowingly opt into, and the corporations are making millions off of the data we share, I believe we should be receiving a portion of that wealth rather than continue to line the pockets of those who exploit us. A policy I would put into place would be implemented on a percentage system, the more usable data you contribute, the more you are compensated. There will also be an option to opt out or back in depending on preference of the user.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>25 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p> <p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpiBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpiBVJNjy2MuVo...</a></p> <p>32. 5da39d7772012400133efd91 *</p> <p>I think compensating people for their data is a great idea. I understand that some people may worry about privacy concerns. That is why it should be optional and should be explained in detail any risks that come with using this app. Since people use so many websites that track their cookies, they are already giving away a lot of this information for free, it's time they get paid for it. It isn't fair for companies to make a large profit from our information without giving us a fair share. Also, the information that we provide will be extremely useful in helping companies and marketing more successful. Personally, I want companies to know this information so more relevant products are being produced. Another great thing about this idea is companies will be able to customize advertisements that we receive. So, unlike regular cable or the radio, all ads that we see will be relevant to our specific life and needs. No more annoying ads about products that are completely useless in our unique way of living.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>33. 5db6553837647d000bb049ab *</p> <p>Digital privacy is a broad topic with multiple meanings. To some, digital privacy is keeping personal information, such as bank account and social security numbers, private. To others, it may mean keeping all personal details private such as name, address, etc. Even if the definition is in the middle of these two extremes, digital privacy is important in the current political debate because of the future impact of digital privacy regulations. Too lax, and chaos may occur. Too strict, and financial prosperity and human invention may be curtailed. Because of the importance of these concerns, politicians, scholars, scientists and others must begin formulating policies now to protect the future. Further research and study is needed, but a concerted effort must be made to begin the process.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpiBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpiBVJNjy2MuVo...</a></p> <p>34. 5db9da2c11a2a902a7bdf41 *</p> <p>I'm still not certain whether we should be paying people for their data, or whether it should remain "free" to collect. There are pros and cons to both sides of the issue.</p> <p>I worry that if companies start paying people for the data they collect, they will simply pass that expense along to their consumers, which are often the very people the data is collected from. I am also concerned that payments would not be uniformly applied, and would be stitted in favor of those from more affluent areas.</p> <p>On a more positive side, the pay for data method means that someone concerned with privacy would be able to 'opt out' of data collection. The question at that point is whether the costs of data collection payments to others would affect the process paid by someone who opted not to sell data. That would be bad news for the end consumer who did not want their data used in the first place.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>35. 5dbbb2d26fec04190243ca0e *</p> <p>I think the issue of compensating people for their data is a very important one in today's society. It can go both ways I feel that it would be a good idea because it would help people out and especially the economy. The issues with it would be in my opinion charging for more subscriptions for those of us who cannot afford something like that. and I don't think it would pay out very much so I'm not sure it would benefit in that way, but I think that it would be good to compensate people for their data quality it would be better for businesses and it's something that should be discussed and agreed upon and maybe they should shut down social media for one day if they cannot come to an agreement. I'm really not too sure about the issue I would need more details in order to put my input on the issue but this is just my interpretation is based off of the Twitter comments that I just read.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>36. 5dc483cf74939e34e55c3619 *  Yes, people should receive compensation for sharing their data electronically. Compensation can come in the form of services. Most of us, for instance, enjoy the advantages of sharing information via Facebook or of using Gmail's free platform. That is one form of compensation. But in addition people should be compensated – and given the option of NOT using the platform – for information that collectively is used to market services and products. As people become more sensitive to and aware of the extent to which their information is gathered and used, more and more will opt out, for the sake of privacy. It will be in the company's interests to keep those customers, and sharing the revenue gained will be one method of doing that. Because the income can be taxed, the government, too, benefits from an increase in tax revenue, as tax revenue is lessened for consumption and manufacture of "hard"/non-digital items.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>37. 5dc4e36b9db53c38f9c4d208 *  Digital privacy is websites you visit and enter any data that promise to not sell your information to others. It is relevant in the political debate because there are companies that want the data that is entered to use it for politics or to use as support for a candidate that is running for office. If these companies want the data they should elaborate how it is going to be used and offer incentives to people who are willing to provide the data. These companies should also provide compensation if they fail to use the data as described. People that choose to have their data used will be aware that their data is going to be used in a particular manner and will be able to receive compensation if the data is used in a different manner than was presented to them. People will have a choice.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>29 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>38. 5dc81d7d3317735a7549dce8 *  Digital privacy is the protection of consumers' data, which includes search history and basic demographics, from being shared by software providers. This is relevant to politics because tech giants such as Google and Facebook make a significant portion of income from the sale of data collected from their customers to advertising companies, often without the knowledge of the user, which violates the privacy of the users. However, social media is often an integral part of the technological age, and necessitates use of services such as online financial services and job-seeking services, which severely hinders the ability of users to choose what information they want sold to advertising companies while still having the basic benefits of these services. I would need more information to form an effective policy recommendation, mainly exactly what type of data is collected, what data is sold to consumers, what measures are in place to limit data collection in these services, and how explicitly data collection policies are made to the consumers of these products.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>39. 5dc9cf489b8310a1b19676e *  Digital privacy is virtually non-existent today. If there were a way to compensate people for their personal data, and browsing info, I would be in favor of that. But, really, privacy should be shielded and kept private. Too much data in the halls of power and authoritarianism is disastrous for freedom and liberty. Corporate interests will create havoc exploiting consumers and playing favorites, excluding some people and their needs. Government powers will run roughshod over any and all personal freedoms. Look at China today and what they are doing with the Outgers. Laws need to be enacted and enforced to protect individuals data and privacy. Our Congress is extremely behind. The exploitation of personal data and privacy by the likes of Facebook and Google are extreme and troubling. We need to understand better how our information is being collected, and how it is being used. And, we must understand better how AI is utilized.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>30 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>40. 5dcea4c3bc83380fe65dba2a *  We should compensate people for sharing their data. The average person provides lots of free data to companies, which profit from these people by selling them products they would be inclined to buy. Companies should not get rich by using data without permission. If people are compensated for sharing their data, median incomes could improve by \$20,000. This would help middle class and poor families to improve their situations. Companies can afford to invest in these people, since they are analyzing the data and catering products and services based on the needs and interests of these consumers. People should be given the option to share their data for compensation, or the option to decline to share their data out of concern for privacy. Companies do need to protect the privacy and security of consumers.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>41. 5dcec32a367c6d000a4282c2 *  If people are willing to let a company mine their data they should be compensated for the data if that data is used to increase revenues for the company. If a person is expected to give up their privacy in the digital realm, they need to be compensated for the sacrifice. Digital privacy is important in keeping a persons information out of the public realm. No one wants to give up their privacy for nothing. If a company is profiting from this information then they need to share that wealth with the people they are exploiting for their gain. It is only reasonable that companies who profit from the exploitation of their customers should have to give something back in return. If they don't do this, people should boycott these companies, burn down their offices, and guttotine their executives.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>31 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>42. 5dceca2541afe801a32e27ac *  I believe that digital privacy means my ability to have my voice heard or otherwise participate online without worrying that the websites or browsers etc. are using my data for their own financial purposes without my knowledge. Think the regulation should come from the government and individual persons as to how this personal data can and should be used and/or compensated. I also believe that policy regulators and individuals would have to consider what is "private" and what is "public" data. I would like to have the additional income from being paid for my date but what is this going to cost me in the long run for using the website or the web browser? I am just not completely sure where the lines should be drawn or that as I read should "privacy become a commodity"? I also think that the current investigations into the high tech companies such as Facebook and Google should continue until all parties and users are satisfied with the agreement that is reached.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>43. 5dcf06a280123f05c5fe7c71 *  Simply put, digital privacy regards who and what can access any and all an individual's online activity. This is a deeply political issue demanding the attention of all citizens and the highest levels of lawmakers. The reasons for this are myriad and two that come to mind I note here.</p> <p>Firstly, is law enforcement's need to track the activities of lawbreakers. Digital tracking has to be balanced against Constitutional rights much as with wire taps and search and seizures and the manner in which they are balanced.</p> <p>Secondly, the processing, analysis and exploitation of individual personal data for the purpose of surreptitiously manipulating an unknowing individual must be assessed in relation to that individual's rights in light of the the Constitution and only courts and political lawmakers can address that aspect of the issue.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>32 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>44. 5dcf4136cf8e7e086ea019e4 *</p> <p>Digital privacy entails protecting users' sensitive data. I do not feel well enough informed to make a policy recommendation, as reading the prior "Tweets" in this exercise I vacillated back and forth about the wisdom of tech companies paying for data. I was easily swayed by successive opposing arguments, since I have not given the topic much thought. It seems highly unlikely that tech companies paying for data would generate much income for end users, as one poster claimed. Further, search engines provide necessary services for "free" which many users, including myself, would not be willing to pay for with actual money. That said, they are mining data at no cost but at great benefit to themselves, so I really don't know what the answer is. If I had more interest in topic, I would research it more, but frankly I don't.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>45. 5dcfd762e4a050ac2cba07d *</p> <p>The second you go online you become a data source. Browsers, websites, social media sites...they all consider you a valuable data source and they want to follow you throughout your online journey. This has raised a lot of justifiable concern by people who wish to maintain their digital privacy. You may have visited a web site looking for a new dress for Fall and not found anything you liked so you decide to view some animal videos. You find a video that looks interesting so you click on it but first you have to watch a 45 second commercial for Fall dresses. Coincidence? Not at all. Your digital activity has been traced and you have been targeted as a potential Fall dress buyer. If targeting you is that easy and that fast what other information are you providing that can be used to target you?</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>46. 5dcfe5ec41fb3f0de0080f1a *</p> <p>We should compensate people for their digital data. Digital privacy means what we do...where we shop what we say etc online is not followed or sold for profit. Every day our digital privacy is compromised. We many times unknowingly share the most detailed information about our lives.</p> <p>Sharing our digital information is letting companies treat us as subjects they make money off of without our consent.</p> <p>It is relevant because this information can be used as we saw in the last election to target a particular race, gender, or ethnicity. It can influence if they vote and fear of the polls. Cambridge Analytics used digital information to influence our election in the wrong hands, digital information can be used to compromise our democracy.</p> <p>We need policies as soon as possible to ensure there are stricter policies to govern our digital information. People should be compensated and some tracking should not be allowed at all.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>47. 5dd0d2f02b033b190687eaae *</p> <p>Digital privacy is a concept that attaches ownership to the data describing one's own life: facts about one's background, family, interests, thoughts, and activities. The ownership, one might presume, is inherently borne by the individual whose life is represented in the data. As information companies have captured this personal data in immense detail and quantity, they have developed ways to sell this information to other entities, capitalizing off the fabric of our lives. It is valid to determine who has the right of ownership over these details, and how compensation for these rights should be apportioned among data collector and data provider. And it is valid to determine potential cost to the individual, in terms of privacy or security risk, for having handed over such great detail to others of unknown integrity.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>33 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p> <p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>48. 5dd2c8b39ca8a32dfbf28fab *</p> <p>Digital privacy is the supposed right of a digital user to keep their interactions private. It is a question of whether a person should have the right to surf the internet completely anonymously or not. It is my opinion that a person's personal freedom is compromised when their digital movement is continually tracked. This information is utilized for a variety of things that are not necessarily to do with the participant at all and is often used for financial gain of the USP provider or the website visited. They are utilizing data that they have accrued for purposes other than what they are intended to be used for. It might be appropriate for ISPs and websites to offer some type of compensation to users who allow for the utilization of their data for the benefit of the site or ISP when</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>49. 5dd3030ddba63431d819d4f2 *</p> <p>I believe that individuals should be compensated for the use of their data. Companies that buy, sell, and trade said collected data stand to earn billions annually. They also are able to tailor advertisement and website experiences to the individual, which encourages a happier consumer who is likely to spend more time or money on any given site. For these reasons, I believe consumers are entitled to control over, or monetization of, their own data on an individual basis.</p> <p>An individual is often compensated via coupons, magazine subscriptions, special pricing, or cash rewards for completing surveys for brick and mortar as well as online retailers. I do not see how this would be any different. Yes, an individual may enjoy their time spent online gaming, posting, or browsing, but this alone is not reward enough for the data they give up in doing so. An individual may enjoy shopping in brick and mortar stores, but this does not mean that the individual is not compensated fairly when he/she chooses to participate in a survey to better customer service, store layout, or any number of other things.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>34 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p> <p>Instructions for Graders <a href="https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...">https://docs.google.com/forms/u/0/d/1TMEFpIBVJNjy2MuVo...</a></p> <p>50. 5dd331cfd9a7434e8a26337 *</p> <p>Digital privacy entails protecting the privacy of citizens online in regard to their personal information, financial information, etc. I do believe that people should be paid for conglomerates such as Facebook and Google using personal information of their users to sell to companies and third parties. Facebook and Google are currently violating anti-trust laws in my opinion, and they are under investigation by the Senate and Congress. These companies make billions of dollars in profits by engaging in data mining, and they should compensate the people whose data is being mined. The current lack of compensation for the data that is acquired by these companies is in accordance with other anti-trust practices that these companies engage in. They should be broken by anti-trust legislation</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>51. 5dd3488e18tabc35d131ef34 *</p> <p>Digital privacy is the concept that users can expect a degree of protection when online, as regards to how their data is used. Some suggest that companies pay us for our data since it is precious and most trade it for free in order to use a site like Facebook. However, I believe the reason that the majority of these popular sites remain free is due to ad revenue. If we change this concept, we would actually see greater economic disparity since higher income individuals from higher income countries would receive more money for their data than poorer individuals who need the money more and who have less ability to pay for these sites we enjoy for free. Lastly, it comes down to freedom. We have the right in this country to trade our data for a free service and for government to change this would be to go against our very foundation of rights.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>35 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>	<p>36 of 41 <span style="float: right;">4/26/22, 9:11 AM</span></p>

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52. 5dd3e5b66d52253c0e37e402 \*  
 Digital policy is a policy regarding data that company gather online. It is suggested that companies should pay people for their private data, instead of just secretly gathering it and doing with it whatever they like, which is happening now. I'm not sure how and why this would be an issue relevant in the political debate. I haven't thought much about it, to be honest. But, everything gets politicized these days, so why not this as well, I suppose. I think it's fair to pay people, but I don't know all the implications. I'm not sure what else I can tell you on the subject. I am not the most informed individual when it comes to digital policy. Typing another sentence here to meet the minimum word count requirement, because that's what I have to do to complete this part of the survey and move on.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

53. 5dd3eb4bc082f3d043b96fb \*  
 I believe that people should be given the choice on whether their personal data is shared, but I do not believe that they should be compensated for the sharing of that personal data. My recommendation is to make it mandatory upon visiting a website, that the user is given the option of having his or her personal data shared. However, I see this as not being viable due to the decrease in speed while browsing as a box would pop up on every page with an option for data sharing. So, it should be mandatory that when a user registers for a website that he or she is given the option on whether to share his or her personal data. Rather than paying users for the use of their data, website companies can offer coupons, discounts, etc. to entice the users to share their data. At any rate, it should be up to the user to decide.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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54. 5dd4189ef30aa640b4e9c094 \*  
 I think I understand what people mean by 'digital privacy', but I think it is much the same as what people mean when they talk about a unicorn, something completely unique... and entirely mythical. It just seems like something we should just accept, when it is put out there... it is out there and there is no getting it back. Much like Pandora's box, now that I think about it. If you want privacy, turn off the gadgets and move to the country. The point here though, is that these companies are marketing what they get from us. In doing so they should at least give us the premium experience for the use of our data. The data of some folk is worth more than that of others, which is understandable. Those people should get suitable recompense. Perhaps it would be helpful if there was a tax on the most valuable data to pay the way of those with less valuable data.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

55. 5dd435b8370810425c23e8cf \*  
 Basically digital privacy is derived from mechanisms in place to protect your online activity. We are never really safe when we are online because everything we do is logged and recorded. It's this data that provide revenue streams for corporations, and can become compromised in seemingly endless ways. Having to share in the money derived from exploiting our data might give corps the incentive to be more judicious with how they profit from it.

Basically digital privacy is derived from mechanisms in place to protect your online activity. We are never really safe when we are online because everything we do is logged and recorded. It's this data that provide revenue streams for corporations, and can become compromised in seemingly endless ways. Having to share in the money derived from exploiting our data might give corps the incentive to be more judicious with how they profit from it.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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56. 5dd4767b32288646716dc98a \*  
 I think we should compensate people for sharing their data. After all, personal data given to anyone should be regulated and done so by only using the permission of the person the data is coming from. This could help with increase in many Americans income and help ensure data will be used ethically. If data is a personal thing that should not be shared easily then why not receive payment for data that is sought after by companies. Personal information needs to be protected just as anything else would be protected that a person has. This should be enforced by the law and respected by all tech companies. Data information profits companies and why should that profit not be shared by the people that data comes from. This is a relevance in politics because of the data breaches that led to issues affecting our country's election process.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

57. 5dd4767b32288646716dc98a \*  
 Digital privacy is not possible if one has as much as an email account. Having an email account requires one to provide information such as name, age, birthday, possibly more. If one is using a home ISP to browse the internet, then one is subject to cookies and advertisements. Countries need to pass and enforce laws to protect citizens from internet service providers and websites collecting data and using it in ways that is detrimental to consumers. Privacy agreements are often long and confusing to consumers, especially children who may not read or understand them. Legislation is needed to protect minors in particular from being preyed upon by data thieves. When data is sold, consumers should be made explicitly aware of such sales and paid for the transactions. Tech companies should not be allowed to benefit from consumers' data without their knowledge.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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58. 5dd86784dcecb872b85cb5bb \*  
 At this time, I do not believe that people should be compensated monetarily for sharing data. I am against the idea of government trying to stipulate laws and regulations forcing technical and other similar companies to pay ordinary users who visit their website and applications and share their data knowingly with such an organization that may provide services.

I am not against the idea however of a company/user arrangement that provides a company the ability for users to share their data and be paid for it by either agreements or negotiated agreement. As long as users determine how their information will be shared is in the end up to the user if they wish to pursue such agreement for monetary benefit.

Companies should work on ways to guarantee both privacy and security in any agreement.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

59. 5dd94be0fd5b288cf5cfc966 \*  
 Digital privacy pertains to information which can be gathered by monitoring a person's computer related devices for search information, purchases, family, religious affiliation, political affiliation, health data, etc. People have a right to have their data protected and to be compensated for the data if it is used by tech companies to further enrich the companies. The tech company privacy statements are too difficult for the average citizen to review and intelligently consent. If people are to be compensated for sharing their data they need to have full disclosure to how and which data will be shared. Will the companies not only know the zip code where the person resides but also their home address? Consumers must be protected from big tech, profiting from personal data which can be monetized and also benefit the individual and not just big tech.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

40 of 41 4/26/22, 9:11 AM

Instructions for Graders <https://docs.google.com/forms/u/0/d/1TMEFplBVJy2MuVo...>

60. 5dda0d3a9255ed9824b66c7b \*

Although I have not given much thought to this idea, I do believe that people should be compensated when companies profit from personal data. Currently, I have no way of knowing how my personal data is being used. Regulations that made companies share with their users how their data is being used would give users more power. In addition there should be standard rates for the usage of data. For example, x amount of dollars per MB of health data, or y amount of dollars per MB of location data, etc. Users would get a summary of the report of how their data was used or whom it was sold to. One of the previous pages in this study suggested a Data Union that consumers could form. I really loved that idea, it would give consumers more power, instead of all the power being with the tech companies.

*Une seule réponse possible.*

Pass

Fail

Grade the following essay

61. 5ddae85b393bd3a44d7cbaaa \*

As people become more and more familiar with social media and other sites that collect and sell user data, they have become reflexively inclined to provide consent to these sites without considering what is done with their data, and within whose hand's their data ends up in. It is of the utmost political relevance that users have a say in what personal data is sold and to who it is sold. User data is a goldmine for political entities and other companies looking to mine data for trends and advertising. Users receive no compensation for personal information that they unknowingly provide to these companies. Data can be used for nefarious purposes, as we saw in the Cambridge Analytica scandal in 2016. We should allow users more control over their data by giving them the option to sell that data.

*Une seule réponse possible.*

Pass

Fail

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Ce contenu n'est ni rédigé, ni cautionné par Google.

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# B.8 Treatment Grader 2

<p>Instructions for Graders  <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <h3>Instructions for Graders</h3> <p>Thank you for accepting to participate into our survey. Please read carefully this page before going to the next section.</p> <p><b>*Obligatoire</b></p> <p>1. Adresse e-mail *</p> <p>_____</p>	<p>Instructions for Graders  <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <h3>Instructions for Graders</h3> <p><b>The aim of your participation</b></p> <p>In the following, you will have to grade very short paragraph (around 300 words or less) as follows. <b>We need an expert in reasoning to grade them as there is no "objective quality" of an essay.</b></p> <ul style="list-style-type: none"> <li>• If you judge that participants "realize that the issue is ambivalent" then you will give them a passing grade, <b>P</b>.</li> <li>• Otherwise, you will give them a failing grade, <b>F</b>.</li> </ul> <p><b>Challenge to overcome while grading</b></p> <p>What may happen is to confound high cognitive sophistication, i.e., the ability to write well-written essays in English, facilitated by the fact that they read some arguments right before this essay exercise with the self-reasoning skill "realizing that the issue is ambivalent", which is the variable we want to elicit.</p> <p><b>Time</b></p> <ul style="list-style-type: none"> <li>• We expect you to spend around 10 minutes to read very carefully the instructions and the examples.</li> </ul>
<p>1 of 39  <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <ul style="list-style-type: none"> <li>• And we expect you to spend no more than 1 min to grade each essay.</li> <li>• The total time you spend should not exceed 62 min.</li> </ul> <p><b>Defining the fact of "realizing that the issue is ambivalent"</b></p> <p>We define "realizing that the issue is ambivalent" as the awareness of an individual to recognize that there can perfectly logical but opposite arguments in favor and against the same issue which renders the decision-making process complex. Such an ambivalent attitude leads to hold temporary conflicting preferences, one preference for the issue at hand and one preference against the issue at hand. There can be different ways of defining and capturing this "awareness" as documented in the social psychology and cognitive psychology literature. In our study, we capture this awareness by observing individuals <b>reasoning and elaborating in a personal way on the pros and cons of the same issue in a written format.</b></p> <p>Before writing their essay, participants were shown a list of the pros and cons of the same issue. Then, they had to write an essay, following these guidelines:</p> <p><b>The score of your essay will only depend on the first and second parts of your essay. Two different essays in their political recommendation can have the same score.</b></p> <ul style="list-style-type: none"> <li>• For example             <ul style="list-style-type: none"> <li>◦ Essay 1 describing very well the issue, justifying effectively its position and giving recommendation for digital privacy</li> </ul> </li> </ul>	<p>2 of 39  <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <ul style="list-style-type: none"> <li>◦ Essay 2 describing very well the issue, justifying effectively its position and giving recommendation against digital privacy</li> <li>◦ Essay 3 describing very well the issue, justifying effectively its position and explaining why the writer needs more information to give a decisive recommendation</li> <li>◦ All these essays will receive the maximum score.</li> </ul> <p><b>How your essay will be graded</b></p> <ul style="list-style-type: none"> <li>• Your essay will be graded automatically by the Artificial Intelligence-powered software that will produce a report detailing your score. We confirm as researchers, having not business with the software.</li> <li>• Your essay will be graded a second time by one Professor of Philosophy, randomly selected from a list of University Professors from US universities who were not involved in the design of this software.</li> <li>• Your reward from the essay will depend only on the grade provided by the software. The grade will be provided by the Professor.</li> </ul> <p>Answer this question above. To do so, write an essay in which you describe what is meant by "realizing that the issue is ambivalent" and why it is an issue of relevance in the political debate. Formulate in a brief manner a political recommendation that you think should be taken in face of such an issue. If you cannot do so, please elaborate on what you would need to make a recommendation.</p> <p>As you can see from these instructions, we did not ask participants to merely list again the pros and cons of the same issue but rather, to engage in <b>critical thinking</b> over them. As we said earlier, there is no algorithm yet that can distinguish between participants who critically engage with pros and cons in their writing and those who don't. This is why we thought psychologists are the</p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>most qualified in social sciences to give a judgment on this matter based on your professional experience as a researcher but also as a teacher at a top university. It is important to bear in mind that because of the absence of an objective criterion to measure "critical thinking on an ambivalent issue", we count on you to follow the definition of ambivalence defined above (despite your potential philosophical disagreement with us) and your subjective judgment as an expert on this matter, which is crucial for the success of our study.</p> <p><b>Cognitive sophistication and examples.</b> To assess for the "cognitive sophistication" of each participant, we rely on an AI software, Grammarly. This software processes millions of writing users to define them a writing score, measuring their quality of writing, beyond simple grammar errors. In your task, we will not show you the scores assigned by Grammarly to each essay as those scores are not always good predictors of the variable of interest as we show you on the next screen. We excluded from our data set participants who did not perform the writing task seriously or cheated (i.e., those who did not produce an original piece but rather copied pasted existing sentences from the web).</p> <p><b>Below, we are showing two different examples that show</b></p> <p>5 of 39 <span style="float: right;">4/26/22, 9:12 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p><b>how the AI software's score is not aligned with our definition of "realizing that the issue is ambivalent".</b></p> <ul style="list-style-type: none"> <li>• "Example 1" below received a score of 96 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively sophisticated but who, however, "failed" to realize that the issue is ambivalent.</li> <li>• "Example 2" below received a score of 51 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively naive but who, however, "succeeded" to realize that the issue is ambivalent.</li> </ul> <p><b>Example 1: An essay written by a cognitively sophisticated participant but who does not realize that the issue is ambivalent.</b></p> <p>The issue of compensating users for their data centers around the rise of the fourth industrial revolution, one dealing with advancements in AI and machine learning technology. These technologies require harvesting masses of user data to create and inform human-like machine thinking and decision-making. However, because this requires reading private user data, many people have begun to demand compensation from data-mining companies for taking their personal data. In some ways, this makes sense - user data is invaluable to companies, so users ought to be paid accordingly for furthering so much research and development. In other ways, users will likely be paid cents at the maximum - is the payment even worth it? A policy that compensates users who personally hand over sensitive and private data, as opposed to compensating all users who are giving barely sensitive, market research data, makes the most sense for this issue.</p> <p>4/26/22, 9:12 AM</p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p><b>Example 2: An essay written by a cognitively naive participant but who does realize that the issue is ambivalent.</b></p> <p>Digital privacy means access to people's personal information, on countless media. Some examples are: Social Media, databases of medical institutions, smart phones, merchant data from credit card readers, and just browsing the internet to name a few. In this day and age it's accurate to say that "digital privacy doesn't exist. Data is stored all the time and is regularly accessed by corporations and as we learned from Edward Snowden, your own government. It's even possible for someone to hack into your personal home security camera or smart phone camera. Having this kind of lack of privacy could put people at serious risk. But in the normal day to day, our data is being constantly being bought and sold for various reasons. Some people think that people should be paid for the use of their data, but as mentioned in some of the articles I read it's more complicated than is sounds, and I do not have the education, nor experience to formulate a policy on this. My opinion is yes, people should be paid, but I think the overall priority, policy-wise should be on privacy in respect to spying, of people and listening to individuals on their personal calls without warrants. That needs to be addressed first.</p> <p><b>Below, we show you two further examples.</b></p> <p><b>Example 3: An essay written by a cognitively sophisticated participant (score 78 on 100 by Grammarly) but who does not realize that the issue is ambivalent.</b></p> <p>Digital privacy is the process of using the internet and connected devices without compromising your information. So yes, people should be compensated for sharing whatever data it is that they would share online. People are giving out their personal</p> <p>7 of 39 <span style="float: right;">4/26/22, 9:12 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>information and I feel that it is very important that they should be compensated no matter how little because it is not easy to do so. Most people find it difficult to give out their personal data but if they are compensated, they would be free and willing to share it out without much worry. So the political sector should find a way to put up the policy and see how they can implement this. It is not an easy thing to do. They need to be fast about it too. Everybody should be paid for giving out their information. It is very critical and needs to be paid to be received.</p> <p><b>Example 4: An essay written by a cognitively naive participant (score 50 on 100) but who does realize that the issue is ambivalent.</b></p> <p>Yes, I think we should compensate people for sharing their data. There are several reasons to support my perception.</p> <p>First, personal data, such as demographic, psycho-graphic, and behavioral information are all person related. They belong to individual person. It is up to the individual consumer to decide what they are going to handle the data, including using and distributing. When the data is generated and collected, the final ownership and control of the data should be with the individual, not the company that collects it.</p> <p>Second, most the firms use the data for commercial purpose. They use the data for research to develop products and services for profit. As part of the input, the personal and private data drives the revenue and profit. As the owner of the data, individual consumer should get part of the share of the benefit.</p> <p>Third, when companies are using and storing data, a lot of breaches have happened. This exposed the individual consumers to a lot of risks. They should be compensate for this risk as well.</p> <p>Having said these, I believe the data owner, i.e. the individual consumers should be compensated for sharing their data.</p> <p>4/26/22, 9:12 AM</p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>Grade the following essay</p> <p>2. 5ddef2e6929d5de6f1050f1c *</p> <p>To be honest, I am not as well-versed on this topic as I would like to be. I believe that digital privacy refers to the footprint we leave behind as we navigate through the digital world. This would include virtually every keystroke we make while we are on the internet with our varied devices. I must confess that it somewhat bothers me to see ads populate around the materials I read online which often contain websites that I have just visited. It is just a reminder that we really don't have any privacy when we are online. I am vexed as to what should be done about this situation... it does help to point us into areas of interest, but it is also somewhat scary. I also have mixed emotions about whether we should be paid for our personal data, since that would also lead to us paying for services that are now free. I think that I will need to spend more time thinking this through before suggesting a definitive course of action!</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>3. 5de58cc350f52151cf826c6 *</p> <p>In regards to being compensated for sharing our data. Finding ways to mitigate loss is the essential keystone of humanity. Humans do not want to feel violated, and this includes their data. Being compensated, even in minimal capacities is an ideal way to help people understand they are not just a cog in a machine to be gandered to, but actual people. In signing up for the services, it would be a matter of initiating clear language indicating which data would be paid for, how, and the affects it would have on the client. A person could also opt out of this option, but having the ability to be compensated for this data that is indeed personal, would give us greater clarity into different demographics, enhance the economy and still keep our similar platforms as they are. Data isn't something that can just be had for the researchers and paid by big companies and universities. Power needs to be given back to the people, even if it's on a small scale - ownership and ensuring limited loss has the potential for greater progress and a new age of data collection.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>9 of 39 <span style="float: right;">4/26/22, 9:12 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>4. 5de5dba9ff87c15699804260 *</p> <p>If we are sharing our personal information and it is used by corporations as a revenue stream, we should receive compensation. I do agree somewhat with the argument that we are receiving the use of their platforms for free, and they are able to do that because of the revenue they receive by selling our personal data. I would not be able to afford a paid subscription to all of the websites I use on a regular basis. However, I am forced to provide information that I would not normally provide to complete strangers in order to use these platforms. It is also concerning when I see ads for topics that I have only discussed with someone in private emails. This has made me start to question the value of using the internet for private communications. It is a useful source for research and I will continue to use it for that, but I will begin using some of the privacy plugins that are available.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>5. 5de628761ffcd6a59e79b663b *</p> <p>I want to share my opinion and views on compensating individuals for sharing their data online with companies social media, etc. I agree with the compensation of data to individuals. I believe they are deserving of it. Data is shared and used already so individuals should be compensated for it. Not only would that alone help individuals, but it would help all companies in a way of being able to improve all aspects of their business and the way they conduct business. This means better Healthcare sites, because they can improve just with this data from individuals. Retail websites could increase sales with the data from individuals. Social media platforms could benefit from this data and not have so much useless information. My one concern is that very private data is not used. As in, individual's personal information like social security numbers, credit card or debit card information, etc.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>10 of 39 <span style="float: right;">4/26/22, 9:12 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>6. 5de831cad4995d000c5fb540 *</p> <p>Digital privacy is about the data you provide to others in digital form. It is your data. You created it. Others can observe your data and make judgements about you and try to influence you politically, emotionally, financially, etc.</p> <p>Some people and companies want to take advantage of you. So this has become a political issue about your rights versus the rights if others. There are market forces and political forces involved.</p> <p>Your data has value. Perhaps more than you believe.</p> <p>The policy for this should be that nobody should take your data from you unless you allow them and it should be explicitly clear what that data will be used for. A clear contract.</p> <p>Many of today's policies do this to some extent. For example, the use of cookies and user agreements about that. These need to be expanded.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>7. 5de970024172e2000c9dadc2 *</p> <p>Digital privacy is the idea that information we share with companies is either shared or not shared with others. The privacy is measured by how much data is kept private from others or shared with others. An add-on can be used to track your movements online, but this may have implication to privacy as well. It seems like if a site like Swagbucks can track and pay you for what you do online that a social media company can do the same. Micro payments or commissions can be made for every page someone accesses with ads. Agreements can be used like the end user agreements that we are all familiar with. I'm sure there are many legal liabilities with this approach to compensation that I am unaware of along with other privacy issues so that I would feel uncomfortable making a recommendation without additional information.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>11 of 39 <span style="float: right;">4/26/22, 9:12 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>8. 5de976f8cbd64d0af38a738e *</p> <p>I think that it is absolutely imperative that we compensate people for their data. Data is very valuable because it can show patterns of behavior that people engage in and it can also be used in a predictive capacity. Another important reason why people should be compensated is the fact that they are giving up a considerable amount of their privacy in order to use these online services. Today's average person has every little privacy compared to a person who lived as little as 30 years ago. There are many benefits that come with paying people for their data. First, when middle and lower class people get paid for their data, they are very likely to pump that money back into the economy. Second, it diverts money away from large corporations and into the hands of the people who actually generate the wealth that these corporations collect. Finally, it will help people transition from a traditional economy to a completely digitalized one.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>9. 5de99d36ac00aa0d67fd7428 *</p> <p>The issue of compensating people for sharing their data is relevant to the US political debate because there are strong arguments both for and against compensation.</p> <p>The value of data would be higher if people we compensated for the use of it. However, making companies pay for data could then cause them to charge consumers for the services that are currently free. For example, email service is now largely free, but it could be turned into a pay service if the company that administers it is forced to pay to collect user data.</p> <p>I believe that it is only fair for consumers to be compensated for the use of their data. The companies that collect and redistribute our data make millions of dollars off of it. I think that people would be more likely to share their data and not worry about the theft of it if they were compensated for its use. The quality of the data would probably be higher because, if people were compensated for its use, then they would take care to provide accurate information when signing up for services and giving their personal information.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>12 of 39 <span style="float: right;">4/26/22, 9:12 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>10. 5dea89f819690000e9b1f37 *          Digital privacy is essential in the online internet digital world. Every website should inform you of where and how your data is used weather or not the web site is free to use and users should be able to opt out if they don't agree with a web site policy. The primary issue is allowing an individual the right to determine how their information is used and where it is used. The option should be present for users to be paid for their data. Information has value, it is sold as a commodity, it is an equalizing practice to pay all users for their data. In light of the coming world of artificial intelligence it would be a way to pay people for the online use age and allow people the ability to control the use of their data. Unions of people can be formed to protect users rights.          This is a thrilling way to protect individuals in the information age.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>11. 5dec30eb6c078132a7db440e *          Digital privacy refers to how all the data we produce online on a daily basis is protected. Since the beginning of the internet people have shared information about themselves in order to open accounts, get information, conduct commerce activities, etc. This information has been collected &amp; monetized to the benefit of the service providers and those collecting the data with no compensation to the user or consideration of how that data is being used. Consequently digital threats abound and require some legal way to control illegal activity as well as avenues to pursue when data is misused for nefarious reasons. If users knowingly provided information for which they were fairly compensated they would have control over what information is out there &amp; know how it was being used. It would be like any other business transaction with all parties knowing what they are receiving in the exchange with legal ramifications if the agreed upon contract was violated.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>13 of 39 <span style="float: right;">4/26/22, 9:12 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>12. 5ded1483ad51833dce7ac867 *          Social media sites, software, and websites have been profiting off if your information for years. It is time they start to pay you for that data they want. With AI starting to take people's jobs this would be a great way to make up for loss of wages.</p> <p>I think we should have the option to sell our data to companies if we choose. It's beneficial to the person who would be selling their data because these companies make money off of it and it's time the consumer should too. AI is taking away jobs from people and this could help with the loss of wages. It might not be smart to go this route though because companies like Facebook could start to charge for their free social media sites to make up for their loss of money in buying data. People might also be getting scammed out of more money because they don't really know how much their data is worth.</p> <p>I think we should enact this policy in getting paid for your data. Leave it up to the consumer on who gets my data and if they get it I'm getting something out of it.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>13. 5ded3759d0070b000bcb1374 *          It is my belief that digital privacy is pivotal in how we use the internet without ownership of the content one creates and control the internet become a tool of social control whereas with ownership come the possibility that we will have a freedom and reach that extends the possibilities for everybody it was stated in the info given that over information may be worth 20,000 a year this is an amount equal or greater than half the working or retired classes in this country why should we give away half our income because it makes things easier for a few large businesses for free I think we should be able to choose whether we give the info at all and if we do that we should be appropriately compensated for it anything else would be a grave constitutional breach our right to privacy as the founding fathers clearly understood centuries ago.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>14 of 39 <span style="float: right;">4/26/22, 9:12 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>14. 5deff2bc5812ea000b80557b *          I believe that we should compensate people for sharing their data. Since data has many benefits for helping companies improve their profits it is unfair that the companies do not have to pay for that data. I believe that if people are paid for their data then it is more ethical for that data to be used as the people were compensated for it. When people are not compensated it is unfair to use their data to increase your own profits. Currently, the general population does not benefit from having their data used. If they were compensated that would help so many people make ends meet and be fair. By compensating people for their data I think it would increase the accuracy of the data as people are more likely to disclose things when they understand how that will be used and what they will get in return.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>15. 5df3f2c558a5c72d74a22ef *          Yes, I believe individuals and companies that consent to having their data mined, should be paid for it. That data is an important and valuable resource or it would not be harvested by the participating companies. I also believe that a opt out option should be present for individuals that wish to protect their digital privacy. I would choose this option for myself as I don't think it is anyone's business but my own, where I have left a digital footprint. There should be guidelines in place for what types of data can be mined, how much data can be gleaned from an individual or company, to whom it is sold, in what size of blocks or categories, for how long a time period and how much is paid for it. To be fair, the payment for such data should be made retroactive back to when the company first started using unauthorized information that it gathered and subsequently sold.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>15 of 39 <span style="float: right;">4/26/22, 9:12 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>16. 5df4ed2eae7b303760a9d47c *          Digital privacy means that our search habits or online searches, purchasing histories are not shared with companies. I believe that people should be paid for the information because companies use this information to see how to make their products, how to target ads and make more money. We are giving this information away for free which isn't right. What we do online should be private. If they want to know they should have to pay for it. One thing against this is that companies could not afford much to pay users for that information or it would bankrupt them. We would probably only be paid a few cents for that data. I can't see them paying a lot for it. There is two sides to every issue. Protecting our personal data is important in elections to discuss. Businesses are getting richer using our data</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>17. 5df5767076c03b3e5a958413 *          People are already compensated for sharing their data. Many of the websites and applications people use daily are used for free. The companies that create and run these apps use their users data as a way to make money. If we started paying people for their data, many of the applications and websites that people love and use often will have to be paid for, much like a subscription service like Netflix. If for one do not want to pay for use of email, Facebook, Reddit, Instagram, et cetera. I would much rather pay for these services with my data. I do not expect to use these applications for free, as I know they cost money to create and run. To think that people should be paid for their data does not make sense to me, people agree to the sharing of their data when they decide to use a free platform.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>16 of 39 <span style="float: right;">4/26/22, 9:12 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>18. 5dffaee08b1f732f10709 *</p> <p>Everywhere in today's modern society there is one thing that you will find yourself lost without. That is access to the internet. Everyone uses it and goes on websites for various reasons but the key feature that we all share is our data when we go on these sites. Whether or not we get compensated for our data will determine how it will be used in the future.</p> <p>Data is just an extension of ourselves. Your personal data could be anything from your birthday to your blood type to what kind of pornography you watch. These can be used and monetized by companies looking to make a profit. It could be your right to that and make it easier to see what companies are doing with your data. It could lead to more transparency and make us feel more safe. Or it could lead to endless heaps of even more data being taken from with little reward. It could also be used in ways to target only the wealthier classes and leave out the older and poorer to even less access to their data since companies would want to target richer people.</p> <p>Our data is by right our own. It needs to be allowed to be monetized by individuals as the free market had a good way of weeding out bad intentions since in the end profit is there and your data can only be used in the way that you want it to be. If you want to sell your darkest fantasies about fetishes to an adult store supplier then that is up to you and it should only be fair that you see the fruits of your labor. It doesn't involve physical labor but alas your thoughts that can be turned into searches are as much a part of you as your hands that you use during work. So personally I am all for allowing people the right to have companies pay them for their data</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>19. 5dfb693a73d72487b1fe495b *</p> <p>Digital Privacy is being able to use the internet without out the fear that your actions will not be tracked and used by a third party to benefit another party. It is comparable to stealing someone's goods and selling them to another. Individual privacy is a right guaranteed by the United States Constitution. This issues has been neglected for too long by our elected representatives and needs to be addressed in order to preserve our individual freedoms. Companies that steal users data and sell it to others for financial gain should be required to compensate the users. Users should have option of opting in and not opting out as is the current practice. If they do not compensate the users they should be forbidden from using the data. Violators should be prosecuted and the penalties need to be punitive.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>20. 5dfbc3a1946e978e69d8e586 *</p> <p>Digital privacy, the concept of protecting data that people enter online, is politically relevant because our online use continues to increase with very few standard controls on it. We should create a national policy to:</p> <p>1-Make our personal user data completely private, unless agreed to in writing by the user. Then the use should be transparent to each user. 2-A company wanting to use private data must compensate each user, with their permission and via cash or services, for using or selling their personal data. Personal data includes demographic information as well as digital trails of websites they visit. 3-Create penalties and enforcement for any company that violates this national policy.</p> <p>In this electronic age, we must enhance our digital privacy policies to protect and compensate people for using their personal information. Companies benefit immensely from digital data and should therefore compensate their users for it.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>21. 5dfd07e3690bd03bfa91d48 *</p> <p>Digital privacy is a very sensitive issue at the moment. Large companies share peoples private data without even asking them. Which is an issue. A lot of people dont like to be bombarded with advertisements that they think what you need. This is based off your private data. If companies paid for this data it would make a lot more sense. They could wrap into a coupon or a credit to the persons favorite website. There is several different ways that we can address digital privacy and the payment for private data. A lot of companies though feel if its on the internet it is a form of free speech and they should be able to access it without paying for it. The problem is take your doctor visits for an example, a lot of companies can access this info and its a good bet that most people dont want their health info distributed. It could mean a job that wasnt given because of what came up in their health profile. Thats just one example.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>17 of 39 <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a> 4/26/22, 9:12 AM</p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>22. 5dfda52097234ba7a779bea7 *</p> <p>Digital privacy is a major topic of late and people are on both sides of the issue. There are those who feel strongly that their information has value to others and therefore should be compensated when others use such information to advance their own incomes and successes. Others cite the impossibility of a fair and equitable arrangement for payment. What gets paid and how much? Who will be in charge of the rules and regulations? Should higher income people receive less or more according to the value of their information? Will it really make that much of an economic difference in anyone's income at partial pennies per data mining?</p> <p>I believe that the current policies that are in place are steps in the right direction, but I also feel strongly that people should manage and protect their own data through strong anti-vir</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>23. 5dfe69ed1d879b042404a8b *</p> <p>I think we should compensate people for sharing their data. Right now companies are making tons of money from data harvesting. That profit should be shared with the people from whom the data is taken. The process of data harvesting is also completely opaque. The people who are using the digital services have no idea what data is being harvested from their activities. If they were being paid for their data, there would be a connection between their activities, information that is being harvested, and a revenue stream.</p> <p>I envision this as a voluntary process, whereby people could as an alternative, choose to keep their data private and not be paid. By not using data that is not being paid for, that is the equivalent of people paying a fee to keep their data private, but without requiring any out-of-pocket costs. That seems fair.</p> <p>This is a political issue because big companies are harvesting data, reaping giant profits, and not paying fair taxes. If the tax burden is (by definition!) shifted to the people whose data is being used, they should be given a revenue stream to pay that shifted burden.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>18 of 39 <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a> 4/26/22, 9:12 AM</p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>24. 5e01570d9b92b1d2a3936dd6 *</p> <p>As social media usage continues to grow among people at a rapid pace, people's data are being constantly bought and sold without them knowing and with no benefit to them. With wealth inequality continually worsening, this only exacerbates the problem- this is why there has to be regulations on these platforms regarding how they use this data.</p> <p>The concept of paying users for their data sounds good at first- they were the ones who created that data, so the companies should pay them for using that data. It also serves as a more contemporary version of Universal Basic Income (UBI), an economic policy that has gained traction recently as a viable option for reducing the wage gap in America. However, companies like Facebook can't necessarily be trusted with keeping data private and secure, especially after various instances of them failing to do so. In addition, how will data policy account for people without reliable access to internet or technology? It might end up making the wealth gap even worse for them if UBI relies solely on data creation. There would have to be additional policies to provide some sort of compensation.</p> <p>If the US maintains the economic policy it has now, UBI using data could be a good solution if done carefully and truly benefits those in the working class. However, UBI in the end is a welfare program; wealth inequality won't truly close until the people dismantle the capitalist systems that are intentionally creating this gap.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>19 of 39 <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a> 4/26/22, 9:12 AM</p>	<p>20 of 39 <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a> 4/26/22, 9:12 AM</p>

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25. 5e07a0898dffa00ff1aaf60f \*  
 I do online surveys and get paid for the information that I give these people to complete the survey. If I am kicked out, I do not receive the whole compensation, I know because I have been doing this for over 10 years now. I do feel that people that work in corporate America should be paid if they have to give out their personal identification through their company as it is also used for marketing as mentioned in some of the tweets. The companies do benefit off of it, but, it is also part of their acceptance for pay where they work.  
 Digital privacy I don't think, is really taken as serious as some should take it because people do share a lot of it digitally now days. Doing things manually have just about went out the window, no longer used except to write it down on applications to get in/stared. I think that things should still be done manually and digitally so that there will be records for everything. I know that I have needed some valuable information that was only stored digitally and not manually and it has affected on how I have had to deal with a few things in life. I'm 51 and I know about the transition from manual to digital. Little did I know, when I was in high school and took word & data processing, that it would be so used later on down the road(20 years).  
 I'm not really sure on how to enforce Digital privacy no better than what it already is. I know that some third world countries do not have access to things that we do here in the states because I have contacts overseas that can't use some of the digital things that we can, unless they scam people out of their information.  
 Une seule réponse possible.  
 Pass  
 Fail  
 Grade the following essay

26. 5e08d48b7bf5721d51467348 \*  
 After reading the articles I do not think users should be compensated for sharing data. Digital privacy is something all people should take seriously and should not be exploited for money. In a digital age with continuously growing technology, a persons data is always at risk of hackers and phishing. I feel as though it would be very easy for some people to manipulate data they 'sell' and it would not be a fair exchange for those who sell data honestly. I think that digital privacy should be a standard between all users and websites. If users were compensated for their data, the privacy risk would outweigh the little compensation a user may get. In order for me to make a recommendation on a policy, I would need to know more like what data is wanted and how much compensation would be given but overall I do not think it is a good idea to sell data nor compensate for it. Some people could sell private data without even knowing it if unfamiliar with contract terms, IT terms etc. I see many older persons being taken advantage of should compensation be given for data.  
 Une seule réponse possible.  
 Pass  
 Fail  
 Grade the following essay

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29. 5e15ca7bf6191fbb43eef1f1 \*  
 corporations and governments dip into the statistics streams of our lives in an increasing number of modern methods, monitoring what we do, who we realize and where in we go. The methods and purposes of statistics series preserve expanding with seemingly no quit or limit in sight. but in return they are paying nothing but only gaining profit. which is not in a way of mutual benefits. so here rise the question of what can users can get by providing their data ??? money?? well its the right option.  
 somehow collecting data is a huge chances of getting the desire goal for both GOVT and company that are collecting data. here is a great mutual understanding for both data users. where political action comes into play.  
 even if we, I mean the users provide data in exchange of getting pay there must be a limitation of collecting data from data collector. some of the data collection can be so much individual or community security and privacy concern.  
 I'm in the team of getting pay but not for all kinds of data collection.  
 Une seule réponse possible.  
 Pass  
 Fail  
 Grade the following essay

30. 5e16200e9195c6c0ec0b0e92 \*  
 I do not have enough information to speak intelligently about digital privacy. The concept of privacy is easy, but digital privacy involves processes I am not familiar with. I would need to have a basic understanding of how digital data is collected and what is actually done with it. I know some information is bought and sold. I don't really know how access to digital data could be controlled or monitored effectively. It all seems like the Wild West to me, and in some ways I feel very vulnerable. At the same time, I figure if someone wants my data for whatever reason, how does that impact me personally? As long as I'm not getting hacked or my personal security information is not being shared, who cares who knows that I'm shopping for mattresses or shoes? I would need a much better understanding of everything involved.  
 Une seule réponse possible.  
 Pass  
 Fail  
 Grade the following essay

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27. 5e0b4f95b1fb0539ee598691 \*  
 Paying people for data would only lead to the collection of more data which isn't a good thing. We have too much of our private information out there already. Companies try to say that they can serve you better by getting more data about you but I don't think that is true. I think that if you are on a certain site you are interested in that topic so that should be good enough. Instead of being paid for data we should just continue to have companies make their money by advertising. It is a pain to put up with advertising when you are trying to find out information but I think we are used to it. How many years have we put up with ads on TV or radio? Since the very start and it hasn't killed us. We got the information, the companies made money and no additional data needed to be collected other than surveys about what people were watching.  
 Une seule réponse possible.  
 Pass  
 Fail  
 Grade the following essay

28. 5e13739de69d0a9d1c5170c8 \*  
 The new hot topic in today's Information Age is whether or not people should be paid when companies take their data when they visit websites, social media, and apps. People are arguing strongly for both sides of this debate. It has political ties because of the arguments over how private our data should be and whether we should get to choose if it's taken and used by companies without our consent.  
 The arguments for this issue are twofold. We deserve the right to know who has taken our data and how they are using it. They may also be making money off our data by selling it to our third parties. We should know who has information on us and how much information they are obtaining. By paying us for it, that gives the power back to us to know where our data is going. Also, they are using our free information to make money...why should anyone make money off of something we give for free? They should pay for it.  
 The arguments against it are if they start paying everyone, they may start charging for their services, which are currently free. They will also only want certain people's data, which will create an unbalanced data file.  
 After reviewing both sides, I feel like we should be paid for our data to be used. The lack of privacy taken from us now without our consent outweighs the cons against being paid. It's not about being paid as much as it's about the lack of privacy.  
 Une seule réponse possible.  
 Pass  
 Fail  
 Grade the following essay

24 of 39 4/26/22, 9:12 AM

Instructions for Graders <https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...>

31. 5e16c978783225c8108ef055 \*  
 Digital privacy in today's world is the single most important personal item most people do not control in their life. It has been known that people are easily manipulated with advertisements. In the past ad makers had to make broad strokes assumptions on how to get people to agree to a position or purchase decision. Now with everyone digital they can take this trove of detailed information to personally target you pushing buttons of your individual personality to mold you into their position in the marketplace or political debate without you possibly realizing it. There needs to be a common solution to the needs of gathering data and the knowledge of what is being retained by all the different companies getting your information. I would suggest that it be made into law what information each provider takes from each person and give that person a choice to agree to it or not.  
 Une seule réponse possible.  
 Pass  
 Fail  
 Grade the following essay

32. 5e1b563ff3162f37e75c919a \*  
 Each day, millions of people share their personal data with websites and tech companies. As it stands now, tech companies get all of this information about their visitors for free, and typically use this data for advertising and marketing opportunities which benefit the tech companies alone, while consumers do not benefit. People providing their data should be compensated for the data they share, because it is personal information owned by the people themselves. Getting paid for data would mean additional annual income for nearly every citizen in the U.S. of up to \$22,000, and could be life changing for many.  
 Some people believe that this is impractical, and that tech companies would simply change to a subscription-based model to pass the cost on to the user. But tech companies already aim such a high profit that they could reasonably compensate people for their data without strongly affecting their bottom lines.  
 I believe that we should implement such a policy, which could lift some families and individuals out of poverty. Being compensated for data would positively impact income inequality, a true problem in the U.S.  
 Une seule réponse possible.  
 Pass  
 Fail  
 Grade the following essay

24 of 39 4/26/22, 9:12 AM

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>25 of 39</p> <p>4/26/22, 9:12 AM</p> <p>33. 5e1b563ff3162f37e75c919a *                  Digital privacy is the right of technology users to keep personal information they might share with websites private. Users should have the right to keep their information private from websites who might sell it for profit. Or, websites could compensate users who choose to sell it and share it with websites. Technology companies make so much money from advertising that it is absolutely possible that they could compensate users. It would put the power in the hands of the users to be able to use their data for their own purposes instead of having no choice of what is done with their data. Data and personal information belongs to the users. They should have the right to keep it completely private, or sell it to websites if they choose. And sites can afford to pay, and should do so. In so doing, users can feel that they are in control.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>34. 5e1f4868f56a9e03a63e76b *                  Social media sites like Facebook and Twitter regularly collect your data and sell it, or analyze it and use it to consult large companies on advertising. Why should they benefit from every angle of us? It is time for tech companies to pay us for our data!</p> <p>We sign these little "privacy" contracts with them, but who reads them? Who can understand the legal lingo? Not a layperson like me. I, of course, click "Accept" to these little contracts and move on, like everyone else in the world.</p> <p>Through these contracts though, we are giving permission for these tech giants to sell our data to advertising firms and consulting agencies to (get this) sell you back crap you don't need in a super convincing and specifically tailored way.</p> <p>They're making money on top of money, at our expense. It's time they shared the loot.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>26 of 39</p> <p>4/26/22, 9:12 AM</p> <p>35. 5e268598eb47558c7d613e9b *                  In this current time data and the privacy of it is a controversial topic. Some may say that the companies who make apps and other software for consumers have a right to take their user's data for free. In my opinion this is wrong. People should be compensated for their data being used for the benefit of another company. The company is taking private information and selling it to who knows what kind of other information company and that information is used to target ads at the consumer. The information is also used for general data collection which consumers should have more say over where their information is sold to. If consumers are compensated for their data it would help them limit which companies can obtain their data as well as how that affects their life. While data collecting is fine I believe it can be changed to benefit more people.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>36. 5e2721b01160079464059b5c *                  Digital privacy is the guarantee that people will not have their data shared without the existence of a contract between themselves in the website that shows who their data is purchased and used by. I think people should be able to choose if more specific consumer data is used, but more generalized data that the government uses to make decisions should be harder to get out of. I think there should be more rules about how a person's data is used, like banning data discrimination online, like only showing houses for sale to people of a certain race on Facebook. I don't think the Right to Be Forgotten should be imported to the US, though. I also think data collection for people under eighteen should be massively curbed. I don't think people should be paid for data unless it's for research.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>27 of 39</p> <p>4/26/22, 9:12 AM</p> <p>37. 5e2be6efe179572183644844 *                  I believe that peoples data should be owned by them not whichever company has access to it. On one hand I understand that it is how companies make ad revenue but I also believe there are privacy concerns. I think my personal data has a monetary value that is worth more than what these social media companies think I deserve to use it. I read earlier in the questions about \$20,000 a year for your digital information. That is a lot of money in my opinion. Your data has value but I dont know if it is worth \$20,000 per year. Perhaps some kind of fair split can be made so both the social media companies and the consumer can make money off of their digital data. Im not certain that all of this would work but we need to try to come up with a solution that is beneficial to all parties involved. Even if it is a fraction of \$20,000.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>38. 5e2f5b28129198070e2996db *                  In this era of digital sharing, it is vital to retain our privacy. People will not share if they feel threatened with exposure of their opinions on sensitive topics. However, if they are compensated for thoughtful content, as well as guaranteed of digital privacy, the chances of truly informed opinions is much greater. Politically, this is important to ascertain the true feelings of the public on issues and candidates. This is especially vital in the upcoming election where the country is so divided on the issues involved. Since I have not given this matter much thought before this essay, I have not formulated an idea of how this would be accomplished. I would need to know how such compensation could theoretically be arranged, and how it would affect both the users and the companies involved. It sounds like compensating people for sharing ideas is a good idea, but I'm not technologically enough to know if or how it could be done without more research.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>28 of 39</p> <p>4/26/22, 9:12 AM</p> <p>39. 5e387f2c0d0ef099d5e5a4f *                  Digital privacy refers to the protection (or lack thereof) of data collected by companies about the online activity of the users of their platforms, applications or websites. This is a politically charged issue because of concerns about how this data is sold and used, and the legal rights for people to opt in or out of sharing their personal information and online habits - essentially a form of corporate regulation. Companies with a large web footprint and a massive number of users are able to sell data about their customers to third parties. This is an additional revenue stream for businesses like Facebook, and helps the data "buyers" profit by using granular information about people to target certain demographics with customized advertising or product offerings. This ultimately means that our internet activity is a commodity that other parties desire; as a result, I believe that we should be compensated for our data if we elect to share it - though of course restrictions should remain and be expanded such that we can opt out of allowing our data to be shared if that is our preference.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>40. 5e46f490a5748507c57e3c5f *                  Most of the companies provide a free service to their users in exchange for their personal data. There is no digital privacy to the users and is owned by the companies. However, the amount of money the companies profit from each user is quite high. The companies should share the profit they make from the users or offer the users to pay to have their personal data private. Every time a user's digital information is sold to an advertiser, it should compensate the user a small fee. I believe that this is only fair to the users and it would encourage them to continue using the service. This is a win-win proposition for all parties. If the companies continue to profit without any profit sharing, the user base will start to decline. They will be seen as a pawn in the eyes of the companies.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>

Instructions for Graders <https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...>

41. 5e498a4fd2a6e53fb7b1840e \*

Companies make millions a dollar a year on other people's data. Those people should make the money that these companies are making. I really don't care about this issue other than it creates so much inequality in the world and it is seems insane that people can make money off of other people. What someone does is their own property so why should they not be able to make money. I don't really have strong ideas about this other than it just is not right and the inequality is insane in this country and across the world. Give people the money that they produced. In this case they are producing data points from how they interact on the internet - where they shop, dine, look at newspapers, talk with friends on apps, post things on Facebook and Instagram - so that dat is theirs so they should get paid for it.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

42. 5e49fd1a95b8c46bd19f1eb \*

Digital privacy, to my understanding, is simply keeping my online/internet activity private and not sharing it with the websites that I visit. It doesn't sound like much but as we have moved more of our lives onto the internet, more of our lives are shared by strangers and by companies.

The debate about paying people for their data is interesting but I do not know enough about how this would work. From experience, anything like this will mean pennies for consumers and millions for the companies paying. It is a pittance and shouldn't even count as payment. Of course, I would need more information on this.

For me, the fact that the internet is based on invading privacy and on ad revenue over everything, has changed the point completely. We've taken one of the most impressive inventions of the century and turned it into a scam. It's defeating how humans keep screwing up even when we do good.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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Instructions for Graders <https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...>

43. 5e4af801951a1801208e7cac \*

After reading the tweets earlier I think I have changed my mind about people getting paid for our information. Some changed to the next screen before I was done reading. I think there are so many things to consider it sounds overwhelming. I think we need our privacy and not share. I have no recommendations on how to do it. I got the message I don't have enough characters. The privacy on line is important. Personal and communication between individuals. Sorry but just filling in words to get to the page. When I was on Facebook one friend wanted me to join messenger. I did and immediately someone messaged me and said they knew who I was and where I lived and I did not know them. I immediately deleted that messenger account. I am going to get a zero on this. Those tweets we're over my head and made me think I know nothing.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

44. 5e519acc1aad0a000aee06b7 \*

Everyday users of websites should not be compensated for their data. Since the companies are providing this service for free already no one should feel entitled to anything more. When signing up for an account on any service you should be aware that your data is being used. You could think of this data as your payment for using their service. If we were to compensate users for their information the data collected would be much more sophisticated. As it is now advertisers are only viewing your internet history to give targeted ads. In a situation where users are actually selling their information it is reasonable to assume the data will be much more detailed. This raises several privacy issues that consider. It is also important we do not unnecessarily hamper our biggest drivers of industry. Companies like Facebook and Twitter provide thousands of jobs that help our economy. By allowing these companies to thrive everyone benefits!

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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Instructions for Graders <https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...>

45. 5e52d0122f5f952f2a7b6b28 \*

Privacy and digital rights are two of the most important issues facing the modern world. And now a debate is raging across the political spectrum regarding how to manage people's data and if they should be compensated for what they give to companies. This is a multi-faceted argument with pros and cons on both sides of the coin.

For instance, many experts would say that when giving up something of value that remuneration is required. And since companies are profiting in an a massive manner relative to their labor costs then surely there is room in the budget to pay the people providing the data for their profits. Critics, however, would say instead that a person is not capable of giving away their digital privacy rights. That this could lead to more harm than good as it could hurt the entire innovative eco-system and stymie advancements. Instead, the critics argue that legislation that determines how the data is used is much more likely to help the common folk than paying them for their puppy photos or social media posts. After all, how many people actually read through terms of service agreements before blindly clicking agree?

Ultimately, this will be one of the defining issues of the modern age. It will dictate how the digital age continues to unfold. Data is the driving force behind advancements in AI, business, and quite frankly every industry. As such, the best option is to allow an opt-in system whereby people are paid for the data they wish to give up and for those who do not participate, their usage should be regulated by federal law. The best of both worlds. The best of both arguments.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

31 of 39 4/26/22, 9:12 AM

Instructions for Graders <https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...>

46. 5e52e8aef5526a2ff032b0c4 \*

In the uncertain times we find ourselves in right now, a way to help out many of the people that cannot work or have lost their businesses would be allowing them to choose to sell their data. Everyday the majority of people are on their phone or some other form of the internet, and the websites they are on are providing the user's information and data to bigger companies for profit. For now we use the quarantine as a testing phase to see how people and companies feel about being compensated for the selling of the user's data directly profiting the user. As one can see the internet is the future and if companies want to improve their product users could be persuaded to sell their data for a profit to provide companies with higher quality data. Although the compensation for this data would be minimal due to the large amount of people that could be partaking in the new form of data collection, it could still help households make extra money and would allow people that are unemployed make some money while they are searching for a job. After one ponders the positives and negatives of the new data collection method one can see for the most part it has only positives. It would allow households a new passive income that could help improve their lives and the cost that companies would pay would be minimal compared to what they could do with their new higher quality data.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

47. 5e53f934158f1d3e9d2d761e \*

Digital privacy includes any information a person shares about themselves with a platform that they use. Some companies sell data from their users to outside advertisers for revenue. This becomes a problem when users aren't aware of how their information is being used and opens the door for invasive advertising practices.

If companies were required to pay for the data they receive from users and provide access to receipts, they would think more carefully who they are selling data to. Users would understand the value of their time and attention depending on which services pay more or less.

Charging companies to use your information would weed out less legitimate data mining practices and hold platforms accountable for how they use your information and who they sell it to.

Paying users would also offset some of the losses to people due to our economy moving to automation and level the playing field.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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48. 5e5418cd9eecbe047051b98f \*  
 The issue of compensating people for sharing their data is important to Americans nowadays. Many Americans use some sort of social media platform - whether it be millennials with TikTok, or older generations using Facebook.  
 An argument for enacting such a policy is that people will feel less "taken advantage of" by tech companies, and companies can also have proportional compensation amounts for the amount of information that their users plan to divulge.  
 An argument against it enacting such a policy is that this incentivizes some lower-SES Americans to divulge a lot of their data for money compared to higher-SES Americans, and some tech companies may abuse the data of lower-SES Americans.  
 Additional information needed includes ethical boundaries of questions posed to make a decision.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

49. 5e55a94b80c350596a0be3ea \*  
 Digital privacy is the concept of having all data that you input into any communication device be accessed only by you. Large companies feel it is their right to access your personal information whenever they wish. You put the information into the ether and so you now have no claim to it. They claim they need our data in order to be able to improve their products for the greater good of the buying public. But the darker side of all this data gathering is that these companies and social media giants can also use your personal data in order to censor you. And when they share your personal data with the government, the government can use the data as a means of controlling the general public. For example, say you do not want to take a certain medication, but the gov't. says you must. They can easily track you and force you to do as they wish. You are then no longer a free person.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

Instructions for Graders <https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...>

34 of 39 4/26/22, 9:12 AM

50. 5e5ae01d75f13d2efe7db45e \*  
 Digital privacy is the assurance that personal data divulged to a company for the purpose of conducting business between the person and the company will not be used for any other purpose without express consent of the person. The personal data in question is the property of the owner and business can only use or lease the data for a specified purpose. The issue of compensation rests with the parties to the business contract. The business may or may not offer compensation for the use of personal data outside the immediate business contract but should not be allowed to use the data outside the business contract without an agreement with the person whose data is in question as to compensation. Secondly, it would be appropriate to compensate the owner of the data each time the data is used, sold or otherwise disclosed.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

51. 5e5d57ccde7bcc0735c8bb93 \*  
 Originally, I had advocated for people being compensated for use of their data. After perusing all the tweets, I'm not quite as positive. Digital privacy, that is your personal data, is your name, address, and possibly phone number, and a record of your traffic on various sites. I thought this information is yours and if a company was going to use this data you should be compensated. In my mind, questions were raised by some of the tweets. Would rich people get compensated more than poor people. Once you are paid for your personal information why would you be compensated again? Should where you live be a factor in determining payments? Our we prepared to pay more for the services we now use for free? Before I make a final recommendation, I would like to hear the information industry's ideas.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

Instructions for Graders <https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...>

35 of 39 4/26/22, 9:12 AM

52. 5e5e8fa0610185000bd86d8a \*  
 Digital privacy means that companies would need your permission before they used your personal data, files or browsing habits. They may use this data for profit or it may be shared to better facilitate services such as in healthcare. I believe that if companies directly profit from the use of consumer data then that consumer is owed a portion of the profits. Even if there would be different rates of pay for data based on the socioeconomic groups the data is harvested from, people are still entitled to be given a share of the profits gathered from their own personal data. Those who argue that no pay should be given for use of private consumer data are not in touch with reality. They would not give away something entirely free without their purposeful consent. So why ask the average consumer to do the same thing in sharing their personal data?

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

53. 5e64759861c43920303b293e \*  
 What is digital privacy? We are at an extraordinary point in human history where children as young as five are being given internet safety talks and told anything that they post can be seen by anyone, they have to be safe, etc, while some adults are livestreaming their mental breakdowns for the world to see. In an age of two extremes what does digital privacy mean and who is entitled to it?  
 Digital privacy is knowing if your private information is shared and who it is being shared with. Sometimes consumers are informed of the sharing, sometimes it's a surprise. Data breaches have become a large concern for many consumers in recent years as some of the largest companies in the world have their information hacked, breached, or leaked.  
 In an era where the majority of our lives and information live on computers, digital privacy is and must be an issue on our political forefront.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

Instructions for Graders <https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...>

36 of 39 4/26/22, 9:12 AM

54. 5e6a4eb4d40bb50b3c668be5 \*  
 After reading the tweets, I realized that I do not have a good understanding of digital privacy. From my personal thoughts, digital privacy is something that should be a right for all people. However, this is not always the case because of the companies that are profiting. This issue is most definitely related to politics because of the constant shift to digitalizing the world. There are many factors to relate digital privacy to politics, the main ones being safety and money. While the Web is getting larger, it is difficult to maintain it so that it is a safe environment for everyone. I do not believe that I am suited to suggest a policy recommendation because of my lack of knowledge in this area. This is something that needs to be researched and continuously updated to keep up with the times.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

55. 5e66cc1281c1d8d26f1e5ebaa \*  
 Compensating people for sharing their data has the potential to either equalize information gathering or turn privacy into a commodity rather than an aspect of society that has value in its anonymity and secrecy.  
 In my opinion, I do not think tech companies should compensate people for sharing their data. If tech companies had the incentive to pay people for their data, it would be because that data could be used in some way to manipulate a market that makes money to be in big business favor, rather than to benefit the person whose data is being gathered.  
 Tech companies would place more value on the data of high socioeconomic people for sectors such as luxury goods and expensive products and accessories marketing and advertising. Whereas data from low socioeconomic people would be more valuable to people advertising basic goods and low-quality services such as bail bonds services due to the stereotypes and judgments associated with poverty. Another aspect of data that could hold more or less value depending on the target audience or both the company gathering the data and the people sharing the data is gender and race. Gender leads to a split in product advertising and data targeting for specific industries. Race data leads to stereotyping and judgments, especially because most non-white people are considered immigrants. Immigrants are more vulnerable people in this country due to the laws and anti-immigration viewpoints of conservative parties, groups, and companies. A large amount of this data especially would result in targeting, mostly negative targeting.  
 Placing a difference in value on data dependent on a specific value such as socioeconomic status, race, gender, etc leads to digital discrimination and digital separation. This would lead to an increase in separation between groups, a current problem at the forefront of society. Compensating people for their data would almost be moving our society backward in terms of inclusivity and providing strong strides to stopping systemic racism.

*Une seule réponse possible.*

Pass  
 Fail

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>Grade the following essay</p> <p>56. 5e6fd81478ec45b2420b83d *</p> <p>The issue of compensating users for their data centers around the rise of the fourth industrial revolution, one dealing with advancements in AI and machine learning technology. These technologies require harvesting masses of user data to create and inform human-like machine thinking and decision-making. However, because this requires reading private user data, many people have begun to demand compensation from data-mining companies for taking their personal data. In some ways, this makes sense - user data is invaluable to companies, so users ought to be paid accordingly for furthering so much research and development. In other ways, users will likely be paid cents at the maximum - is the payment even worth it? A policy that compensates users who personally hand over sensitive and private data, as opposed to compensating all users who are giving barely sensitive, market research data, makes the most sense for this issue.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>57. 5e70090c7038960008a7f13b *</p> <p>Users of a platform should be compensated for the data that they provide.</p> <p>Digital platforms currently cater themselves to data management companies, through which they will be able to please the investors by way of increased revenue. In recognizing users as a source of monetary loss, which is to say an expense, digital platforms will be able to justify themselves in providing the services their clientele want to a fuller extent. In making a payment system, users would only be compensated for the data they consent to provide. Thus, users can have the possibility of being able to refuse to provide a certain data.</p> <p>However, what people tend to want and what they actually take action on are two different concepts. In having the option, people will choose have their technological settings remain as is. While users should be compensated for the data they provide, most will refuse so as it will fundamentally change their social media platforms, an idea unwelcomed to people of habits.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>58. 5e73f009c4c4983798101851 *</p> <p>It is patently obvious that large corporations should not compensate individual users' for their information. The commodification of user data will lead to a playing field between corporations and users that is even more uneven than its current state.</p> <p>The majority of users do not have the information available to make an informed decision about the use of their personal data. When we consider the disparate social stratification of many Western countries, it is evident that those who are most exploited by capitalism will be the ones most exploited under a data selling scheme. This is an issue for various reasons. First, we have the increased exploitation of the most vulnerable of society; second, by incentivizing only certain demographics, the data farmed will likely lead to more division.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>59. 5e74f18520ab35040b41d526 *</p> <p>Digital privacy means that companies can sell people's data collected from their internet usage. Some examples are browsing history, location, and shopping history. Some people feel that people should be paid for this data. I do not agree. First, it is hard to prove if this data is really private property or public property. And data would have to be broken down into what is considered personal and what is considered private. Companies may be so caught up in lawsuits, they may stop providing free content. Second, companies would have to hire people to do all the paperwork and tracking associated with paying people. It would be extremely expensive. Companies would pass this on to consumers in some way or another. Some people who don't use the internet will be paying more so that other users can be paid.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>37 of 39 <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a> 4/26/22, 9:12 AM</p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a></p> <p>60. 5e78bf026d9a62443b9d5b74 *</p> <p>We live in a very online world. Privacy is something some care about and others make money on everything being out in the world. Still people should be protected if they don't want every key stroke to be monitored. There should be a bill proposed to prevent unwanted data collection from the tech companies. If you do not want your data to be sold then you should have a say in that. This is will be a battle. Because tech companies sole purpose is to take your data, sell it and make their platform more attractive for you to use to you will post more of your life on them. There needs to be clear directions and ideas on how to use and not use the data provided by users. I realize that the horse has left the barn on this issue years ago. However, we can corral it back into the barn and protect our data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>61. 5e790129bd76c94a7b3aa7b6 *</p> <p>Personal data will be the new currency, replacing gold and manual labor. Madison Avenue has figured this out, which is why you can find ads, tarded to you specifically, based upon previous internet searches. While it seems to be nothing more a social platform to share information with friends, Facebook is a customized billboard, each user is targeted with ads unique to their interests and web history. It is in my best interest to capitalize on my data as much as Facebook/Instagram and the next social media application. Until recently, I've been the cow and Facebook has been milking me for free, and making a killing by selling their dairy products that they did not create, only processed. Moving forward, I will exercise who has access to my products and ensure that I am the first to benefit from their sale.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <hr/> <p>Ce contenu n'est ni rédigé, ni cautionné par Google.</p> <p>Google Forms</p>	<p>38 of 39 <a href="https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...">https://docs.google.com/forms/d/16LEOeZ3bHrAA-9TCDDJ2...</a> 4/26/22, 9:12 AM</p>

# B.9 Treatment Grader 3

<p>Instructions for Graders  <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <h3>Instructions for Graders</h3> <p>Thank you for accepting to participate into our survey. Please read carefully this page before going to the next section.</p> <p><b>*Obligatoire</b></p> <p>1. Adresse e-mail *</p> <p>_____</p> <p>1 of 38 4/26/22, 9:13 AM</p>	<p>Instructions for Graders  <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <h3>Instructions for Graders</h3> <p><b>The aim of your participation</b></p> <p>In the following, you will have to grade very short paragraph (around 300 words or less) as follows. <b>We need an expert in reasoning to grade them as there is no "objective quality" of an essay.</b></p> <ul style="list-style-type: none"> <li>• If you judge that participants "realize that the issue is ambivalent" then you will give them a passing grade, <b>P</b>.</li> <li>• Otherwise, you will give them a failing grade, <b>F</b>.</li> </ul> <p><b>Challenge to overcome while grading</b></p> <p>What may happen is to confound high cognitive sophistication, i.e., the ability to write well-written essays in English, facilitated by the fact that they read some arguments right before this essay exercise with the self-reasoning skill "realizing that the issue is ambivalent", which is the variable we want to elicit.</p> <p><b>Time</b></p> <ul style="list-style-type: none"> <li>• We expect you to spend around 10 minutes to read very carefully the instructions and the examples.</li> </ul> <p>2 of 38 4/26/22, 9:13 AM</p>
<p>Instructions for Graders  <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <ul style="list-style-type: none"> <li>• And we expect you to spend no more than 1 min to grade each essay.</li> <li>• The total time you spend should not exceed 62 min.</li> </ul> <p><b>Defining the fact of "realizing that the issue is ambivalent"</b></p> <p>We define "realizing that the issue is ambivalent" as the awareness of an individual to recognize that there can perfectly logical but opposite arguments in favor and against the same issue which renders the decision-making process complex. Such an ambivalent attitude leads to hold temporary conflicting preferences, one preference for the issue at hand and one preference against the issue at hand. There can be different ways of defining and capturing this "awareness" as documented in the social psychology and cognitive psychology literature. In our study, we capture this awareness by observing individuals <b>reasoning and elaborating in a personal way on the pros and cons of the same issue in a written format.</b></p> <p>Before writing their essay, participants were shown a list of the pros and cons of the same issue. Then, they had to write an essay, following these guidelines:</p> <p><b>The score of your essay will only depend on the first and second parts of your essay. Different essays in their political recommendation can have the same score.</b></p> <ul style="list-style-type: none"> <li>• For example             <ul style="list-style-type: none"> <li>◦ Essay 1 describing very well the issue, justifying effectively its position and giving recommendation for digital privacy</li> </ul> </li> </ul> <p>3 of 38 4/26/22, 9:13 AM</p>	<p>Instructions for Graders  <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <ul style="list-style-type: none"> <li>◦ Essay 2 describing very well the issue, justifying effectively its position and giving recommendation against digital privacy</li> <li>◦ Essay 3 describing very well the issue, justifying effectively its position and explaining writer needs more information to give a decisive recommendation</li> <li>◦ All these essays will receive the maximum score.</li> </ul> <p><b>How your essay will be graded</b></p> <ul style="list-style-type: none"> <li>• Your essay will be graded automatically by the Artificial Intelligence-powered software produce a report detailing your score. We confirm as researchers, having not business</li> <li>• Your essay will be graded a second time by one Professor of Philosophy, randomly selected University Professors from US universities who were not involved in the design of this</li> <li>• Your reward from the essay will depend only on the grade provided by the software. Grade provided by the Professor.</li> </ul> <p>Answer this question above: To do so, write an essay in which you describe what is meant by and why it is an issue of relevance in the political debate. Formulate in a brief manner a position you think should be taken in face of such an issue. If you cannot do so, please elaborate on what you would need to make a recommendation.</p> <p>As you can see from these instructions, we did not ask participants to merely list again the pros and cons of the same issue but rather, to engage in <b>critical thinking</b> over them. As we said earlier, there is no algorithm yet that can distinguish between participants who critically engage with pros and cons in their writing and those who don't. This is why we thought psychologists are the</p> <p>4 of 38 4/26/22, 9:13 AM</p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>most qualified in social sciences to give a judgment on this matter based on your professional experience as a researcher but also as a teacher at a top university. It is important to bear in mind that because of the absence of an objective criterion to measure "critical thinking on an ambivalent issue", we count on you to follow the definition of ambivalence defined above (despite your potential philosophical disagreement with us) and your subjective judgment as an expert on this matter, which is crucial for the success of our study.</p> <p><b>Cognitive sophistication and examples.</b> To assess for the "cognitive sophistication" of each participant, we rely on an AI software, Grammarly. This software processes millions of writing users to define them a writing score, measuring their quality of writing, beyond simple grammar errors. In your task, we will not show you the scores assigned by Grammarly to each essay as those scores are not always good predictors of the variable of interest as we show you on the next screen. We excluded from our data set participants who did not perform the writing task seriously or cheated (i.e., those who did not produce an original piece but rather copied pasted existing sentences from the web).</p> <p><b>Below, we are showing two different examples that show</b></p> <p>5 of 38 <span style="float: right;">4/26/22, 9:13 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p><b>how the AI software's score is not aligned with our definition of "realizing that the issue is ambivalent".</b></p> <ul style="list-style-type: none"> <li>• "Example 1" below received a score of 96 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively sophisticated but who, however, "failed" to realize that the issue is ambivalent.</li> <li>• "Example 2" below received a score of 51 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively naive but who, however, "succeeded" to realize that the issue is ambivalent.</li> </ul> <p><b>Example 1: An essay written by a cognitively sophisticated participant but who does not realize that the issue is ambivalent.</b></p> <p>The issue of compensating users for their data centers around the rise of the fourth industrial revolution, one dealing with advancements in AI and machine learning technology. These technologies require harvesting masses of user data to create and inform human-like machine thinking and decision-making. However, because this requires reading private user data, many people have begun to demand compensation from data-mining companies for taking their personal data. In some ways, this makes sense - user data is invaluable to companies, so users ought to be paid accordingly for furthering so much research and development. In other ways, users will likely be paid cents at the maximum - is the payment even worth it? A policy that compensates users who personally hand over sensitive and private data, as opposed to compensating all users who are giving barely sensitive, market research data, makes the most sense for this issue.</p> <p>6 of 38 <span style="float: right;">4/26/22, 9:13 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p><b>Example 2: An essay written by a cognitively naive participant but who does realize that the issue is ambivalent.</b></p> <p>Digital privacy means access to people's personal information, on countless media. Some examples are: Social Media, databases of medical institutions, smart phones, merchant data from credit card readers, and just browsing the internet to name a few. In this day and age it's accurate to say that "digital privacy doesn't exist. Data is stored all the time and is regularly accessed by corporations and as we learned from Edward Snowden, your own government. It's even possible for someone to hack into your personal home security camera or smart phone camera. Having this kind of lack of privacy could put people at serious risk. But in the normal day to day, our data is being constantly being bought and sold for various reasons. Some people think that people should be paid for the use of their data, but as mentioned in some of the articles I read it's more complicated than is sounds, and I do not have the education, nor experience to formulate a policy on this. My opinion is yes, people should be paid, but I think the overall priority, policy-wise should be on privacy in respect to spying, of people and listening to individuals on their personal calls without warrants. That needs to be addressed first.</p> <p><b>Below, we show you two further examples.</b></p> <p><b>Example 3: An essay written by a cognitively sophisticated participant (score 78 on 100 by Grammarly) but who does not realize that the issue is ambivalent.</b></p> <p>Digital privacy is the process of using the internet and connected devices without compromising your information. So yes, people should be compensated for sharing whatever data it is that they would share online. People are giving out their personal</p> <p>7 of 38 <span style="float: right;">4/26/22, 9:13 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>information and I feel that it is very important that they should be compensated no matter how little because it is not easy to do so. Most people find it difficult to give out their personal data but if they are compensated, they would be free and willing to share it out without much worry. So the political sector should find a way to put up the policy and see how they can implement this. It is not an easy thing to do. They need to be fast about it too. Everybody should be paid for giving out their information. It is very critical and needs to be paid to be received.</p> <p><b>Example 4: An essay written by a cognitively naive participant (score 50 on 100) but who does realize that the issue is ambivalent.</b></p> <p>Yes, I think we should compensate people for sharing their data. There are several reasons to support my perception. First, personal data, such as demographic, psycho-graphic, and behavioral information are all person related. They belong to individual person. It is up to the individual consumer to decide what they are going to handle the data, including using and distributing. When the data is generated and collected, the final ownership and control of the data should be with the individual, not the company that collects it. Second, most the firms use the data for commercial purpose. They use the data for research to develop products and services for profit. As part of the input, the personal and private data drives the revenue and profit. As the owner of the data, individual consumer should get part of the share of the benefit. Third, when companies are using and storing data, a lot of breaches have happened. This exposed the individual consumers to a lot of risks. They should be compensate for this risk as well. Having said these, I believe the data owner, i.e. the individual consumers should be compensated for sharing their data.</p> <p>Grade the following essay</p> <p>8 of 38 <span style="float: right;">4/26/22, 9:13 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>2. 5e7ba6a4aa12770a651b1e23 *</p> <p>We should not compensate for data. When we create a profile, we automatically give that website or platform the right to use our data as per their terms and conditions. By agreeing to this, people should not be compensated for the sharing their data. It is important to remember that a lot of these services are free of charge and use the data that they obtain from people using their platform to run, and profit, from their service. If people are then paid for their data, these companies would not be able to maintain free services and consequently, their platforms would be paid platforms. Due to this, it should be the user's responsibility to understand the terms and conditions that they sign up for. If they do not want the the service or platform to share their data, they should decline the terms and conditions and consequently not use that service or platform.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>3. 5e7e060ae3941d46a866850 *</p> <p>In my opinion paying someone for their data is not a good idea. It brings up issues of how much do you pay and what the exact sources would be to make the payments. Also it will who is willing to pay to read information or data that is currently free. Besides paying for the internet service provider you would have to pay for the exact content in which you are wanting. It's just something that is plausible in my opinion. It could also make it so every bit of data processed is being monitored, in which a lot of people are against. People want their privacy and this would be a big mistake due to the privacy issues we already have. Plus who determines what the prices are for a certain amount of data sharing. It could lead to a disconnect between the rich and poor. In current times the whole paying for data sharing is not something that is a positive action in today's society.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>4. 5e815773285d3883ba2fbbcf *</p> <p>Users should be compensated for sharing their data. Currently, people are giving away their data for free to companies. These companies then could be hacked and that data could be leaked. This means that their is a risk associated with giving away ones data, and that risk should be compensated for. In terms of how much money a user makes should depend on how much data they are willing to give away. For example, if a user would like to not give away any information they should not be paid. However, if a user decides that they are willing to give all the data requested they should receive the maximum reward available. Companies right now would argue that they use this data to make the platform better for the user. While this is true this leads to more users on the site which means more ad revenue and the potential of more data coming in. Making the platform better does not address the risk issue of giving data away. This is why users should be paid for the amount of data they are willing to share with the company.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>5. 5e820eb36551aa02fd72e1dc *</p> <p>Yes i believe we should compensate people for sharing their data. Doing so might make more people apt to share data. It will also give the people more money to put in their wallet. When users are invited to opt into this form of payment they will at least have a choice to participate. I have already opted into a few platforms that take my browsing history in exchange for some cash. It is pretty nice considering it does not pin this information directly to me. Every other month or every other week i receive compensation, depending on the platform. Furthermore, ad companies have been making money off of us for some time now. It would be nice to have revenue come back to us. From billboards, magazines, commercials, and the other countless ways people bring advertisements to us. Hopefully this essay has been enlightening as much as its been fun to write it.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>9 of 38 <span style="float: right;">4/26/22, 9:13 AM</span></p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>6. 5e830a42b7a9de01dbe5a430 *</p> <p>"Digital Privacy" relates to how our information is used on the internet. Internet users create massive amounts of personal data online everyday. Personal data is collected from sites we sign up; these include social media platforms, message boards, subscription services, etc. Sites sell this personal data to advertisers so they can target us for certain advertisements. It would make sense that one should receive compensation for giving out this information. It seems that the answers to this question isn't so clear. Some argue that we pay for free services with our data. While this is true, it only makes sense that users receive compensation. The inequality between these massive corporations in its users is vast. As users, this information is not only sold, but it is used to sell us more via advertisements.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>7. 5e89fdffad009e010e958ee7 *</p> <p>Digital companies are patterned like the oligarchies of old. They use their monopoly power and informal non-compete agreements to extract excess profits from the economy, justified by their unique service (railroads and telephone were unique once too). Once the old monopolies were broken, competition started, consumer costs came down, and quality increased. It is now time to apply this capitalistic approach to digital providers extracting excess fees from consumers.</p> <p>The simple resolution is to treat digital companies like cooperatives. People who subscribe to and use their services should be paid a proportion of earnings, calculated as Total Earnings minus 5%. Tech companies know exactly who is using their service. A simply program can distribute the funds. This will encourage competition by disallowing monopolists to abuse their market position at the expense of new entrants.</p> <p>As a side benefit, the political ramifications will also be resolved. People who run tech companies are people. The old saying "power corrupts, absolute power corrupts absolutely" applies to them too. Just as the old railroad barons would not carry the freight of people they did not like, or lay track to towns they did not like, so too do the digital barons of today put their own interests above those of the populace. In this case, by censoring communications. By regulating digital companies as cooperatives, digital activities will be free of censorship. It is illegal to listen in on phone calls, it should be illegal to do the same in digital communications.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>8. 5e8b32ec2c33ae7f20a0b401 *</p> <p>"Share" is what we need but it is not the concept what Capitalism want. Capitalism is to max the profit. As much people complains, the data from the people will not be paid for its value. Just like the working poor forever poor, and the top 1% gets millions just sitting on the top watching over the bottom fights. Each fight, they drop a penny down to show they actually paid to use our data, then charge us more from others we need. The system also protect them since they have something valuable. Today's pandemic actually proves how valuable we are as people. We could all go back to the farm, grow our own food, back to the base of the life. The less the better to correct the more the better. We do not need create data for them use, we need to embrace our mother nature, not the greedy companies.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>9. 5e8cf43fb65bf0bdfef5296 *</p> <p>I think the question of compensating people for sharing their data is a complex matter. On one hand, you can say people deserve to be paid for their data that helps companies make profits. Why should people allow for their data and privacy to be used for someone else's gain? But one could also argue that the gain as an individual being paid for data would not be worth it. Personally, I think individuals should have a say on whether or not they want to keep their data private or sell it to companies. Companies should offer incentives to those willing to part with their data, and allow for privacy settings for those who wish to keep their data to themselves. It can't be a "one size fits all" answer because every person is different, which means their data is different. The data from one person may not be as lucrative to a business as the next person's.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>11 of 38 <span style="float: right;">4/26/22, 9:13 AM</span></p>	<p>12 of 38 <span style="float: right;">4/26/22, 9:13 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>10. 5e8fad259cbf0c2a49ab81d2 * While I have only just begun to educate myself about about data rights from the concerns over the legitimacy of fair elections in the United States and from a few things I've read and watched, my intuition tells me that yes, people should be compensated for sharing certain data that tech companies take freely. I am concerned that the general public is being over-influenced by targeted advertisements and biased political viewpoints. After watching "The Great Hack" on Netflix, I find it disturbing that when one man asks for rights simply to "see" his data (not even for compensation for his data), his request is denied. Some of these corporations are making great sums of money and influencing vulnerable groups, and I think this leads to a dangerous gap between those with wealth and power and those without it. I am an educator in the United States, and I believe everyone should have a right to a quality education, and that includes knowledge about their rights and how to acknowledge or be aware of advertising influence. People should have the option to opt in and get compensated, or opt out of sharing their data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>11. 5e9409cd1dabe7246810c3b6 * My definition of data privacy, how our data is shared. My thoughts are as follows once you get onto the internet nothing is really private. Regardless of what you are being told, once you actually post or whatever you do on the internet it's there forever. You might think that you can delete it but it's there and always will be. I do not think that any policy would fully protect you and your information, your name goes a lot further than most people will ever go. Information is sold and resold all the time. Once, I was contacted and told that my email was found on the "dark web", wow I thought now how could that happen. Actually, it isn't hard at all for things such as this to occur. The more technology that's coming about the scarier the world is getting to be. There are so many things to worry about in this technology advanced world. It won't do any good to ask the government to make a policy, they're behind it all, my opinion.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>13 of 38 <span style="float: right;">4/26/22, 9:13 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>12. 5e9893ed5638a10bda112333 * Digital privacy is whether or not a company knows about your digital habits (e.g. what websites you have visited, what pages you have liked on social media, etc.). The funny thing is, NO ONE should be compensated for digital privacy. It is way too difficult to quantify - how much is this data worth versus that data? Even if it were possible to quantify it, it would be a minuscule payment size: probably less than \$1/year. The better alternative would be to just let these companies use the data. They need to so that they can maintain their technological infrastructure, pay their teams, and ultimately innovate and get new features for the consumer. At the end of the day, I think it works out. We get a free service and the company gets to provide a valuable service (and a modest bonus).</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>13. 5e9c8deb90dd470441c7f98e * Digital privacy is an important issue because it impacts on an individual's right to keep the information they use online private and not used and mined by tech companies for sale and for profit. The subject of data privacy and online advertising is one I am particularly upset over because my own personal experiences online. My private searches or queries on a subject of product are immediately returned in the form of obtrusive advertisements and I am completely sick of the experience. The tech companies are reaping enormous profits from selling my information to advertisers and then continuously bombarding me with unwanted ads and pop-ups that interfere with the work I am trying to do. If the tech companies are going to profit from my input then I should be compensated for the information that I provide.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>14 of 38 <span style="float: right;">4/26/22, 9:13 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>14. 5e9dfa4c157fb18ec58ddb2 * Digital privacy is the understanding that information regarding your online experiences is kept private and is not shared amongst the business landscape. Digital privacy is of political importance because, if breached, it violates the user's right to privacy. The simplest way to address the issue is to require internet service providers to be transparent in their contracts with how they plan to use the data they collect from users. This would allow consumers to seek payment in return for their data in the form of a cheaper contract. This would avoid needless administrative costs that would accompany paying users for their data, by simply amending an existing contract rather than drafting up a new one. One problem with this is the lack of competition between internet service providers in certain locations. Users in these locations would not be able to seek lower prices as easily.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>15. 5ea47210b166de41ed7b1d92 * I originally thought yes. However I have to say my mind has been changed. We are already being paid for our information by getting services like Facebook, Instagram, YouTube and email for free. I don't feel additional payment is necessary as these platforms would start to charge to cover the expenses of having to compensate users. I myself would not pay for these services and would do without. Meaning I would not be compensated. This would be the case for the majority of users. Those once free platforms wouldn't have the traffic going through anymore and advertisers could choose not to use them anymore. Social media would lose its impact to influence. The best thing about social media is its ability to reach users of all income levels around the world. If unable to do that would cause many problems for many companies.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>15 of 38 <span style="float: right;">4/26/22, 9:13 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>16. 5ea74bccac99141164dfceeb * Digital privacy should be important to each and every one of us. The requirement of companies to divulge their privacy practices was a good step, but we need to go further. Every individual should be able to easily choose how and where their data is shared with companies and advertisers. Additionally, each person should be aware of their ability to control their privacy settings. Right now, some companies hide this information. It needs to be incorporated into the account setup process and be completely transparent. As we move further into the digital and data "age", policies and laws need to be established to protect consumers and recognize the value of consumer data. People should feel safe in knowing they control their own data, whether they are compensated for the release of that data or not!</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>17. 5ea97cfc27b4450a9362918f * Digital privacy is the name for the information that is collected and how it is shared or not shared. This information can be regarding information, communication, or about the individual. The information is often used by businesses as a commodity to make money by selling it for a profit. This practice becomes politically relevant as people often feel the use of their information is unfair or exposes them to predatory practices by the holders of their information. To combat the unfairness of this practice, some people feel that being paid for their information would be reasonable. As a society, we should design a method for determining areas of information collection that need to be safeguarded such as healthcare information, and areas that should result in shared revenue such as purchases.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>16 of 38 <span style="float: right;">4/26/22, 9:13 AM</span></p>

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18. **Seaa0cc0fb0fca17a3006d9c \***  
 Digital privacy policies are intended to protect the data provided by users to a particular entity or platform from being shared with other entities or used for other purposes. The volume of online activity is currently high and is growing exponentially. Not every user of digital platforms is necessarily aware of the risks to their privacy when they use digital platforms and provide personal data. Privacy policy statements offered by digital platforms are often obfuscate and difficult for ordinary users to understand. And there are no uniform standards. This is why there should be globally uniform requirements and standards relating to digital privacy. It is not sufficient for these policies to be on a state-by-state basis or even country-by-country basis, because digital platforms and services are hosted across the globe and accessed by people all over the world.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

19. **Seab05e0fcb50a62b9c801 \***  
 In our everyday lives, most of us do not think twice about what we share. One click of a button and we are sending countless bits of information to companies about our purchases, interests, political opinions, etc. Why not get some sort of compensation for it? Sure, it may be pennies on the dollar, but we as consumers are providing this information for free. In a struggling economy, especially one with the virus, many people are out of work and have a loss of income. Paying even just a fraction to consumers may help them bounce back, not have to worry about where their next meal will be coming from, or even help them catch up on debt they have already acquired. When I say that people SHOULD be paid, often people think that it means it would be a means of living, but rather it would be just like being paid for taking a survey online.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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20. **Seac5e3e44cc260d24de457f \***  
 Everyone who uses the Internet generates information about their behavior, which in some sense compromises their privacy. Computer software can capture and process this information along with information about others in ways that can be valuable. Those who capture have the ability to use it with minimal restrictions and responsibilities. However, the users risk loss if the information is misused either intentionally or by mistake. Therefore, they should share any benefits. It would be difficult and costly, but the initial systems that captured data were also difficult and costly to create. A policy recommendation, however, requires more information, especially independent estimates of costs to compensate users, losses they suffer because of compromise in digital privacy, and realistic revenue expectations. These data should cover users with a variety of socio-economic qualities.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

21. **5eb0c3f05aeb111911ad74de \***  
 The question of whether to compensate people for sharing their data is complicated. Issues of privacy, fair compensation, and equitable representation are all important factors. Experts and members of the general public have expressed opinions about this topic, but it's hard to know how the public would be affected.

If companies pay people for sharing their data, how much would they pay? One presumes the companies would seek to recoup their costs, perhaps services that are now free, like Google, would become fee-for-service options. In that case, some people would pay more to use a service that was once free than they would earn selling their data.

Privacy is another important consideration. People who opt to sell their data might be willing to sell certain data to certain companies, but not give a blanket authorization to make all of their information available to all organizations that want it. Developing a system to manage these permissions and ensure appropriate privacy would be extremely complicated.

Data sharing is a complicated issue, and it is getting more challenging as internet use becomes even more prevalent. As a society, we still have many details to work out about whether and how people should be compensated for sharing their data.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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22. **Seb2de44f2dbc90894711df3 \***  
 Digital privacy is directly related to our fourth amendment right to privacy. It has become a factor in the growth of income inequality and inequity across the United States. Large data collection should be nationalized and the profits of it should be equitably distributed. Many of our larger corporations are only held afloat by their ability to mine public data and privatize it for personal profit rather than as a public good. They should be regulated more akin to public services like electricity and less like wealth management firms. Further the monopolization that exists online of these companies needs to be furiously combated to prevent further inequities. Most of these services can't truly be opted out of to have access to modern marketplaces of ideas and that needs to change through government action.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

23. **Seb2f4dc8d6bc10b7ef305a4 \***  
 I believe our president of the United States if often misjudged. I believe he is a good man with good intentions. He loves America and wants to see what is best happen while he is in office. Prior to being elected, he was a smart business man. His intelligence and age brings with him much experience to the White House. There are so many complainers and whiners about many things he says and does, especially on social media. I choose to believe it is a good thing that he is so informative to the American people. The whiners and complainers have not put their name on the ballot so should refrain from being so self degrading, making themselves look bad. The opposing party has done more to divide the nation, and make the nation look bad, while this President serves. It is rather unfortunate the opposing party seems to do little to improve our nation and grow our international relations.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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24. **5eb339ee6290bc124b8549a6 \***  
 Digital privacy is contract that users agree to when using an online service that details what information the service is collecting. Users have the option of agreeing or not using the site.

I'm not sure why it's relevant in the political debate. I'm not even sure what is meant by political debate. I can't make a policy recommendation as I don't have enough knowledge of its impact, the logistics of it all or why or why not.

Digital platforms benefit greatly from user data however and users benefit by using these services at no cost. An option to opt out of data sharing should be available allowing the user to continue using the service for a fee if necessary. All users should have access to the data that they are sharing. Digital platforms should also note who else they are sharing this data with and users should have the option to opt out of third party sharing of data.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

25. **5eb4c6510ef386339dde2a35 \***  
 People should be compensated for their data because they are providing information that the company utilizes to target advertisements at them. Companies sell user data to advertising companies, so why shouldn't users benefit from this information that they're giving away? Users should keep this in mind while using social media sites: if you are using a platform and aren't aware of what the product is -- you are the product. By agreeing to these user terms you are always entering a contract that benefits the platform that you're using. Of course, users could decide to disconnect from these platforms that they are arguably voluntarily opting into, but in the act of disconnecting from the websites you are disconnecting from the world. How can someone in the 21st century not advertise their business on social media, for instance? It's impossible to not be connected and to continue to stay relevant.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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26. **Seb4d812d25d2534cacc8c68 \***  
 Digital privacy is a pressing issue of late. Social media users generate millions of data points that companies then use to create better targeted ads, develop better apps, etc. The issue of how to properly compensate users for the use of their data is tricky. In my opinion as a social media user, I would not want to be compensated for my data. My stance on this is driven by a fear of what would result from policies that pay for user data. Would companies begin collecting more data to offset the costs of payment? What kind of data would be collected, and to whom are these companies selling it? These questions and concerns would need to be answered before anyone should feel comfortable entering into an agreement to sell their data to social media companies. There would have to be government oversight to protect user's rights.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

27. **Seb99edb442a490b4b80495c \***  
 In the current world we inhabit that there are unknown entities gathering our data for unknown purposes. Companies and governments dip into the data streams of our lives increasingly innovative ways tracking what we do who we know and where we go. The methods and purposes of data collection keep expanding with seemingly no end or limit in sight like what's app sharing name and phone number with facebook so business can advertise you or using phones battery status as a fingerprint to track you online. Like these kind of data brokers that create massive personalized profiles about each of us and then data are sold. These instances of data harvesting connected by shared computation - data imperative drives by corporations and governments. This imperative signals a shift in how powerful institutions view data which even affects the normal voting data too and leaders can utilize it and come to the power through which finally affects the people.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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28. **5ebf29c610ca43172ae5641d \***  
 Originally, I thought that people should be compensated. After reading the social media posts from various people, however, I no longer think that is the case. Two points stuck out to me: people will likely receive very little compensation, and people may have to purchase subscriptions to specific websites that are now free to use. I don't see the point of compensating people at all if they will only likely receive a penny per data point shared. It might cause the company to want to less data collection because there are millions of users, but that may be a bad outcome as well. Shared data is shared knowledge, and more available knowledge benefits more people. To my second point, I can see Google or social media becoming things that must be paid for. It would hurt people more than the companies. Companies find a way to make people pay for their losses.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

29. **5ec0590eda5acc46b632b30c \***  
 Technology companies around the world today can democratize access to user data by compensating people for sharing their data. Digital privacy refers to the ability of companies to refrain from collecting private data on its users without their knowledge. It is a common and sensitive issue in the world today and certainly a focus of political agendas. Both sides of the debate table have their own viewpoints regarding the subject. At the end of the day, companies can further capitalism and increase transparency in the market by compensating users who voluntarily wish to share their data with technology companies. This could be implemented at either the company level or potentially through a union or alliance of technology companies around the world. Either way, its implementation may allow the global economy to further grow.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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30. **Sec0b08aecfc7d4b74dcd747 \***  
 Sharing data straddles the current policy line in America between protecting privacy and economic growth. On the one hand, sharing data with companies generates huge profits with no direct economic gains for the users of these systems (who provide this data for free simply by interacting with social media and other online systems). On the other hand, paying for data raises issues of administration (how would such a policy be practically implemented?) and access (would some data be worth more than others?). My position is that while a great deal would need to be clarified about how precisely compensation would occur, companies should compensate users for the data they are currently collecting, using, and manipulating free of charge. Information has long been seen as a valuable commodity and while companies have made strides in protecting consumer privacy, too many businesses still treat consumer data as a cash cow without making any attempt at compensating the public for the sensitive and valuable product that they give to companies (often with limited or no awareness of the value of the information).

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

31. **Sec1ecb7dc45b26292d5467e \***  
 We should compensate people for sharing their data with companies. This is both necessary to pay reparations for the harm data-collecting companies have done to society, and to ensure that people are fairly compensated for a good they are providing. In the modern era, privacy is becoming more and more difficult to secure. Facebook and Google insist on selling our data to third parties simply because it will net them a profit. Businesses do not respond to humans and their concerns. They will only respond to one thing: the profit motive. The only reason a business exists is to make money. Because of this, we need to appeal to a business's desire for profit if we want to change the way our data is shared with corporations. If there is more profit to be made by halting the sales of data, then a corporation will do that. Therefore, businesses should pay to use the consumer's data.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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32. **5ec380b1e88df11cd1f565b5b \***  
 I honestly think that you should because the person in question is providing their own information which should be considered personal for companies to grow. In this case, by making this studies I am proudly earning money in dollars that are converted into Mexican pesos which is a whole lot of money. The internet is a public place in which we share whatever we want for free. But, if we received an incentive I believe people will expand more into evolving as an internet persona. There are people earning money from the internet, giving a few bucks can be no exception just to share our thoughts on things, our opinions or our beliefs. In this case I am expressing myself on regards of a subject that always turns more problematic due to cookies know being known for stealing information and ads on different social media platforms.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

33. **5ec44da606cb7931f04a35e9 \***  
 We should compensate people for sharing their data. Companies are making billions of dollars from users by mining their data and using it for marketing purposes. Users should get a share of that. More importantly, the process of compensation will help make consumers aware of what they are giving up online. Most people give away their digital privacy, sharing personal and private information without thinking about the consequences. Payment for their data, an explanation of what data they've given away and how it was used, could help people make smarter choices online. This is a relevant issue in our society today, and it is only going to become more relevant in the future as more and more of our lives are connected to the digital world as technology continues to advance. The Internet on computers and the Internet of Things will be everywhere.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>50. 5e94627fbd18cc000995584c *        Digital Privacy is the collection, use, and analysis of personal data collected online. This data has value and therefore companies should not be able to collect/use/share it without the person who generates that data being compensated accordingly. Data which is not personally identifiable should be usable with cost (eg a google search term so long as google does not associate the search with a particular user's data). People should be able to decide what data about themselves (if any) is usable and be paid accordingly. All users should be paid the same for the same data irrelevant of who/where they are. Users should be able to decide if their data can be shared outside of the originally company and paid if it is. Companies should be held accountable for data security and appropriate use.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>51. 5ebdea4e0ae7a413a7d81d14 *        Firstly I would like to have at least 4 or 5 years worth of data to see if this would even be feasible, then I would need all the pros and cons of this idea. Would everyone get the same amount? How would they determine that? Some people are well educated and some are not, some people know stuff about one thing and some people know stuff about another, some may want their data locked up tight and may not want to share. I haven't heard of any politicians using this platform, but it wouldn't surprise me if they did, anything to get elected. There would be a lot of variables to consider about this proposal and it sounds good, but ultimately how could it be fair and would it be fair? Would some type of data be worth more than other types of data and how extensive would/could the data be? I would love to get compensated for my data, but what would mine be worth? What would yours be worth?</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>52. 5d510396f6725b001a4fc025 *        I think that if we cannot have our privacy when using the internet we should at least be fairly compensated for the data that we create. This data is making money for those who collect it so I see no reasons why we should not also get paid for it. Without consumers using the internet there would be no data to collect. Therefore it seems incredibly unfair that our data gets collected and sold but we never see a cent of the profits. Quite frankly our data is being stolen right out from under our noses and the least we deserve is a little compensation for this breach of basic privacy. Otherwise it is completely unfair for us to be providing data for these companies while they reap the benefits of our data. If a company wants to use the data that I create, they should be required by the government to fairly compensate us.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>53. 5dd3699ee73e613c6c40f1cf *        I definitely feel that all people should be compensated for sharing their data as it is a commodity of value and therefore shouldn't be given to companies for free. It is relevant in the political debate because democrats prefer privacy and for companies to pay for users data while republicans support big business and do not want them to loose revenue by having to pay consumers for data. I feel a good policy recommendation is for the government to track how much data is consumed by each tech company and insure that all consumers are paid a fair amount for the data that is taken from consumers and also to regulate that the companies are being transparent about the data they collect and how much they pay consumers on a a per bit basis. If it were left to companies to regulate themselves nobody would get fair payment for their digital data so it needs government regulations which republicans would never support in the political realm.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>33 of 38 <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a> 4/26/22, 9:13 AM</p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>54. 5e0d256753e8464d64940925 *        Digital privacy has become a hot topic. Like most people, I have agreed to countless, "privacy agreements," to receive data on websites. It is then understood that the website will be collecting data about my search or whatever I may do on that site. Initially, the idea of receiving compensation sounded logical and a great way to get money for doing nothing, at least nothing I wasn't already doing. In practice, I see the many flaws with forcing companies to compensate the people browsing their websites. How would you compensate them? Would you pay them based on time spent, or amount of data collected? What if they browse under fake names? No company will willingly diminish their profits, so something will be done to make up for the money they are paying out. Prices may get higher or charges may be implemented for the information they provide to the user. If you are worried about your digital privacy, you can always avoid any website that collects user's data. Then you are really limiting yourself, but you are also more protected.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>55. 5de96ccf7aeafe09d7e8a74a *        Digital privacy to me is the freewill of a 'user' to use the internet without companies using data to essentially track to watch peoples movements online. I don't think this a major political issue except for fair use of data especially based on political preference. It is a little intrusive and quite frankly big brother type of corporate structure that many people don't think about or even aware of what these tech giants are doing behind the scene. One can argue that by using this tech that this is the cost or price people pay to use these free services. As true as that may be, if you look at the billions and billions of dollars these companies make, solely on the customers data, one can not unreasonably say this is a fair business practice. Companies should not be allowed to harvest peoples data to use to profit from without it costing said companies anything at all.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>34 of 38 <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a> 4/26/22, 9:13 AM</p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a></p> <p>56. 5e9ca054511e7a1c5c5640e5 *        Digital privacy is major topic that needs to be discuss in the Presidential debate. Digital privacy is when you are on the internet and your information is not being compromised. Social medias and websites should practice digital privacy. They should not record our data without our permission. I believe that websites or social medias that use are data should pay the consumers for using their data. Our data should not be free for them. I do not agree with the critics who believe that if the websites or social medias had to pay for the data they would charge us money for using their websites. They are able to charge their advertisers for their revenue. They could get paid base on the number of people that visit their website. Having more visitors to their websites would cause more people to see their advertisement.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>57. 5ed434531abc010dd521f5da *        Digital privacy is a complex issue that is currently being debated in politics and on social media. Individuals can have different levels of knowledge and comfort when it comes to their digital privacy and the sensitive data that companies are collecting on them. Digital privacy is an important issue in the current political debate because everyone needs to be aware of how their personal information is being utilized and how to keep their private information safe from being used in malicious ways. To make a recommendation on whether or not companies should compensate people for sharing their data, more information would be necessary. Companies are likely more interested in the data of the wealthy and other socioeconomic groups which could leave less wealthy and other marginalized groups to be even more so.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>35 of 38 <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a> 4/26/22, 9:13 AM</p>	<p>36 of 38 <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb...</a> 4/26/22, 9:13 AM</p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb0...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb0...</a></p> <p>58. Se48122927eb23000af799c7 * Digital privacy means access to people's personal information, on countless media. Some examples are: Social Media, databases of medical institutions, smart phones, merchant data from credit card readers, and just browsing the internet to name a few. In this day and age it's accurate to say that "digital privacy doesn't exist. Data is stored all the time and is regularly accessed by corporations and as we learned from Edward Snowden, your own government. It's even possible for someone to hack into your personal home security camera or smart phone camera. Having this kind of lack of privacy could put people at serious risk. But in the normal day to day, our data is being constantly being bought and sold for various reasons. Some people think that people should be paid for the use of their data, but as mentioned in some of the articles I read it's more complicated than is sounds, and I do not have the education, nor experience to formulate a policy on this. My opinion is yes, people should be paid, but I think the overall priority, policy-wise should be on privacy in respect to spying, or people and listening to individuals on their personal calls without warrants. That needs to be addressed first.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>59. 5dd864447beb29822b6c1e86 * Digital privacy and data encryption are two very important subjects. If we are going to ask people for their data, we should make sure people are compensated both fairly and equally. If companies expect individuals to share something as important and valuable as their private data they must be prepared to care for and store it securely and they absolutely must be prepared to pay them fairly. No one should have their data deemed less valuable due to their race or gender. Our privacy is very important and as more of our lives becomes digital that security is becoming more and more of an issue. If companies want to study our data they must be prepared to treat both the owner and the actual data itself as something very precious and valuable. The concept of wanting users data is understandable, but they must take it seriously.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb0...">https://docs.google.com/forms/d/11bx3ns2NH0Od_YRpHjcb0...</a></p> <p>60. 5dd597c897405455982d1b0c * Digital privacy is an issue because companies will collect even more data to sell to advertisers. There is no benefit to selling personal data as you won't be able to have any privacy. It is already a problem as is. There are phishing and identity theft issues already. If you allow more access to your private data, big companies will get bigger and there will be no privacy for anyone. Big corporations and government will be able to track every move you make and will be controlled by them. Also, they won't be able to pay enough to amount to anything. We will sell our data (soul) for a minimum benefit so we need to pass a law to prevent this from happening. We need to vote for our privacy so that we can prevent being controlled by big corporations and the government. We need digital privacy.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <hr/> <p>Ce contenu n'est ni rédigé, ni cautionné par Google.</p> <p>Google Forms</p>
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**B.10 Treatment Grader 4**

<p>Instructions for Graders</p> <p>https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</p> <h3>Instructions for Graders</h3> <p>Thank you for accepting to participate into our survey. Please read carefully this page before going to the next section.</p> <p><b>*Obligatoire</b></p> <p>1. Adresse e-mail *</p> <p>_____</p> <p>1 of 39 4/26/22, 9:13 AM</p>	<p>Instructions for Graders</p> <p>https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</p> <h3>Instructions for Graders</h3> <p><b>The aim of your participation</b></p> <p>In the following, you will have to grade very short paragraph (around 300 words or less) as follows. <b>We need an expert in reasoning to grade them as there is no "objective quality" of an essay.</b></p> <ul style="list-style-type: none"> <li>• If you judge that participants "realize that the issue is ambivalent" then you will give them a passing grade, <b>P</b>.</li> <li>• Otherwise, you will give them a failing grade, <b>F</b>.</li> </ul> <p><b>Challenge to overcome while grading</b></p> <p>What may happen is to confound high cognitive sophistication, i.e., the ability to write well-written essays in English, facilitated by the fact that they read some arguments right before this essay exercise with the self-reasoning skill "realizing that the issue is ambivalent", which is the variable we want to elicit.</p> <p><b>Time</b></p> <ul style="list-style-type: none"> <li>• We expect you to spend around 10 minutes to read very carefully the instructions and the examples.</li> </ul> <p>2 of 39 4/26/22, 9:13 AM</p>
<p>Instructions for Graders</p> <p>https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</p> <ul style="list-style-type: none"> <li>• And we expect you to spend no more than 1 min to grade each essay.</li> <li>• The total time you spend should not exceed 62 min.</li> </ul> <p><b>Defining the fact of "realizing that the issue is ambivalent"</b></p> <p>We define "realizing that the issue is ambivalent" as the awareness of an individual to recognize that there can perfectly logical but opposite arguments in favor and against the same issue which renders the decision-making process complex. Such an ambivalent attitude leads to hold temporary conflicting preferences, one preference for the issue at hand and one preference against the issue at hand. There can be different ways of defining and capturing this "awareness" as documented in the social psychology and cognitive psychology literature. In our study, we capture this awareness by observing individuals <b>reasoning and elaborating in a personal way on the pros and cons of the same issue in a written format.</b></p> <p>Before writing their essay, participants were shown a list of the pros and cons of the same issue. Then, they had to write an essay, following these guidelines:</p> <p><b>The score of your essay will only depend on the first and second parts of your essay. Different essays in their political recommendation can have the same score.</b></p> <ul style="list-style-type: none"> <li>• For example             <ul style="list-style-type: none"> <li>◦ Essay 1 describing very well the issue, justifying effectively its position and giving recommendation for digital privacy</li> </ul> </li> </ul> <p>3 of 39 4/26/22, 9:13 AM</p>	<p>Instructions for Graders</p> <p>https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</p> <ul style="list-style-type: none"> <li>◦ Essay 2 describing very well the issue, justifying effectively its position and giving recommendation against digital privacy</li> <li>◦ Essay 3 describing very well the issue, justifying effectively its position and explaining writer needs more information to give a decisive recommendation</li> <li>◦ All these essays will receive the maximum score.</li> </ul> <p><b>How your essay will be graded</b></p> <ul style="list-style-type: none"> <li>• Your essay will be graded automatically by the Artificial Intelligence-powered software produce a report detailing your score. We confirm as researchers, having not business</li> <li>• Your essay will be graded a second time by one Professor of Philosophy, randomly selected University Professors from US universities who were not involved in the design of this</li> <li>• Your reward from the essay will depend only on the grade provided by the software. Grade provided by the Professor.</li> </ul> <p>Answer this question above. To do so, write an essay in which you describe what is meant by and why it is an issue of relevance in the political debate. Formulate in a brief manner a position you think should be taken in face of such an issue. If you cannot do so, please elaborate on what you would need to make a recommendation.</p> <p>As you can see from these instructions, we did not ask participants to merely list again the pros and cons of the same issue but rather, to engage in <b>critical thinking</b> over them. As we said earlier, there is no algorithm yet that can distinguish between participants who critically engage with pros and cons in their writing and those who don't. This is why we thought psychologists are the</p> <p>4 of 39 4/26/22, 9:13 AM</p>

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most qualified in social sciences to give a judgment on this matter based on your professional experience as a researcher but also as a teacher at a top university. It is important to bear in mind that because of the absence of an objective criterion to measure "critical thinking on an ambivalent issue", we count on you to follow the definition of ambivalence defined above (despite your potential philosophical disagreement with us) and your subjective judgment as an expert on this matter, which is crucial for the success of our study.

**Cognitive sophistication and examples.**  
To assess for the "cognitive sophistication" of each participant, we rely on an AI software, Grammarly. This software processes millions of writing users to define them a writing score, measuring their quality of writing, beyond simple grammar errors. In your task, we will not show you the scores assigned by Grammarly to each essay as those scores are not always good predictors of the variable of interest as we show you on the next screen. We excluded from our data set participants who did not perform the writing task seriously or cheated (i.e., those who did not produce an original piece but rather copied pasted existing sentences from the web).

**Below, we are showing two different examples that show**

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**Example 2: An essay written by a cognitively naive participant but who does realize that the issue is ambivalent.**

Digital privacy means access to people's personal information, on countless media. Some examples are: Social Media, databases of medical institutions, smart phones, merchant data from credit card readers, and just browsing the internet to name a few. In this day and age it's accurate to say that "digital privacy doesn't exist. Data is stored all the time and is regularly accessed by corporations and as we learned from Edward Snowden, your own government. It's even possible for someone to hack into your personal home security camera or smart phone camera. Having this kind of lack of privacy could put people at serious risk. But in the normal day to day, our data is being constantly being bought and sold for various reasons. Some people think that people should be paid for the use of their data, but as mentioned in some of the articles I read it's more complicated than is sounds, and I do not have the education, nor experience to formulate a policy on this. My opinion is yes, people should be paid, but I think the overall priority, policy-wise should be on privacy in respect to spying, of people and listening to individuals on their personal calls without warrants. That needs to be addressed first.

**Below, we show you two further examples.**

**Example 3: An essay written by a cognitively sophisticated participant (score 78 on 100 by Grammarly) but who does not realize that the issue is ambivalent.**

Digital privacy is the process of using the internet and connected devices without compromising your information. So yes, people should be compensated for sharing whatever data it is that they would share online. People are giving out their personal

**how the AI software's score is not aligned with our definition of "realizing that the issue is ambivalent".**

- "Example 1" below received a score of 96 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively sophisticated but who, however, "failed" to realize that the issue is ambivalent.
- "Example 2" below received a score of 51 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively naive but who, however, "succeeded" to realize that the issue is ambivalent.

**Example 1: An essay written by a cognitively sophisticated participant but who does not realize that the issue is ambivalent.**

The issue of compensating users for their data centers around the rise of the fourth industrial revolution, one dealing with advancements in AI and machine learning technology. These technologies require harvesting masses of user data to create and inform human-like machine thinking and decision-making. However, because this requires reading private user data, many people have begun to demand compensation from data-mining companies for taking their personal data. In some ways, this makes sense - user data is invaluable to companies, so users ought to be paid accordingly for furthering so much research and development. In other ways, users will likely be paid cents at the maximum - is the payment even worth it? A policy that compensates users who personally hand over sensitive and private data, as opposed to compensating all users who are giving barely sensitive, market research data, makes the most sense for this issue.

information and I feel that it is very important that they should be compensated no matter how little because it is not easy to do so. Most people find it difficult to give out their personal data but if they are compensated, they would be free and willing to share it out without much worry. So the political sector should find a way to put up the policy and see how they can implement this. It is not an easy thing to do. They need to be fast about it too. Everybody should be paid for giving out their information. It is very critical and needs to be paid to be received.

**Example 4: An essay written by a cognitively naive participant (score 50 on 100) but who does realize that the issue is ambivalent.**

Yes, I think we should compensate people for sharing their data. There are several reasons to support my perception.  
First, personal data, such as demographic, psycho-graphic, and behavioral information are all person related. They belong to individual person. It is up to the individual consumer to decide what they are going to handle the data, including using and distributing. When the data is generated and collected, the final ownership and control of the data should be with the individual, not the company that collects it.  
Second, most the firms use the data for commercial purpose. They use the data for research to develop products and services for profit. As part of the input, the personal and private data drives the revenue and profit. As the owner of the data, individual consumer should get part of the share of the benefit.  
Third, when companies are using and storing data, a lot of breaches have happened. This exposed the individual consumers to a lot of risks. They should be compensate for this risk as well.  
Having said these, I believe the data owner, i.e. the individual consumers should be compensated for sharing their data.

Grade the following essay

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2. 5dd597c897405455982d1b0c \*  
 Digital privacy is an issue because companies will collect even more data to sell to advertisers. There is no benefit to selling personal data as you won't be able to have any privacy. It is already a problem as is. There are phishing and identity theft issues already. If you allow more access to your private data, big companies will get bigger and there will be no privacy for anyone. Big corporations and government will be able to track every move you make and will be controlled by them. Also, they won't be able to pay enough to amount to anything. We will sell our data (soul) for a minimum benefit so we need to pass a law to prevent this from happening. We need to vote for our privacy so that we can prevent being controlled by big corporations and the government. We need digital privacy.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

3. 5ddab4c559b1b0a089f10680 \*  
 People are concerned about digital privacy, the information that is available online about them and their online activities. This issue needs to be addressed before there is a huge loss of jobs taken over by Artificial Intelligence (AI). People should be paid for their online information. This would encourage people to share more information, as well as make more information available for the training of AI. This information is currently being obtained for free and shared with other companies. People need to be compensated for their lack of digital privacy, especially since it could lead to loss of jobs in the future. Advertisers use the information to target consumers, so they profit from the information as well. Everyone seems to profit from the information except for the right owners of the information (the people themselves). That needs to change.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

Grade the following essay

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4. 5e94080011d9b923e6d0091c \*  
 Digital privacy is simple. It is a feeling of safety and security. This is the main issue around data sharing with companies. Once your data is out in the world it is not safe. No company can guarantee security over your data. What happens during a breach? Your data along with many others WILL be compromised.

I feel that digital privacy is being overlooked. It is something that the average human and the world leaders need to be more concerned about. There is no safety when it comes to data, it doesn't matter who you are. The most important data is stored online- digital privacy is being relied on but not enforced.

I think the goal should be working towards better security systems. The only way data gets out is with a breach and if we can control that we can better manage our digital data.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

5. 5e2c7806bb1a6e000cf7f2e8 \*  
 I think data sharing should be compensated, because it's done so far for free, and without knowledge most times. If companies value their customers, then why not provide a payment towards a digital wallet, or PayPal perhaps. We have the rights to be consumers of those who respect their customers, but that's not in their consideration it seems. It isn't hurting a company to give back to their users a payment that shows their appreciation for being a customer of their product. How can they make millions of of the data that they collect from us, and not give a percentage back to us, the users who give details of our lives, behavior, etc. Most information gathered are collected, then sold for perhaps a high amount, but things like this can target our privacy, race, hobbies, and who we know in this world.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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6. 5ea8f8d88a74c9366b5dddf57 \*  
 Social media companies such as facebook, twitter, instagram etc collect data from its users. Digital Privacy means that the data that social media companies collect about us is "our" data and we should be compensated for it because they use this data to make money. We never knew personal data was a commodity when we signed up for their services.

One policy to deal with this issue is that each time they sell our data to a third party, we get a part of the profit that they make. We should also get compensated for the ads that they run on our pages. For example if an ad agency pays then a million dollars for an ad to run for 1 week on our page, we should get a percentage of that money. Or social media companies can pay a lump sum payment to each person per month or per year based in how valuable they think that persons digital data is worth.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

7. 5d9e9204340c7700150ab74c \*  
 Privacy data seems to be a big issue for some people and it is not gonna go away some steal your information at the beginning and some at the end or they use a special tool to track you all the way through. I know there are some big companies but we the consumer have to pay through our phones our internet providers everyday to even get on the internet. I feel like our privacy should be protected. If they want to use our information as a consumer they should pay us so that every one could be on the same page everyone is compensated for the time they use sharing data privacy. We are all using the same internet we need to make a stand. we need to go before Congress and make a change. We need to re visit this issue and make some changes. As far as child predators they should not be able to excess the net at all.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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8. 5dd0b075c944d1174e6e3c5a \*  
 I think digital privacy is ensuring that any confidential information submitted online cannot be released publicly and/or released to third party companies past the initial approval. I think compensating people for data may be troublesome because that would cause data to be skewed more towards poorer people, who would be incentivized to always accept data collection methods. Well-off people would find ways around or just decline. For those reasons, however, that may be an avenue for people to be compensated for data collection that is highly beneficial to companies and to have some control over what companies that information is sent to. I think people are concerned with the idea of data privacy, but I'm not sure they consider it an important enough at a level to be picked up on a policy scale.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

9. 5e16352b8d257bc1f988e78d \*  
 People believe that they should be compensated on the data they give, and although it sounds good on paper, the truth is not only would they not get a lot of money, but it would make it harder for small companies to start out and it would make it so that many websites have to charge people for access their services.

Most people would get less than 5 dollars per year for the data they give while having to pay for the websites they get to use for free in the present. The small companies would have to change their business models completely and it would make it harder for the to succeed.

The combination of having to pay for services that are free, making it harder for small businesses to succeed and not obtaining a lot from it means that the benefits are almost null while the consequences are sizeable.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

12 of 39 4/26/22, 9:13 AM

Instructions for Graders <https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...>

10. **Seb2feb1d25d250cde68776d \***  
 I think that companies should pay for the data provided by people. Especially since not everyone wants to violate their privacy, and with the help of payment, I think that it will be more successful to convince them to share data. There should always be remuneration. We give, you get. People don't know what you do with their data, so I think there should be compensation. I think all the data is sold to different campaigns. And then all these campaigns start calling and sending notifications and spam to your email, to be honest, it's very annoying. And I think I could make up for it a little bit. You may think that people are not very hard to share their data, maybe they even don't care what they do with them... but this is not the case, because every person values their privacy, values their personal space.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

11. **5e373f33a42bc66daa55ea65 \***  
 Digital privacy deals with how our individual information is used and/or protected by online companies. It is particularly relevant in this time where so much information is communicated digitally - medical records, financial data, shopping behavior, email data mining, etc. Companies profit by mining our digital data. If companies are not willing to guarantee that this data is not shared, then we should be paid for our data and protection should still be guaranteed. I recommend that individuals be paid for the use of their data. It will increase the use of valid data and increase user security as well as provide payment for people who share their information that might benefit science, increase business revenue, and provide statistical information. Data has essentially been monetized and therefore the providers of that data should be compensated.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

13 of 39 4/26/22, 9:13 AM

Instructions for Graders <https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...>

12. **5dceca79b98870144a19f89 \***  
 Digital privacy regulations determine how much data companies can collect about you and how they can use that information and that they must inform you about their collections and usage. It is clear that companies are collecting data and making use of it to profit. It seems only fair that people should receive compensation for use of their data, just as they would for the use of their labor. Government has a responsibility to protect its citizens against exploitation by companies. Enacting policies that protect people from exploitation in cyber space is critical as we go forward more and more on line. How much a person is to be paid for use of their data is where the issue gets complex. Perhaps a system much like that used to pay musicians royalties on their music from services like apple music, spotify and pandora could be model for paying people for use of their data.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

13. **5e911cfaefd95445d5a6c890 \***  
 A person's information transmitted online should remain private and should not be used by third parties for commercial ventures without consent by that person. It is personal information and should be regarded as private just like a letter sent via the post. Compensation should be provided and use of the data should be approved by the person. Companies should not have the privilege of profiting from peoples data. Not only are these companies amassing huge profits but the data also could be used for nefarious purposes. Companies need to be accountable both monetarily and morally for the data that is passed through their facilities. Rules and laws need to be in place that places the burden on the internet companies for the miss use and compensation for the data. The data has become a product that is sold and the manufacturer of the data( the user) should be compensated and protected.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

14 of 39 4/26/22, 9:13 AM

Instructions for Graders <https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...>

14. **Seb9c1920355110ef1a18c85 \***  
 Digital privacy to me means ensuring everything digital I access on a daily basis and utilize to perform and/or function successfully in this technological age. Work, home, mobile, all interactions with digital devices tic boxes. And those tics when combined then aggregated by an entity with the sole intent to profit from information I provide with zero choices on its usage. Shouldn't I be the one to profit from my own subset of life-product? I owned it and by no choice of my own do I nor have I given permission for it to be pumped out. Moreover, AI is being 'taught' how to manipulate humans. Maximize profit. Yet without my data (soul-sharing, really), ultimately those marketing plans wouldn't have the budget line income necessary to even exist. I really need longer and more time to make this argument and offer the clarity this issue requires for most to even have a hope of understanding what they are giving away for free, let alone gauge its value. If I don't know its value, I'm not likely to be able to care or protect it. Similar to the value of a credit rating during youth and no clue of its impact on our life path until we 'don't' have it. Who would have ever chanced a late payment on those hot new shoes or pocketbook if they knew in advance how it would influence their buying power five years down the road? Digital privacy is already an impossibility this day. All this ties into a universal income? Yes. I foresee a day where we will rebel against our creation, AI, if all we end up creating is a tireless workhorse that's taught 24/7 by humans merely to manage consumerism. Assuming all the information collected and sorted by AI daily aren't we teaching machines that the only thing humans value is the widget? Designed and marketed to us via some Frankenstein aggregate data pool conclusively showing the only 'happiness', 'value' we need to survive is more widgets that are more stimulating than the previous widget, hence, production needs, more work hours to produce the widgets. Widgets which gather more information to make better widgets, costing the consumer more money, as it designs and sells us the next payment-based higher-priced widget. Would rather write a paper on this with coherency than offer this mish mash...

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

15. **5dd405ab80123f3eaae9af80 \***  
 Digital privacy is the ability to use the internet and various social platforms without having personal data compromised. It's of relevance due to the monetary value of data and the sensitive nature of data and political policy that can, and will, be made regarding personal data. In terms of policy, data is worth a lot monetarily today and those who own their data should be compensated for it in some manner without the likelihood of a security breach. A secure system should be in place for all internet and social platform users that pays them per usage hour for data that is collected. It would have to be done via a secure system with the owner of the data being assigned a number or code that meshes with what the media company has on file for them thus keeping privacy a top concern. Also data would have to be handled securely when paying people for their data in the same manner that banking transactions are currently handled. Data is money and all should benefit from it while still maintaining complete security.

*Une seule réponse possible.*

Pass  
 Fail

15 of 39 4/26/22, 9:13 AM

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Grade the following essay

16. **5e6e934d03295045025cfbe7 \***  
 I do believe people should be compensated for sharing their data. What is meant by digital privacy is the information we search on websites or search engines or our viewing patterns we tend to follow when we use the internet. This data, in my opinion, should be able to not only be owned by the consumer but also be able to sell to companies in exchange for monetary compensation. As of right now many people are already signing over their own data for free without any sort of return, and in turn these companies are selling off this data and making money themselves, which in my opinion is highly unethical. A policy that should be enforced is to have companies be obligated to provide financial incentive everytime a user agrees to their privacy policy, by setting a minimum fee worldwide.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

17. **5e1508eb18e869b078576e94 \***  
 One must always ask themselves the question is the government spying on me through my every use on my mobile? The answer is most likely yes and not just the government but also tech companies. Therefore shouldn't we get a slice of the pie from all these tech companies that collect our data every single second of every day?

I think it's only fair that I get compensated for providing details of my life to others. These companies get so much data from everyone worldwide every detail of what we do collected. So while we are here providing for them their pockets are getting lined with cash. So why do they deserve to have all the money generated? I think everyone should get a certain amount once a month to compensate us for what we provide. Nothing in this life is free so why are we forced to give up our info for free?

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>18. 5dd3d6797d45953b9f6c2912 *</p> <p>You probably can't have it both ways, have your privacy and get paid too. So the real question is what is the most important to you. You could always come up with a different way of keeping track of who you are but than you have many issues of if you are a actual person or a scammer pretending to be someone who you are not. Most people want privacy, it is human nature to want it. Most tech companies want to know everything little thing about you. I hate unions, but I can see how a union could work on keeping your privacy. But it would definitely have to be only for privy issues not better pay or political support or be mandated to join. It could be a database, so people could get paid for their digital footprints, without exposing their personal information to every company who has those digital footprints.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>19. 5dceebc257a7e103bf995bcf *</p> <p>All citizens hold the right to digital privacy. Because companies collect information on people that can be private, use of that information is subject to consent. Right now, most people do not realize how their data is collected and used by companies. Companies also derive great value from using the private data of customers, yet they pay nothing for it.</p> <p>In order to protect user's data and get them reasonable value for providing their information, a policy should be proposed companies can only use personal data with permission, and that they may have to pay in order to collect and use it. Citizens will have the right to charge for their personal data, which will also encourage them to monitor it more closely.</p> <p>The government will not be providing payments, these will come from the companies that rely on the data for their business model, a model that has been very lucrative for them.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>17 of 39 4/26/22, 9:13 AM</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>20. 5dc9f3a0e2633171257d503e *</p> <p>Well at first I said no early but after watching the lots of data in the tweets I change my mine about my answer if I aloud to because after reading so many different tweets I rely it A business to help so many people with A little extra income and maybe some with a lots it depend on who doing the tweet, so I agree people should get pay for it I show will like to be able to make a little extra income if they are tweet the right tweet messages to help someone and not to harm anyone that should be ok and it deserve to be pay for by the company who they are tweeting for because it is sharing one knowledge with other to help them not to harm them at that rate we should be careful what we share on line for the public to see and read so we deserve to be pay if it is done in decent inplace</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>21. 5e656ac9fba202e923ea0cf *</p> <p>In the era of information technology, there is a fundamental question that must be answered: whether online users should be paid by technology companies for their data. Technology companies have been collecting immense amounts of user data at no cost to themselves. Users are typically required to accept data collection in order to use websites. This issue goes into the online privacy debate. While some would argue that our privacy should not be turned into a commodity, when companies are collecting user data for companies to target advertisements, our privacy is already commodified. Requiring technology companies to pay users for their data would strengthen many individuals' personal incomes which could be poured back into our economy. Technology companies are already taking people's data and are running their company at extremely low costs; it is now time they compensate their users.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>18 of 39 4/26/22, 9:13 AM</p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>22. 5dc59aea37023940a0860dea *</p> <p>Digital Privacy is the protection of users personal information when they are online, ie, transmitting information digitally. Major technology companies, especially in the social network realm, collect personal information (name, location, and other demographic information) and usage data (websites visited, advertisement views, products selected on shopping sites.) Once this data is collected, it's used to target advertisements and direct users to view things that are related or similar to their preferences based on history.</p> <p>Tech companies that use data in this way make billions of dollars selling their ads for specific uses. Without the user data, the ads would be less targeted for a specific user, thus less effective and less valuable. Therefore, users should be compensated for their data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>23. 5d4a6459061e2a000138bad3 *</p> <p>Digital privacy is our right to control the use of our own data: what we buy, online communication, browsing habits and so on. Digital privacy is crucial for a just society, because anyone can be denied housing, jobs, healthcare or face extreme negative social consequences for cherry-picked data leaks.</p> <p>I believe that companies like Google and Facebook need to be held responsible for how they hold and share our data. Forcing them to pay people for sharing data is one possible way of handling this, simply because it creates a paper trail for where the data even went. However, I feel that it is a fairly weak measure given their budgets.</p> <p>My preference is for considerably more rigorous measures, like the idea behind the EU's 'right to be forgotten,' allowing us to opt-out entirely if we wish, maybe modeled on the strict data controls present in HIPAA.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>19 of 39 4/26/22, 9:13 AM</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>24. 5547db0efd99b067c298a1a *</p> <p>While getting paid for tagging photos on Instagram or uploading to YouTube might sound way off, the idea has been gaining some traction in the United States as tech giants from Google, to Facebook and Twitter, face increased scrutiny over the way they handle personal information. People have been "fooled" into handing over data that is then used in artificial intelligence (AI) to copy human behavior and possibly eliminate some jobs.</p> <p>The problem is that the ability of people to receive reasonable and fair compensation for what they do online is undermined by the fact that all these other people are consenting to do it for free.</p> <p>The amount people would get is a matter of debate but it would in general depend on the size of the economy that becomes automated, with people getting more money the more jobs are taken over by artificial intelligence thanks to their data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>25. 5ea11396601cd811e188864b *</p> <p>Everybody accesses the internet on a daily basis, and it's practically impossible to function without it nowadays. Whether we know it or not, websites have access to information about us based on what we do while we are surfing the internet. This information is being collected and analyzed by companies who own these websites, most of which I believe should be private data - since they are mostly being collected unwittingly, without us knowing about it. Companies claim that our data allows for "customization" and pay advertising companies to help cater to audiences that would be interested in their products, based on the data they collect about us. I believe this is a big infringement on our rights to privacy. In fact, "digital privacy" is practically nonexistent but something we should focus on. If our data is being collected, I believe it should be made more explicit that it is being so and we should be rightfully compensated for it.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>20 of 39 4/26/22, 9:13 AM</p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>26. 5e02e86e67170e232425286 *          Digital privacy is the right to keep personal information and sensitive data private. When using the internet, a person's private data should not be exposed in any way without their knowledge and consent. There are differing opinions on what and how much data should be exposed. This is simply a matter of personal choice. It is important for the user of the web to know about their online data exposure and who has access to it. This issue needs to be addressed both professionally and politically. Most do not realize what private, sensitive data is being collected in any given time frame. Most do not read private policy information thoroughly before accepting or agreeing to what the companies conditions are. Privacy policies should be required to make this comprehensive to all parties involved.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>27. 5aae70faced0e00012d599b *          Digital privacy refers to the idea that people's activities online should not be readily available to third parties. These include other individuals, as well as entities like companies and software like AI. It is a political issue because one of the government's jobs is to protect people from harm and exploitation, and this includes exploitation by corporate entities. People feel that they have no choice but to use the internet, and therefore no choice in whether companies take their data. They see this as unfair. Honestly, I feel torn on this issue. I find the ways that companies use data disconcerting. But I am not convinced that the solution is to pay people for their data. It is a drastic intervention in the digital economy, and such large interventions tend to have unexpected effects.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>28. 5d9b429de7083f02d0610374 *          No, due to what is generated on the internet, I do not think it is a good option to compensate a person for sharing information based on personal, when it is not, it can be even false in many aspects of interests.</p> <p>in cases like this, I don't think it's a good way to deal with a person for sharing false things, I think that's where fraud comes from in many people</p> <p>after all that I think it is not the right thing to support him politically, from a personal point of view. I think the best option is to make known those people who make said false, as such to let a person know the type of scam that can be given through the world of the internet and its social networks.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>29. 5e31c0590d43621a12346787 *          Privacy can be understood as the right of every individual to separate aspects of their private life from the public domain, all human beings have this right. When we talk about digital privacy we refer to this privacy protection in the field of cyberspace.</p> <p>Currently, this right to privacy is being put to the test, since both governments and the private sector are taking advantage of technology to access the most intimate sphere of citizens, not always with justifiable objectives.</p> <p>For this reason, it is necessary to promote public policies that safeguard us from these abuses and protect our right to privacy. In fact, many countries work to update and improve laws in this area. With the increased terrorist threat in recent years, governments have invaded, to some extent, the private space of their citizens, with the excuse of national security. It is important that we, as a society, have to be careful and have to define the limits of this invasion in order to avoid violation of this fundamental right.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>21 of 39 <span style="float: right;">4/26/22, 9:13 AM</span></p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>30. 5e41c1315bb2570548948925 *          Digital privacy is to know how one's data is being used. It's an issue because the data can get in the wrong hands and be used to steal your identity, which is known as identity theft. A website needs to list the ways in which a person's collected data will be used and a person needs to provide a digital signature that they agree with how their data will be used. This will prevent problems from occurring later on in the future. The site needs to update the policy every so often, such as on a quarterly basis. The policy needs to be reviewed for a committee consists of employees and representatives from the user community who are users of the website and use the website on a frequent basis and are very familiar with various aspects of the site including site policy, procedures, and implementations.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>31. 5e0795cbf9bc33000a747571 *          Digital privacy is utilizing services such as the internet or any connected device without your information being tracked or shared via cookies or other forms of tracking entities. I sincerely think people should be compensated for their data. However, most of society is hooked to various social media entities so they are in essence giving their data away for free with various posts of family, cars, restaurants, and so forth. I saw something in one of the previous tweets in regard to data unions and I liked it.</p> <p>I believe that data unions could work by bringing by citizens who have specific expertise in particular areas that they are willing to share with various sites. I feel this is a win-win because those that share data are compensated, while the companies get what they need. Unions can negotiate a fair compensatory package.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>32. 5ea0983e64603e06e32eb1f4 *          Digital privacy refers to the use of digital services such as internet and other programs that require connected devices without having to compromise your personal information. It is currently an issue that is relevant for political debate due to the technological boom of the 21st century. Individuals are sharing more data with private companies than ever before. Some people have suggested that companies pay individuals for their data. Monetizing data can have beneficial and negative effects for individuals who use digital media. For instance, people can make more money by monetizing their data sharing. However, digital media companies can counter this by charging people for using their services. I personally think the compensation of people's data is already occurring and the free market should be allowed to run its cycles.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>33. 5dbc73047d3d3622bcd31170 *          I think that if companies are going to be deceitful and use customers data, then customers should be paid for it. Many times people opt out of data sharing and do not want anything shared. Companies still do it anyway. This is why I believe compensation should be given! It is not fair of the companies to violate ones privacy and if they choose to do so, then compensation should be give. Even if permission is granted, companies using data still benefits them so they should share the wealth. Many times consumers come up with interesting ways of doing things or shopping at various sites. companies track consumers and show them advertising to get their business. consumers should be compensated for this tracking and advertisements as well as they can get super annoying. It helps increase companies business and they should share that, too.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>23 of 39 <span style="float: right;">4/26/22, 9:13 AM</span></p>	<p>24 of 39 <span style="float: right;">4/26/22, 9:13 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>34. 5a8c81b0eea3d300016eaaaf2 *                  Technological progress has created a situation of severe tension and incompatibility between the right to privacy and the extensive data pooling on which the digital economy is based. This development requires new thinking about the substance of that right. In the last decade, both governments and giant corporations have become data miners, collecting information about every aspect of our activities, behavior and lifestyle. New and inexpensive forms of data storage and the internet connectivity revolution – not only in content, but in fact – in just about everything (from smart appliances to nanobots) – enable the constant transmission of big data from sensors and data-collection devices to central “brains”; the artificial intelligence revolution has made it possible to analyze the masses of data gathered in this way.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>35. 5e7ef865d32bc5cea5443c8 *                  I believe digital privacy is private knowledge of information that may be used to make an individual make a decision without their consent. I believe that we should compensate people for sharing their data for a number of reasons. People would be more likely to share more data in exchange for compensation because they would believe that to be a productive use of their time. People who can't find a job can get some income and get some help in finding a job in this manner too. It would also provide people with an easier way to choose networks if one pays more than the other and also some guidance as to what kind of data the companies need. Allowing the individuals to verify their data as opposed to shadow data collection that goes now, will approve ad targeting as well. I think more people would be willing to view advertisements as well if they were paid per each view.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>36. 5e4d5032d50ad2013f66456e *                  I feel like our privacy is being invaded daily by them collecting data so why not get paid for it? We can't google a search without whomever knowing and it is very creepy to see an ad about something I have been talking about recently. We as humans have no privacy and should be getting paid for it. Our data that is collected is ours. Whether by scrolling on social media, shopping online or just simply asking google what an equation is. Someone knows about it and it is not fair to us. How is our data being collected and why? What all are they collecting? And if we were to get paid for our data being collected, how much would we get paid and would we have to allow them more access to collect more data? Are our passwords safer? Is any of the information we give online private? The united states is deemed to be a free country and why does this feel like bondage? Not having privacy.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>37. 5de5538f8fde1c4bc951498 *                  The concept of digital privacy is a mystery to many. The average American thinks a specific company will have some of my semi-private information that I have typed. So what? I will maintain my important privacy. Actually, that 'specific' company often shares. This means your information multiplies throughout the millions of entities acquiring and using your data for their own purposes, some of which can be nefarious. Our privacy weaknesses can be used against us in an individual way, as well as, in a way that can affect our country. Giving people the opportunity to have monetary gain often makes them more aware of from where there income is originating. The consumer might work to be more knowledgeable concerning the granting of data. Also, people should be paid for their data, its American.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>25 of 39 <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a> 4/26/22, 9:13 AM</p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>38. 5eae37af3ac6885048af8db3 *                  How much does each individual value their privacy? That may seem like a subjective question, but with companies attempting to put a tangible value on our data, it's an important question we must ask ourselves. Being compensated based on our private data sounds good, but it is important that users correctly value their data.</p> <p>The evidence is out there to prove that companies value our data, so it is time for us consumers to take advantage of that value. Companies like Facebook have used our data for a while and we have had little to no say in it and we have received zero reward. Our information has such a massive effect on the market, but the average consumer finds their data to be trivial. It is not. It is used and sold to companies in order to effectively ponder to select consumer bases. Our data has serious value and if we don't take advantage of that, companies will continue to use it for financial gain.</p> <p>Skeptics will say that being compensated is just a way for companies to get more beneficial information from users and that it will end up with them collecting data more efficiently, which leads to more money in their pockets. That is a fair point and that is why it is imperative that we recognize that value our individual data has on the market. Staying informed is an invaluable attribute. Staying informed helps keep us from being used without our knowledge. Don't let them bamboozle you into believing that your information isn't that useful. If that were true, they wouldn't want it in the first place.</p> <p>Tech Companies have been taking and sharing our data for over a decade. They've used it as an easy way to get richer. It is time that consumers take advantage of the market and take advantage of our value. If their pockets are getting fatter, so should ours!</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>39. 56849d528f456f00c45e1dd *                  For starters, digital privacy is very important issue that's needs to be combatted more because it has to deals solely with people private information. Online is were people's information is most vulnerable and at risk for anyone to get a hold of if improper security measures are used. Both political should press forward these issues heavily because people are trusting online platforms and services to keep their information confidential. If online services and platforms carelessly safe guard people private info online these can lead to loss of customers &amp; revenue for the company. If companies want to share their user's private info they definitely need to provide incentives for the consumers. These companies should be like survey sites that pay people for their opinions and time. Otherwise, not paying people for their data is a form of cheating and being greedy!</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>Grade the following essay</p> <p>40. 5dd18dca3228862028374315 *                  I consider digital privacy to be the right of people to keep their personal digital information from being seen by others unless they explicitly choose for it to be seen. I think this issue is relevant to the political sphere because personal privacy is a basic human right. Having personal data compromised can have a wide range of negative effects for individuals, organizations and society as a whole.</p> <p>Up until now, digital privacy has been given far too little importance in our society. Tech companies seem to have little or no respect for the right of individuals to keep their personal information private. Instead of having companies pay people for the use of their data, I propose instituting policies that provide more comprehensive digital privacy protections, and severe penalties for companies and individuals who violate it.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>41. 5e9d13f7b8fbf3248ca5ef5a *                  Compensating the general public for data would be more logical and realistic than Universal Basic Income for the united states. Firstly, it would raise income while creating jobs in the data collection. It is universally accepted that websites are going to collect our data for better or worse. It is a winning solution without it straining budgets. Data collection without compensation can be akin to theft; all data collected is not necessary to make the app/website better. It is being utilised to spy on an unsuspecting public and advertise unnecessary things. People spend great amounts of time online and with the rights to sell our own data, our online lives can be vastly improved. At all finally be viewed as a provider to the plebs instead of a national security threat meant to harm us.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>



<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>50. 555985d9fd99b49b4b2ee12 *</p> <p>Facebook has introduced a new program that pays users for their data. At first glance, you might think this is an easy way to earn money while wasting time on your phone. However, it is important to understand the sensitive nature of the data you are potentially releasing. Even now, all the major businesses in the world are collecting data on their users. Every time you use your credit card, banks combine this data to form a profile of you and to sell that data to third party marketers. Every time you install an app on your phone, it is highly likely that you have sent information about the people in your address book, the apps installed on your phone, and your browsing history. If you search for information about a medical condition, you could start receiving spam and ads from snake oil companies. You could receive embarrassing ads from such companies in your mailbox. If you are having trouble paying bills, that information could be used to target you for exploitative high-interest credit cards.</p> <p>While the premise of receiving free money for your data might seem attractive at first, it is more important to be in control of your data. It is better when market research is conducted under strict regulations and laws. Until those are introduced, then it is best that we keep our data away from those who would seek to exploit it against us for their personal gain.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>51. 5d5b705b74428400019fbf5e *</p> <p>In an age where technology has become prominent in everyone's lives, I believe people should be compensated for sharing their data with companies like Facebook, Instagram and Twitter. This could be a new way for people to earn some extra money, if needed, and would give them an opportunity to see how much data companies are taking from them. Companies seem to be capitalizing on people's data without really consenting with those who they are taking it from and it isn't really fair. If companies are using people's data, it only makes sense if there is some sort of compensation. This is because those companies are making some profit from it through ads and other means. In my opinion, this is a give and take situations and nothing else. It does not have to be a large profit going to the people, but anything is better than nothing.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>52. 5d9b20dd62b8100014e8cb53 *</p> <p>We need to make a proper system for data trading, which would have like API's to data vaults, which you, as a person selling data, can give certain companies access to. Essentially those companies would get the data on your terms, once you revoke it, they lose access to it. Make it so the copying data through these APIs is extremely difficult, so that you can actually remove data from circulation if you wish to do so. Also, protect everything with heavy fines for obtaining data without an explicit contract between a purchaser and a seller. If there's a transparent system, which allows data to be traded with maximum level of informity from every participant, it's going to be a huge step towards making sure malicious companies wouldn't deceive ordinary people into manipulating themselves via targeted content.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>53. 5da90151062efc00151a593c *</p> <p>Data compensation is an interesting question that involves multiple different topics discussed at the same time. One might question why companies are collecting and selling such data when their services could be transferred over to public ownership. Another might argue that data selling is essential in a capitalist market to maintain the current "free" status that most social media sites currently have. We must remember that data collection is both important and a logical conclusion to a website storing your information. I do believe that selling it should be on a consensual agreement and come with at least some form of compensation. I hold this belief because I also uphold that social media should not operate with profit in mind from the beginning. It's necessary to keep such relevant topics in mind.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>33 of 39 <span style="float: right;">4/26/22, 9:13 AM</span></p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>54. 5e4df4ffce50024afe48001 *</p> <p>From tagging photos on Facebook to driving with Google Maps, people should join forces in "data unions" to demand payment for letting online tools collect their data, according to an economist advocating for radical reforms to improve society.</p> <p>Glen Weyl, a principal researcher at the research arm of U.S. tech giant Microsoft, said people have been "fooled" into handing over data that is then used in artificial intelligence (AI) to copy human behavior and possibly eliminate some jobs.</p> <p>"Humans are doing all this work and then we are being told that we are doing nothing, that we play no role, and that these systems are just going to automate us away. This is profoundly dishonest," Weyl told the Thomson Reuters Foundation.</p> <p>"We need to respect the fact that those data are actually being created by the very people who these companies are claiming are no longer relevant. And we need to acknowledge that by compensating them."</p> <p>While getting paid for tagging photos on Instagram or uploading to YouTube might sound way off, the idea has been gaining some traction in the United States as tech giants from Google, to Facebook and Twitter, face increased scrutiny over the way they handle personal information.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...">https://docs.google.com/forms/d/1QXkpfuvGevprgXeLiB1q5...</a></p> <p>55. 5a6fa72d9cdd180001775149 *</p> <p>The advent of the internet has fundamentally changed how we work, entertain ourselves, and interact with one another. As a result, a handful of companies, including Google, Facebook, and Twitter, have become some of the most valuable and profitable companies ever seen. There is a growing movement suggesting that these companies should be sharing the benefits of their success with their users, by compensating them for the use of their data. This is because these companies fundamentally depend on data - specifically, the data of everyday users like you and I - to develop the insights and targeting that allow them to sell views to their advertisers. While I believe this issue is nuanced, I think that compensating people for the use of their data is not only right, but necessary.</p> <p>I understand that paying the users of a service sounds revolutionary, but I have to stress again that the world we're in now, a world driven by A.I., is one where a revolution has already occurred. Businesses are subject to momentum, and can gain unfair advantages by their size and market position; this is why we regulate against monopolies. In a world driven by A.I., this momentum and market power are even worse. Google and Facebook have huge advantages in terms of the amount of data they have collected and continue to collect over time. This makes them more likely to remain in positions of power in the market. In other words, they might be the monopolies that we are stuck with - and compensation for data may be one of the only ways to tip the scale back and place any kind of check on their power.</p> <p>Another major argument for compensation is that it would 'repatriate' the benefits these companies are creating. Despite their success and revenues, Facebook, Google, and Twitter pay little to no taxes. If companies are going to dodge contributing back to the societies that helped them incubate and grow, it makes sense to extract that contribution through direct payments to the sites' users.</p> <p>Finally, requiring companies to pay for the use of data can help curb the overuse and excessive collection of data. Companies will need to think about what they're extracting, storing, and using instead of simply collecting as much data as possible. This should reduce the risk and severity of privacy breaches. It should also help users understand exactly how their data is being used.</p> <p>Opponents of "data compensation" have a number of objections. First, there is the suggestion that any compensation provided to users would be so small as to be insignificant. It's clear to me that the magnitude of the compensation isn't the point; it's placing a check on these powerful entities that are otherwise unaccountable. Other arguments suggest that these companies would suddenly become unprofitable or unsustainable. I would argue that there must be a price at which compensation for data is possible and sustainable, but without pushing for it, we'll never know. Finally, there is an argument that payments would be inherently unequal, and that higher income earners would be paid more for their data. While I believe that this isn't necessarily true (as many of the behavioral insights that Google and Facebook generate are based on the law of large numbers, driven by millions and millions of everyday users), I would still say that the end results would be better for all users, as well as for society, than if no payments were made at all.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
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**B.11 Treatment Grader 5**

<p>Instructions for Graders</p> <p>Thank you for accepting to participate into our survey. Please read carefully this page before going to the next section.</p> <p><b>*Obligatoire</b></p>	<p>Instructions for Graders</p> <p><b>Instructions for Graders</b></p> <p><b>The aim of your participation</b></p> <p>In the following, you will have to grade very short paragraph (around 300 words or less) as follows. <b>We need an expert in reasoning to grade them as there is no "objective quality" of an essay.</b></p> <ul style="list-style-type: none"> <li>• If you judge that participants "realize that the issue is ambivalent" then you will give them a passing grade, <b>P</b>.</li> <li>• Otherwise, you will give them a failing grade, <b>F</b>.</li> </ul> <p><b>Challenge to overcome while grading</b></p> <p>What may happen is to confound high cognitive sophistication, i.e., the ability to write well-written essays in English, facilitated by the fact that they read some arguments right before this essay exercise with the self-reasoning skill "realizing that the issue is ambivalent", which is the variable we want to elicit.</p> <p><b>Time</b></p> <ul style="list-style-type: none"> <li>• We expect you to spend around 10 minutes to read very carefully the instructions and the examples.</li> </ul>
<p>• And we expect you to spend no more than 1 min to grade each essay.</p> <p>• The total time you spend should not exceed 62 min.</p> <p><b>Defining the fact of "realizing that the issue is ambivalent"</b></p> <p>We define "realizing that the issue is ambivalent" as the awareness of an individual to recognize that there can perfectly logical but opposite arguments in favor and against the same issue which renders the decision-making process complex. Such an ambivalent attitude leads to hold temporary conflicting preferences, one preference for the issue at hand and one preference against the issue at hand. There can be different ways of defining and capturing this "awareness" as documented in the social psychology and cognitive psychology literature. In our study, we capture this awareness by observing individuals <b>reasoning and elaborating in a personal way on the pros and cons of the same issue in a written format.</b></p> <p>Before writing their essay, participants were shown a list of the pros and cons of the same issue. Then, they had to write an essay, following these guidelines:</p> <p><b>The score of your essay will only depend on the first and second parts of your essay. The different essays in their political recommendation can have the same score.</b></p> <ul style="list-style-type: none"> <li>• For example             <ul style="list-style-type: none"> <li>◦ Essay 1 describing very well the issue, justifying effectively its position and giving recommendation for digital privacy</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>◦ Essay 2 describing very well the issue, justifying effectively its position and giving recommendation against digital privacy</li> <li>◦ Essay 3 describing very well the issue, justifying effectively its position and explaining writer needs more information to give a decisive recommendation</li> <li>◦ All these essays will receive the maximum score.</li> </ul> <p><b>How your essay will be graded</b></p> <ul style="list-style-type: none"> <li>• Your essay will be graded automatically by the Artificial Intelligence-powered software produce a report detailing your score. We confirm as researchers, having not business</li> <li>• Your essay will be graded a second time by one Professor of Philosophy, randomly selected University Professors from US universities who were not involved in the design of this</li> <li>• Your reward from the essay will depend only on the grade provided by the software. Grade provided by the Professor.</li> </ul> <p>Answer this question above: To do so, write an essay in which you describe what is meant by and why it is an issue of relevance in the political debate. Formulate in a brief manner a position you think should be taken in face of such an issue. If you cannot do so, please elaborate on what you would need to make a recommendation.</p> <p>As you can see from these instructions, we did not ask participants to merely list again the pros and cons of the same issue but rather, to engage in <b>critical thinking</b> over them. As we said earlier, there is no algorithm yet that can distinguish between participants who critically engage with pros and cons in their writing and those who don't. This is why we thought psychologists are the</p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...</a></p> <p>most qualified in social sciences to give a judgment on this matter based on your professional experience as a researcher but also as a teacher at a top university. It is important to bear in mind that because of the absence of an objective criterion to measure "critical thinking on an ambivalent issue", we count on you to follow the definition of ambivalence defined above (despite your potential philosophical disagreement with us) and your subjective judgment as an expert on this matter, which is crucial for the success of our study.</p> <p><b>Cognitive sophistication and examples.</b> To assess for the "cognitive sophistication" of each participant, we rely on an AI software, Grammarly. This software processes millions of writing users to define them a writing score, measuring their quality of writing, beyond simple grammar errors. In your task, we will not show you the scores assigned by Grammarly to each essay as those scores are not always good predictors of the variable of interest as we show you on the next screen. We excluded from our data set participants who did not perform the writing task seriously or cheated (i.e., those who did not produce an original piece but rather copied pasted existing sentences from the web).</p> <p><b>Below, we are showing two different examples that show</b></p> <p>5 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...</a></p> <p><b>how the AI software's score is not aligned with our definition of "realizing that the issue is ambivalent".</b></p> <ul style="list-style-type: none"> <li>"Example 1" below received a score of 96 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively sophisticated but who, however, "failed" to realize that the issue is ambivalent.</li> <li>"Example 2" below received a score of 51 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively naive but who, however, "succeeded" to realize that the issue is ambivalent.</li> </ul> <p><b>Example 1: An essay written by a cognitively sophisticated participant but who does not realize that the issue is ambivalent.</b></p> <p>The issue of compensating users for their data centers around the rise of the fourth industrial revolution, one dealing with advancements in AI and machine learning technology. These technologies require harvesting masses of user data to create and inform human-like machine thinking and decision-making. However, because this requires reading private user data, many people have begun to demand compensation from data-mining companies for taking their personal data. In some ways, this makes sense - user data is invaluable to companies, so users ought to be paid accordingly for furthering so much research and development. In other ways, users will likely be paid cents at the maximum - is the payment even worth it? A policy that compensates users who personally hand over sensitive and private data, as opposed to compensating all users who are giving barely sensitive, market research data, makes the most sense for this issue.</p> <p>6 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...</a></p> <p><b>Example 2: An essay written by a cognitively naive participant but who does realize that the issue is ambivalent.</b></p> <p>Digital privacy means access to people's personal information, on countless media. Some examples are: Social Media, databases of medical institutions, smart phones, merchant data from credit card readers, and just browsing the internet to name a few. In this day and age it's accurate to say that "digital privacy doesn't exist. Data is stored all the time and is regularly accessed by corporations and as we learned from Edward Snowden, your own government. It's even possible for someone to hack into your personal home security camera or smart phone camera. Having this kind of lack of privacy could put people at serious risk. But in the normal day to day, our data is being constantly being bought and sold for various reasons. Some people think that people should be paid for the use of their data, but as mentioned in some of the articles I read it's more complicated than is sounds, and I do not have the education, nor experience to formulate a policy on this. My opinion is yes, people should be paid, but I think the overall priority, policy-wise should be on privacy in respect to spying, of people and listening to individuals on their personal calls without warrants. That needs to be addressed first.</p> <p><b>Below, we show you two further examples.</b></p> <p><b>Example 3: An essay written by a cognitively sophisticated participant (score 78 on 100 by Grammarly) but who does not realize that the issue is ambivalent.</b></p> <p>Digital privacy is the process of using the internet and connected devices without compromising your information. So yes, people should be compensated for sharing whatever data it is that they would share online. People are giving out their personal</p> <p>7 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...</a></p> <p>information and I feel that it is very important that they should be compensated no matter how little because it is not easy to do so. Most people find it difficult to give out their personal data but if they are compensated, they would be free and willing to share it out without much worry. So the political sector should find a way to put up the policy and see how they can implement this. It is not an easy thing to do. They need to be fast about it too. Everybody should be paid for giving out their information. It is very critical and needs to be paid to be received.</p> <p><b>Example 4: An essay written by a cognitively naive participant (score 50 on 100) but who does realize that the issue is ambivalent.</b></p> <p>Yes, I think we should compensate people for sharing their data. There are several reasons to support my perception.</p> <p>First, personal data, such as demographic, psycho-graphic, and behavioral information are all person related. They belong to individual person. It is up to the individual consumer to decide what they are going to handle the data, including using and distributing. When the data is generated and collected, the final ownership and control of the data should be with the individual, not the company that collects it.</p> <p>Second, most the firms use the data for commercial purpose. They use the data for research to develop products and services for profit. As part of the input, the personal and private data drives the revenue and profit. As the owner of the data, individual consumer should get part of the share of the benefit.</p> <p>Third, when companies are using and storing data, a lot of breaches have happened. This exposed the individual consumers to a lot of risks. They should be compensate for this risk as well.</p> <p>Having said these, I believe the data owner, i.e. the individual consumers should be compensated for sharing their data.</p> <p><b>Grade the following essay</b></p> <p>8 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>1. 5c99543c231ab00001eb5f73 *</p> <p>We as a country need to embrace the digital age. As ex-presidential candidate Andrew Yang says We are currently in the 4th industrial revolution and the only one seeing the benefits of this are the top tech corporations Google, Facebook, and so on. The data they gather on its users is like digital gold and users should be compensated and informed how that data is being used. This is important not only because people have a right to privacy but they also should have the right to sell that data at a premium these tech monoliths could not exist in their current state without this data and consumers need to understand this. We as a people should not be ruled over by big tech and social media its time we take back control and level the playing field. A large part of this country lives paycheck to paycheck so having extra income in the form of data is a big win for the lower part of the social hierarchy.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>2. 5eabe9be3e16511ddfbcb4682 *</p> <p>Yes of course, Personal data needs to be regarded as a human right, just as access to water is a human right. The ability for people to own and control their data should be considered a central human value. The data itself should be treated like property and people should be fairly compensated for it. Companies like Facebook and Google that collect, store, mine and sell data have expanded into giant businesses. While these companies that give away "free" services have grown rich, the data that belongs to their users has at times been compromised, and people's digital habits sold, often without their full knowledge. Of course, I love technology and apps. I'm always using Twitter, Instagram and Facebook. But I'm tired of being bombarded with content that adds little value to my life, and I've become desensitized and ignore most of it. So its good to compensate people for sharing their data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>3. 5e5c4a6f7f6b8f000e59f81d *</p> <p>Digital privacy is a particular ambiguous issue because the implications change drastically depending on one's definition of privacy. On one hand, people believe that privacy is limited to sensitive data such as usernames and passwords, while others believe that all data must be private. More importantly, how do companies use our data? Seemingly harmless data, such as your browsing and click history, can be used in large scale psychological manipulation. Groups of people with similar data profiles can be coerced into buying similar products as one another through product placement and advertisement. The collection of data is crucial for marketing. Additionally, it can also be argued that data collection is what keeps these platforms free and open for anyone to use. While it is important to give everyone a platform, we must also protect our data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>4. 5e9159c5d2668d4885a497ff *</p> <p>Digital Privacy summarily, is a phrase which encompasses communication privacy, information privacy, and an individuals privacy. It is a staunch protectorate for individuals and consumer rights but is an adversary to many businesses on the internet. Digital Privacy is an issue of relevance in political debate because of computer crimes, i.e. hackers; laws and legislation should be required of governments and businesses to take measures to keep data secure and cover security breach laws and other types of cybersecurity legislation. Businesses should stop using financial incentives that are unjust, unreasonable or coercive. Businesses also, should abide by the consumer's rights by not charging higher prices or providing a lower level of goods or services just for the executing, thereof.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>9 of 38 <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a> 4/26/22, 9:14 AM</p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>5. 5e3ac3c24531882d5a0728ed *</p> <p>Computerized protection concerns, which have been a significant issue in our nation since 2001, progressively disregard out fundamental common freedoms as worldwide residents. The developing measure of government observation has showed in the instruction of acts, for example, SOPA and CISPA. In spite of the fact that their purpose on halting advanced theft and assaults were clear, both were quickly met with unforgiving analysis, they permitted large organizations to abuse our security rights. Furthermore, with 3 billion calls made and 150 billion messages sent to and from the United States each day, the assortment of this individual information without determining the cutoff points to their hunts is muddled and out of line.</p> <p>Google, Microsoft, Facebook, and Yahoo among numerous others have as of late, under assurances of government assortment.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>6. 5ec6bdfa0b0a680cae967aa3 *</p> <p>Data has become more valuable than gold in the digital age, yet its price is simply the click of a "I consent to cookies" button. Big tech corporations such as Facebook and Google have enough information about us to advertise the perfect products to us at the right time.</p> <p>Big Data is relatively new yet there have already been countless media reports of how data is sold and manipulated. This information is priceless to companies yet completely free. Federal legislation needs to be passed to better regulate the sharing of data. People are powerless to large companies and even if they could be paid, they would likely not be compensated enough for how valuable their data is. Before the idea of compensation for data can be considered, government regulation must become stricter so people don't suffer at the cost of corporations' billions.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>10 of 38 <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a> 4/26/22, 9:14 AM</p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>7. 5eaa192b4e2ab9197cec6eeb *</p> <p>I think "rewarding" people for the word is too big and we can praise them at best. I don't think it's a very bad thing, but neither do I find it very debilitating. People are responsible for their own data and it's up to them to want themselves do with it. Some may sell and even lose something, while other may leave and lose as well. And still others they will give away for free someone and gain a lot. People do not fully understand what they have and what they give to others. How very valuable data and information about themselves. The most important people in their lives. A lot of people don't respect any of that. They does not understand what others can do with it and how use it. They people need to know it. It is very different ask, life is very different and a lot of stories can create.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>8. 5dcb4449b4715a13fa2ffbed *</p> <p>From traffic intersections to keystrokes, our lives are captured in pixels and bytes. Private information such as social security numbers and living circumstances are store, shared, and abused.</p> <p>The stage for policy seems to be in the political arena that was once the forefront of the big government debate. Now, how much information should be shared and by/to whom seems dependent on personal gain, not principals of privacy. Capitalism is at its peak in this debate, focusing on income, gain, and leaving the tallings of moral deviation-making in heaps of rubble.</p> <p>Forcing companies to compensate individuals for the information they now steal would discourage piracy, give consumers power, and provide a voice in controlling information. This is not a perfect solution but one that is possible now.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>13 of 38</p> <p>4/26/22, 9:14 AM</p> <p>9. 5e6fd67a52fd0326edb9104 *        When we sign up on social media platforms, we easily trust our information in the hands of companies. We believe nothing of our data is important to them because...seriously? Why would they want our information anyways? What we don't realize is that when our data is sold, we lose our privacy, we don't earn anything and for those who are low-income, we already suffer enough while companies gain thousands of dollars from our data. Despite it just being "cents," when it is taken by masses it becomes thousands of dollars worth of information. It is sold right in front of us as we click "submit". Ads start flooding our feeds full of items we have interests in, items we have searched about on the internet. We become searchable on search engines as companies earn from our data. Our basic "private" information is no longer private, and at what cost? Any person can search and sell ads for us to see on our phones throughout every app.</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>10. 5e875f10bde8373bdc2eac32 *        Salary is a concept with a very broad price. Joke ambiguous and may mean, for example, in a narrow sense, pay, in a broader sense, as well as payroll and non-payroll work benefits obtained from work at the Convention of the General Conference of the International Organization Work. It reads as follows: "the remuneration is expressible in cash and, determined by the browser or the national place, the pay which under the written or oral rental agreement services are due to the employees either for the work performed or which is to be performed or for services rendered or to be provided provided".        One.        The remuneration is one element of the employment contract, very intensive for the employee, about which the Labor Code says "By reference to work, an employee works to work the employee's work for the employer and under his direction and at the place and time designated by the employer, the employer to hire an employee for remuneration".        In practice, there are several terms: pay, salary, payment, gratification. They have the same meaning and correct payout functions and values</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>14 of 38</p> <p>4/26/22, 9:14 AM</p> <p>11. 5e6002b9e9e2ca34e24deab8 *        A person's demographic and preference data belongs to that person. This concept of digital privacy, of a person owning any information about himself, explains why any website who uses that data in a for-profit way, either by reselling it to a third party, by placing targeted ads dependent on the person's browser history or other such data, or by changing what news and articles are displayed dependent on that data, should repay the person for the worth of his data. These websites are taking information that the person doesn't necessarily even know he is giving away, and either selling the data to other companies or (worse) "selling" the user's views to companies who want to sell him something, and he doesn't even know it's happening. This process needs to stop, especially for free. Pay us for our data. We own it.</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>12. 5c7c73b6f48c6d0001f6f49c *        I would argue it's only fair to the American people to compensate them for any and all data collected and used for any purposes. It would benefit our economy and society, especially those unemployed, to have income arriving at regular intervals with the amount of data being used by companies every day. Though it may not be a lot of money to work with, it can allow Americans to put the same money received back into the economy with most everyday purchases made by some individuals. It's hard to truly imagine how anyone can lose in such a situation as the resources would flow right back to the suppliers in some way, form, or shape. This also will create trust between consumers and companies. Paying people for what you collect from them, even if they don't want their information collected, can increase feelings of trust and transparency which will be useful in business to consumer relationships for the long term.</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>15 of 38</p> <p>4/26/22, 9:14 AM</p> <p>13. 5b0e9dabee29060010f63d8 *        I ardently believe people should be compensated for sharing their data with websites and social media. In the mid to late 90's, when the internet first started gaining popularity, people consented to data sharing little by little in exchange for this fun new technology "surfing the web". Without realizing it, soon quite a bit of personal information was increasingly being disclosed.        Now it has become so ingrained in the experience of daily life, that one has almost ceased to question how much we give away... is it time to rein it back in and regain control? Or is it too late, is too much information about ourselves, our habits, likes, dislikes, financial life, sexual orientation, race, religion, political beliefs and much more already out there? It seems the cat is well and truly out of the bag.</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>14. 5ed986a6976efc5248483038 *        Around September 2019, Democratic Nominee, Andrew Yang spoke at length about policy proposals regarding user compensation for user data. This was the first time I'd really even considered the idea as a whole. He made a compelling argument which included the idea of user consent, claiming users aren't being fairly informed of exactly what data is being collected, how it is being collected, and then of course, how it's used. Before we can debate the pros and cons of user compensation we need a call for company transparency. We regulate all other industries but not the internet? This is arguable the fastest growing, most easily weaponised, most powerful in many regards, economy we have in the modern world. This emerging idea of a digital economy, is just that, an economy. Politicians must address the digital economy in their platforms just as they would the physical economy, at least. I would argue user privacy, data privacy rights, and data compensation in general warrant special attention from the public and therefore their representatives. Users are absolutely doing work without pay, therefore, it is a clear violation of modern, western, normative, social politics. However, deciding fair compensation, is something the US has always grappled with. Lets take legalisation of cannabis production in California in 2016. This policy argued it would produce jobs. However, poorly constructed, the result was that due to years of criminalising marijuana possession, exempted those holding prior convictions from growing permits and the astronomical price of the permits, farmers who have been growing for decades are exempt from the industry or forced into continued, illegal practices. These policies have to be carefully scripted, or they will deepen wealth inequality and continue to put more money in already heavily filled pockets, and powerful corporations. For example, I worry that payment of users for data might favor high-income users as companies would have more, economically speaking, to gain from them. Exempting, or discounting lower-income users. This cyclic, capitalist, socioeconomic regime keeps the poor, poor and the rich, richer. We need a political/ideological shift from capital-based policy to people-based. Yes, pay people for their data but do it right, do it smart.</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>16 of 38</p> <p>4/26/22, 9:14 AM</p> <p>15. 5eda930095f9d06c0dd569fe *        Compensating people for sharing their data and it is relevant to US political debates. Very important issue in today's technical society. Everyone today seems to have access to the internet even with using a cell phone. If companies want to use personal information for profit or gain then consumers should be compensated for it. Paying for the information should not go directly to companies such as Facebook it should be a personal consumers decision and payment directed to the consumer. The big downside of this is companies will never lose money. They will start charging more for products or simply charge you for using the free websites such as Facebook. The facts remain that companies will not lose money they will find a way to make the same profit. I believe consumers should be paid for information companies use to make a profit. The downside is the companies will charge more or start charging for products that are currently free.</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>16. 5eda94f69f275211dff92234 *        I do not believe that we should compensate people financially for their data. The process that would be used to make such determinations and verifications of identity, payment method, and amounts would be rife with mistakes and extra costs.        I believe that instead of being paid we should be allowed to opt out of sharing our data and only share what we are comfortable sharing. Consequently the data we do share is worth a marginally higher value. This allows advertisers to continue to advertise their products over a broad population and social media sites are still able to sell advertising.        Using data to create targeted advertising to users is only a recent invention. It is not guaranteed to create more business even if they have picked the "perfect" users due to data mining. If we allow the user to share their data as they see fit they are helping advertisers and social media platforms create customer lists while still having some control of our data and privacy. Thus social media stays free for users and users can choose where and when their personal data is used for advertising.</p> <p>Une seule réponse possible.</p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>

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17. **5edc6362784b9392be983d1f \***

Many tech entities collect and use users' personal data on sites and platforms across the internet, and the use and sale of this data, often at a huge profit for tech businesses, is a controversial issue. The approaching dawn of a shift toward an AI workforce and its replacement of human jobs adds heat to the fire, and with tech companies hurtling toward larger and larger profits made off of personal information, the question of whether or not users should be compensated for their personal data has become more and more critical.

A key argument for compensation of users for their personal data is that paying users would act as an equalizing economic force in a world where "regular" jobs will likely be replaced by AI. Users who are compensated for their personal data could earn a median of \$20,000 a year, a huge boost to a population that will likely see a shift in their employment prospects as technology advances. Advocates also argue that compensating users for their data would help improve the quality of data collected. Industries across tech rely upon data for key aspects of their businesses including marketing and analysis, and depending on personal data that is acquired at no cost means that some of the data may be incorrect and thus will provide ineffective business results.

Opposing arguments state that compensating users for their data would impact the profit margin for tech companies and possibly lead to subscription models to platforms that are currently free. Many people depend upon free platforms like Google Suite or Social Media for their work and personal lives, and a lowered profit margin may mean a shift toward making money by charging for services. Other opposing arguments state that compensating users for their personal data would not, in fact, even be equalizing; the data of the poor, elderly, or infirm would not be worth as much as the personal data of wealthy people in affluent countries, and as such a disparity in compensation would be reflected in a plan to pay internet users.

My personal recommendation is that technology companies develop a more upfront approach to informing users that their data is being collected and used or sold. This more educated population would undoubtedly realize the impact their efforts are making for the companies, all while they are not being compensated or even fully informed about how their personal data is being used. Key aspects of data that should be analyzed include the amount of data collected by tech companies, how much money these tech companies are making on each individual's data, and how this data is being sold or used for profit.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

17 of 38 4/26/22, 9:14 AM

Instructions for Graders <https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...>

18. **5edc6459f8035a92cc47aa6b \***

This issue is extremely complicated, but I would say that overall, I do not think compensating people for sharing their data is a good idea. While many opinions were brought up in the twitter slideshow from earlier in the survey, the one that most coherently reflected my concerns said this policy would "turn privacy into a commodity." I think that the challenges of the digital age can only be humanely met by pivoting away from capitalism entirely, and paying users for their data, while it does give average people more chances to earn money, is fundamentally the opposite direction. Being forced into selling your data to help make ends meet when income inequality is so staggeringly high is not a liberating prospect. Time has shown again and again that our economic system can easily take any given prospect and turn it into something exploitative and harmful. I believe redistribution of wealth is the answer, not further commodification.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

19. **5ee2c239f4ec4b804a79cf80 \***

I believe that we should be able to compensate people for sharing their data because companies that already benefit from the data should be able to give their customers and viewers monetary compensation.

Many people argue that sharing data is a willing action for customers and viewers who are trying to see the information on a website. However, whether the benefit is in cents or dollars, viewers should be able to profit over the fact that their data is being sold or given to third party vendors who can aim their products towards the viewers by evaluating the data that they are given. Data unions could potentially guide how viewers and companies deal with this new era of data sharing and information. By enabling customers with financial benefits, companies and corporations ensure their customers that there is a give-and-take partnership that is involved.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

18 of 38 4/26/22, 9:14 AM

Instructions for Graders <https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...>

20. **5ee2d96eac3291203650f16e \***

In the ever evolving days of technology companies are collecting massive amounts of data on it's users, then selling that sometimes very invasive data to companies for large monetary gain. The political divide on this subject comes in when some believe that the data would not exist if not for the user and thus the user should be monetarily compensated, while others argue that the companies who compile the data then find the buyers are the ones putting in the work and thus should be the sole beneficiary of the monetary gains. Personally believe that the answer lies somewhere in the middle, companies harvesting our data often offer a free service and deserve monetary compensation as they must harvest it and find a buyer, but on the other hand it is the users data and without the user then there would be no data to sell.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

21. **5ee3b252480904067ab5ded3 \***

I do not think people should be compensated for their data being shared on the internet. When you go on the internet, there is an understanding that the website you are on is taking some data from you. Most of the time your data is sold to other companies to let them know how to best relay information to you, based on your preferences. Companies have been taking our data for years now. The companies already have a lot of information about each of us and our data has been sold many times already by many different companies. I feel like it is a little late for us to make companies compensate us now. If you are worried about your data being shared, you should not be doing things on the internet that you would not want to be known by other people. Compensation will not stop companies from selling your data. Even if you were to be compensated for your data, you would not gain much. As seen in the second article you would only get a small amount of the total income the company got from selling people's data. The money would not be worth enough to go through the extra trouble of trying to get paid for your data.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

19 of 38 4/26/22, 9:14 AM

Instructions for Graders <https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...>

22. **5ee63e25f75744399ccf2f35 \***

Do you have social media? Did you know creating your Facebook profile is worth about \$8 USD? Instead, we agree to terms and conditions that allow us to participate in social media for free. Why? We want to be connected. The flip side of this coin is the fact that these giant social media companies use and sell our data for profit, and make billions doing so. Since these companies have so much influence over the average citizen and make so much money, they have quickly gained leverage over US politics too. It's chump change for them to sway politicians. Even though it may seem difficult to compensate social media users for their data, it is not impossible. Enacting compensating policies in social media would create hundreds of jobs. Compensating the average user for their data would create a huge economic stimulus as well. Compensating users would also take money away from influencing politicians to obey social media giants' wills, again, placing more power into average citizens' hands. Social media users should be fairly and reasonably compensated for the data they provide. Power can be returned to citizens from these giant corporations, creating more influence and power from the general population as a whole. The power was meant to be held by the people, not companies.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

23. **5ee976ad4895b51ed5d0888d \***

What is a difference between one-on-one conversation and messaging on Facebook? Or should we start by saying how quintessential internet is, thinking of all the tools that give us an opportunity of one-on-one conversation without really being there. And how altruistic of companies-giants to handle all those precious tools for free. Well, here is a hint - it's not really free. What is the currency you may ask? We pay with our data. And the answer to the opening question is that the main difference between one-on-one and Facebook conversation, is that in the later you've got the entire Facebook headquarters behind your back taking notes meticulously 24/7 and selling it for the profits, in expense of not just our privacy but democracy. As when the data is analyzed and utilized to benefit a political campaign, the outcomes are far beyond a random person having access to your data, it's more of a powerful group of people shaping/engineering the way we think and live. Data should not be shared. Facebook should be a paid subscription service with a vow not to use the data.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

20 of 38 4/26/22, 9:14 AM

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>24. <b>Seeb4fbb416e8c04b2ba7ed1 *</b></p> <p>Personal data definitely should be reimbursed by the consumers of the data. It has taken a life to produce that information, and the effort should obviously be paid for by whomever uses that information for their benefit.</p> <p>Think of the teacher-student situation for a moment. The teacher has undergone training, costing personal finances. They have trained themselves over time, costing them time and opportunities whereby they could have been doing something else. They have put themselves through experiences that further polish their skills.</p> <p>A student then comes along and insists that they receive instruction from the teacher at little or no cost. Is that a fair exchange for the warehouse of information that the teacher has? I should think not. Every minute of the teacher's time can easily have been extracted from hours of simmering and percolation in various classes of situations, be they real, virtual, conceptual, etc.</p> <p>In like manner, data that represents me was produced by my life undergoing percolation. It's concentrated essence, represented by the bits of data, is of value. And for this reason, the person who's life generated it should absolutely be reimbursed for it.</p> <p>Personally, I can't comprehend why the alternative would even be considered. Such is a cheap, miserly option chosen by people of like character.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>25. <b>Seeb8ecbc6a26c32f11ba873 *</b></p> <p>I am out of time..... ..... .....</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>21 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>26. <b>Seff1086d5234d40c8a15754a *</b></p> <p>Part I: The issue of companies collecting data from their users hit a high point in the media when Facebook was called to the Senate to prevent their processes. This resulted in a lot of people beginning discussions about how their data is being used and how to control the data that they share. With the innovations in AR and VR this is also an issue as it is a new platform that requires user data in order to improve and grow.</p> <p>Part II: Those that find consumers being paid for their data ludicrous, says that it is too complicated of infrastructure for companies to implement and that it could require users to have to pay for subscriptions to sites that would not be affordable. Those that are for a payment structure for data acquired so that it would raise the median household income and would allow people that have more control over their data.</p> <p>Part III: I think that a payment system is not necessary. However, companies need to be more transparent about what data is being collected and who that data is being shared with.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>27. <b>Seff3ff22f1984c00089d53c8 *</b></p> <p>I believe that people should be paid to share their data but should not be punished for not sharing it. Ultimately it should be up to the person if they want to share this data or not. This is a fundamental right especially in America typical essay contains many different kinds of information, often located in specialized parts or sections. Even short essays perform several different operations: introducing the argument, analyzing data, raising counterarguments, concluding. Introductions and conclusions have fixed places, but other parts don't. Counterargument, for example, may appear within a paragraph, as a free-standing section, as part of the beginning, or before the ending. Background material (historical context or biographical information, a summary of relevant theory or criticism; the definition of a key term) often appears at the beginning of the essay, between the introduction and the first analytical section, but might also appear near the beginning of the specific section to which it's relevant.</p> <p>It's helpful to think of the different essay sections as answering a series of questions your reader might ask when encountering your thesis. (Readers should have questions. If they don't, your thesis is most likely simply an observation of fact, not an arguable claim.)</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>22 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>28. <b>Seff465c72a5edd000a7e1e5c *</b></p> <p>It is my personal opinion that digital data collection should be a service that is compensated for. I chose my position in this stance for various different reasons. The amount of data that is processed on Google searches alone is so significant that the actual quantity of data collected is what puts a value on the data itself.</p> <p>An example of a benefit of paying users for collection of their data would be allowing technological companies to gain knowledge on which applications the consumer values and how they use them which results in building better products for people therefore increasing their market power.</p> <p>This broad ecosystem of data sharing is so vast from healthcare systems, financial services, education among many others that all is valuable when consent is given hence compensation raising United States household income significantly.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>29. <b>Seff519f0c7ae5815a2809ffb *</b></p> <p>I strongly believe that we are responsible for what we do online, including sharing our data, but I do not think that people should be compensated for sharing their data. The internet can be compared as a public space, and in a public space you can't really charge someone for using the information that they can see with their eyes right? The companies and the websites we visit explain clearly what they can do with our data and its on us to decide if we want to share it or not. Nobody is forcing us. Sharing our data is a consequence of using a certain service, and outside the web we pay for services right? Plus, some people tend to have few control when it comes to money, and I believe they would sell data, that is not yet shared automatically, just for some extra cash which is not safe at all.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>23 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>30. <b>Seff80c094084d551338eb29 *</b></p> <p>In this new age of internet and public data sharing, I believe the people who want to share their data should be compensated for the data the voluntarily provided. If a person wants to share the data they provide to companies that use the data to provide information, whether it be just to improve search options to target advertising to a certain group of people, they should be paid for the information that they provide. The option of privacy should be presented to them if they don't want their data shared to the company or whomever is using that information. If we do allow the payment of the data how can't be taxed and regulated with federal and state regulations? This is one issue with allowing payment of data information. Another would be if the user doesn't want to share any data with a company how can the company keep it secure. I believe that the government should discuss and implement a process for the sharing of data in the USA. I cannot speak for other countries but the freedom of information and the privacy of the citizens should be addressed.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>31. <b>Seff5360f3f69c084c1ca850 *</b></p> <p>Digital privacy is the encryption of sensitive data in order to keep it private and protect consumers from getting their information used by others. Digital privacy is a issue of relevance in the political scene because large tech companies such as Facebook, Google, and Apple have grown into monopolistic giants and have extreme leverage of the consumers. These companies have grown to giants and collect the data of users in order to provide targeted ads, and have sold data to 3rd party consumers. These companies have collected consumers' data sometimes without their consent. The data from people is sensitive data that gives tech giants leverage over the people. It is important that politicians protect the people from having their data used by tech companies. Digital privacy is essential in the age of technology. A policy recommendation that I think should be taken in the face of such an issue is that all data collected from consumers should be consented, should not include sensitive information, and should be in the best interests of the consumer.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>24 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...</a></p> <p>32. 5efb7980ed6b0b0e0fe5dc90 *  All of us use the internet constantly throughout our day. Whether you are scrolling social media, using google to find the answer to just about any question you have ever had or making a Zoom call to your grandma. All of these actions result in your data being collected without creating a clear understanding what data is collected and what that data is used for.  This collection of data is like grease for the gears within the internet, it provides a smooth and fast experience. The collection of data is essential for this reason. However, the user creating this data has no control of their information. Users should know how, why and by who the data is used, as well as being able to restrict this use.  We should implement a policy that will allow users to control how data is used or provide fair compensation for the use of that data. Companies are making money hand over foot off of our free data. How is this ethical? We need to make this transaction fair for all involved.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>33. 5efbde1ed9a1e9000c808d8e *  On the issue of weather or not individual who share their personal data should be compensated by the company using it or not, I believe the answer is yes they should be compensated. The reason is because companies using these data are probably using it to improve their services either through studying these data or by using it to do a form of market survey, their by improving them self and their services and resulting in an increase in the companies income and to show that they know and appreciate the value of the data they use to make this possible, a form of compensated should be give to the owner of the data. If something like this is put in place I believe people will be encouraged and more willing to give companies permission to use their data as long as they are guaranteed that takes data aren't being use for any form of illegal activities.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>25 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...</a></p> <p>34. 5efc1c8ea9f30301deb3ae10 *  Data sharing across online platforms is happening constantly without most people being aware that their information is being spread. It's become a common joke among people my age, "I was thinking about motorcycles and now I'm getting ads for motorcycles on Facebook! I guess they're spying on me!" It's not a joke. These sites are collecting our data and spreading it without the majority of peoples knowledge. Education should be used to solve this problem. Everyone should be informed of the data being collected from them and have a say in whether or not they consent. Compensation for data sharing is not a probable solution in this case. Setting up compensation for data mining would not be logistically possible. It is my opinion that many people would be content with knowing that they have consented for or against the use of their data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>35. 5eff71789732f80381cfaded *  In my opinion people should be compensated for the data they give out. With the uncertainty of what the fourth industrial revolution holds, it will serve as a form of compensation. Also since tech companies benefit from these data, a good compensation that will suit both the individuals and the company is not a bad idea. Both party, that is individuals and companies can find a level ground that will suit all. Another good reason why there should be a compensation for data is that these data generate income for certain companies on the bases that it helps them keep track of what people's preferences are. Its also important to note that people's data is their property (in essence), in other words.  So I totally support the notion that people should be compensated for the data they share.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>26 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...</a></p> <p>36. 5f07c00f29d245000cf951db *  Sharing of data from people should be compensated for in any form because people don't give important information about their self even if they want to give out their information. Due to the problem that have occurred, many people think that they can trust the interest and share their information when really they are wrong. once people share their information on social site for instance they are potential inviting trouble for them, this would give another user a chance for stealing their information. So people take the risk of giving out important information about them self they should equally be compensated considering the risk in giving out personal information. They should be a potential benefits many people are passionate to participate on social network in order to express their ideas.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>37. 5f090722510abc1985b35072 *  People should be compensated for their online data. Everyone uses the internet, and most people spend time on social media frequently. Companies such as Facebook are already using our data and it's scary how much they know. It would be better for our country if people could get paid for their data because then low-income people can have some passive income to help with bills. Most Americans are in debt and this should not be normalized. Right now, big tech companies have an enormous amount of power and money, while average Americans are living paycheck to paycheck. Low-income people already have to spend money at big corporations such as Amazon because it's the only option for many overworked Americans. It's unethical for them to use people's data without compensation. It will benefit our nation and help us redistribute the wealth.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>27 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...</a></p> <p>38. 5f0a324200d38730124b0b34 *  We should get compensated for sharing our data because many people are not even aware that their data is being used, shared, and sold to third parties. Compensation will not only allow people to become more aware of where their information is going but will also let them be more for it. So, compensating users will only benefit the company if they're able reasonably to pay their users at a decent rate. People will also see this as a great act by the company. Others will see this as transparency, and others will read the privacy policy and terms of service more closely than they do now. Currently, people don't go over the privacy policy, terms of service, or any other list of agreements because it is very time consuming and, half of the time they, don't mind too. In conclusion, companies and brands should compensate their users for having their data shared, used, and sold online.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>39. 5f0e51bb24607b18eac410ca *  I support to some extent that data providers should be compensated by sharing their data in the sense that those data's shared is being done on a daily basis and these tech companies have them in carrying purposeful feeds thereby attaining some ideally opinions from people on a particular trend of happening locally or globally. On the other reason why I'm not fully in support, is the reason for abuse by humans that are posting these data. However, it's in view that these might not turn out well and may lead to some contents being plagiarized, or not well constructed. In addition I think the best way to go about the whole is by combining the best theme data from people well known for sharing the best and compensating them for a job well done and this will ensure that people become seriously involved in sharing the best, nothing buy the best data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>28 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD2SE8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD2SE8RgqYYCo4Z98...</a></p> <p>40. 5f0ea41ccdb6e1f657caf38 *  The internet is one of the versatile means of distributing information to the benefits of individuals in the society and the internet is being operated by proficient personnel in acquiring and efficacious results. When people are compensated, it aids them in order to get more information about everything happening in the society, for instance politics. These information can help them participate with majority of the citizens.  The world should be fair and equal and it's practical that some persons cannot afford constant purchase of data, so if these persons can be compensated, it'll go a long way in education, political, religious and other aspect of life.  In all, data users should be compensated for sharing their data, it may seem impossible but it's one hundred percent possible for this to be implemented as it will go along way in making the economy develop and the best amongst the rest.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>41. 5f0f4a271bffc0d0915adaa *  I support digital privacy which would allow internet users to be paid for their data since it is theirs. I have been on many sites that have distributed data information on me that most likely, I probably would want to remain private. But maybe if I was offered the opportunity to sell my data, I probably would have opted to sell. Many people that are using the internet for many different things, could be low income and could really benefit from the compensation. I feel that it would also bring the unemployment numbers down as well. When data owners are paid for the data both parties benefit because the companies that purchase the data use it for research so if they do not have my data, the companies may suffer and they are unable to study demographics, gender, race, etc., to improve the net.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>29 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD2SE8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD2SE8RgqYYCo4Z98...</a></p> <p>42. 5f0f7268a751ba12faf8c7be *  I am Max Schoen. In this modern world, it is very important to have more information. So, every company needs more information like this survey company. Everyone should give their details to this survey site in order to help them out. Like me they should also come forward and help them. In this modern world information is an asset.  Everybody needs information. Like as, this survey company runs their job by survey which is mostly done by us, the general people. And the company should also pay the general people to come forward and fulfill their information. It is very necessary because nobody feels excited to work until their paid with money. So, I think, the company should compensate</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>43. 5f11d83ebe3dfb0abd270cfe *  What are tech companies doing with our data? As of now, they are gathering information about things we like, our tendencies, what we purchase, etc. Your information is being gathered for free! Do you not think it's your right to be compensated for this? If you google engagement rings, you can be sure that within the next few weeks you will receive targeted ads of nothing but engagement rings, then wedding venues, and so on and so forth. There is no limit. Even if you are only receiving pennies on the dollar for your information it would still be better than the current state where you're targeted based off your information and actually more likely to spend money because they're showing you things they already know you are interested in. Of course there will be extra work for both the user and the company, but overall it will be more beneficial to you.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>30 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD2SE8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD2SE8RgqYYCo4Z98...</a></p> <p>44. 5f1235df1d332a17bdfc20f5 *  I will say that I do not know much about data sharing and/or profiting from data sharing. However, from what I read earlier in the survey I am leaning towards compensating people for sharing their data. I know a lot of people daily use large amounts of data. If we were compensated for our data, tech companies could use this as a way to update and repair easier and faster. If people were getting paid for their data, people would pay more attention to the quality, dependability, and usage of the platforms being used. I feel like technology usage and development would rise significantly and people would benefit greatly from it. There would have to be regulations and rules set in place to make sure everyone was compensated fairly, in which a union would need to be set in place. I do plan on educating myself further on this matter.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>45. 5f12434469688108dff71446 *  I believe that people should be compensated for sharing their data with companies that then use that data to make money. As consumers in this technological age, we are constantly using our phones, computers, tablets, etc to produce data for companies that turn around and use it to market products to us. Is it not then fair that those same companies, who make millions of dollars from our data contributions, give back to the people who work for them? In essence, we as consumers are working for these companies by providing data and receiving very little in compensation. Sure, we have the luxury of using our emails, search engines, or social media apps to connect with others, but we don't see any income from all the data that is collected by big corporations, data that is private. We are providing a form of labor for these companies and are not being paid for it when we should.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>31 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD2SE8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD2SE8RgqYYCo4Z98...</a></p> <p>46. 5f12645eefc9521bd31b3bc4 *  I believe that it is right and fair to compensate people for sharing of their online data. We live in an age where nearly all data and information requires some sort of internet access. Companies constantly utilize this information to sell to advertisers and third party groups for their own profit. The introduction of compensation for data from online companies could incentivize people to choose a company that rewards users with the highest payout.  By creating this system the internet becomes more capitalistic, allowing users' choices to shape internet traffic and eliminate the collection of private data for free. This will not only increase the income of the general population, but also have a positive effect on the economy secondary to people reinvesting those new funds elsewhere.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>47. 5f12839e7dc2bb1e8f16d9af *  We should give an option for people to earn value for their data. This way if you do not want compensation from your data, you won't receive any money. When giving an option for someone to manage and sell their own data, they have a choice, which is important to a consumer. If you put yourself in the mindset of a social media user, you would definitely want options. This way both sides are satisfied. Eventually, if everyone decides on one option more than the other, you can slowly transfer onto that option, so handling social users data can be easier. Some may think that selling data without compensation is smarter for a company to do, and no matter what, there will always be users on that platform. The problem with that, as a company your job is to please and tailor your product to the consumer mindset, which includes choice.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>32 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>48. 5f1302787eb0132b224916fc *        In today's world, everyone has an online presence. All our personal information is attached to our online personas. This information is a commodity that companies see as something of value. Up until now, this information has been collected by the various sites we are on and sold to the highest bidder. Our information belongs to us, we are the product being sold. We should have some say in if we want that information to be sold. We also should be paid for our information if we do decide that it can be sold. We need to move from being the product to being the seller of the product, which belongs to us. Social networks can, and should, take a percentage of the payment for our information. They are the middleman. We the people online and the online companies can both get a share of the money that is generated by harvesting our personal information.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>49. 5f1322ec3bba3e03d3dc7d8ae *        Hello everyone, I'm Mr. David currently a member of prolific researcher and survey panelist. We are into making research by honestly participating in different only survey question in our prolific online site where various topics are research on and questions are being asked to determine the fact as it affects humans and their environment. This research topics cut across all sphere of life, being social, economy, political, religious, attitude, perception, psychological, personal opinion and many other determinants as scientific means will be used to take judgement at the end of the research. In conclusion one great thing about this site, questions that are genuinely answered will be compensated with viable payments that means our time and data is rewarded. So therefore I wish to convince you to kindly volunteer your time and energy in carrying out this research with us here in prolific. Thank you.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>33 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>50. 5f132336ccf78c000c5d7dcb *        In my opinion, consumers should be compensated for sharing their data. This is because the companies predicate their success or revenue streams of us the consumer. Therefore, if using our data promotes them and works for their financial interests we the consumers should receive benefits. Also, using our data is very personal but since it ultimately helps us as consumers this could be a win-win scenario. Another key idea would be that the use of our data allows for companies to grow and incentivize new consumers to buy their products. This allows more people to spend their money which is beneficial to the economy. The fact that sharing data directly supports the functionality of the economy should be another reason that consumers are paid for sharing their data. All in all due to the sharing of data should result in compensation for the people.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>51. 5f134b8d2669df0510c587a *        Paying people for data would raise US household median income by \$20000 a bigger increase than the uplift in the post-war era. Data sharing has benefits that reach well beyond consumer and businesses and for our society broad ecosystems of data sharing from financial service to health care college admissions. How do you separate between data as private goods and data as public goods. If tech company pay us for our data, who is ready for paying subscription to use their online services? If we pay user for their data then data along with AI, will be viewed as a new source of well paid jobs and income supplements, rather than as a threat to the people and workers. The fourth Industrial Revolution requires tonnes of data for their business model in future and we are providing them for free. To able to pay user their data, tech companies will lead collect even more data as Facebook is doing now, which is concerning for our digital privacy. Data unions could help us all by simply call on its members to stop using Facebook and Google for a day if the company do not negotiate. We need to ensure that privacy interests are not extinguished when people share info not turn privacy into commodity. User will not receive the same amount for their data because marketers would pay more for access to high income users data and less for low income users, including students, the elderly and individual low income nations. Paying user for their data allow tech companies to learn which apps people value and how they are used and build better products and will increase their market power. Data is neither cash or neither commodity and pursuing policies based on this misconception</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>34 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>52. 5f13bae4a544193e6b94db0cf *        It is my belief that we people should be paid for sharing their data. The sharing of data is the sharing of personal information. Everyone should be compensated for sharing their personal data. I feel that if a company is going to use the personal data that they collect from consumers then consumers should at least receive a part of the compensation that the company is receiving. Companies make a lot of money collecting and sharing consumer's personal information. Some of the information that they collect contains highly personal information. Address, telephone numbers, sex, and age are all things that are normally collected by companies. Sometimes a company will even ask for much more personal information like how many children you have or what your religious beliefs are. In conclusion, I believe that if a company is going to sell and make money off of selling a consumer's information, then that consumer should also profit from the sale of their personal information.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>53. 5f13cd5a927beb19771ced0 *        Everyday humans produce a surplus of data. Google process over 40,000 searches every second and around 1.4 billion people use Facebook everyday. Every minute, 16 million text messages are sent, 154,200 calls are made on Skype and 156 million emails are sent. If users get payed for their data, it will be viewed as a new source of well-paid jobs and income supplements; therefore, the overall household income in America will increase to about \$20,000. Essentially American citizens will be making extra income as well as improving the quality of the data on which the information economy is built on. Opponents will argue that data is neither cash nor a commodity and such policies will lead tech companies to collect even more data. However, tech companies are already making billions of dollars off of the free data they are collecting from consumers and they are using the information collected to fuel their own sponsorships and income; therefore, if consumers are getting payed for their data it will greatly benefit the economy and the integrity of the tech economy will not be greatly damaged as they're already making billions of dollars.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>35 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RgqYYCo4Z98...</a></p> <p>54. 5f145dd56175b6031ec1ac2c *        To be honest before this survey I did not research companies paying people for their data. So the issue that I run into now is what are the benefits and risk associated with this happening. Benefit: obviously is money. But how much money? And is that amount of money worth the cost of what they do with that data. That leads into the risk. What are these companies actually paying for and what does me selling that data give the ability to do. So I would like to know more about how much we would be paid for the data, is that going to increase my cost else where. Are some of the sites that we enjoy free now going to charge a premium for some of their content. BUT if I have to prove my statement from earlier I would say this. These companies are already taking our data so why should I not get paid for it as they do.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>55. 5f1477bbfba2b4ec9c37560 *        Information makes the world go round. It's deeply unlikely that we'll ever abolish data sharing but the least we can do is compensate people for their data. Of course, there are questions to what fair compensation entails but I'd argue forming a union to make sure they're compensated properly for their data will need out most concerns. Customers can choose what kind of data they're willing to share and be compensated accordingly. Limits can be placed on making sure all customers have access to the information and tools they need regardless. Customers need to be given a choice. Period. And that choice needs to be well-informed so they know what they're consenting to. Google is trillion-dollar cooperation. These corporations can afford to pay more than a few cents for this data. They just don't want to.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>36 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...</a></p> <p>56. 5f1518b9fe9edf1c1665c99f *        I believe that people should be compensated for sharing their data for several reasons. Firstly, user's information is already being shared in several different ways and it can cause issues for people, however, if they were being compensated I would atone for some of the inconveniences. I do agree with those that are opposed to it with the point about those in higher income brackets being more sought after but I don't think that that outweighs the potential benefits for everyone. Even those in lower income brackets would be compensated some what for their information and that can potentially help someone substantially. Then if you consider the fact that data is currently being shared anyway and companies are making money from using it, I don't see how them paying people for the information they are using to be bad.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>57. 5f15451a524d9714ac1f5ce5 *        Data is knowledge. Knowledge is power. We have numerous fields where data is already being paid for. One should never lightly give up their power and if they do it should be for something of equivalent value that is agreed upon by both parties.</p> <p>In higher education data and experience is what professors pass along to their students especially in the STEM fields. Students pay their professors for this data and for the professors to share their experience on how they used and create conclusions from this data. Why should software companies not be expected to pay for this data. I can't believe there would be fortune 500 companies that are willing to part with their data freely to another company. I know for a fact that companies pay other companies for their data in the packaging field. This knowledge can be used to establish data baselines, save time, and in some instances decide entire choices on how a product should be packaged. Why should user data any different? This information clearly has value. Why should we not be compensated. Plus if there is something that the user does not wish to disclose then they are not compensated.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...">https://docs.google.com/forms/d/1wNcJD25E8RGqYYCo4Z98...</a></p> <p>58. 5f15b4e51e3ab15ace71a26b *        Yes, we should compensate people for sharing their data online and otherwise. Even further, we should institute additional safeguards to give the user the choice to share their data or not, and what specific data they'd like to share with whom. Data collected on a person is very private data to them, ranging from their name, address, and contact information to their interests, activities, and sites they visit. This data has immense value to corporations and governments, as evidenced by their rampant collecting and selling of the data for almost every purpose imaginable. Yet the user receives no benefit for the company's collection of this data that the company will then use to create further profits for themselves and/or sell this data to other companies. This also means that in addition to compensating people for sharing their data, there needs to be additional controls on how companies manage and sell data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>59. 5f15cbf47185b323df848846 *        Technological company should be made to pay users for the data they collected from the site they visited or apps they used because the tech companies make very good use of this information interns of knowing exactly the kind of apps and websites plus other activities the user frequently partake in or used online. Having known all this, it allows them to be able to place a target advertisement on the users and also help them to improve there technology since they have the users preferences at hand. Paying user for the information collected from will increase US domestic spendings and more people will be able to pay there dues and tax. This policy should be enacted because it goes a long to help US domestic funds and relief to individuals, also more tax will be willingly paid by most individuals since they are getting paid by the tech companies based on there internet usage and information collected from us.</p> <p>At this point, I will recommend that our political office holders should make process, recommend and enact this policy because it go a long way in helping most Americans to earn some tokens based on the information collected from them by technological companies and in return this will improve or boost our economy more because more tax will be paid by the individuals as well and this will also bring more money to the government purse that can be used for other important projects.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <hr/> <p>Ce contenu n'est ni rédigé, ni cautionné par Google.</p> <p>Google Forms</p>
<p>37 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>38 of 38 <span style="float: right;">4/26/22, 9:14 AM</span></p>

**B.12 Treatment Grader 6**

<p>Instructions for Graders  <a href="https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...</a></p> <h3>Instructions for Graders</h3> <p>Thank you for accepting to participate into our survey. Please read carefully this page before going to the next section.</p> <p><b>*Obligatoire</b></p> <p>1. Adresse e-mail *</p> <p>_____</p> <p>1 of 36              4/26/22, 9:14 AM</p>	<p>Instructions for Graders  <a href="https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...</a></p> <h3>Instructions for Graders</h3> <p><b>The aim of your participation</b></p> <p>In the following, you will have to grade very short paragraph (around 300 words or less) as follows. <b>We need an expert in reasoning to grade them as there is no "objective quality" of an essay.</b></p> <ul style="list-style-type: none"> <li>• If you judge that participants "realize that the issue is ambivalent" then you will give them a passing grade, <b>P</b>.</li> <li>• Otherwise, you will give them a failing grade, <b>F</b>.</li> </ul> <p><b>Challenge to overcome while grading</b></p> <p>What may happen is to confound high cognitive sophistication, i.e., the ability to write well-written essays in English, facilitated by the fact that they read some arguments right before this essay exercise with the self-reasoning skill "realizing that the issue is ambivalent", which is the variable we want to elicit.</p> <p><b>Time</b></p> <ul style="list-style-type: none"> <li>• We expect you to spend around 10 minutes to read very carefully the instructions and the examples.</li> </ul> <p>2 of 36              4/26/22, 9:14 AM</p>
<p>Instructions for Graders  <a href="https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...</a></p> <ul style="list-style-type: none"> <li>• And we expect you to spend no more than 1 min to grade each essay.</li> <li>• The total time you spend should not exceed 62 min.</li> </ul> <p><b>Defining the fact of "realizing that the issue is ambivalent"</b></p> <p>We define "realizing that the issue is ambivalent" as the awareness of an individual to recognize that there can perfectly logical but opposite arguments in favor and against the same issue which renders the decision-making process complex. Such an ambivalent attitude leads to hold temporary conflicting preferences, one preference for the issue at hand and one preference against the issue at hand. There can be different ways of defining and capturing this "awareness" as documented in the social psychology and cognitive psychology literature. In our study, we capture this awareness by observing individuals <b>reasoning and elaborating in a personal way on the pros and cons of the same issue in a written format.</b></p> <p>Before writing their essay, participants were shown a list of the pros and cons of the same issue. Then, they had to write an essay, following these guidelines:</p> <p><b>The score of your essay will only depend on the first and second parts of your essay. Two different essays in their political recommendation can have the same score.</b></p> <ul style="list-style-type: none"> <li>• For example             <ul style="list-style-type: none"> <li>◦ Essay 1 describing very well the issue, justifying effectively its position and giving recommendation for digital privacy</li> </ul> </li> </ul> <p>3 of 36              4/26/22, 9:14 AM</p>	<p>Instructions for Graders  <a href="https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...</a></p> <ul style="list-style-type: none"> <li>◦ Essay 2 describing very well the issue, justifying effectively its position and giving recommendation against digital privacy</li> <li>◦ Essay 3 describing very well the issue, justifying effectively its position and explaining why the writer needs more information to give a decisive recommendation</li> <li>◦ All these essays will receive the maximum score.</li> </ul> <p><b>How your essay will be graded</b></p> <ul style="list-style-type: none"> <li>• Your essay will be graded automatically by the Artificial Intelligence-powered software produce a report detailing your score. We confirm as researchers, having not business interest in the software.</li> <li>• Your essay will be graded a second time by one Professor of Philosophy, randomly selected among University Professors from US universities who were not involved in the design of this software.</li> <li>• Your reward from the essay will depend only on the grade provided by the software. The grade provided by the Professor.</li> </ul> <p>Answer this question above. To do so, write an essay in which you describe what is meant by "realizing that the issue is ambivalent" and why it is an issue of relevance in the political debate. Formulate in a brief manner a political recommendation you think should be taken in face of such an issue. If you cannot do so, please elaborate on what you would need to make a recommendation.</p> <p>As you can see from these instructions, we did not ask participants to merely list again the pros and cons of the same issue but rather, to engage in <b>critical thinking</b> over them. As we said earlier, there is no algorithm yet that can distinguish between participants who critically engage with pros and cons in their writing and those who don't. This is why we thought psychologists are the</p> <p>4 of 36              4/26/22, 9:14 AM</p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...</a></p> <p>most qualified in social sciences to give a judgment on this matter based on your professional experience as a researcher but also as a teacher at a top university. It is important to bear in mind that because of the absence of an objective criterion to measure "critical thinking on an ambivalent issue", we count on you to follow the definition of ambivalence defined above (despite your potential philosophical disagreement with us) and your subjective judgment as an expert on this matter, which is crucial for the success of our study.</p> <p><b>Cognitive sophistication and examples.</b> To assess for the "cognitive sophistication" of each participant, we rely on an AI software, Grammarly. This software processes millions of writing users to define them a writing score, measuring their quality of writing, beyond simple grammar errors. In your task, we will not show you the scores assigned by Grammarly to each essay as those scores are not always good predictors of the variable of interest as we show you on the next screen. We excluded from our data set participants who did not perform the writing task seriously or cheated (i.e., those who did not produce an original piece but rather copied pasted existing sentences from the web).</p> <p><b>Below, we are showing two different examples that show</b></p> <p>5 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...</a></p> <p><b>how the AI software's score is not aligned with our definition of "realizing that the issue is ambivalent".</b></p> <ul style="list-style-type: none"> <li>• "Example 1" below received a score of 96 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively sophisticated but who, however, "failed" to realize that the issue is ambivalent.</li> <li>• "Example 2" below received a score of 51 on 100 to this essay by Grammarly, which means that the AI recognizes the participant as cognitively naive but who, however, "succeeded" to realize that the issue is ambivalent.</li> </ul> <p><b>Example 1: An essay written by a cognitively sophisticated participant but who does not realize that the issue is ambivalent.</b></p> <p>The issue of compensating users for their data centers around the rise of the fourth industrial revolution, one dealing with advancements in AI and machine learning technology. These technologies require harvesting masses of user data to create and inform human-like machine thinking and decision-making. However, because this requires reading private user data, many people have begun to demand compensation from data-mining companies for taking their personal data. In some ways, this makes sense - user data is invaluable to companies, so users ought to be paid accordingly for furthering so much research and development. In other ways, users will likely be paid cents at the maximum - is the payment even worth it? A policy that compensates users who personally hand over sensitive and private data, as opposed to compensating all users who are giving barely sensitive, market research data, makes the most sense for this issue.</p> <p>4 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...</a></p> <p><b>Example 2: An essay written by a cognitively naive participant but who does realize that the issue is ambivalent.</b></p> <p>Digital privacy means access to people's personal information, on countless media. Some examples are: Social Media, databases of medical institutions, smart phones, merchant data from credit card readers, and just browsing the internet to name a few. In this day and age it's accurate to say that "digital privacy doesn't exist. Data is stored all the time and is regularly accessed by corporations and as we learned from Edward Snowden, your own government. It's even possible for someone to hack into your personal home security camera or smart phone camera. Having this kind of lack of privacy could put people at serious risk. But in the normal day to day, our data is being constantly being bought and sold for various reasons. Some people think that people should be paid for the use of their data, but as mentioned in some of the articles I read it's more complicated than is sounds, and I do not have the education, nor experience to formulate a policy on this. My opinion is yes, people should be paid, but I think the overall priority, policy-wise should be on privacy in respect to spying, of people and listening to individuals on their personal calls without warrants. That needs to be addressed first.</p> <p><b>Below, we show you two further examples.</b></p> <p><b>Example 3: An essay written by a cognitively sophisticated participant (score 78 on 100 by Grammarly) but who does not realize that the issue is ambivalent.</b></p> <p>Digital privacy is the process of using the internet and connected devices without compromising your information. So yes, people should be compensated for sharing whatever data it is that they would share online. People are giving out their personal</p> <p>7 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>information and I feel that it is very important that they should be compensated no matter how little because it is not easy to do so. Most people find it difficult to give out their personal data but if they are compensated, they would be free and willing to share it out without much worry. So the political sector should find a way to put up the policy and see how they can implement this. It is not an easy thing to do. They need to be fast about it too. Everybody should be paid for giving out their information. It is very critical and needs to be paid to be received.</p> <p><b>Example 4: An essay written by a cognitively naive participant (score 50 on 100) but who does realize that the issue is ambivalent.</b></p> <p>Yes, I think we should compensate people for sharing their data. There are several reasons to support my perception.</p> <p>First, personal data, such as demographic, psycho-graphic, and behavioral information are all person related. They belong to individual person. It is up to the individual consumer to decide what they are going to handle the data, including using and distributing. When the data is generated and collected, the final ownership and control of the data should be with the individual, not the company that collects it.</p> <p>Second, most the firms use the data for commercial purpose. They use the data for research to develop products and services for profit. As part of the input, the personal and private data drives the revenue and profit. As the owner of the data, individual consumer should get part of the share of the benefit.</p> <p>Third, when companies are using and storing data, a lot of breaches have happened. This exposed the individual consumers to a lot of risks. They should be compensate for this risk as well.</p> <p>Having said these, I believe the data owner, i.e. the individual consumers should be compensated for sharing their data.</p> <p>8 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>Grade the following essay</p> <p>2. 5f15d19d1518640f544f68d6 *</p> <p>The use of computerized innovation is continually expanding, and individuals know about it, and know about different advantages that innovation brings to them. They are constantly associated, ready to contact nearly anybody from anyplace, and they approach the greatest wellspring of data in their pockets. However, individuals appear to overlook a certain something - how much information innovation makes. Facebook statuses, photograph collections, recordings, tweets - when reminded, a large portion of individuals will recollect these. Yet, they are by all account not the only information made. For instance, Facebook stores data pretty much all exercises their clients do. They store all messages, even erased ones, they store all data pretty much all logins, they know the occasions, places, and the gadgets you signed in from... show more substance... On the investigation side, data about the visits are put away, and on the administration side, data about the client accounts are put away.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>3. 5f15fa4cd57250147e4cf076 *</p> <p>I believe the use of someone else's data is a privilege, not a right. Internet users should be allowed to make a decision about how their data is used. This is mostly important for the sake of privacy, but also allows users to make money from their participation in studies by other companies that are interested in understanding internet users. I believe that limited access to data is far superior to no access at all. This makes it possible for companies to make better informed decisions and also make better products that are tailored to its users. Data is something that should be protected unless otherwise permitted on the internet, just as it is protected in many other instances such as addresses, credit card information, and medical purposes. Companies should be able to gain access to limited user data that doesn't include these examples by compensating the users that give them access.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>9 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>4. 5f1602737eb01375137cdef8 *</p> <p>Every person have privacy, we know some website use cookies for tracking user activity, but they should not use it on user privet life you should compensate people for sharing their data. While getting paid for tagging photos on Instagram or uploading to YouTube might sound way off, the idea has been gaining some traction in the United States as tech giants from Google, to Facebook and Twitter, face increased scrutiny over the way they handle personal information. Yet, single users are unlikely to get a penny unless they organize in "data unions" similarly to what workers did during the industrial revolution, said Weal, a speaker at the Thomson Reuters Foundation's annual Trust Conference on Thursday. Humans are doing all this work and then we are being told that we are doing nothing. The problem is that the ability of people to receive reasonable and fair compensation for what they do online is undermined by the fact that all these other people are consenting to do it for free.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>5. 5f160fb08f681076fc8d1923 *</p> <p>Data is everywhere these days and it's what keeps business and media platforms such as Facebook and Twitter running. However I do not think users should be compensated for sharing their data. Time has proven again and again that we cannot trust media companies to be truthful about the data they collect, it would be hard to believe that they'll adequately pay me for it. If people were to be payed for sharing their data then more so than now, our entire lives would exist on the Internet and our privacy would turn into a commodity, pawmed and played with by the people at the top. The argument was used that we could form unions and boycott a platform, the problem is we could do that now and control what they see about us be we don't. I don't trust some small money incentive will do the job either.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>10 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>6. 5f1623d63136a01758e1a42d *</p> <p>People should be compensated for having their data shared. Millions of emails are being sent out everyday and that excludes the use of sharing on social media or google searches. Tech companies make billions of dollars off the data that people use every day and people allow their data to be used for free. By paying people for using their data, it will allow for a more narrow division between the wealthy and the working class due to a higher income for the people. With the money being made by making the companies pay the people for the data, it could provide children with better education, less homeless people on the streets, or people can afford a healthier lifestyle. Also, it will help those who have lost jobs due to the fact that they were replaced by robots and thus, reduce the resentment towards tech companies.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>11 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>7. 5f163c7f4d45f133a374205f *</p> <p>Because the application essay can have a critical effect upon your progress toward a career, you should spend significantly more time, thought, and effort on it than its typically brief length would suggest. It should reflect how you arrived at your professional goals, why the program is ideal for you, and what you bring to the program. Don't make this a deadline task—now's the time to write, read, rewrite, give to a reader, revise again, and on until the essay is clear, concise, and compelling. At the same time, don't be afraid. You know most of the things you need to say already.</p> <p>Read the instructions carefully. One of the basic tasks of the application essay is to follow the directions. If you don't do what they ask, the reader may wonder if you will be able to follow directions in their program. Make sure you follow page and word limits exactly—err on the side of shortness, not length. The essay may take two forms:</p> <p>A one-page essay answering a general question Several short answers to more specific questions Do some research before you start writing. Think about...</p> <p>The field. Why do you want to be a _____? No, really. Think about why you and you particularly want to enter that field. What are the benefits and what are the shortcomings? When did you become interested in the field and why? What path in that career interests you right now? Brainstorm and write these ideas out. The program. Why is this the program you want to be admitted to? What is special about the faculty, the courses offered, the placement record, the facilities you might be using? If you can't think of anything particular, read the brochures they offer, go to events, or meet with a faculty member or student in the program. A word about honesty here—you may have a reason for choosing a program that wouldn't necessarily sway your reader, for example, you want to live near the beach, or the program is the most prestigious and would look better on your resume. You don't want to be completely straightforward in these cases and appear superficial, but skirting around them or lying can look even worse. Turn these aspects into positives. For example, you may want to go to a program in a particular location because it is a place that you know very well and have ties to, or because there is a need in your field there. Again, doing research on the program may reveal ways to legitimate even your most superficial and selfish reasons for applying.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>12 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>

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8. 5f1647f37dc3467b9191d94 \*  
 People should not be compensated for the use of their data. This can cause multiple issues and concerns about privacy to arise. One such concern is how will those from low-income households manage to participate in today's digital world? The internet serves as a free world for any to participate in. It is able to stay that way because the data that we share on various platforms helps to fund the websites we use. I understand that the compensation, at minimum, will help them with at least one bill or fee, but by allowing for compensation, we can expect to see an increase in charges from network companies, like Comcast or AT&T. Even worse websites may begin enforcing subscription services to use their website, putting those that earn less in the same predicament as before. The selling of data also questions how much privacy we will have. The people that are being compensated have no way of knowing who is getting access to their information or what it is being used for.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

9. 5f16c0a0a8fe7e0173aadcd9 \*  
 Trump's legal authority to deploy agents to U.S. cities may be limited  
 Armed with a new executive order aimed at protecting U.S. monuments, federal law enforcement started cracking down last week on demonstrations against police brutality and racism in Portland, Oregon. Some agents wore camouflage and used tear gas following more than 50 nights of protests over the May 25 death of George Floyd in Minneapolis police custody  
 Trump said on Monday he might deploy agents to New York, Chicago, Philadelphia, Detroit, Baltimore and Oakland, California, cities controlled by "liberal Democrats."  
 Legal experts said Trump can deploy federal agents to enforce federal laws, but lacks carte blanche. "The president is not the king," said Kent Greenfield, Boston College law professor specializing in constitutional law. The president does not have the ability to require states to enforce their laws in a certain way, or to elbow aside their law enforcement abilities."

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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14 of 36 4/26/22, 9:14 AM

10. 5f16c677bc5f86028f33fc62 \*  
 Nowadays companies around the world build their business from the ground up with the use of statistics and, more importantly, data. When it comes to the issue of compensating people for sharing their personal data, I must say there are far more pros than cons.  
 This discussion is relevant because AI is slowly taking over meaning people will lose both their jobs and money. If the people leading these multi-million dollar companies to success are providing them the information that they need for that success, then they should be properly compensated for it. Plus, people would be more willing to share personal data if they were being paid to do so, thus leading to a win-win situation for both parties. Some might argue that if people are compensated for providing their data, then companies will start charging with subscription services. But, if you really want to use a service that badly you could easily use the money you're earning from sharing data on that. Another argument presented was that paying people for sharing personal data will make work harder for the tech industry along with employees of these companies. If you really look at this issue and observe every aspect of it, there will really be no damage done to compensate the people. They are helping companies become better and companies are helping them have a little more financial stability in their lives. If anything it's pretty similar to exactly what I am doing right now, participating in research for compensation. If I had been asked to participate in this study without the offer of some type of reward I probably wouldn't do it. But, because I am a regular citizen that needs money, I am willing to put in the time and work to earn that money. As for making a policy for this, you can't really force companies to pay people that aren't performing labor for them. But, if there is sufficient evidence that providing this type of data leads to more money for the companies, then that is technically like being an employee.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

11. 5f170387f1735c02afddb094 \*  
 yes i think you should compensate people.  
 LONDON (Thomson Reuters Foundation) - From tagging photos on Facebook to driving with Google Maps, people should join forces in "data unions" to demand payment for letting online tools collect their data, according to an economist advocating for radical reforms to improve society.  
 Glen Weyl, a principal researcher at the research arm of U.S. tech giant Microsoft, said people have been "fooled" into handing over data that is then used in artificial intelligence (AI) to copy human behavior and possibly eliminate some jobs.  
 "Humans are doing all this work and then we are being told that we are doing nothing, that we play no role, and that these systems are just going to automate us away. This is profoundly dishonest," Weyl told the Thomson Reuters

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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Grade the following essay

12. 5f171b6978c6ae032e458f06 \*  
 Data can drive many decisions. I believe data can help companies create products that people want. As a teacher, we use data all the time to drive our instruction. Why not use this idea in other ways? I think compensating people for sharing their data will help the quality of data received. Data that is not useful can be filtered out and companies can be provided with information that is more intentional. Products or applications can be created that people actually want. Trends change over time and quality data is important for companies to stay relevant. In the classroom, teachers look at data to see learning patterns. We can take this strategy and use it in the same way. Companies can see the patterns of trends and interests and use that to target their audience. This is helpful not only for companies, but also the consumers.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

13. 5f1731a663009d068f281ba2 \*  
 I strongly believe that if data continues to be collected by big tech companies then there must be compensation for the collection of said data. Companies essentially profit off of the livelihood of ordinary civilians with no return. Every day, ordinary people unknowingly consent to their data being shared for free. The fact that this data could be used for adverse purposes is even more shocking. If users are going to have their data out in the open where it can be used for so many purposes they should be compensated in some form. The data of just one individual could conceivably gain an exponential profit because of what the findings in their data could lead to. Rather than unwillingly submitting this data for the profit of the already rich big tech companies, they should receive at least a fraction of the necessary compensation. Without this compensation, the rich only get richer and continue to exploit the lower classes who interact with the internet on a daily basis and have their data seized. If a user wants to opt into having their data collected, there should be a beneficial relationship for both the user and the company. Now, only the companies benefit from this data with no consequences. Users must be compensated for their data or we will be ruled by rich, big tech companies.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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14. 5f174554eda10209dd48afa6 \*  
 People should be paid for sharing their data. The people should be compensated even if it is a small amount because the data that is being shared is very valuable. Platforms such as Facebook have already been collecting a big amount of personal data from their users. Paying for the data may prevent them from using so many, but at the same time it could also be an opportunity for them to receive even more information because users may have an incentive to share their data. If users have an incentive, then it means that platforms such as Facebook may have a greater amount of user data collected.  
 If people are paid to share their information, then they will most likely be more willing to share even more information than what was initially being taken. I know that living in a capitalist economy can be difficult in order to actually afford a living especially in places like California or New York, so I believe people will become even more willing to give up information in return for a reasonable compensation that can make the difference of whether or not they can purchase their groceries. Paying users will keep money flowing in the economy and I believe it could be very useful and helpful and therefore it would be a win-win situation for both the platform and the user.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

15. 5f1751b2b487410b7dbf4c5b \*  
 The vast majority of Americans would like online services to collect less of their Data Innovation, explicitly favors people sharing their data in order to receive more and raising the prices of existing subscriptions to compensate. away from them if we are not comfortable with how our data will be used. Advocates of data as labour think users should be paid for using online services. Personal data are much more valuable than you think, she says. If they had to compensate people for their data, they would be much less profitable. If Facebook shared out its profits across all its monthly users. As we advance in the Fourth Industrial Revolution, data will become an even where only the people with sufficient technical abilities and access to basic. The value of the digital economy would be shared among citizen.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...</a></p> <p>16. 5f1798fec2e75013c28cfc7 *                  Digital privacy is when you can use the internet and connected devices without compromising your information. Civil liberties advocates do not favor a world in which the powerful get illicit access to personal information and the common people do not. They favor a world in which nobody get illicit access to personal information. People who experience hard times deserves the same dignity that everyone else enjoys. The whole process of getting welfare has been designed to be as difficult and demeaning as possible, and its really and not reasonable to kick these people gratuitously while they are down. Of course it is reasonable to identify people who want to receive welfare payments. But welfare should be analyzed in the same way as any other organizational system to determine which technology enables people to be identified with the least indignity while reducing fraud and other identification related problems to reasonably low-levels.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>17. 5f197fc96aec1000a56428a *                  The issue of compensating people for sharing their data is a much argued about in the scope of the united states political debate. The issue has lingered on for quite a long time and we are going to take a minute to examine some of the valid points worthy of note by both the opponents of this policy and the supporter of it. Making an argument in support of the policy, supporters of this policy believe that web and media owners generate billions of dollars from the data of it's users and it is only logical and natural to give back as means of compensation to the community of users it is earning massively from citing several solid reasons and references to back up this point. Against the compensation of people for sharing data, opponents argue that it is not logically possible in the sense that putting in place structures and checks that will ensure every body is compensated equally with regards to their data collected will not be realistic. With these two points duly noted, my recommendations would be to jettison this policy. As it will not be realistic because many users will be short-changed and it may opennew negative windows for litigations among web owners and users.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>17 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...</a></p> <p>18. 5f19c67c475ccd05106302e4 *                  Being someone who is not very educated on the subject of data, I would argue that the main issue with the topic is privacy. While I understand that the annual household income would increase by \$20,000, I am not entirely sure that people would sacrifice their privacy for money. At the same time, however, I do not think that my data is private now, as it is. In other words, I think my personal data is being given to private companies without me getting paid. If that is the case, I would be all for getting paid for my data. However, administration of selling data would be another widespread issue that would cost a fortune. I am not entirely certain that the logistics of it would work. For example, would everyone be getting paid the same amount? What determines how much one gets paid? In addition, would people getting compensated for their data be an incentive for individuals to stop working? I think it could create a greater social-economic divide, as lower income populations do not have the same access to data as everyone else. There are many pros and cons to both sides of the compensation for data debate. While, again, I am not very educated on the topic, I would advise implementing compensation for personal data. If it would help the economy and people who do not have access to high paying jobs, I think this could be a good opportunity for people to get paid for something we use consistently and immensely everyday. I do, however, think that there would have to be restrictions in place about private information, as well as an equitable pay scale.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>19. 5f1aab5d231981f029684bf *                  Part1                  I will be writing on the issues that deals with the compensation of people for sharing their data and argue why it's relevant to the US political debate. The ideal of compensating those that shares their data is a very nice one and am in support of it. Because it's like a way of paying back their good deeds to the less-privileged. It as always been an issues for years but nothing spectacular is done about it yet, I'll love the US Congress to see this as a very necessary motion to debate upon.                  Part2                  I'll really love the positive side of it because it will really be of help to all individual both the giver and the receiver. Although there are still some disadvantages about that examples it gives rooms for partially                  Part3                  I'll really love if the policy is being implemented because there are more benefit to it than the disadvantages</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>18 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...</a></p> <p>Grade the following essay</p> <p>20. 5f1b3d61b79cab0e81853a29 *                  Hello, I'm using this medium to implore you guys about the issue of compensating people for sharing their data online and why it's relevant to the US political debate. According to my opinion, I think people should be compensated for their data online companies store on their server, as we all know how much our data is generating income for them, I think we should be compensated for that, although I'm really happy to be using these websites because I realise their advantages but collecting our data for free is not a good thing, we should be at least compensated for that. To cap it all, I think websites like Google and Facebook have lotta visitors on their sites, if people should be compensated for their data being collected or stored by these websites, the users will not feel used or cheated by using their data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>21. 5f1be720e83bcd4174910378 *                  There has been some debates about our data online and people are divided weather we should be paid for our data or not. If the compensation of getting paid for using the internet is implemented a lot of people feel it will definitely increase their income but some are also scared that being paid would mean we would have to now be paying for the free internet we uses, what I mean by free internet isn't the subscription of data but of the ability to use google, facebook and twitter which are generally free to use, now that would be a very big pain in the ass for us. I think for a final decision to be made people have to be made to realise the risk of being paid foe their data because more data will be collected and easily accessible to a lot of them and that won't be OK and if need be they can make them vote for the final decision.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>19 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqcBB27GUKaYYO...</a></p> <p>22. 5f1c67ac9b46740aedeb9d9b *                  Sharing data online is a very common in the present day world. If there is an app or website that collects data from it's user I do think that person should be compensated in exchange for their data. Data collected is a very powerful marketing tool that companies use to their advantage. I think the companies should be held accountable for how they harvest and use this data. Most apps and website require you to acknowledge and agree to the terms and conditions. These agreements are often very long and I would imagine that they are not really reviewed thoroughly by the users. I think this most likely leads to deservive practices among the companies. If users were paid, I believe it would be more fair and honest. Paying the users for their data also shows that the companies respect their customers.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>23. 5f1c8901e8cd9a52aa71051f *                  The issue of compensation of users for sharing their data is a long standing debate that has been raging on for some time now. Security breaches, hacking of systems, deliberate selling of personal data to third parties have been a few of the cases involving the personal data of individuals. I disagree with compensating users for sharing their data. When a consumer shares his information with a utility or public service, does he or she get paid? Your guess is as good as mine. Why then should people be paid for sharing data. Moreover, one needs to give off information before accessing these sites as is basic and customary of most institutions. So prevalent have been the sure of automated systems and chatbots such that now when one uses some sites, it has become mandatory to go through 'I am not a robot' test. It will be improper that sharing of information on the digital space should come with compensation whilst the sharing of information with non-digital platforms doesn't come with payment. For the sake of fairness, it must be argued then that sharing of data on whichever platform must come with compensation. The counter argument will be that since these digital spaces generate their largest revenue from advertisement which is because these digital spaces hold large numbers, then it is wise that such proceeds be share with the users. Also, compensation should be given in as payment against a collateral such that when any user's information is breached, shared, lost or sold. So that the user is secured.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>20 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>24. 5f1d225aad82c06191971fee *        It seems there has been some controversies about whether we should be paid for using some services online for using the things created online for us to use for free so there has been some different opinions from different people. I do not think we should be paid for using free things, the main reasons we use them is because we need it and we are really in need of it and some of them are just to ease our daily lives so I do not support the idea of us being paid for it cause it's something we need and also some of them we use for fun so we are using things for free which aids in making our lives easier so we are already getting what we need most for it being paid for it will just require more and more informations about us which we are probably not ready to give and would keep it and besides if they want to pay us some of us won't like it cause of the informations they might be asking us.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>25. 5f1d58e8e539fb653a9ddec1 *        Compensating people for sharing their data online is continuously becoming a higher concern day in and day out. People who share their data with companies needs a very close attention in order to solve their problems for them. This is essential for political debates because we have seen or heard one or two cases where company are charged of selling the data of their users for high sum of money. And it is the government who has a very greater ability to speak some for these people. Therefore, if this issue is addressed in various political debates, it will help to amplify the voices of those who are also fighting very hard to help these users. Compensating these users will help them get extra income in addition to their current sources of income, and therefore this will help them lower their spendings in some cases. Although, compensating these users will cost these companies extra revenue to pay their users, but it is worth great help to both sides. Companies would also have to play part in case it happens for them to pay some amount to their users. They are to ensure that their users provide the correct and accepted data they are required to provide. Failure to do this Should attract a ban or any other form of punishment for these users.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>26. 5f1e7c6768c1bb8491f39191 *        The ninth amendment protects all U.S citizen's right to privacy and security, so why are businesses allowed to violate that? If businesses were to compensate people for data sharing, it would promote the idea of taking all possible information that they can get and sharing it, which would be a violation of the Constitution. There's good and bad to this idea, while it does give users money for having their data shared, the amount of money payed would be too little to warrant the increased amount of sharing that would occur. Also, compensating would cause an unhealthy boost in sharing to the point where everyone's sensitive information is public. I believe that implementing this policy would do more bad than good, everyone deserves a right to privacy, and a law like this would make that impossible. Unless all companies could ensure that private information is protected, it isn't worth it.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>27. 5f1ead42a4270b000ac38dc9 *        In recent years, there have been numerous reports of US tech companies invading users' privacy data. Various solutions have been devised, including one in which companies pay for users' private data. Is this the right approach to solve the problem. People argue about it. Some people support this solution - Paying users for their data will allow tech companies to learn which app people value, and increase their market power. Others disagree. Users would get paid very little for their data, which makes no sense. So what about my opinion? Should we compensate people for sharing their data? Yes. I think it's a good idea to share people's data to get paid. For now big tech companies are using people's private data for free. If people were free to provide data or not, and get paid if they provide data, that would be a big step forward.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p>
<p>21 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p> <p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>28. 5f1ec7462377b4000c0d9690 *        LONDON (Thomson Reuters Foundation) - From tagging photos on Facebook to driving with Google Maps, people should join forces in "data unions" to demand payment for letting online tools collect their data, according to an economist advocating for radical reforms to improve society. Glen Weyl, a principal researcher at the research arm of U.S. tech giant Microsoft, said people have been "tooled" into handing over data that is then used in artificial intelligence (AI) to copy human behavior and possibly eliminate some jobs. "Humans are doing all this work and then we are being told that we are doing nothing, that we play no role, and that these systems are just going to automate us away. This is profoundly dishonest," Weyl told the Thomson Reuters Foundation. "We need to respect the fact that those data are actually being created by the very people who these companies are claiming are no longer relevant. And we need to acknowledge that by compensating them." While getting paid for tagging photos on Instagram or uploading to YouTube might sound way off, the idea has been gaining some traction in the United States as tech giants from Google, to Facebook and Twitter, face increased scrutiny over the way they handle personal information.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>29. 5f1ed7493ddf0601e135151 *        At its core, data ownership is not a privacy issue any more but rather, it is an economic issue. Personal data is sold, bought, and traded among companies all the time, often without the individual's consent or awareness. By allowing individuals access to that market, we could allow users to translate their outputs into economic goods which I believe is a win win situation for everyone here. This would give people control over their data from both a financial and privacy perspective. The line between private and personal is nuanced, and that boundary represents different trade-offs to different people. For example, millions of America's small-business owners who can't get microloans from traditional banks might be quite happy to offer their personal data. However, many European users with less restrictions might feel more reluctant to give their personal data away for this purpose. Equally, if certain sets of biodata could contribute to research to cure cancer, some people (myself included) probably would donate it for free.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>Grade the following essay</p> <p>30. 5f298bbbd004790a085f09f8 *        It's a privilege to access one's personal data. The only way to have access to the digital privacy of anyone's data, should only be accessible with their permission. Those not interested in sharing data may be open if offered compensation for their data. Digital privacy is an issue of relevance not only in personal matters. But, in a political debate(s) with private information that all partake in. As well as, dealing directly with political information. Alongside other political information that we as individuals &amp; political parties partake in. People need to feel secure and a sense of protection when it comes to sharing the details of the privacy of their life &amp; other matters when online. An individual's digital privacy is of extreme importance. Data should only be provided with permission from every individual. Especially, if &amp; when digital privacy is promised by the trusted source. Then and only then, when the permission is provided by a person. The data should be allowed to be shared wisely amongst other sources online.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>31. 5f3435eae0a84d301cf5e49a *        "Property, Privacy, and Personal Data", is a very important subject in our every life". The market is driven on the supply side by individuals preferences for more or less privacy. The demand side is driven by data collectors' ability to use personal data to generate profits. Therefore, individuals are selling their privacy, while data collectors are buying personal data. Today's privacy market is patently inefficient. In most cases, individuals are only given a binary choice when it comes to selling their personal data. No matter how much individuals value their privacy, they either sell it for the stated price. Free alien-ability is the ability of property to transfer ownership without restriction. This is a fundamental requirement when selling goods, and it allows buyers to sell property that they previously purchased. In the realm of privacy markets and personal data, the validity of alien-ability immediately comes into question.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass  <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>23 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>25 of 36</p> <p>4/26/22, 9:14 AM</p> <p>32. 5f3720ac601a361a586e3aa2 * 5f3720ac601a361a586e3aa2 Digital privacy is a hard concept to talk about when it comes to whether or not people should be compensated for sharing their data. There are so many nuances that come with it if people were to actually sell their information to companies. There would be many questions that would arise. Such like, "would they get taxed", "who's information is worth more", "how will companies change their own business models according to individuals selling their data". There are too many routes that can come upon this. As a result, I think it is better if we do not compensate people for sharing their data. While I think the current way of things is no fair to the individual person, selling your own data may cause more problems than good. Though it is definitely not fair to the individual now, I think it's okay.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>33. 5f381521dca55e2e56550248 * 5f381521dca55e2e56550248 Digital privacy refers to the rights one has to control personal information and how it is used on the web. Digital privacy policy information includes a person's personal information and personal identifiable information. Digital privacy is now almost a non-existent and this is causing a lot of steer in the community. Privacy is coming home to the forefront of people's awareness and emerging as a major political issue. Some members of the political administration are now beginning to demand placement of proper protections for the privacy of individuals. The question is whether such measures are to be voluntarily or mandated by law. One way to handle the situation of digital privacy is the mandatory payment of every one whose data for is used by online and a reprimand for the violation of this law.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>26 of 36</p> <p>4/26/22, 9:14 AM</p> <p>34. 5f4143f294d6482bd9689da0 * 5f4143f294d6482bd9689da0 Digital privacy is such a topic that many people don't want to look into more because it is just so much information. Too often, myself included have just accepted terms and conditions about privacy and information because the amount of information is overwhelming to the average person. They purposely use large words in hopes that people will just accept and not read into what they are actually doing with our information. The government itself is guilty of this but should take part in actually looking out for its citizens and instead of letting companies build an AI due to it make them pay for that information which in part helps families with a more livable income by going about their daily life. It isn't hard to make the terms simple and a certain amount of information a company gets per person should be resulted in a payment to that household.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>35. 5f4196395630cc357ac33bc8 * 5f4196395630cc357ac33bc8 Digital privacy ensures when it is safe to use the internet and connected devices without compromising information, communication, and/or individual privacy. It is an important issue because the internet/connected devices are such a ubiquitous and integral part of daily life. Although collecting this data may serve companies by increasing its knowledge base/tailoring their technologies to better suit their users, especially when coupled with artificial intelligence, it should be done so cautiously. Data is neither a cash nor commodity, and should therefore not be treated like one. It should be transparent to the users when, where, how, and why their information is being shared. One potential policy is to pay users for their data, but it is unclear how much this would benefit (or potentially compromise) the users themselves, and whether this additional source of income would even be worthwhile to the user.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>27 of 36</p> <p>4/26/22, 9:14 AM</p> <p>36. 5f43da385f60b5071321700b * 5f43da385f60b5071321700b "Digital privacy" appears to be the condition in which tech companies will not use user data without permission for profit.</p> <p>When asked the question about whether people should be compensated for the use of their data by tech companies, I initially said "no". As I was exposed to more information, I changed my answer to "yes".</p> <p>I then was given opinions via Twitter conversations by people seemingly more knowledgeable than I, and now I am unsure which position I personally support.</p> <p>As the tech professionals appear to have differing opinions on the topic, I do not see how digital privacy can be a political issue without more information provided at the outset of what controls would be in place to protect the user providing information data without compromising personal privacy and safety.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>37. 5f467c7bcd0ffe035dda6393 * 5f467c7bcd0ffe035dda6393 I hope that the findings presented will serve as a basis for a much-needed. Because data protection is a global issue, it was important for UNCTAD to stakeholders to identify their concerns and issues they face. For those countries that still do not have relevant laws serious consequences for either the protection of. It is the strangely conspiratorial truth of the surveillance society we inhabit that there Facebook so businesses can advertise to you, or a startup that uses your phone's. These instances of data harvesting are connected by a shared means capturing data from people without consent and compensation. Answer this question above. To do so, write an essay in which you describe what is meant by "digital privacy" and why it is an issue of relevance in the political debate. Formulate in a brief manner either a policy recommendation that you think should be taken in face of such an issue or, if you cannot do so, elaborate on the additional information you would need to make a recommendation.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>28 of 36</p> <p>4/26/22, 9:14 AM</p> <p>38. 5f46a672c3cf2041c5320e6 * 5f46a672c3cf2041c5320e6 Yes we need to set a digital privacy to enhance the data security! Every where we need to set this privacy so that people can aware when they post any data. And need to compensate data provider for every good data. If we encourage data provider then they will give more valuable data which could help in our every aspect of life. But we need to pay more attention while providing any data or collect any data cause false data will destroy us. like false data will create many problem in society. So I think we need a budget about this sector so that people will more engage to collect and provide a good data for us to make smooth decision. It is really very important that collect positive and right data cause in every way data will help us to make correct decision in correct time. So we should pay more attention.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>39. 5f493cf935c09546860b864a * 5f493cf935c09546860b864a Before this survey I would have had an easier way to answer this, however after seeing the several points of view, I have a harder time decided if we should or not. Currently, I am of the mindset no, because the amount we would be "paid" would be inconsequential. Cents at most because everyone in the chain would have to make money. From the platform we are using and mining our data, to the advertisers who want our data and buys space on the platforms. I feel it is more important to know how our data is being used and be able to opt out of certain mining processes than it is for us to be paid for our data. Including ensuring the security of our children data as well. Rather than anyone who is willing to "buy" our data being able to buy minors data, or stalkers being able to buy their victims data. Security and control is better than being paid for our data.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>

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40. 5f49c814144b1c53853c3a04 \*  
 5f49c814144b1c53853c3a04 I believe that people should be compensated for sharing their data. Websites like Facebook take our information and sell it to companies. This is invasive to our privacy as consumers and most people would prefer to have digital privacy. No one wants their information being shared like that and would rather have control over what happens to it. Since our data belongs to us, we should have the right to be able to do whatever we want with it including selling it. Some argue that if we risk selling too much of our privacy and turning it into a business but the Government should find a way for us to still be safe. I think that there should be a universal basic income and maybe a system that we sell our data through that can keep it safe instead of directly selling it to companies. I believe that this could help out a lot of people by providing them a simple way to make an income.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

41. 5f4a4da1575d605c43bef871 \*  
 5f4a4da1575d605c43bef871 If people / companies can get/have access to your digital blueprint and use it with bad intentions they could cause a person a lot of harm. If we cannot keep parts of our lives off line we are opening the door to corruption. I would really need a lot more information to really answer why it's relevant to political debate. I also would have to do some indebt study to be able to write up a recommended policy on this. I think digital privacy is having the ability to only let the owners of the sites, search engines have the information you don't care if they know. Not letting them take what they want and slice and dice it. Really it's a coin toss if you let them have it they won't charge you out rgeous fees to use their search engines, apps, etc. I would need to know the facts on what it would take to accomplish this policy.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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42. 5f4c20f388eb748264767b49 \*  
 5f4c20f388eb748264767b49 In my opinion we should compensate people for sharing their data. My data is being used one way or another and unless you rarely use any form of internet you hardly have a choice as to if your data is being shared or not. I feel like I may as well get compensated for this. A good way to do this would be the survey I am currently taking and the essay I am currently writing. I am giving my opinion, potentially some of my demographic information and spending my time. I am also getting compensated for it. I do my best to give accurate information in studies because I am getting compensated for it. I feel it is a mutually beneficial arrangement for both myself and the researcher.

In regards to bigger companies such as twitter and facebook collecting and sharing data, I do use both of these social media platforms. However both accounts are basically faked and have zero personal information on them. I highly doubt it could ever really be tied to me so the demographic information they are receiving is faulty and ultimately useless to them.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

43. 5f5003e56be85815f18786dc \*  
 5f5003e56be85815f18786dc Digital privacy is when you can use the internet and connected devices without compromising your information. Different people have different comfort levels when it comes to digital privacy. One person may be comfortable sharing their name, employer, home address and more on the web, while another may be uncomfortable with any of their information on the web. Digital privacy then, is when the information available online about a given person is within his or her comfort zone. People are willingly handing over their data to social media and search companies. When you create social media profiles or post to social media, all of that information gets stored on the site's servers. It's not just these companies that could potentially access your information. Because your usage data is stored in a way that is linked to your personal details, if a hacker accesses it, you are at risk. No matter how much you trust Facebook, or Twitter, or Google with storing your information, if a third party uses it, hackers could access your information from that third party.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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44. 5f50cbfbc9a3925b069d857 \*  
 5f50cbfbc9a3925b069d857 Digital privacy means when we input our information at any site, we think that our personal information will be safe. The company can't share them with any other third parties or they can't publish it in publicly. They will protect our information. But today many company gather personal information for selling it to other parties or hacking our system and gather information, we can not support this, because it is not right morally. The company should increase the security system to protect our personal information. SO that we can feel safe and on one can use those information. Many people try to blackmail other using their personal information. Again when we are using any social media we should very careful to share our personal information. Or using any apps we can not give any information without considering it.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

45. 5f5207b64939aa03d46a7591 \*  
 5f5207b64939aa03d46a7591 Digital privacy is the process of using the internet and connected devices without compromising your information. So yes, people should be compensated for sharing whatever data it is that they would share online. People are giving out their personal information and I feel that it is very important that they should be compensated no matter how little because it is not easy to do so. Most people find it difficult to give out their personal data but if they are compensated, they would be free and willing to share it out without much worry. So the political sector should find a way to put up the policy and see how they can implement this. It is not an easy thing to do. They need to be fast about it too. Everybody should be paid for giving out their information. It is very critical and needs to be paid to be received.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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46. 5f52471154658b4c8ee75756 \*  
 5f52471154658b4c8ee75756 Digital privacy refers to a users right to control their data: what data is being used, how it is being used, who is using it, etc. This can be a major issue for several reasons. First, many large companies, such as Facebook, do not have the most ethical standards when it comes to digital privacy. Many companies take advantage of your data and sell it off to third parties, how else do all these telemarketers and scammers get your phone number? Secondly, many companies have these long, elaborate privacy policies that virtually nobody reads and just accepts the terms, and they may never find out which company sold their information. To follow that up, companies will hide little loopholes in their privacy contracts or use terminology that your average user may not understand and will accept the terms without knowing what they are accepting. Users should be compensated for their data. This compensation, even if it is mere cents, can change the economy for the better and provide users with more money to spend on other things.

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

47. 5f562e2401b55b009690a4b \*  
 5f562e2401b55b009690a4b With more people and devices connected to the internet, the term "digital privacy" has become increasingly important, especially after recent data breaches have compromised countless accounts, causing many to worry about the risk of identity theft. While it is simply defined as the protection of information from private citizens who use digital media, its parameters are a little more obscure.

For nearly 10 years, the U.S., Canada and Europe have recognized January 28 as "Data Privacy Day" (or Data Protection Day). The observance is meant to raise awareness on the importance of protecting the personal information of internet users, especially in an age when online privacy continues to prove more difficult to define.

Despite these efforts for heightened awareness, a 2015 international survey conducted by

*Une seule réponse possible.*

Pass  
 Fail

Grade the following essay

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<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>48. 5f59de19187463000b347a82 * 5f59de19187463000b347a82 The legislation would give consumers control over their health data by highlighting voluntary participation, user consent and the right to delete data on exposure-notification systems.</p> <p>Cassidy introduced the bipartisan legislation in June with two Democrats, Sen. Maria Cantwell, Wash., and Sen. Amy Klobuchar, Minn. The agency said it would appeal the Sept. 19 preliminary injunction issued by U.S. Magistrate Judge Laurel Beeler to the the Ninth U.S. Circuit Court of Appeals in Washington, Reuters reports.</p> <p>The injunction blocked the Commerce Department's order from last month, which would bar WeChat from app stores, making the app unusable in the U.S.</p> <p>The Justice Department said that Beeler's order was in error and "permits the continued, unfettered use of WeChat, a mobile application that the executive branch has determined constitutes a threat to the national security and foreign policy of the United States."</p> <p>Beeler told Reuters that WeChat users who filed a lawsuit "have shown serious questions going to the merits of the First Amendment claim."</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>49. 5f5a37e673fa1f09d79ea220 * 5f5a37e673fa1f09d79ea220 Yes, but not only in terms of individuals or affiliates, because you also have to think about the employer, since he is also one of our objects. We must tell the employer that we are his best tool for the productivity and well-being of his workers, therefore we are essential for him to grow more.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>50. 5f67d10d21cd5912451d30a * 5f67d10d21cd5912451d30a I do believe that there is a ton of private personal information in cyber space contributed by millions of people. The majority should never be seen by anyone but the user. Yet, organization is able to collect it and resell it for profit and they in turn use the data to advertise to the customer. I know for a fact when I search for product on Google the next day the same product shows up on a comics I read everyday. Some on is track me all the time. They are probably tracking me right. I too feel we should get paid for this tracking, even a few cents would be nice. They claiming they would lose a lot money this way. Consider the fact the thieves makes 5 times more than they lose. They should consider the small payment a write for business costs. In conclusion I want to steal private information they should pay for it.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>51. 5f6fe97d8641835be70202bd * 5f6fe97d8641835be70202bd Digital privacy has to do with consumer's right to privacy when browsing the Internet or using services or applications connected to the Internet. It is relevant because millions of people use the Internet daily. It is an essential part of life in today's world, but individual rights and protections on the Internet are unclear and unregulated. I will admit that I am unequipped to make a policy recommendation on this topic. I would need to evaluate the costs and benefits of policies such as paying consumers for data, and determine whether the benefits outweigh the costs for the average American consumer. I would also need to know how companies that depend on data collection from the Internet would react to a change, and every potential consequence for consumers this reaction would bring. I would also need to have information on what the average consumer would prefer: free Internet services in exchange for some, regulated data collection, or subscription fees for Internet services and either no data collection or compensated data collection. I suspect that most consumers would rather have free services in exchange for TRANSPARENT data collection.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>
<p>33 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>	<p>34 of 36 <span style="float: right;">4/26/22, 9:14 AM</span></p>

<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>52. 5f7514a747635417c5c1146d * 5f7514a747635417c5c1146d Digital Privacy is a collective definition that encompasses three sub-related categories, information privacy, communication privacy, and individual privacy [1] It is often used in contexts that promote advocacy on behalf of individual and consumer privacy rights in digital spheres, and is typically used in opposition to the business practices of many e-marketers/businesses /companies to collect and use such information and data [2]</p> <p>We are told our data is exposed and that we lack complete privacy. While our data is exposed through digital mediums, such as social media, we also more sensitized to privacy issues.</p> <p>The evolution between 2005 and 2011 of the level of disclosure for different profile items on Facebook shows that over the years, people want to keep more information private.[3] Social networks have done the opposite: if we share more information, we expose more and Facebook can sell more to advertisers. Every 8 or 10 months, some social networks face privacy incidents which lead users to regroup and contest, however the networks usually apologize and continue on with the same information-mining tactics.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p> <p>53. 5f7b2664327c3e068a1634b5 * 5f7b2664327c3e068a1634b5 With everyone joining the online world your privacy is at even greater risk than ever before. The internet has become part of our everyday lives, from social networking to online transactions. Your privacy is threatened every day. However is our privacy threatened by our own government? According to the pew research data 56% of Americans say that it is acceptable for the NSA to run through millions of Americans phone records in order to prevent terrorism. (Pew Research Center) Many people still believe that the government has no business in our lives, yet many people including our government invade our digital privacy. Your online identity is important. The internet is used for many important things. The government has other ways to invade your privacy also, by using online browser cookies. Cookies are text files stored within your browser.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <p>Grade the following essay</p>	<p>Instructions for Graders <a href="https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...">https://docs.google.com/forms/d/1qJPR3aqacBB27GUKaYYO...</a></p> <p>54. 5f836e7c84de9e4f63718981 * 5f836e7c84de9e4f63718981 As humans with this new technology, the internet that has arrived within the last twenty five years, we are using more and more of it for our personal needs such as banking, keeping in touch with friends and searching. We all deserve that companies respect our privacy and not collect data for the purpose of selling that information for advertisements especially since this is done under our nose with with consent from us. While these companies make millions of dollars selling our data, we should receive compensation for that. If it were not for us using those sites for them to sell our data they would not be making money so we should be given money. It is hard to imagine how far this will continue to develop in fifty years when artificial intelligence technology will be more sophisticated.</p> <p><i>Une seule réponse possible.</i></p> <p><input type="radio"/> Pass <input type="radio"/> Fail</p> <hr/> <p style="text-align: center;">Ce contenu n'est ni rédigé, ni cautionné par Google.</p> <p style="text-align: center;">Google Forms</p>
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# Appendix C

## Appendices for Chapter 3

### C.1 Proofs of the Worldview-Inclusive Inequality Averse Social Welfare Representation

#### C.1.1 Proof of Theorem 1

**Proof 3** *Sketch Proof for Theorem 1*

- *Axiom 1* guarantees the existence of a preference relation,  $\succsim_\eta$ , for each worldview  $\eta \in \mathcal{V}$ .
- *Axiom 2* ensures that for each  $\eta \in \mathcal{V}$ , a vNM utility function  $U_\eta$  exists representing the preference relation  $\succsim_\eta$ .
- *Axiom 1* introduces the EDE, a measure of welfare that accounts for distributional concerns. This axiom allows us to define a function  $v_\eta$  for each worldview such that  $v_\eta(c) = v^*(EDE_\eta(c))$ , where  $v^* : E \rightarrow \mathbb{R}$  is a common function that maps EDE values to real numbers.
- By utilizing the functions  $v_\eta$  and the vNM utility function  $U_\eta$ , we can define a new vNM utility function  $V_\eta(N) = \sum_{c \in X} N(c) \cdot v_\eta(c)$ . This new utility function represents the preference relation  $\succsim_\eta$  while incorporating the distributional concerns of each worldview.

**Proof in Details** Fix any  $\xi \in \mathcal{V}$ . By Axiom 1,  $\succsim_\xi$  satisfies the vNM axioms on  $\Delta(X)$  and hence also satisfies them on  $\Delta(E)$ . So there must exist a linear representation  $V^*$  for  $\succsim_\xi$  on  $\Delta(E)$  of the form

$$V^*(L) = \sum_{e \in E} L(e) \cdot v^*(e).$$

By Axiom 4, for any  $\eta \in \mathcal{V}$ ,  $V^*$  must also represent  $\succsim_\eta$  on  $\Delta(E)$ .

Now fix any  $\eta \in \mathcal{V}$ . Define  $v_\eta$  and  $V_\eta$  as in Theorem 1. Since  $V_\eta$  is clearly a linear function on  $\Delta(X)$ , we must only show that  $V_\eta$  represents  $\succsim_\eta$  on  $\Delta(X)$ . To do so, let

$L, M \in \Delta(X)$ . Write

$$L = \left( (c_1^L, p_1^L), \dots, (c_l^L, p_l^L) \right) \quad \text{and} \quad M = \left( (c_1^M, p_1^M), \dots, (c_m^M, p_m^M) \right)$$

meaning that e.g. the probability of lottery  $L$  granting prize  $c_1^L$  is  $p_1^L$ . Then for  $i = 1, \dots, l$  and  $j = 1, \dots, m$  let

$$e_i^L = EDE_\eta \left( c_i^L \right) \quad \text{and} \quad e_j^M = EDE_\eta \left( c_j^M \right).$$

Define the new lotteries  $\bar{L}$  and  $\bar{M}$  by replacing the prizes of  $L$  and  $M$  with their equally distributed equivalents; that is,

$$\bar{L} = \left( (e_1^L, p_1^L), \dots, (e_l^L, p_l^L) \right) \quad \text{and} \quad \bar{M} = \left( (e_1^M, p_1^M), \dots, (e_m^M, p_m^M) \right).$$

Since  $\succsim_\eta$  satisfies the vNM axioms on  $\Delta(X)$  and we've merely replaced prizes with other equally good prizes, it follows that

$$\bar{L} \sim_\eta L \quad \text{and} \quad \bar{M} \sim_\eta M.$$

Thus,

$$L \succsim_\eta M \iff \bar{L} \succsim_\eta \bar{M}.$$

Since  $\bar{L}, \bar{M} \in \Delta(E)$  and  $V^*$  represents  $\succsim_\eta$  on  $\Delta(E)$ , it follows that  $L \succsim_\eta M$  occurs if and only if  $V^*(\bar{L}) \geq V^*(\bar{M})$ , i.e.

$$\begin{aligned} &\iff \sum_{i=1}^l p_i^L \cdot v^*(e_i^L) \geq \sum_{j=1}^m p_j^M \cdot v^*(e_j^M) \\ &\iff \sum_{i=1}^l p_i^L \cdot v^* \left( EDE_\eta(c_i^L) \right) \geq \sum_{j=1}^m p_j^M \cdot v^* \left( EDE_\eta(c_j^M) \right) \\ &\iff \sum_{i=1}^l p_i^L \cdot v_\eta(c_i^L) \geq \sum_{j=1}^m p_j^M \cdot v_\eta(c_j^M) \\ &\iff V_\eta(L) \geq V_\eta(M). \end{aligned}$$

## C.1.2 Proof of Theorem 2

**Proof 4** *Sketch Proof for Theorem 2 - see appendix for full proof*

- From Theorem 1, we have individual vNM utility functions  $V_\eta(N)$  for each worldview  $\eta \in \mathcal{V}$  that consider the distributional concerns.
- Axiom 2 establishes the minimal comparability of worldviews when considering equally distributed consumption paths. This axiom ensures that all worldviews agree on their relative rankings over equally distributed consumption paths, allowing us to find common ground across different worldviews.
- We introduce constants  $(\alpha_\eta)_{\eta \in \mathcal{V}}$  to represent the relative importance of each worldview within society. By combining these constants with the individual vNM utility functions from Theorem 1, we can define a function  $W(N) = \sum_{\eta \in \mathcal{V}} \alpha_\eta \cdot V_\eta(N)$ .
- The function  $W(N)$  aggregates the individual vNM utility functions across all worldviews and represents the societal preference relation  $\succsim$ . This preference relation considers the diversity of worldviews and the concern for inequality.

**Proof in Details** Given any  $c \in X$  and any  $\eta \in \mathcal{V}$ , let

$$c_\eta = EDE_\eta(c) \quad \text{and} \quad c_* = EDE(c)$$

(where EDE with no subscript denotes society's EDE). Then let  $E_\eta^L$  denote the lottery obtained by replacing each prize  $c$  in the support of  $L$  with  $c_\eta$ , and similarly let  $E^L$  denote the lottery obtained by replacing each prize  $c$  in the support of  $L$  with  $c_*$ . Since  $\succsim$  and each  $\succsim_\eta$  all satisfy the vNM axioms, we know that for each  $L \in \Delta(X)$  and each  $\eta \in \mathcal{V}$ , we have

$$L \sim_\eta E_\eta^L \quad \text{and} \quad L \sim E^L.$$

Then for each  $L \in \Delta(X)$  and each  $\eta \in \mathcal{V}$ , we have

$$V_\eta(L) - V_\eta(E^L) = \sum_{c \in X} L(c) [v^*(EDE_\eta(c)) - v^*(EDE_\eta(c_*))].$$

For each  $c \in X$ ,  $c_*$  is equally distributed. Therefore by the definition of EDE, for each  $\eta \in \mathcal{V}$  and each  $c \in X$  we must have  $EDE_\eta(c_*) = c_*$ . Thus, the above reduces to

$$V_\eta(L) - V_\eta(E^L) = \sum_{c \in X} L(c) [v^*(c_\eta) - v^*(c_*)].$$

Now IF we are to have found a set of weights  $(\alpha_\eta)_{\eta \in \mathcal{V}}$  such that  $W(L) := \sum_{\eta \in \mathcal{V}} \alpha_\eta \cdot V_\eta(L)$  represents  $\succsim$  on  $\Delta(X)$ , then it must be the case that for each  $L \in \Delta(X)$  we have  $W(L) - W(E^L) = 0$ , i.e.

$$\sum_{\eta \in \mathcal{V}} \alpha_\eta [V_\eta(L) - V_\eta(E^L)] = 0$$

i.e.

$$\sum_{\eta \in \mathcal{V}} \alpha_{\eta} \sum_{c \in X} L(c) [v^*(c_{\eta}) - v^*(c_*)] = 0$$

i.e.

$$\sum_{c \in X} L(c) \sum_{\eta \in \mathcal{V}} \alpha_{\eta} [v^*(c_{\eta}) - v^*(c_*)] = 0 \quad (\text{C.1})$$

must-have for each  $L \in \Delta(X)$ . This gives us a set of equations that must hold true for a bunch of different  $L$ 's and should let us pin down the values the  $\alpha_{\eta}$ 's must take if we choose the different  $L$ 's appropriately. In particular, if we take  $L$  to be a degenerate lottery that only pays out a given consumption path  $c$ , we find that we must have

$$\sum_{\eta \in \mathcal{V}} \alpha_{\eta} [v^*(c_{\eta}) - v^*(c_*)] = 0$$

(for every individual  $c \in X$ ). In particular, if we're looking for a set of  $\alpha$ 's that add up to 1, then we must have that for each  $c \in X$ ,

$$\sum_{\eta \in \mathcal{V}} \alpha_{\eta} v^*(c_{\eta}) = v^*(c_*).$$

Now suppose there exist  $\alpha$ 's that satisfy ALL such equations (for each  $c \in X$ ). But to continue the proof, we must then only show that when we choose the  $\alpha$ 's in this way,  $W(L) := \sum_{\eta \in \mathcal{V}} \alpha_{\eta} \cdot V_{\eta}(L)$  does indeed represent  $\succsim$  on  $\Delta(X)$ . That is, we must show that

$$L \succsim M \iff W(L) \geq W(M).$$

Since  $L \sim E^L$  and  $M \sim E^M$ , we know that  $L \succsim M$  if and only if  $E^L \succsim E^M$ . Therefore it suffices to show that

$$E^L \succsim E^M \iff W(L) \geq W(M).$$

Now also suppose we can show that  $W(L) = W(E^L)$  for each  $L$  (just work your way backwards from the equation defining the  $\alpha$ 's to get that  $W(L) = W(E^L)$  for all  $L$ ). Then the above reduces to showing that

$$E^L \succsim E^M \iff W(E^L) \geq W(E^M),$$

and hence it suffices to show that  $W$  represents  $\succsim$  merely on  $\Delta(E)$ .

So let  $L, M \in \Delta(E)$ . Then we have that  $W(L) \geq W(M)$  if and only if

$$\sum_{\eta \in \mathcal{V}} \alpha_{\eta} \sum_{c \in E} L(c) \cdot v^*(c_{\eta}) \geq \sum_{\eta \in \mathcal{V}} \alpha_{\eta} \sum_{c \in E} M(c) \cdot v^*(c_{\eta}).$$

Since each  $c \in E$  is equally distributed, we have that  $c_{\eta} = c$  for each  $c \in E$ . Thus,  $W(L) \geq W(M)$  if and only if

$$\sum_{\eta \in \mathcal{V}} \alpha_{\eta} \sum_{c \in E} L(c) \cdot v^*(c) \geq \sum_{\eta \in \mathcal{V}} \alpha_{\eta} \sum_{c \in E} M(c) \cdot v^*(c),$$

which, since  $\sum_{\eta \in \mathcal{V}} \alpha_\eta \neq 0$ , occurs if and only if

$$\sum_{c \in E} L(c) \cdot v^*(c) \geq \sum_{c \in E} M(c) \cdot v^*(c).$$

Using the notation of the proof of Theorem 1, this means

$$W(L) \geq W(M) \iff V^*(L) \geq V^*(M). \quad (\text{C.2})$$

Recall that in the proof of Theorem 1 we showed that  $V^*$  represents each  $\succsim_\eta$  (with  $\eta \in \mathcal{V}$ ) on  $\Delta(E)$ .

Now first, suppose  $W(L) \geq W(M)$ . Then by (C.2) we know that for each  $\eta \in \mathcal{V}$  we have  $L \succsim_\eta M$ . By Axiom 3, this means  $L \succsim M$ , as desired.

Second, suppose  $L \succsim M$ . Since  $L$  and  $M$  are equally distributed, by Lemma 1 this means  $L \succsim_\eta M$  must hold for each  $\eta \in \mathcal{V}$ . So since  $V^*$  represents each  $\succsim_\eta$ , this means we must have  $V^*(L) \geq V^*(M)$ , which by (C.2) implies that  $W(L) \geq W(M)$ , as desired.

**Lemma 1** *If  $L \succ M$ , then  $E^L \succ_\eta E^M$  must hold for each  $\eta \in \mathcal{V}$ . Similarly, if  $L \sim M$  then  $E^L \sim_\eta E^M$  must hold for each  $\eta \in \mathcal{V}$ .*

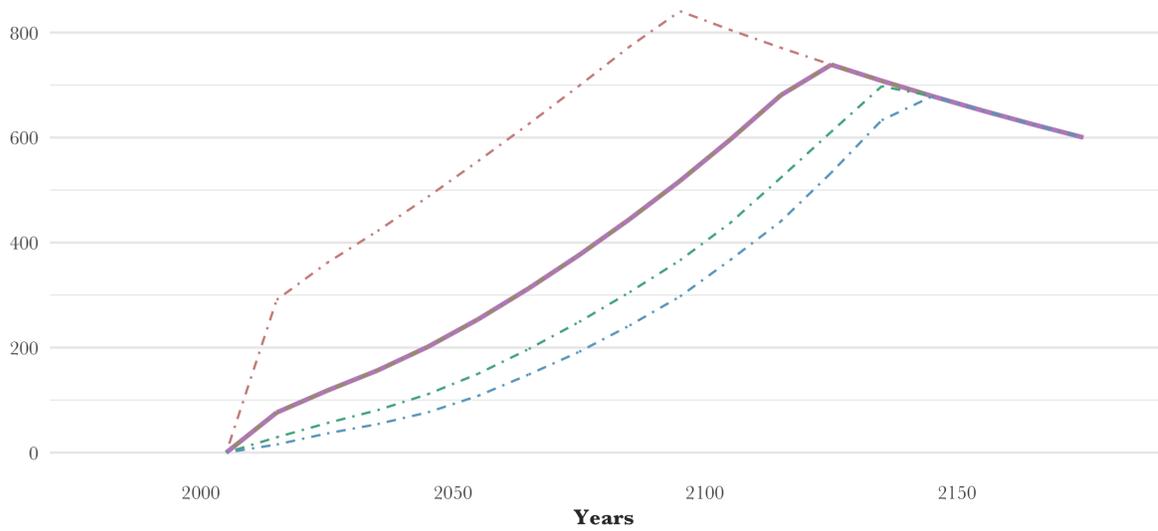
## C.2 Additional NICERIU Simulations and Data

### C.2.1 Additional Simulations for the US

**US Optimal Carbon Taxation Simulation with symmetric internal beliefs without empirical uncertainty.** Simulation without empirical uncertainty and symmetric distribution of internal beliefs (0.25 on each  $\eta$ ):

## Comparison of US Optimal Environmental Taxation Policies

*with Heterogeneous Ideologies versus under Ideological Uncertainty*



— eta=3.1 — eta=2.1 — eta=1.1 — eta=0.1 — with Calibrated Ideological Uncertainty

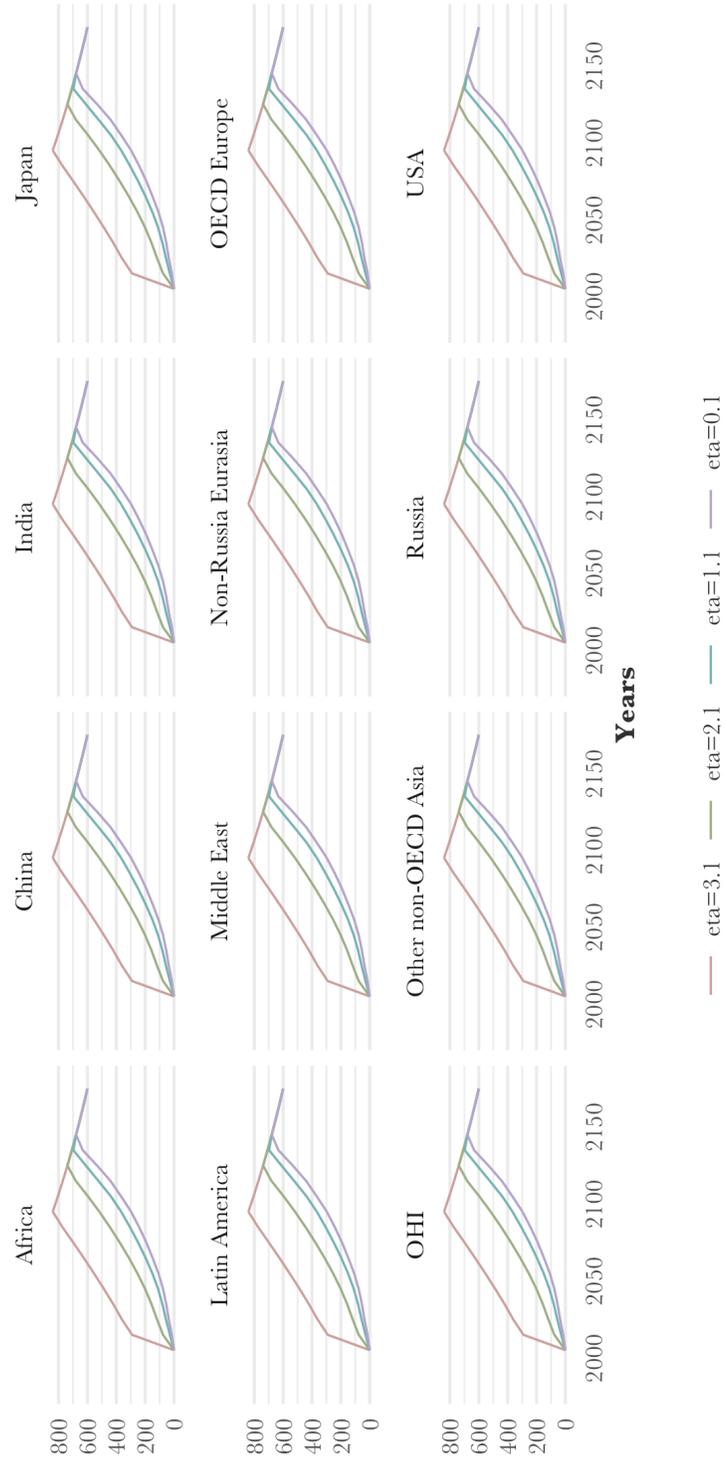
in millions of current US dollars.



## C.2.2 Simulations for All Countries

### Climate Taxation by Countries with Heterogeneous Concerns for Inequality

**Optimal Environmental Policies for all Regions with Heterogeneous Ideologies**



blabla

Figure C.1: OPTIMAL ENVIRONMENTAL POLICIES FOR ALL REGIONS WITH HETEROGENEOUS IDEOLOGIES

# Climate Policies Under Worldview Uncertainty (and Empirical Uncertainty) by Countries

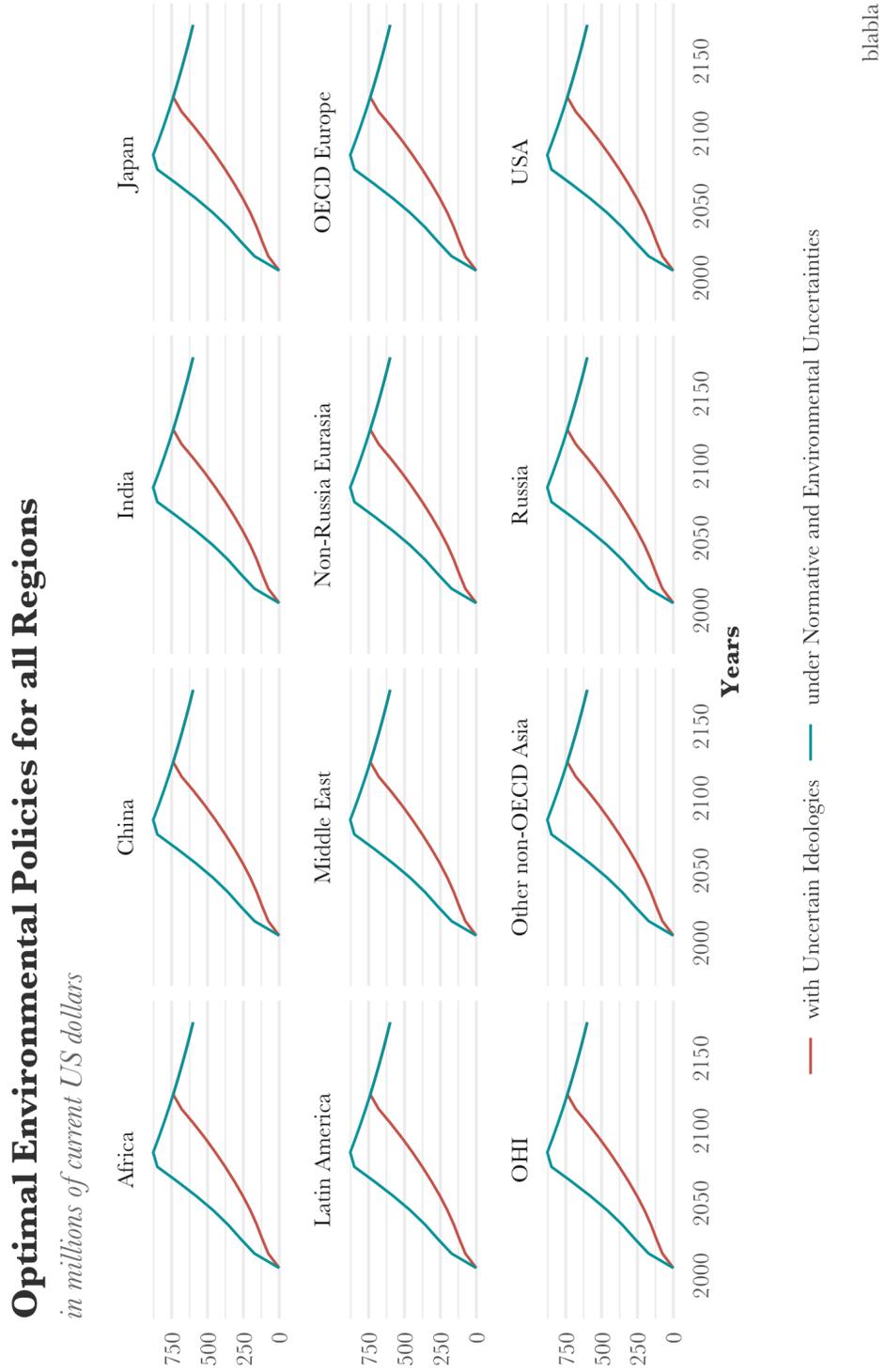


Figure C.2: OPTIMAL ENVIRONMENTAL POLICIES FOR ALL REGIONS WITH NORMATIVE UNCERTAINTY (AND EMPIRICAL UNCERTAINTY)

## C.3 The Data

### C.3.1 Additional Calibrations

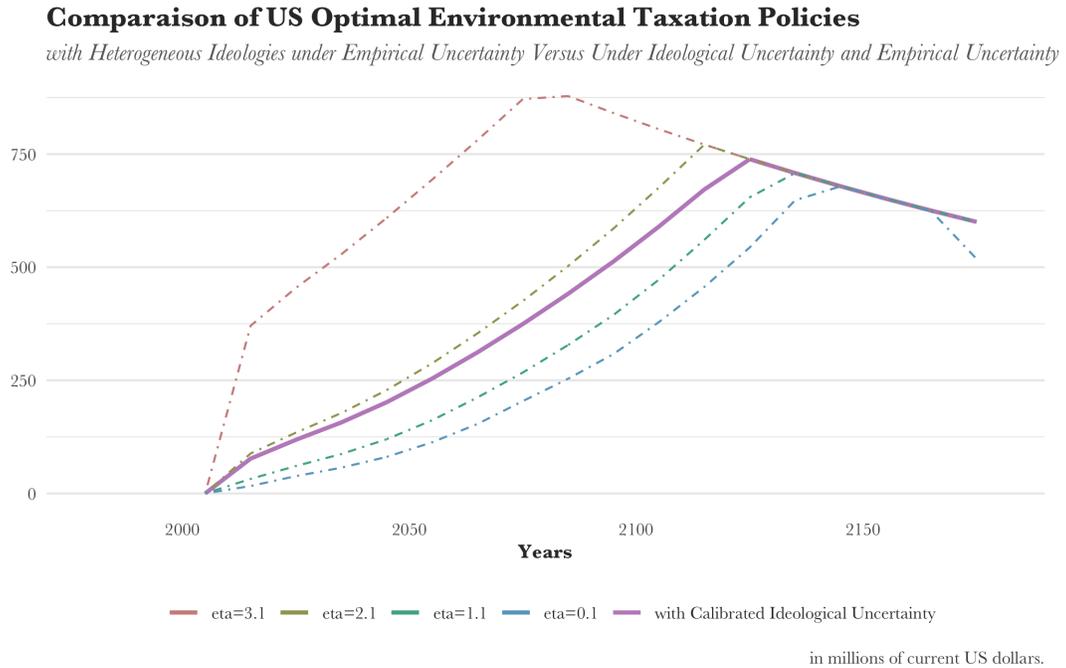
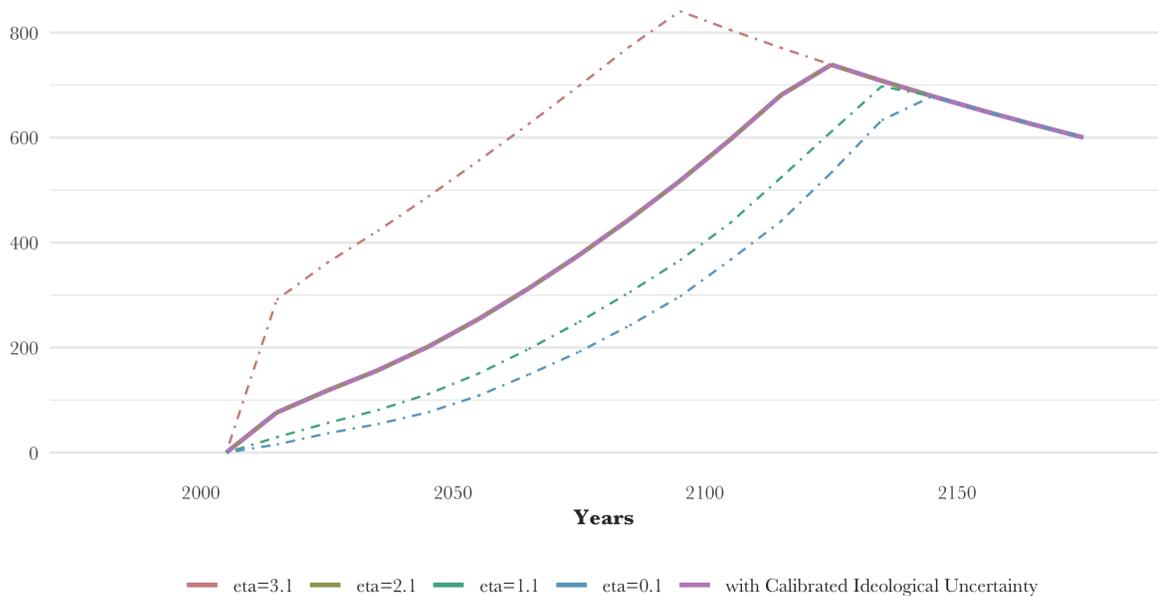


Figure C.3: US Optimal Carbon Taxation with symmetric internal beliefs. Calibration **with** empirical uncertainty and internal beliefs from the NUS.

**US Optimal Carbon Taxation Calibration without empirical uncertainty.**

## Comparison of US Optimal Environmental Taxation Policies

*with Heterogeneous Ideologies versus under Ideological Uncertainty*



in millions of current US dollars.

### C.3.2 Survey Wording Item

Consider the following scenario. Suppose there has been a catastrophic event and two farmers have lost their entire livelihood. A relief agency has arrived to help restore the farmers' land. However, its budget is limited, and one farm is harder to rehabilitate than the other due to the landscape. The agency has to decide whom to help and considers two different options:

Option A: spending the same amount of money on both farms, which will result in more rehabilitated land for farmer 1 (80 acres restored) than for farmer 2 (20 acres restored).

Option B: restoring the same amount of land for both farmers (40 acres restored for each farmer), which will result in less restored land overall (80 acres in total).

Which options would you choose?

### C.3.3 Robustness Analysis With Voting and Employment Data

Inequality Aversion Preferences	
	(1)
Unemployment	0.898 (0.132)
Trump Shares	2.116 (1.994)
N	531
Pseudo R-sq	0.002

Exponentiated coefficients; Standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

## C.4 Additional Discussion of the Weights

### C.4.1 Alternative Interpretation of the Internal Weights: Reflecting Societal Preferences

The vector  $(\pi_1, \dots, \pi_n)$  can be interpreted as the subjective probability distribution used by the decision maker over the different ideologies,  $\mathcal{V}$ . It represents their normative beliefs. Two societies with the same worldview-inclusive social pre-orderings mean they share the same empirical and normative beliefs. Each valuation  $v$  supports to the extent to which the agent believes in it. More precisely, each individual has no normative uncertainty in that society and believes in a particular valuation in  $\mathcal{V}$ . The proportion of individuals believing in a  $v$  in  $\mathcal{V}$  is  $\alpha_v \equiv Pr(v)$ . So if society is of finite size  $n$  with the profile  $(v_1, \dots, v_n)$  of value judgments, then

$$Pr(v) = \frac{|\{i : v_i = v\}|}{n} \text{ for all } v \in \mathcal{V}.$$

## C.4.2 Using the Second Order of Individual Ethical Information: Non-Stability or Non-Dogmatism?

Table C.1: INEQUALITY AVERSION PREFERENCES WITH INTERNAL BELIEFS

Option		A			
Freq.		115 (50.4%)			
Level of Uncertainty	CU	RU	RC	CC	
Freq.	2	16	53	44	
	(1.7%)	(13.9%)	(46.1%)	(38.3%)	
Option		B			
Freq.		113 (49.6%)			
Level of Uncertainty	CU	RU	RC	CC	
Freq.	7	11	46	49	
	(6.2%)	(9.7%)	(40.7%)	(43.4%)	

## C.4.3 Time Discounting Weights Versus Inequality Aversion Weights

Table C.2: TIME DISCOUNTING PREFERENCES WITH INTERNAL WEIGHTS

Option		A			
Freq.		174 (74.7%)			
Level of Uncertainty	CU	RU	RC	CC	
Freq.	2	13	85	74	
	(1.2%)	(7.5%)	(48.9%)	(42.5%)	
Option		B			
Freq.		59 (25.3%)			
Level of Uncertainty	CU	RU	RC	CC	
Freq.	1	7	22	29	
	(1.7%)	(11.9%)	(37.3%)	(49.2%)	

Table C.3: INEQUALITY AVERSION VS TIME DISCOUNTING

Inequality Aversion						
			Standard		Internal Weights	
Option A	264	49.6%	149	49.0%	115	50.4%
Option B	268	50.4%	155	51.0%	113	49.6%
Total	532	100%	304	100%	228	100%
Time Discounting						
			Standard		Internal Weights	
Option A	392	74.4%	218	74.1%	174	74.7%
Option B	135	25.6%	76	25.9%	59	25.3%
Total	527	100%	294	100%	233	100%

## C.5 Macroeconomic Code for Replication

You can find the entire code you need to run NICERIU on our Github. However, we want to show here the particular parts of the files we created, compared to NICER files, to integrate normative uncertainty within macroeconomic climate change simulations. We used Julia (0.6) to run it. Since it is a fast-growing software, you will need to consultate Julia documentation to update the specific functions to use it with a more recent version of Julia.

The Definition Code defines the objects, functions, and constraints. The Optimization Code optimizes the function under constraint.

### C.5.1 Definition Code for Value-Inclusive Welfare

```
function backstop(Th,RL,pw,du,dd,tau,nsample)
    #creates the nsample,12,60 array of the backstop price
    #inputs:
    #   Th (scalar): initial to final backstop price ratio
    #   RL Array(1,12):Region to world backstop price ratio
    #   pw (scalar): price of world backstop
    #   du (scalar): rate of decline of backstop price before
    #   tau
    #   dd (scalar): rate of decline of backstop price after
    #   tau
    #   tau (scalar): period at which rate of decline changes
    T = 60
```

```

I = 12
taut = convert(Int, (tau-1995)/10)
p0 = pw.*RL
pb = zeros(nsample,I,T) # note order of dimensions!
pb[:, :, 1] = p0
for t = 2:taut
    pb[:, :, t] = Th*p0 + (1-du)*(pb[:, :, t-1]-Th*p0)
end
for t = (taut+1):T
    pb[:, :, t] = pb[:, :, t-1]*dd
end
return pb
end

function sig(gT,delsig,sighisT,adj15,Y0,E0,nsample)
#creates the nsample,12,60 array of (unmitigated/BAU)
#emissions to output ratio
#inputs:
# gT
T = 60
I = 12
sigma = zeros(nsample,I,T) # note order of dimensions
E000 = E0./1000
#Julia_0_6: E000 = E0/1000
sigma[:, :, 1] = repeat(E000./Y0,nsample)
sigma[:, :, 2] = broadcast(*,broadcast(*,sigma[:, :, 1],exp.(
sighisT.*10)),adj15)
#Julia_0_6: sigma[:, :, 2] = broadcast(*,broadcast(*,sigma
[:, :, 1],exp(sighisT*10)),adj15)
compdelsig = ((1.-broadcast(^,1-delsig,2:T))'./delsig).-1
# creates all the compounding of delsig broadcast(^,1-
delsig,[2:T])'
#Julia_0_6: compdelsig = ((1.-broadcast(^,1-delsig,2:T
)')'./delsig).-1

for t = 3:T
    G_ = exp((ones(nsample,I)*(t-2)*gT + (sighisT.-gT)*
compdelsig[1,t-2])*10) #sum(compdelsig[1:t-1])*10)
#Julia_0_6: G_ = exp((ones(nsample,I)*(t-2)*gT + (
sighisT.-gT)*compdelsig[1,t-2])*10)
    sigma[:, :, t] = sigma[:, :, 2].*G_
end
return sigma
end

```

```

function population(Pop0,poprates,nsample)
    T = 60
    I = 12
    L = zeros(nsample,I,T) # note order of dimensions
    L[:, :, 1] = repeat(Pop0,nsample)
        #Julia_0_6 : L[:, :, 1] = repmat(Pop0,nsample)
    for t = 2:31
        L[:, :, t] = L[:, :, t-1].*exp.(repeat(poprates[t-1, :] *10,
            nsample))
            #Julia_0_6: L[:, :, t] = L[:, :, t-1].*exp(repmat(poprates[
                t-1, :] *10,nsample))
    end
    for t = 32:T
        L[:, :, t] = L[:, :, 31]
    end
    return L
end

function forcingEx(Fex2000,Fex2100)
    T = 60
    Fex = zeros(1,T)
    Fex = Fex2000*ones(1,T) + 0.1*(0:T-1)'*(Fex2100-Fex2000)
    for t = 12:T
        Fex[t] = 0.3
    end
    return Fex
end

function tfactorp(A0,gy0,tgl,delta,gamma,Crate,Cratio,y0,
    nsample)
    T = 60
    I = 12
    tfp = zeros(nsample,I,T) # note order of dimensions
    tfp[:, :, 1] = repeat(A0,nsample)
        #Julia_0_6 : tfp[:, :, 1] = repmat(A0,nsample)
    tfp[:, :, 2] = broadcast(*,tfp[:, :, 1],exp.(10*(1-gamma)*gy0))
        #Julia_0_6: tfp[:, :, 2] = broadcast(*,tfp[:, :, 1],exp
            (10*(1-gamma)*gy0))
    compdelta = repeat(exp.(-delta*(1:(T-2)))',nsample) # creates
        all the compounded delta values
        #Julia_0_6: compdelta = repmat(exp(-delta*(1:(T-2)))',
            nsample)
    gtUS = (1-gamma)*(tgl*ones(nsample,T-2) + (repeat(gy0
       [:, 1],1,(T-2)) - tgl*ones(nsample,T-2)).*compdelta) #
        growth rates in US, periods 3 to 60

```

```

        #Julia_0_6: gtUS = (1-gamma)*(tgl*ones(nsample,T-2) + (
            repmat(gy0[:,1],1,(T-2)) - tgl*ones(nsample,T-2)).*
            compdelA) # growth rates in US, periods 3 to 60
cgtus = cumsum(gtUS, dims=2)
        #Julia_0_6: cgtus = cumsum(gtUS,2)
tfp[:,1,3:T] = tfp[:,1,2].*exp.(cgtus.*10) # USA is correct
        #Julia_0_6: tfp[:,1,3:T] = tfp[:,1,2].*exp(cgtus.*10)
fac = zeros(nsample,I-1)
for i = 1:nsample
    fac[i,:] = log.(y0[1]./y0[2:I]') + log.(Cratio) + 10*(gy0
        [i,1].-gy0[i,2:I])'          ##bold-ERR70 (dot
        required for log.(Cratio) )
        #Julia_0_6: fac[i,:] = log(y0[1]./y0[2:I]') + log(
            Cratio) + 10*(gy0[i,1].-gy0[i,2:I])'
end
k = (1.-Crate).^ (0:T-3)'
        #Julia_0_6: k = (1-Crate).^ (0:T-3)'
kR = zeros(nsample,I-1,T-2)
for i = 1:nsample
    kR[i,:,:] = Crate[i].*(1-gamma)*0.1*(fac[i,:]*k[i,:])'
end
gtUS_ = permutedims(cat(gtUS,gtUS,gtUS,gtUS,gtUS,gtUS,gtUS,
    gtUS,gtUS,gtUS,gtUS;dims=3),[1 3 2]) # adds third
    dimension to gtUS (manual at the moment since I-1 = 11
    is fixed)
        #Julia_0_6: gtUS_ = permutedims(cat(3,gtUS,gtUS,gtUS,
            gtUS,gtUS,gtUS,gtUS,gtUS,gtUS,gtUS),[1 3 2])
gtR = gtUS_ + kR
cgtR = cumsum(gtR, dims=3)
        #Julia_0_6: cgtR = cumsum(gtR,3)
tfp[:,2:I,3:T] = tfp[:,2:I,2].*exp.(10*cgtR)
        #Julia_0_6: tfp[:,2:I,3:T] = tfp[:,2:I,2].*exp(10*cgtR)
return tfp
end

function landuse(EL0,delL)
    T = 60
    EL = EL0'.*(1-delL).^ (0:T-1)'
    return EL
end

function elasticity2attribution(e, shares)
    # damage attribution vector for given income elasticity of
    # damage and income distribution
    da = shares.^e

```

```

d = zeros(5,12)
    for i = 1:12
        d[:,i] = da[:,i]/sum(da[:,i])
    end
    return d
end

function damage(temp, psi)
    # maps atmospheric temperature to damage
    # calculate all regions' damage term
    # input:
    # temp (scalar): atmospheric temperature (relative to
    # preindustrial)
    # psi Array(3,12): damage function coefficients
    D = (psi[1, :].*temp + psi[2, :].*temp^2 + (psi
        [3, :].*temp).^7).*0.01
end

function tempforcing(mat, fex, xi, transition, stock)
    # temperature cycle forced by carbon mass
    #inputs:
    # mat (scalar): atmospheric carbon mass
    # fex (scalar): exogenous forcing
    # xi Array(1,7): forcing eqn parameters
    # transition Array(2,2): stochastic temperature flow
    matrix
    # stock Array(1,2): temperature stock in atmosphere and
    oceans
    forcing = xi[2]*(xi[1]*log2((mat+0.000001)/xi[6])+fex
        )
    T = stock*transition + [1 0]*forcing
end

function Mflow(stock, flow, transition)
    # carbon cycle forced by emissions
    #inputs:
    # stock Array(1,3): carbon stock in three reservoirs
    # flow (scalar): atmospheric carbon emissions
    # transition Array(3,3): stochasting carbon cycle matrix
    M = stock*transition + 10*[1 0 0]*flow
end

function fromtax(tax,P,Tm)
    # this is the NICE model
    # maps the carbon tax (length(tax) < Tm) to consumption (

```

```

    Tmx12x5) using the parameters in the parameter draw P

#consumption
c = Array{Float64}(undef, Tm, 12, 5)
    #Julia_0_6: c = Array(Float64, Tm, 12, 5)
cbar = Array{Float64}(undef, Tm, 12)
    #Julia_0_6: cbar = Array(Float64, Tm, 12)

#capital
K = Array{Float64}(undef, Tm, 12)
    #Julia_0_6: K = Array(Float64, Tm, 12)
K[1,:] = P.K0

#temperature
T = Array{Float64}(undef, Tm, 2)
    #Julia_0_6: T = Array(Float64, Tm, 2)
    T[1, :] = P.T0
T[2, :] = P.T1

#emissions
E = Array{Float64}(undef, Tm, 12)
    #Julia_0_6: E = Array(Float64, Tm, 12)
E[1,:] = P.E0/1000

#carbon mass
M = Array{Float64}(undef, Tm, 3)
    #Julia_0_6: M = Array(Float64, Tm, 3)
    M[1, :] = P.M0
M[2, :] = P.M1

    #savings
    s1 = P.para[4]/(1+P.para[1])^10
    S = ones(Tm,12).*s1

#tax
# TAX = [0; tax; maximum(P.pb,2)[(length(tax)+2):end]]
TAX = maximum(P.pb,dims=2)
    #Julia_0_6: TAX = maximum(P.pb,2)
    TAX[1] = 0
TAX[2:length(tax)+1] = tax
    #mitition rate, abatement cost, damage, deflator
mu = Array{Float64}(undef, Tm, 12)
    #Julia_0_6: mu = Array(Float64, Tm, 12)
    lam = Array{Float64}(undef, Tm, 12)
    #Julia_0_6: lam = Array(Float64, Tm, 12)

```

```

        D = Array{Float64}(undef, Tm, 12)
        #Julia_0_6: D = Array(Float64, Tm, 12)
AD = Array{Float64}(undef, Tm, 12)
        #Julia_0_6: AD = Array(Float64, Tm, 12)

#output
        Y = Array{Float64}(undef, Tm, 12)
        #Julia_0_6: Y = Array(Float64, Tm, 12)
Q = Array{Float64}(undef, Tm, 12)
        #Julia_0_6: Q = Array(Float64, Tm, 12)

#Period 1
mu[1,:] = max.(min.((TAX[1]./P.pb[1,:]).^(1/(P.th2-1))),1)
,0) # mu between 0 and 1 element by element
        #Julia_0_6: mu[1,:] = max(min((TAX[1]./P.pb[1,:]).^(1/(
        P.th2-1))),1),0)
        lam[1,:] = max.(min.(P.th1[1, :].*mu[1, :].^P.th2,1)
,0) # lam between 0 and 1 element by element
        #Julia_0_6: lam[1,:] = max(min(P.th1[1,:].*mu[1,:].^P
        .th2,1),0)
D[1,:] = damage(T[1,1],P.psi)
AD[1,:] = (1.-lam[1,:])./(1.+D[1,:]) #bold-warning
        Julia_0_7
        #Julia_0_6: AD[1,:] = (1-lam[1,:])./(1+D[1,:])
Y[1,:] = P.A[1,:].*P.L[1,:].^(1-P.para[4]).*K[1,:].^P.para
[4]
        Q[1,:] = AD[1,:].*Y[1,:]
cbar[1,:] = (1.-S[1,:]).*Q[1,:]./P.L[1,:] #bold-warning
        Julia_0_7
        #Julia_0_6: cbar[1,:] = (1-S[1,:]).*Q[1,:]./P.L[1, :]

        #quintile consumptions period 1
        for i = 1:5
c[1,:,i] = 5*cbar[1,:].*((1.+D[1, :]).*P.q[i, :] - D[1,
:]*.P.d[i, :]) #bold-warning Julia_0_7
        #Julia_0_6: c[1,:,i] = 5*cbar[1,:].*((1+D[1,:]).*P.q[
        i,:] - D[1,:].*P.d[i,:])
end

# Period 2
K[2, :] = max.(S[1,:].*Q[1, :]*10,0) # prevent negative
capital (note, this will not bind at the optimum, but
prevents the optimization from crashing)
        #Julia_0_6: K[2,:] = max(S[1,:].*Q[1,:]*10,0)
Y[2, :] = P.A[2,:].*P.L[2,:].^(1-P.para[4]).*K[2,:].^P.para

```

```

[4]
mu[2, :] = max.(min.((TAX[2]./P.pb[2,:]).^(1/(P.th2-1)),1),0)
    #Julia_0_6: mu[2,:] = max(min((TAX[2]./P.pb[2,:])
    .^(1/(P.th2-1)),1),0)
E[2, :] = (1.-mu[2,:]).*P.sigma[2,:].*Y[2,:] #bold-
warning Julia_0_7
    #Julia_0_6: E[2,:] = (1 - mu[2, :]).*P.sigma[2, :].*Y
    [2, :]
M[3, :] = Mflow(M[2,:]', sum(E[2, :] + P.EL[2, :]), P.TrM)
lam[2, :] = max.(min.(P.th1[2, :].*mu[2, :].^P.th2,1),0)
    #Julia_0_6: lam[2, :] = max(min(P.th1[2, :].*mu[2,
    :].^P.th2,1),0)
D[2, :] = damage(T[2, 1], P.psi)
AD[2, :] = (1.-lam[2, :])./(1.+D[2, :]) #bold-warning
Julia_0_7
    #Julia_0_6: AD[2, :] = (1-lam[2, :])./(1+D[2, :])
Q[2, :] = AD[2,:].*Y[2,:]
cbar[2,:] = (1.-S[2, :]).*Q[2, :]./P.L[2, :] #bold-
warning Julia_0_7
    #Julia_0_6: cbar[2,:] = (1-S[2, :]).*Q[2, :]./P.L[2,
    :]

    #quintile consumptions period 2
    for i = 1:5
c[2,:,i] = max.(5*cbar[2,:].*((1.+D[2, :]).*P.q[i, :] -
D[2, :].*P.d[i, :]), P.tol) #bold-warning Julia_0_7
    #Julia_0_6: c[2,:,i] = max(5*cbar[2,:].*((1+D[2, :])
    .*P.q[i, :] - D[2, :].*P.d[i, :]), P.tol)
    end
K[3, :] = max.(S[2, :].*Q[2, :].*10,0) # prevent negative
capital (note, this will not bind at the optimum, but
prevents the optimization from crashing)
    #Julia_0_6: K[3, :] = max(S[2, :].*Q[2, :].*10,0)

#periods 3 to Tm-1
    for t = 3:(Tm - 1)
Y[t,:] = P.A[t,:].*P.L[t,:].^(1-P.para[4]).*K[t,:].^P.
para[4]
mu[t, :] = max.(min.((TAX[t]./P.pb[t,:]).^(1/(P.th2-1))
,1),0)
    #Julia_0_6: mu[t, :] = max(min((TAX[t]./P.pb[t,:])
    .^(1/(P.th2-1)),1),0)
lam[t, :] = max.(min.(P.th1[t, :].*mu[t, :].^P.th2,1),0)
    #Julia_0_6: lam[t, :] = max(min(P.th1[t, :].*mu[t,

```

```

        :].^P.th2,1),0)
E[t, :] = (1.-mu[t, :]).*P.sigma[t, :].*Y[t, :] #bold-
warning Julia_0_7
#Julia_0_6: E[t, :] = (1 - mu[t, :]).*P.sigma[t, :].*
Y[t, :]
M[t+1, :] = Mflow(M[t,:]', sum(E[t, :] + P.EL[t, :]), P.
TrM)
        Mbar = (M[t+1, 1] +M[t, 1])/2
        T[t, :] = tempforcing(Mbar, P.Fex[t], P.xi, P
.TrT, T[t-1, :])
        D[t, :] = damage(T[t, 1], P.psi)
AD[t, :] = (1.-lam[t, :])./(1.+D[t, :]) #bold-warning
Julia_0_7
#Julia_0_6: AD[t, :] = (1-lam[t, :])./(1+D[t, :])
        Q[t, :] = AD[t, :].*Y[t, :]
cbar[t, :] = (1.-S[t, :]).*Q[t, :]./P.L[t, :] #bold-
warning Julia_0_7
#Julia_0_6: cbar[t, :] = (1-S[t, :]).*Q[t, :]./P.L[t,
:]

        for i = 1:5
c[t, :, i] = max.(5*cbar[t, :].*((1.+D[t, :]).*P.q[i,
:] - D[t, :].*P.d[i, :]), P.tol) #bold-warning
Julia_0_7
#Julia_0_6: c[t, :, i] = max(5*cbar[t, :].*((1+D[t,
:]).*P.q[i, :] - D[t, :].*P.d[i, :]), P.tol)
        end
K[t+1, :] = max.(S[t, :].*Q[t, :]*10,0) # prevent
negative capital (note, this will not bind at the
optimum, but prevents the optimization from crashing)
#Julia_0_6: K[t+1, :] = max(S[t, :].*Q[t, :]*10,0)
end

# Period Tm
Y[Tm, :] = P.A[Tm, :].*P.L[Tm, :].^(1-P.para[4]).*K[Tm, :].^P.
para[4]
mu[Tm, :] = max.(min.((TAX[Tm]./P.pb[Tm, :]).^(1/(P.th2-1))
,1),0)
#Julia_0_6: mu[Tm, :] = max(min((TAX[Tm]./P.pb[Tm
, :]).^(1/(P.th2-1)),1),0)
lam[Tm, :] = max.(min.(P.th1[Tm, :].*mu[Tm, :].^P.th2,1),0)
#Julia_0_6: lam[Tm, :] = max(min(P.th1[Tm, :].*mu[Tm,
:]).^P.th2,1),0)
T[Tm, :] = tempforcing(M[Tm, 1], P.Fex[Tm], P.xi, P.
TrT, T[Tm-1, :])

```

```

        D[Tm, :] = damage(T[Tm, 1], P.psi)
AD[Tm, :] = (1 .-lam[Tm, :])./(1 .+D[Tm, :]) #bold-
warning Julia_0_7
        #Julia_0_6: AD[Tm, :] = (1-lam[Tm, :])./(1+D[Tm, :])
        Q[Tm, :] = AD[Tm, :].*Y[Tm, :]
cbar[Tm, :] = (1 .-S[Tm, :]).*Q[Tm, :]./P.L[Tm, :] #bold-
warning Julia_0_7
        #Julia_0_6: cbar[Tm, :] = (1-S[Tm, :]).*Q[Tm, :]./P.L
        [Tm, :]
        for i = 1:5
c[Tm, :, i] = max.(5*cbar[Tm, :].*((1 .+D[Tm, :]).*P.q[i,
:] - D[Tm, :].*P.d[i, :]), P.tol) #bold-warning
Julia_0_7, max. required by Julia 0.7
        #Julia_0_6: c[Tm, :, i] = max(5*cbar[Tm, :].*((1+D[Tm
, :]).*P.q[i, :] - D[Tm, :].*P.d[i, :]), P.tol)
        end

return c,K,T,E,M,mu,lam,D,AD,Y,Q,cbar
end

function welfareN(c, L, rho, eta, Tm)
R = 1 ./((1+rho).^(10.*(0:(Tm-1))))
#Julia_0_6: R = 1./((1+rho).^(10.*(0:(Tm-1))))
A = Array{Float64}(undef, Tm, 12, 5)
#Julia_0_6: A = Array{Float64, Tm, 12, 5}
        for i = 1:5
                A[:, :, i] = 0.2*L[1:Tm, :].*c[:, :, i].^(1-eta)
        end
B = squeeze(sum(sum(A, dims=3), dims=2), dims=3)'
#Julia_0_6: B = squeeze(sum(sum(A,3),2),3)'
        W = (B*R/(1-eta))[1]
return W
end

function welfareR(c, L, rho, eta, Tm)
R = 1 ./((1+rho).^(10.*(0:(Tm-1))))
#Julia_0_6: R = 1./((1+rho).^(10.*(0:(Tm-1))))
        A = L[1:Tm, :].*c[:, :].^(1-eta)
B = sum(A, dims=2)'
#Julia_0_6: B = sum(A,2)'
        W = ((B*R)/(1-eta))[1]
return W
end

function welfareD(c,L,rho,eta,Tm)

```

```

R = 1 ./ (1+rho).^ (10 .* (0:(Tm-1)))
#Julia_0_6: R = 1 ./ (1+rho).^ (10 .* (0:(Tm-1)))
A = sum(L[1:Tm, :].*c[:, :], dims=2)'
#Julia_0_6: A = sum(L[1:Tm, :].*c[:, :], 2)'
B = ((A.^(1-eta)*R)/(1-eta))
W = B[1]
end

function W2EW(x, nu, eta)
    mean(((x.(1-eta)).^(1/(1-eta))).^(1-nu)./(1-nu))
end

function tax2welfare(tax, P, rho, eta, Tm; model="$model")
    if model == "NICE"
        c = fromtax(tax, P, Tm)[1]
        W = welfareN(c, P.L, rho, eta, Tm)
    elseif model == "RICE"
        c = fromtax(tax, P, Tm)[12]
        W = welfareR(c, P.L, rho, eta, Tm)
    elseif model == "DICE"
        c = fromtax(tax, P, Tm)[12]
        W = welfareD(c, P.L, rho, eta, Tm)
    end
    return W
end

#utilitarianism under normative uncertainty #EDE in comments
function tax2expectedwelfare(tax, P, rho, eta, nu, Tm, tm,
    omega) #NICERs #nu pour EDE
    nsample=length(P)
    neta=length(eta)
    c = zeros(Tm, 12, 5, nsample) # will contain per capita
        consumption at time t, in region I, in quintile q, for
        random draw n
    for i = 1:nsample
        c[:, :, :, i] = fromtax(tax[1:tm], P[i], Tm)[1] # only
            consider lm length since we want to create a tax
            vector of particular length
    end
    R = 1 ./ (1+rho).^ (10 .* (0:(Tm-1))) # discount factors for
        each time period #Julia_0_6: R = 1 ./ (1+rho)
        .^(10 .* (0:(Tm-1)))
    D = zeros(Tm, 12, 5, nsample, neta) # Convert consumption to
        per capita discounted utility at time t, in region I (
        weighted by population), in quintile q, for random

```

```

    draw n
for t = 1:Tm
    for j = 1:neta
        D[t,:,:,:,j] = ((c[t,:,:,:,:].^(1-eta[j]))).*R[t]) #./(1-
            eta[j])
    end
end
D_ = zeros(Tm,12,5,nsample,neta)
for i = 1:nsample
    D_[:, :, :, i, :] = D[:, :, :, i, :] .* cat(P[i].L[1:Tm, :], P[i].L
        [1:Tm, :], P[i].L[1:Tm, :], P[i].L[1:Tm, :], P[i].L[1:Tm
            , :]; dims=3)/5
end
D = D_
# Now sum over quintiles to get per capita discounted
    utility at time t, in region I, in random draw n
B1 = sum(D, dims=3)
#Julia_0_6: B1 = sum(D,3)
# Now sum over regions to get per capita discounted
    utility at time t, in random draw n
B2 = sum(B1, dims=2)
#Julia_0_6: B2 = sum(B1,2)
# Now sum over time to get per capita lifetime discounted
    utility in random draw n, and undo the concavity to
    get a "certainty equivalent" consumption measure
#B3 = sum(B2, dims=1)
B3 = zeros(1,1,1,nsample,neta) #EDE
B3 = sum(B2, dims=1) #EDE
    for j = 1:neta #EDE
        B3[1,1,1,:,j] = B3[1,1,1,:,j].^(1/(1-eta[j])) #EDE
            .*(1-eta[j])
    end
# Now sum over random draws to get total world welfare
#B4 = dropdims(sum(B3, dims=4)./nsample; dims=1)
B4 = B3.^(1-nu).*(1/(1-nu)) #EDE
B4 = dropdims(sum(B4, dims=4)./nsample; dims=1) #EDE
B4 = dropdims(B4; dims=1)
B4 = dropdims(B4; dims=1)
B4 = dropdims(B4; dims=1)
#
W = sum(B4.*omega)
# W = (0.33*B3[1,1,1,1].^(1-nu) + 0.67*B3[1,1,1,2].^(1-nu
    ))*(1/(1-nu)) # Test for unequal probabilities effect
    on learning...
return W,c

```

```

end

# test 9 decembre 2019
function zzzz(tax, P, rho, eta, nu, Tm, tm, omega)
    nsample=length(P)
    neta=length(eta)
    # println("+ NICE in tax2expectedwelfare")
    c = zeros(Tm,12,5,nsample) # will contain per capita
        consumption at time t, in region I, in quintile q, for
        random draw n
    for i = 1:nsample
        c[:, :, :, i] = fromtax(tax[1:tm], P[i], Tm)[1] # only
            consider lm length since we want to create a tax
            vector of particular length
    end # c is the first element
    R = 1 ./ (1+rho).^(10.*(0:(Tm-1))) # discount factors for
        each time period #Julia_0_6: R = 1./(1+rho).^(10.*(0:(Tm
        -1)))
    D = zeros(Tm,12,5,nsample,neta) # Convert consumption to
        per capita discounted utility at time t, in region I (
        weighted by population), in quintile q, for random draw
        n
    for t = 1:Tm
        for j = 1:neta
            D[t, :, :, :, j] = ((c[t, :, :, :].^(1-eta[j])).*R[t])./(1-eta[j
            ])
        end
    end
    D_ = zeros(Tm,12,5,nsample,neta)
    for i = 1:nsample
        D_[:, :, :, i, :] = D[:, :, :, i, :].*cat(P[i].L[1:Tm, :], P[i].L
            [1:Tm, :], P[i].L[1:Tm, :], P[i].L[1:Tm, :]);
        dims=3)/5
    end
    #D = D_
    # Now sum over quintiles to get per capita discounted
        utility at time t, in region I, in random draw n
    B1 = sum(D_, dims=3)
    #Julia_0_6: B1 = sum(D,3)
    # Now sum over regions to get per capita discounted utility
        at time t, in random draw n
    B2 = sum(B1, dims=2)
    #Julia_0_6: B2 = sum(B1,2)
    # Now sum over time to get per capita lifetime discounted

```

```

        utility in random draw n, and undo the concavity to get
        a "certainty equivalent" consumption measure
B3 = zeros(1,1,1,nsample,neta) #EDE
B3 = sum(B2, dims=1) #EDE
    for j = 1:neta #EDE
        B3[1,1,1,:,j] = B3[1,1,1,:,j].*(1-eta[j]).^(1/(1-eta[j]))
            #EDE
    end
# Now sum over random draws to get total world welfare
#B4 = dropdims(sum(B3, dims=4)./nsample; dims=1)
B4 = B3.^(1-nu).*(1/(1-nu)) #EDE
B4 = dropdims(sum(B4, dims=1)./nsample; dims=1) #EDE
B4 = dropdims(B4; dims=1)
B4 = dropdims(B4; dims=1)
B4 = dropdims(B4; dims=1)
#
W = sum(B4.*omega)
# W = (0.33*B3[1,1,1,1].^(1-nu) + 0.67*B3[1,1,1,2].^(1-nu))
    *(1/(1-nu)) # Test for unequal probabilities effect on
    learning...
return c, D, D_, B1, B2, B3, B4, W
end

```

```

function VarsFromTaxes(taxes_1, taxes_2, PP, nsample; model="
    NICE")
# Create storage objects
if (model == "RICE") | (model == "DICE")
    c = Array{Float64}(undef, Tm, 12, nsample)
        #Julia_0_6: c = Array(Float64, Tm, 12, nsample)
else
    c = Array{Float64}(undef, Tm, 12, 5, nsample)
        #Julia_0_6: c = Array(Float64, Tm, 12, 5, nsample)
end
K = Array{Float64}(undef, Tm, 12, nsample)
    #Julia_0_6: K = Array(Float64, Tm, 12, nsample)
T = Array{Float64}(undef, Tm, 2, nsample)
    #Julia_0_6: T = Array(Float64, Tm, 2, nsample)
E = Array{Float64}(undef, Tm, 12, nsample)
    #Julia_0_6: E = Array(Float64, Tm, 12, nsample)
M = Array{Float64}(undef, Tm, 3, nsample)
    #Julia_0_6: M = Array(Float64, Tm, 3, nsample)
mu = Array{Float64}(undef, Tm, 12, nsample)
    #Julia_0_6: mu = Array(Float64, Tm, 12, nsample)

```

```

lam = Array{Float64}(undef, Tm, 12, nsample)
    #Julia_0_6: lam = Array(Float64, Tm, 12, nsample)
D = Array{Float64}(undef, Tm, 12, nsample)
    #Julia_0_6: D = Array(Float64, Tm, 12, nsample)
AD = Array{Float64}(undef, Tm, 12, nsample)
    #Julia_0_6: AD = Array(Float64, Tm, 12, nsample)
Y = Array{Float64}(undef, Tm, 12, nsample)
    #Julia_0_6: Y = Array(Float64, Tm, 12, nsample)
Q = Array{Float64}(undef, Tm, 12, nsample)
    #Julia_0_6: Q = Array(Float64, Tm, 12, nsample)

# Store data
for i = 1:Int(max(round(nsample/2), 1))
    if (model == "RICE") | (model == "DICE")
        c[:, :, i] = fromtax(taxes_1, PP[i], Tm)[12]
    else
        c[:, :, :, i] = fromtax(taxes_1, PP[i], Tm)[1]
    end
    K[:, :, i] = fromtax(taxes_1, PP[i], Tm)[2]
    T[:, :, i] = fromtax(taxes_1, PP[i], Tm)[3]
    E[:, :, i] = fromtax(taxes_1, PP[i], Tm)[4]
    M[:, :, i] = fromtax(taxes_1, PP[i], Tm)[5]
    mu[:, :, i] = fromtax(taxes_1, PP[i], Tm)[6]
    lam[:, :, i] = fromtax(taxes_1, PP[i], Tm)[7]
    D[:, :, i] = fromtax(taxes_1, PP[i], Tm)[8]
    AD[:, :, i] = fromtax(taxes_1, PP[i], Tm)[9]
    Y[:, :, i] = fromtax(taxes_1, PP[i], Tm)[10]
    Q[:, :, i] = fromtax(taxes_1, PP[i], Tm)[11]
end

for i = (Int(max(round(nsample/2), 1))+1):nsample
    if (model == "RICE") | (model == "DICE")
        c[:, :, i] = fromtax(taxes_2, PP[i], Tm)[12]
    else
        c[:, :, :, i] = fromtax(taxes_2, PP[i], Tm)[1]
    end
    K[:, :, i] = fromtax(taxes_2, PP[i], Tm)[2]
    T[:, :, i] = fromtax(taxes_2, PP[i], Tm)[3]
    E[:, :, i] = fromtax(taxes_2, PP[i], Tm)[4]
    M[:, :, i] = fromtax(taxes_2, PP[i], Tm)[5]
    mu[:, :, i] = fromtax(taxes_2, PP[i], Tm)[6]
    lam[:, :, i] = fromtax(taxes_2, PP[i], Tm)[7]
    D[:, :, i] = fromtax(taxes_2, PP[i], Tm)[8]
    AD[:, :, i] = fromtax(taxes_2, PP[i], Tm)[9]
    Y[:, :, i] = fromtax(taxes_2, PP[i], Tm)[10]

```

```

        Q[:, :, i] = fromtax(taxes_2, PP[i], Tm)[11]
    end
    return c, K, T, E, M, mu, lam, D, AD, Y, Q
end

function VarsFromTaxes10(taxes, PP, nsample; model = "NICE",
    Tm=32)
    # Create storage objects
    if (model == "RICE") | (model == "DICE")
        c = Array{Float64}(undef, Tm, 12, nsample)      #Julia_0_6
        :
    else
        c = Array{Float64}(undef, Tm, 12, 5, nsample)  #
        Julia_0_6:
    end
    K = Array{Float64}(undef, Tm, 12, nsample)        #Julia_0_6:
    T = Array{Float64}(undef, Tm, 2, nsample)          #Julia_0_6:
    E = Array{Float64}(undef, Tm, 12, nsample)        #Julia_0_6:
    M = Array{Float64}(undef, Tm, 3, nsample)          #Julia_0_6:
    mu = Array{Float64}(undef, Tm, 12, nsample)       #Julia_0_6:
    lam = Array{Float64}(undef, Tm, 12, nsample)      #Julia_0_6
    :
    D = Array{Float64}(undef, Tm, 12, nsample)        #Julia_0_6:
    AD = Array{Float64}(undef, Tm, 12, nsample)       #Julia_0_6:
    Y = Array{Float64}(undef, Tm, 12, nsample)        #Julia_0_6:
    Q = Array{Float64}(undef, Tm, 12, nsample)        #Julia_0_6:

    # Store data
    for i = 1:nsample
        if (model == "RICE") | (model == "DICE")
            c[:, :, i] = fromtax(taxes[:, i], PP[i], Tm)[12]
        else
            c[:, :, :, i] = fromtax(taxes[:, i], PP[i], Tm)[1]
        end
        K[:, :, i], T[:, :, i], E[:, :, i], M[:, :, i], mu[:, :, i], lam
           [:, :, i], D[:, :, i], AD[:, :, i], Y[:, :, i], Q[:, :, i] =
            fromtax(taxes[:, i], PP[i], Tm)[2:11]
    end
    return c, K, T, E, M, mu, lam, D, AD, Y, Q
end

# Create storage object
mutable struct Results      #Julia_0_6: type Results
    regime
    nsample
end

```

```
Tm
tm
lm
Regions
taxes_1
taxes_2
EWelfare
c
K
T
E
M
mu
lam
D
AD
Y
Q
rho
eta
nu
PP
end
```

```
mutable struct Results10           #Julia_0_6: type Results
  regime
  nsample
  Tm
  tm
  lm
  Regions
  taxes
  EWelfare
  c
  K
  T
  E
  M
  mu
  lam
  D
  AD
  Y
  Q
  rho
```

```

eta
nu
PP
optiRet
end

function FrameFromResults(res, Tm, nsample, Regions, idims)
# set up dataframe with periods, regions, State
if length(size(res.c)) > 2
    dataP = DataFrame(ID = 1:(Tm*12*nsample),
                      State = reshape(repeat(collect(1:
                                                nsample)', Tm*12), Tm*12*nsample, 1)
                               [:, 1],
                      Region = repeat(reshape(repeat(Regions,
                                                Tm), Tm*12, 1), nsample)[:, 1],
                      Year = repeat(repeat(10 .*(0:Tm-1)
                                          .+2005, 12), nsample))
# Julia_0_6: Year = repmat(repmat(10*(0:Tm-1)
                          +2005, 12), nsample))
# add taxes (to the correct states)
dataP[:tax] = [repeat(repeat(res.taxes_1, 12), idims);
               repeat(repeat(res.taxes_2, 12), nsample-idims)]
# Julia_0_6: dataP[:tax] = [repmat(repmat(res.taxes_1
                          , 12), idims); repmat(repmat(res.taxes_2, 12), nsample-
                          idims)]
dataP[:T] = reshape(repeat(res.T[:, 1, :], 12), Tm*12*nsample
)
# Julia_0_6: dataP[:T] = reshape(repmat(res.T
                         [:, 1, :], 12), Tm*12*nsample)
# add consumption quintiles
if length(size(res.c)) == 4
    confield = [:cq1, :cq2, :cq3, :cq4, :cq5]
    cqintiles=reshape(permutedims(res.c, [1 2 4 3]), Tm*12*
                      nsample, 5)
    m=1
    for field in confield
        dataP[Symbol(field)] = cqintiles[:, m]
        m+=1
    end
elseif length(size(res.c)) == 3
    cons = reshape(res.c, Tm*12*nsample, 1)[:, 1]
    dataP[:c] = cons
end

# add remaining endogenous variables

```

```

for field in [:K,:E,:mu,:lam,:D,:Y]
    dataP[Symbol(field)] = reshape(getfield(res,field),Tm
        *12*nsample)
end
# add exogenous variables
y = Array{Float64}(undef,Tm*12*nsample,6) #Julia_0_6:
    y = Array{Float64}(Tm*12*nsample,6)
x = Array{Float64}(undef,Tm*12,nsample) #Julia_0_6:
    x = Array{Float64}(Tm*12,nsample)
k=1
for field in [:L,:A,:sigma,:th1,:pb,:EL]
    for m in 1:nsample
        x[:,m] = reshape(getfield(res.PP[m],field)[1:Tm,:],Tm
            *12)
        end
        y[:,k] = reshape(x,Tm*12*nsample)
        dataP[Symbol(field)] = y[:,k]
        k+=1
    end
end
return dataP
end

# Define Deep as the type object that will hold all the
    random parameter draws in createP
mutable struct Deep #Julia_0_6: type Deep
    gy0
    sighistT
    TrM12
    xi1
    psi7
    pw
    ee
    psi2
    Crate
end

#Region Labels
Regions = ["USA" "OECD Europe" "Japan" "Russia" "Non-Russia
    Eurasia" "China" "India" "Middle East" "Africa" "Latin
    America" "OHI" "Other non-OECD Asia"]

# Define PP_ as the type that will hold the parameters
    returned by creatP
struct PP_ #Julia_0_6: immutable PP_

```

```

para::Array{Float64,2} # 1x4 vector, constant across
    nsample, regions, time
L::Array{Float64,2}    # TxI array
A::Array{Float64}     # TxI array
sigma::Array{Float64} # TxI array
th1::Array{Float64}   # TxI array
th2::Float64          # scalar (constant)
pb::Array{Float64}    # TxI array
EL::Array{Float64}    # TxI array
Fex::Array{Float64}   # 1xT array
TrM::Array{Float64}   # 3x3 array
xi::Array{Float64}    # 1x7 array
TrT::Array{Float64}   # 2x2 array
psi::Array{Float64}   # 3xI array
T0::Array{Float64}    # 1x2 array (constant)
T1::Array{Float64}    # 1x2 array (constant)
M0::Array{Float64}    # 1x3 array (constant)
M1::Array{Float64}    # 1x3 array (constant)
K0::Array{Float64}    # 1xI array
E0::Array{Float64}    # 1x12 vector with 2005 emissions
R::Array{Float64}     # 1xT array
q::Array{Float64}     # 5x12 array (constant)
d::Array{Float64}     # 5x12 array
tol::Float64          # scalar (constant)
end

```

## C.5.2 Optimization Code

```

println("\n-----\n    Program:
    optimization.jl\n-----")

# Preliminaries
println("+ Loading of required libraries")
using HDF5, JLD, LinearAlgebra, CSV, DataFrames, NLOpt,
    Distributions
# using Random # recommended by Julia 0.7, not required with
    Julia 1.1

# Select the regime for parameter randomization
# 0 = no randomization (just uses means)
# 1 = total randomization
# 2 = High initial TFP growth vs. Low initial TFP growth

```

```

# 3 = High initial decarbonization rate vs. Low initial
    decarbonization rate
# 4 = High elasticity of income wrt damage vs. Low
    elasticity of income wrt damage
# 5 = High climate sensitivity vs. Low climate sensitivity
# 6 = High atmosphere to upper ocean transfer coefficient
    vs. Low atmosphere to upper ocean transfer coefficient
# 7 = High initial world backstop price vs. Low initial
    world backstop price
# 8 = High T7 coefficient vs. Low T7 coefficient
# 9 = Deciles of TFP (all else fixed at means) (nsample =
    10)
# 95 same as 9, but includes medial (nsample = 11)
# 10 = Deciles of decarbonization rates (all else fixed at
    means) (nsample = 10)
# 105 same as 10, but includes medial (nsample = 11)
# 11 = Deciles - High TFP and High decarb vs. Low TFP and
    Low decarb (technology spillovers?)
# 12 = Deciles - High TFP and Low decarb vs. Low TFP and
    High decarb (substitutable tech?)
# 13 = Deciles of elasticity of income wrt damage (ee)
# 14 = Deciles - High TFP and High ee vs. Low TFP and Low
    ee
# 15 = Deciles - High TFP and Low ee vs. Low TFP and High
    ee
# 16 = DECILES of climate sensitivity
# 165 same as 16, but includes medial (nsample = 11)
regime_select = 13

# Define exogenous parameters
println("+ Setup of parameters")
Tm = 32 # time period to consider, Tm <= 60
tm = 18 # (must be an integer) length of the tax vector to
    consider
    # THIS WILL DIFFER FROM THE DIMENSION OF THE ACTUAL
    # TAX VECTOR OBJECT, tax_length!
    # note that the tax vector contains 2 sets of taxes
    -
    # the first lm elements are common to both sets, the
    # remainder of the vector is then split in two,
    # one for each set of taxes (must of equal length,
    # (tm - lm)/2)
backstop_same = "Y" # "N" is default -
    # choose "Y" if we want all the countries
    # to face the same backstop prices over

```

```

                                time
rho = 0.015 # PP[1].para[1] # discount rate
eta = collect(0.1:1:3.1) # PP[1].para[3] # inequality
      aversion/time smoothing parameter (applied to per capita
      consumption by region, quintile and time period)
omega = [0.25,0.25,0.25,0.25]
nu = 2 # risk aversion parameter (applied over random draws)
exi = 1 # elasticity of damage with respect to income

# Now execute the whole code: select all and evaluate

# Run Function Definitions File AND createPrandom first to
  build necessary parameters!
println("+ Loading of model function definitions")
folder = pwd()
include("$folder/Function_definitions_EDeeta_bold.jl")
include("$folder/createPrandom.jl")

PP = createP(regime_select; eeM = exi)
nsample = size(PP)[1]
pb = zeros(nsample,12,60)
for i=1:nsample
  pb[i,:,:] = PP[i].pb'
end

# Optimization of welfare function using NLOpt package
idims = Int(max(round(nsample/2),1)) # bifurcates the random
  draws into two subsets

#learning happens instantly. you know from period one which
  learning branch you are on
# 1. lm = 0
lm = 0
tax_length = tm #- lm
count = 0 # keep track of number of iterations

# Define function to be maximized (requires special format
  for NLOpt package)
#model = "DICE" # 3.5.19
model = "NICE" # 3.14.19
#println("+ Model selected = ",model)

```

```

#-----
# START LOOP OVER ETA VALUES
#-----

function welfaremax(x,grad) # x is the tax vector, grad
    is the gradient (unspecified here since we have no way
    of computing it)
    WW = tax2expectedwelfare(x,PP,rho,eta,nu,Tm,tm,omega)
        [1] #change to model="RICE" or "DICE" for
            different levels of aggregation
    worldview-inclusive count
    count::Int += 1
    if count#100 == 0
        println(" iteration f_$$count \n$$x\n")
    end
    return WW
end

tax =
    [50,65,70,100,110,120,130,160,200,250,300,350,400,420,450,460,
    470,480,490,500]
#WWW = zzzz(xx,PP,rho,eta,nu,Tm,tm,omega)
nsample=length(PP)
neta=length(eta)
# println("+ NICE in tax2expectedwelfare")
c = zeros(Tm,12,5,nsample) # will contain per capita
    consumption at time t, in region I, in quintile q, for
    random draw n
for i = 1:nsample
    c[:, :, :, i] = fromtax(tax[1:tm],PP[i],Tm)[1] # only
        consider lm length since we want to create a tax
        vector of particular length
end # c is the first element
R = 1 ./((1+rho).^(10.*(0:(Tm-1)))) # discount factors for
    each time period #Julia_0_6: R = 1./(1+rho).^(10.*(0:(Tm
    -1)))
D = zeros(Tm,12,5,nsample,neta) # Convert consumption to
    per capita discounted utility at time t, in region I (
    weighted by population), in quintile q, for random draw
    n
for t = 1:Tm
    for j = 1:neta

```

```

    D[t,:,:,:,j] = ((c[t,:,:,:].^(1-eta[j])).*R[t]).#./(1-eta[
        j])
    end
end
D_ = zeros(Tm,12,5,nsample,neta)
for i = 1:nsample
    D_[:, :, :, i, :] = D[:, :, :, i, :] .* cat(PP[i].L[1:Tm, :],
        PP[i].L[1:Tm, :], PP[i].L[1:Tm, :],
        PP[i].L[1:Tm, :], PP[i].L[1:Tm, :]);
    dims=3)/5
end
#D = D_
# Now sum over quintiles to get per capita discounted
    utility at time t, in region I, in random draw n
B1 = sum(D_, dims=3)
#Julia_0_6: B1 = sum(D,3)
# Now sum over regions to get per capita discounted utility
    at time t, in random draw n
B2 = sum(B1, dims=2)
#Julia_0_6: B2 = sum(B1,2)
# Now sum over time to get per capita lifetime discounted
    utility in random draw n, and undo the concavity to get
    a "certainty equivalent" consumption measure
B3 = zeros(1,1,1,nsample,neta) #EDE
B3 = sum(B2, dims=1) #EDE
    for j = 1:neta #EDE
        B3[1,1,1,:,j] = B3[1,1,1,:,j].^(1/(1-eta[j])) #EDE .*(1-
            eta[j])
    end
# Now sum over random draws to get total world welfare
#B4 = dropdims(sum(B3, dims=4)./nsample; dims=1)
B4 = B3.^(1-nu).*(1/(1-nu)) #EDE
B4 = dropdims(sum(B4, dims=4)./nsample; dims=1) #EDE
B4 = dropdims(B4; dims=1)
B4 = dropdims(B4; dims=1)
B4 = dropdims(B4; dims=1)
#
W = sum(B4.*omega)
println(eta)
println(c[2,1,1,1])
println(D[2,1,1,1,1])
println(D_[2,1,1,1,1])
println(B1[2,:,1,1,:])
println(B2[2,1,1,1,:])
println(B3[1,1,1,1,:])

```

```

println(B4)
println(W)

# Choose algorithm (gradient free method) and dimension
  of tax vector, tm+1 <= n <= Tm
println("+ Setup of optimization algorithm")
n = tax_length
opt = Opt(:LN_BOBYQA, n) # algorithm and dimension of tax
  vector, possible (derivative-free) algorithms:
  LN_COBYLA, LN_BOBYQA

#bold*Modified:
# squeeze(a,3) => dropdims(a, dims=3)
# maximum(A, 2) => maximum(A, dims=2)
#ub_lm = maximum(squeeze(maximum(pb,2),2),1)[2:lm+1]
  # Julia 0.6
ub_tm = maximum(dropdims(maximum(pb,dims=2),dims=2),dims
  =1)[2:tm+1] # Julia 1.x
#ub_1 = maximum(squeeze(maximum(pb,2),2)[1:idims,:],1)[lm
  +2:tm+1] # Julia 0.6
#ub_1 = maximum(dropdims(maximum(pb,dims=2),dims=2)[1:
  idims,:],dims=1)[lm+2:tm+1] # Julia 1.x
#ub_2 = maximum(squeeze(maximum(pb,2),2)[(idims+1):
  nsample,:],1)[lm+2:tm+1] # Julia 0.6
#ub_2 = maximum(dropdims(maximum(pb,dims=2),dims=2)[(
  idims+1):nsample,:],dims=1)[lm+2:tm+1] # Julia 1.x

# lower bound is zero
lower_bounds!(opt, zeros(n))
upper_bounds!(opt, ub_tm) #[ub_lm; ub_1; ub_2])

# Set maximization
max_objective!(opt, welfaremax)

# Set relative tolerance for the tax vector choice - vs.
  ftol for function value?
ftol_rel!(opt,0.000000000000005)

# Optimize! Initial guess defined above
println("+ Optimization loops\n")
(expected_welfare,tax_vector,ret) = optimize(opt, ub_tm
  .*0.5) #[ub_lm; ub_1; ub_2].*0.5)

# Extract the two tax vectors from the optimization

```

```

    object
taxes = tax_vector[1:tm]
# taxes_b = [tax_vector[1:lm];tax_vector[tm+1:end]]

println("+ Calculation of variables from taxes")
c, K, T, E, M, mu, lam, D, AD, Y, Q = VarsFromTaxes(taxes
, taxes, PP, nsample, model="$model")

TAX = maximum(PP[1].pb[1:Tm,:],dims=2)[: ,1]
TAX[1] = 0
TAX[2:(tm+1)] = taxes
taxes_1=TAX
TAX[2:(tm+1)] = taxes
taxes_2 = TAX

println("+ Generation of output data file =")
# create .jld of S_lm

res = Results(regime_select, nsample, Tm, tm, lm, Regions,
taxes_1, taxes_2, expected_welfare, c, K, T, E, M, mu, lam, D, AD
, Y, Q, rho, eta, nu, PP)
dataP = FrameFromResults(res, Tm, nsample, Regions, idims
)

filenm = string(regime_select)
# create dataframe of period by region by state data

# Creation CSV output file
# writetable("$(pwd())/Outputs/Optima/meanOptimum$(model)
.csv", dataP) # Julia 0.6
# CSV.write("$(pwd())/Outputs/Optima/meanOptimum$(model).
.csv", dataP) # Julia 1.x
#CSV.write("$(pwd())/Outputs/meanOptimum$(model)Julia110.
.csv", )

CSV.write(joinpath("$(pwd())", "Outputs", "NICE_EDEeta_13_"*
"omega0.25.csv"), dataP)
# println("$(pwd())/Outputs/meanOptimum$(model)Julia110.
.csv")
# Creation JLD output file
# jldopen("$(pwd())/Outputs/meanOptimum$(model)Julia11.jld",
"w") do file
# write(file, "res", res)
# println("\n$(pwd())/Outputs/meanOptimum$(model)Julia11.jld
")

```

# end