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Is there a relationship between what I think and what I imagine? : a processual approach focused on repetitive negative thinking and visual perspective in mental imagery

Perrine Douce

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THÈSE

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Grenoble Alpes

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dans l'**École Doctorale Sciences de l'Homme, du Politique et
du Territoire**

**Existe-t-il un lien entre ce que je pense
et ce que j'imagine ? Une approche
processuelle centrée sur les pensées
répétitives négatives et la perspective
visuelle en imagerie mentale**

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Titre de la thèse

Existe-t-il un lien entre ce que je pense et ce que j'imagine ? Une approche processuelle centrée sur les pensées répétitives négatives et la perspective visuelle en imagerie mentale

Title of the dissertation

Is there a relationship between what I think and what I imagine? A processual approach focused on repetitive negative thinking and visual perspective in mental imagery

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TABLE OF CONTENTS

PART I. THEORETICAL SECTION

PREAMBLE	1
CHAPTER 1. Repetitive negative thinking	3
1. Definition of repetitive negative thinking	3
2. Repetitive negative thinking as a transdiagnostic process	5
3. Processes implicated in the development and the maintenance of repetitive negative thinking	7
4. Predominance of verbal thoughts over images	11
4.1. Worry	11
4.2. Rumination	13
5. An underlying process of abstraction	14
5.1. Worry	15
5.2. Rumination	16
6. Therapies targeting repetitive negative thinking	26
7. Conclusion	27
CHAPTER 2. Visual perspective in mental imagery	29
1. Definition of mental imagery	29
2. Visual perspective in mental imagery as a transdiagnostic process	29
3. An avoidance function	33
4. An underlying process of abstraction	35
5. Therapies targeting mental imagery	41
6. Conclusion	42

PART II. EMPIRICAL SECTION

Synthesis and overview of the empirical section	43
1. Repetitive negative thinking and visual perspective: A special relationship?	43
2. Previous studies on the relationship between repetitive negative thinking and visual perspective	44
3. Overview of the empirical section	47
CHAPTER 3. Mental rumination and visual perspective: Common function and process?	57
Introduction	57
Study 1a	67
Method	68
Results	73
Discussion	80
Study 1b	83
Method	84
Results	89
Discussion	101
Study 1c	107
Method	108
Results	109
Discussion	111
Study 1d	112
Method	113
Results	117
Discussion	125
General discussion	127

CHAPTER 4. Manipulation of the abstraction process during rumination	137
Introduction	137
Study 2a.....	144
Method.....	144
Results.....	150
Discussion.....	160
Study 2b	162
Method.....	163
Results.....	169
Discussion.....	176
General discussion.....	178
CHAPTER 5. Manipulation of the abstraction process	185
Introduction	185
Method	190
Results	199
Discussion.....	221
CHAPTER 6. Repetitive negative thinking and visual perspective: A special relationship? A meta-analysis	229
Introduction	229
Method	236
Results	243
Discussion.....	249
GENERAL CONCLUSION	255
(1) A special relationship between repetitive negative thinking and visual perspective?.....	256
(2) An avoidance function.....	259
(3) An underlying process of abstraction	260
(4) Maladaptive consequences of adopting an observer perspective.....	263
Clinical implications and future perspectives	265
Conclusion.....	269
REFERENCES	271
APPENDICES.....	303
RESUME LONG	409
1. Les pensées répétitives négatives	409
1.1. Définition des pensées répétitives négatives	409
1.2. Les pensées répétitives négatives comme un processus transdiagnostique.....	410
1.3. Fonction d'évitement des pensées répétitives négatives	411
1.4. Processus d'abstraction dans les pensées répétitives négatives.....	412
2. La perspective visuelle en imagerie mentale	415
2.1. L'imagerie mentale	415
2.2. L'imagerie mentale comme un processus transdiagnostique	416
2.3. La perspective visuelle : Acteur versus observateur	416
2.4. Fonction d'évitement de la perspective d'observateur.....	417
2.5. Processus d'abstraction dans la perspective d'observateur	418
3. Existence d'un lien entre les pensées répétitives négatives et la perspective visuelle ?	420
4. Aperçu de la section empirique.....	422
5. Discussion générale	436

LIST OF TABLES

CHAPTER 1

Table 1. <i>Summary of the measures of the correlational studies (Chapter 3).</i>	49
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CHAPTER 3

Table 1. <i>Correlations, Means, and Standard Deviations for Trait Measures, Visual Perspective, Integrative Meaning, and Distress.</i>	74
Table 2. <i>Multiple Hierarchical Regressions Predicting Experiential Avoidance from Psychopathology, Visual Perspective, and Their Interaction.</i>	78
Table 3. <i>Multiple Hierarchical Regressions Predicting Integrative Meaning from Psychopathology, Visual Perspective, and Their Interaction.</i>	79
Table 4. <i>Correlations, Means, and Standard Deviations for Trait and State Measures.</i>	91
Table 5. <i>Multiple Hierarchical Regressions Predicting Cognitive Avoidance from Psychopathology, Visual Perspective, and their Interaction.</i>	97
Table 6. <i>Multiple Hierarchical Regressions Predicting Integrative Meaning from Psychopathology, Visual Perspective, and Their Interaction.</i>	98
Table 7. <i>Multiple Hierarchical Regressions Predicting Subjective Temporal Distance from Psychopathology, Visual Perspective, and Their Interaction.</i>	99
Table 8. <i>Multiple Hierarchical Regressions Predicting State Generalization from Psychopathology, Visual Perspective, and Their Interaction.</i>	100
Table 9. <i>Correlations, Means, and Standard Deviations for Scores on the BIF, ATS Trait Generalization, RRS, and Mini-CERTS.</i>	110
Table 10. <i>Correlations, Means, and Standard Deviations for Trait Measures.</i>	119
Table 11. <i>Correlations, Means, and Standard Deviations for State Measures and Psychopathology.</i>	119
Table 12. <i>Multiple Hierarchical Regressions Predicting Trait Generalization from Psychopathology, Trait Observer Perspective, and their Interaction.</i>	123
Table 13. <i>Multiple Hierarchical Regressions Predicting State Generalization from Psychopathology, State Observer Perspective, and their Interaction.</i>	124

CHAPTER 4

Table 1. <i>Descriptive Statistics for Age, Rumination, and Psychopathology Measures, in Function of the Level of Construal Conditions.</i>	151
Table 2. <i>Correlations, Means, and Standard Deviations for Rumination and Psychopathology Scores.</i>	152
Table 3. <i>Multiple Hierarchical Regressions Predicting the Frequency of Verbal Thoughts from Psychopathology, Conditions, and their Interaction.</i>	158
Table 4. <i>Multiple Hierarchical Regressions Predicting the Frequency of Images from Psychopathology, Conditions, and their Interaction.</i>	159
Table 5. <i>Descriptive Statistics for Age, Rumination, and Psychopathology Measures, in Function of the Level of Construal Conditions.</i>	170
Table 6. <i>Correlations, Means, and Standard Deviations for Rumination and Psychopathology Scores.</i>	171

CHAPTER 5

Table 1. <i>Summary of Correlations, Means, and Standard Deviations for Scores on the RRS-10, Mini-CERTS, FNE, and PHQ-9 in the Anticipation Sample.</i>	200
Table 2. <i>Descriptive Statistics for Age, Rumination, and Psychopathology Variables, in Function of the Level of Construal Conditions in the Anticipation Sample.</i>	201

Table 3. <i>Descriptive Statistics for Age, Rumination, and Psychopathology Variables, in Function of the Level of Construal Conditions in the Post-Event Sample.</i>	202
Table 4. <i>Multiple Hierarchical Regressions Predicting Observer Perspective in Anticipatory Images from Psychopathology, Condition, and their Interaction.</i>	211
Table 5. <i>Multiple Hierarchical Regressions Predicting Anticipatory Rumination from Psychopathology, Condition, and their Interaction.</i>	212
Table 6. <i>Multiple Hierarchical Regressions Predicting Anticipatory Rumination from Maladaptive Rumination, Condition, and their Interaction.</i>	213
Table 7. <i>Multiple Hierarchical Regressions Predicting Anticipatory Abstract Rumination from Psychopathology, Condition, and their Interaction.</i>	214
Table 8. <i>Multiple Hierarchical Regressions Predicting Anticipatory Abstract Rumination from Maladaptive Rumination, Condition, and their Interaction.</i>	215
Table 9. <i>Multiple Hierarchical Regressions Predicting Anticipatory Anxiety from Psychopathology, Condition, and their Interaction.</i>	216
Table 10. <i>Multiple Hierarchical Regressions Predicting Anticipatory Anxiety from Maladaptive Rumination, Condition, and their Interaction.</i>	217
Table 11. <i>Multiple Hierarchical Regressions Predicting Post-Event Rumination from Psychopathology, Condition, and their Interaction.</i>	218
Table 12. <i>Multiple Hierarchical Regressions Predicting Post-Event Rumination from Maladaptive Rumination, Condition, and their Interaction.</i>	219
Table 13. <i>Multiple Hierarchical Regressions Predicting Post-Event Anxiety from Psychopathology, Condition, and their Interaction.</i>	220

CHAPTER 6

Table 1. <i>Descriptive of Studies Included in the Meta-Analysis with Trait Rumination Measures.</i>	244
Table 2. <i>Average Effect Sizes for the Relationship between Trait RNT and Visual Perspective.</i>	245
Table 3. <i>Descriptive of Studies Included in the Meta-Analysis with State Rumination Measures.</i>	247
Table 4. <i>Average Effect Sizes for the Relationship between State RNT and Visual Perspective</i>	248

LIST OF FIGURES

PREAMBLE

Figure 1. Classification of psychological processes in psychopathology according to Philippot (2016). 2

CHAPTER 2

Figure 1. The action of stapling depicted from an actor (left picture) and an observer (right picture) perspective. 30

CHAPTER 5

Figure 1. Diagrams presented to participants in the concrete (diagram at left) or the abstract condition (diagram at right) as an example of exercise. 194

Figure 2. Diagrams presented to participants in the concrete (diagram at left) or the abstract condition (diagram at right) as an induction of a specific mindset. 195

CHAPTER 6

Figure 1. Flowchart showing the search strategy for the systematic review. 239

Figure 2. Effect sizes distribution of the relationship between trait RNT and visual perspective. 246

Figure 3. Effect sizes distribution of the relationship between state RNT and visual perspective. 248

PREAMBLE

Current research on therapies in clinical psychology targets transdiagnostic psychological processes implicated in psychological disorders. This *processual* approach conceptualizes psychological processes as *causally* implicated in the onset and maintenance of psychological disorders. In opposition to the diagnostic and categorical approach, the *transdiagnostic* approach considers that psychological processes are also implicated in *several* disorders (e.g., repetitive thoughts, Watkins, 2008).

Philippot (2016) defined a psychological process as the mechanism by which a psychological element is transformed in another psychological element, such as a symptom. Therefore, the process is causally implicated in the symptom or element. This definition allows the differentiation between a process and a function: The function of a psychological element refers to the aim of the element in the short- or long-term, which is fulfilled by the process.

As clinical research has highlighted the existence of many psychological processes (e.g., repetitive thoughts, impaired attentional disengagement), Philippot (2016) also proposed a classification of them in psychopathology (see Figure 1). According to him, psychological processes can be defined according to three dimensions: the domain (i.e., motivational, emotional, cognitive, metacognitive, and behavioral processes), the intrapersonal or interpersonal nature, and the specificity (i.e., from specific to general processes).

Transdiagnostic processes are generally studied independently rather than in combination. However, cognitive behavioral models of psychopathology often postulate that several psychological processes interact to contribute to the onset and maintenance of the disorders (e.g., combined cognitive bias hypothesis, Hirsch, Clark, & Mathews,

2006). It would therefore be necessary to study the role of psychological processes in mental disorders in a more integrative manner.

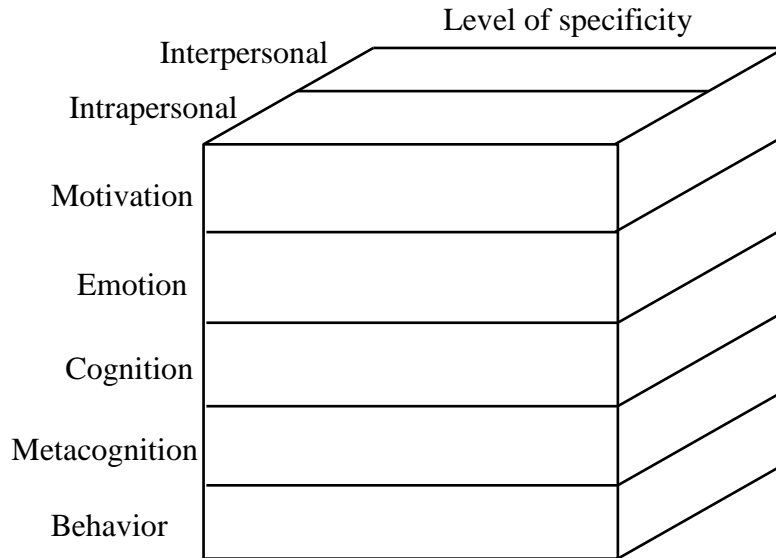


Figure 1. Classification of psychological processes in psychopathology according to Philippot (2016).

Subscribing to a transdiagnostic and processual approach, the present dissertation therefore focused on two transdiagnostic processes: repetitive negative thoughts and visual perspective adopted in mental imagery. The overall goal of this dissertation was to explore these processes in an integrative manner. Definitions and theoretical frameworks of repetitive negative thoughts and visual perspective will be developed in the first part of this dissertation (Chapters 1 and 2, respectively). Following this, an empirical section, divided in four chapters (Chapters 3, 4, 5, and 6), will present a set of studies aiming at exploring the relationships between repetitive negative thoughts and visual perspective. This empirical part will be preceded by an overview of the empirical chapters and followed by a general conclusion.

CHAPTER 1. Repetitive negative thinking

1. Definition of repetitive negative thinking

Repetitive thinking is usually defined as recurrent, repetitive, and attentive thinking about one's self, one's concerns, and one's problems (Harvey, Watkins, Mansell, & Shafran, 2004; Segerstrom, Stanton, Alden, & Shortridge, 2003) and "forms the core of a number of different models of adjustment and maladjustment" (Segerstrom et al., 2003, p. 909). When applied to a negative content, repetitive thinking is described as repetitive negative thinking (RNT). RNT corresponds to repetitive, passive, and/or uncontrollable thinking focused on a negative content (Ehring & Watkins, 2008; Harvey et al., 2004). It includes various forms of repetitive negative thoughts depending on the disorder in which they have been explored. *Rumination* and *worry* remain the two most famous forms.

Rumination has been mainly studied in depression (for a review, see Smith & Alloy, 2009). Depressive rumination has been defined by Nolen-Hoeksema (1991) as "behaviors and thoughts that focus one's attention on one's depressive symptoms and on the implication of these symptoms" (p. 569). The most used measure of *trait* rumination is the Ruminative Response Scale (RRS), which is a subscale of the Response Style Questionnaire (Nolen-Hoeksema & Morrow, 1991). The RRS assesses the stable tendency to ruminate in response to sad or depressed mood. Originally developed with 22 items, the 10-item version of the RRS (Treynor, Gonzalez, & Nolen-Hoeksema, 2003; French translation by Guimpel, Douilliez, & Philippot, 2012) is recommended. Regarding *state* rumination, there is no commonly used measure. For example, Moberly and Watkins (2008a, 2008b) asked participants to indicate the extent to which they were focused on (i) their feelings and (ii) problems on a 7-point scale ranging from 1 (*not at all*) to 7 (*very much*). They called this rumination measure "momentary ruminative self-

focus”. Takano and Tanno (2010) combined these two items in a single item to measure the extent to which participants were focused on the self, where the self was defined as referring to feelings and problems.

Worry was predominantly studied in generalized anxiety disorder (GAD). The most famous definition of worry is a “chain of thoughts and images, negatively affect-laden and relatively uncontrollable” (Borkovec, Robinson, Pruzinsky, & DePree, 1983, p. 10). To measure *trait* worry, the majority of studies has used the Penn State Worry Questionnaire (PSWQ, Meyer, Miller, Metzger, & Borkovec, 1990; French validation by Gosselin, Dugas, Ladouceur, & Freeston, 2001). The PSWQ assesses the tendency to worry with a global score. One limitation of the PSWQ is the fact that all items include the word “worry”, contrary to measures of rumination, such as the RRS. Such as state rumination, there is no commonly used measure of *state* worry. For example, Kircanski, Thompson, Sorenson, Sherdell, and Gotlib (2015) used one item: “At the time of the beep, I was worried about things that could happen”.

Worrisome and ruminative thinking have also been examined in other psychological disorders, such as post-traumatic stress disorder (PTSD) or social phobia. Therefore, one could ask what the specificities of rumination compared to worry are. Rumination and worry differ in their content (e.g., symptoms of depression for depressive rumination, future negative events for worry) and temporal focus (i.e., past for rumination and future for worry, Watkins, Moulds, & Mackintosh, 2005). Moreover, rumination is associated with viewing events as certain and uncontrollable, whereas worry is associated with viewing events as uncertain but controllable (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Despite these differences, rumination and worry shared some characteristics: repetitiveness, passivity and/or uncontrollability, and focus on a negative content (Ehring & Watkins, 2008), which reflect the common process of RNT. Consistent with this view,

Nolen-Hoeksema et al. (2008) have proposed a larger definition of rumination as the “process of thinking perseveratively about one’s feelings and problems, rather than in terms of the specific content of thoughts” (p. 400). Per se, this definition is closed to the definition that we could adopt to characterize RNT.

Alongside to disorder-specific measures (e.g., the RRS, the PSWQ), some transdiagnostic measures of RNT have been developed (for a review of existing measures, see Samtani & Moulds, 2017), among which the Perseverative Thinking Questionnaire (PTQ, Ehring et al., 2011) and the Repetitive Thinking Questionnaire (RTQ, McEvoy, Mahoney, & Moulds, 2010; McEvoy, Thibodeau, & Asmundson, 2014). The PTQ reflects the *trait* tendency to engage in RNT and is based on the core characteristics of RNT (i.e., repetitiveness, intrusiveness, and difficulties to disengage, Ehring et al., 2011). On the contrary, the RTQ was originally developed as a *state* measure of RNT in response to an event (McEvoy et al., 2010) but a *trait* version has been recently created (McEvoy et al., 2014). The RTQ was created by the combination of items from measures of worry, rumination, and post-event rumination, without diagnosis-specific references (McEvoy et al., 2010). In the next section, we will review evidence suggesting the causal role of RNT in many psychological disorders (Ehring & Watkins, 2008; Harvey et al., 2004)

2. Repetitive negative thinking as a transdiagnostic process

RNT, such as rumination and worry, has long been considered as a consequence of psychological difficulties. However, it is more than just an epiphenomenon. RNT is present in a variety of disorders: A meta-analysis with 179 correlational studies and 37 clinical group comparison studies showed that people with mood and anxiety disorders report higher levels of rumination than controls (Olatunji, Naragon-Gainey, & Wolitzky-

Taylor, 2013). Another meta-analysis on 47 studies also showed that people with anxiety disorders have more worry than controls (Olatunji, Wolitzky-Taylor, Sawchuk, & Ciesielski, 2010). This has also been shown using experience sampling method (ESM). For example, Kircanski et al. (2015) showed that patients with major depressive disorder (MDD), GAD, or co-occurring MDD and GAD had high and similar levels of rumination and worry. More generally, there is robust evidence that RNT is present in nearly all Axis I psychiatric disorders, such as depression, anxiety disorders (e.g., social anxiety, PTSD), alcohol abuse or eating disorders (Baeyens, Kornacka, & Douilliez, 2012; Ehring & Watkins, 2008; Harvey et al., 2004; Lyubomirsky, Layous, Chancellor, & Nelson, 2015; Segerstrom et al., 2003).

Beyond considering RNT as uniquely related to psychiatric disorders, Kinderman and collaborators (Kinderman et al., 2015; Kinderman, Schwannauer, Pontin, & Tai, 2013) showed in a large-scale study with 32,825 persons that rumination is the strongest mediator of the impact of social (e.g., abuse, neglect) and circumstantial factors (i.e., poverty, unemployment) on mood and anxiety symptoms, without relying on any kind of psychiatric disorder.

This transdiagnostic perspective is also supported by literature reviews suggesting that the maladaptive consequences of RNT are not related to the type of emotional difficulties (Ehring & Watkins, 2008) and/or the way repetitive thoughts are operationalized (Watkins, 2008). This latest point is reinforced by studies using structural equation modeling (SEM) approach, which demonstrated that subtypes of RNT (e.g., rumination, worry) are better explained by the same latent construct, RNT, rather than two separate constructs, and that this single construct predicted future mood and anxiety disorders (Arditte, Shaw, & Timpano, 2016; Spinhoven, Drost, van Hemert, & Penninx, 2015; Topper, Molenaar, Emmelkamp, & Ehring, 2014).

Finally, experimental studies demonstrated the maladaptive consequences of RNT by contrasting a rumination induction with “think about...” (e.g., “...the possible consequences of the way you feel”) and a distraction induction with “focus your attention on...”, e.g., “...the layout of the local shopping center” (Nolen-Hoeksema & Morrow, 1993). Their results have shown that RNT prolongs and exacerbates negative mood in dysphoric individuals through four mechanisms: Rumination lead to (a) more negative mood and thoughts, (b) impaired problem solving, (c) impaired instrumental behavior as well as (d) reduced social support (for reviews, see Lyubomirsky et al., 2015; Nolen-Hoeksema et al., 2008).

Thus, several findings support the current conceptualization of RNT as more than just an epiphenomenon, with RNT causally implicated in the development and maintenance of many psychological disorders (Ehring & Watkins, 2008; Harvey et al., 2004). However, not all forms of RNT are maladaptive, some forms are normal and adaptive, whereas other lead to psychological disorders (e.g., Nolen-Hoeksema et al., 2008). Before reviewing in detail the difference between adaptive and maladaptive RNT, we will focus on the processes implicated in the development and the maintenance of RNT. Indeed, individuals with a high tendency to have repetitive thoughts persist in RNT despite its potential maladaptive consequences. Hence, an important question is “why people engage in RNT?” and “what makes it so difficult to break free (...) once it has begun?” (Nolen-Hoeksema et al., 2008, p. 418).

3. Processes implicated in the development and the maintenance of repetitive negative thinking

The development and maintenance of RNT has been predominantly studied in the rumination field. In the famous response styles theory (Nolen-Hoeksema, 1991, 2004),

depressive rumination is considered as a stable response to sad or depressed mood –a trait–, with individual differences: Some people ruminate a little or not at all when they are in a negative mood, whereas some people ruminate a lot. This negative mood can be the result of the perception of a discrepancy between one’s goal and one’s current state, which would engender a state rumination (Martin & Tesser, 1996). This state rumination will persist until the discrepancy is resolved or the goal abandoned.

However, at a cognitive level, people who have repetitive negative thoughts would have difficulties in disengaging their attention from negative self-referent information, like the perception of a discrepancy between one’s current and desired state (i.e., impaired disengagement hypothesis, Koster, De Lissnyder, Derakshan, & De Raedt, 2011). Therefore, these people would have difficulties to abandon the goal, leading to the persistence of the rumination.

At a metacognitive level, people also hold metacognitive beliefs about RNT (e.g., Wells, 1995). Metacognitive beliefs are defined as “beliefs about thinking processes, such as how thinking works, how controllable and how normal it is, and about the functions and the consequences of particular types of thinking” (Watkins & Moulds, 2005b, p. 74). People with a high tendency to worry or to ruminate hold positive meta-cognitive beliefs about it (e.g., “Ruminating will help me to understand and solve my problems”), which lead them to engage and persist in repetitive thoughts. Indeed, people may think that RNT will help them to gain insight into the meaning of their problems and feelings and to solve their problems (e.g., Lyubomirsky & Nolen-Hoeksema, 1993; Watkins & Baracaia, 2001). However, RNT does not always lead to the desired state. Sometimes, it fails to reduce the discrepancy and leads to even more repetitive thoughts, negative mood and impaired problem solving. Consequently, negative meta-cognitive beliefs about RNT will

appear (e.g., “Worrying about my problems is uncontrollable and dangerous”), leading people to –unsuccessfully– control their repetitive thoughts.

Consistent with meta-cognitive theories, in the study of Watkins and Baracaia (2001), 80% of the participants reported at least one advantage for rumination and, at the same time, 98% of the participants perceived at least one disadvantage of rumination. Moreover, high ruminators perceived greater positive consequences of rumination than low ruminators (Kingston, Watkins, & Susan Nolen-Hoeksema, 2014; Watkins & Baracaia, 2001). An experimental study showed that dysphoric people who ruminated thought that they were gaining greater insight compared to dysphoric people engaged in a distraction task (Lyubomirsky & Nolen-Hoeksema, 1993). More recently, in a study using SEM approach, Kingston, Watkins, and O’Mahen (2013) demonstrated that positive meta-cognitive beliefs are a risk factor for rumination and worry.

In addition to these cognitive and metacognitive factors, one reason for the development and maintenance of rumination has been conceptualized by the habit-goal framework of depressive rumination (Watkins & Nolen-Hoeksema, 2014), which combines Martin and Teisser’s (1996) and Nolen-Hoeksema’s (1991, 2004) works. This theory posits that rumination will become a trait when state rumination occurs automatically in response to a negative mood, without the necessity of a discrepancy between one’s current and desired state, through a process of automatic association. It will be therefore difficult to break free of this habit of rumination, despite the adoption of new goals or negative consequences of rumination.

Above those subjective perceptions of its utility (e.g., metacognitive beliefs), RNT also has an objective function. It has been conceptualized as a behavior with an avoidant function: People who have repetitive negative thoughts would avoid the information associated with the event, such as images, thoughts, or emotions. This avoidance would

be negatively reinforced by a reduction in distress and therefore maintained. This has been modeled in the cognitive avoidance theory of worry by Thomas Borkovec and collaborators (Borkovec, Alcaine, & Behar, 2004). According to this theory, worry is an attempt to avoid the occurrence of future negative events, unpleasant mental images, or emotions. Consistent with this theory, cross-sectional studies have demonstrated a positive correlation between worry and avoidance strategies (e.g., Roemer, Salters, Raffa, & Orsillo, 2005; Santanello & Gardner, 2007). Rumination is also considered as serving an avoidance function (Baeyens, 2016). For example, Cribb, Moulds, and Carter (2006) showed that rumination was associated with cognitive, behavioral, and experiential avoidance. More generally, results are also consistent when using a measure assessing RNT before or after a stressor, without any reference about content: RNT is associated with cognitive avoidance strategies (McEvoy et al., 2010; McEvoy, Moulds, & Mahoney, 2013).

In summary, repetitive thoughts are originally initiated by a perceived discrepancy between one's current state and one's goal, discrepancy from which individuals have difficulties to disengage. RNT is reinforced by positive and negative metacognitive beliefs and has an avoidance function. Finally, RNT can become a habit, from which it is difficult to disengage.

As previously explained, repetitive negative thoughts can be adaptive and normal but also maladaptive. This distinction has been taken into account in the famous measure of trait rumination, the RRS (Nolen-Hoeksema & Morrow, 1991; Treynor et al., 2003). In addition to a global score of rumination, two subscores can be computed in order to differentiate *reflection*, also called reflective pondering, and *brooding*. Whereas reflection refers to "a purposeful turning inward to engage in cognitive problem solving", brooding is a "passive comparison of one's current situation with some unachieved standard"

(Treyner et al., 2003, p. 256). Reflection is considered as the adaptive form of rumination, contrary to brooding, which is the maladaptive form of rumination associated with psychopathology (Treyner et al., 2003). Another measure of trait rumination also distinguishes between adaptive and maladaptive forms of rumination: the Rumination Reflection Questionnaire (RRQ, Trapnell & Campbell, 1999). This measure differentiates *reflection* from *rumination*. In this conceptualization, reflection is a chronic self-focus motivated by curiosity and openness to experience, whereas rumination is a chronic self-focus motivated by fear and avoidance. This differentiation parallels the conceptualization of Treyner and collaborators (2003), with reflection being the adaptive form and rumination the maladaptive form. More generally, the adaptiveness of RNT is related to its direct characteristics, its verbal and abstract nature, which will be developed in the next section.

4. Predominance of verbal thoughts over images

Cognitions can take a verbal form of words and sentences in people's mind or an imagery form of pictures in people's mind. Repetitive negative thoughts are predominantly a verbal-linguistic process with little imagery, especially in clinical populations (e.g., Borkovec & Inz, 1990). In the next section, we will develop the verbal nature for worry and rumination separately.

4.1. Worry

The verbal nature was initially evidenced in worry, by correlational or experimental studies in which participants were asked to identify worrisome topics and worry in their usual way (e.g., Goldwin & Behar, 2012; McLaughlin, Borkovec, & Sibrava, 2007) or in which participants have to give an impromptu filmed speech, later

rated for quality, as an induction of a worrisome topic (e.g., Behar et al., 2012). To assess the verbal nature of worry, these studies generally used a *mentation sampling method*. In this method, cognitions are sampled at several moments during a specified period of time and then examined regarding their content and nature (i.e., verbal or imagery cognitions). This method was originally used by Borkovec and Inz (1990), who asked GAD clients or controls to relax or worry during 10-min periods. Participants were interrupted three times during each period and asked to assess whether their ongoing thoughts were verbal thoughts, images, or both. Results showed that, during relaxation, controls reported more images, whereas GAD clients experienced equal amounts of images and verbal thoughts. During worry, verbal thoughts increased in both GAD clients and controls. Overall, worry involves mostly verbal thoughts rather than images, whatever the level of psychopathology (Borkovec & Inz, 1990).

This characteristic was then replicated in other studies using mentation sampling method, with the difference that participants were asked to report the proportion of each thought *since the previous sampling* (e.g., Behar et al., 2012; Behar, Zullig, & Borkovec, 2005; Hirsch, Hayes, Mathews, Perman, & Borkovec, 2012). Studies also show that worry become increasingly more verbal over the period of worrisome thinking (Behar et al., 2012; Goldwin & Behar, 2012; but also see McGowan et al., 2017).

According to the cognitive avoidance theory of worry (Sibrava & Borkovec, 2006), the use of a verbal-linguistic activity during worry is an attempt to avoid unpleasant mental images associated with the event. However, this cognitive avoidance would be maladaptive and prevent emotional processing (Foa & Kozak, 1986). For example, Stokes and Hirsch (2010) demonstrated that worrying in a verbal form led to more latter negative intrusions compared to worrying in an imagery form in high worriers. Hirsch, Perman, Hayes, Eagleson, and Mathews (2015) replicated this finding –

known as the *incubation effect*—, with verbal worry about negative scenarios associated with more intrusions than imagery about negative scenarios in high worriers. Thus, the verbal nature of worry is considered as maladaptive, such as leading to thoughts intrusions (e.g., Hirsch et al., 2015), especially in clinical or subclinical populations who are at greater risk for verbal worry (e.g., Borkovec & Inz, 1990; Hirsch et al., 2012).

4.2. Rumination

Rumination is also characterized by a predominance of verbal thoughts over images. For example, Watkins et al. (2005) showed that worry and rumination did not differ in the amount of verbally- versus imagery-based thoughts. Other studies also documented the predominantly verbal-linguistic nature of rumination (e.g., Goldwin & Behar, 2012; Goldwin, Behar, & Sibrava, 2013; McLaughlin et al., 2007), even if they showed that worry was more associated with a verbal-linguistic activity than rumination (Goldwin & Behar, 2012; McLaughlin et al., 2007; Papageorgiou & Wells, 1999). This finding has led researchers to suggest that the hypothesis of an avoidant function of verbal worry (i.e., Sibrava & Borkovec, 2006) could also be relevant to understand the function of rumination (Watkins et al., 2005). Supporting this hypothesis, several studies showed a positive correlation between rumination and experiential, cognitive, and behavioral avoidance (e.g., Cribb et al., 2006; Moulds, Kandris, Starr, & Wong, 2007) and that high ruminators demonstrated more behavioral avoidance than low ruminators (Eisma et al., 2014). Quigley, Wen, and Dobson (2017) showed that depressed individuals had higher levels of avoidance (i.e., behavioral and cognitive, social and non-social) than remitted-depressed individuals, who also exhibited higher levels of avoidance than controls. Even after controlling for levels of depression, avoidance was significantly associated with rumination (Quigley et al., 2017).

The avoidance function of rumination is also consistent with the behavioral activation model of depression (e.g., Martell, Dimidjian, & Herman-Dunn, 2013) in which rumination is conceptualized as covert behaviors aiming at avoiding strong feelings (e.g., ruminating about injustice of life instead of reliving memories of a loved one) or avoiding challenging tasks (e.g., brooding about how depression makes us feel tired instead of looking for a job). Rumination is then negatively reinforced and, in some cases, also punished (i.e., by the occurrence of negative consequences), leading to the maintenance of depression (e.g., Martell et al., 2013). In summary, RNT is characterized by a predominance of verbal thoughts over mental images. This verbal nature acts as a cognitive avoidance of negative emotional information associated with imagery of the event, leading to negative consequences.

5. An underlying process of abstraction

At a processual level, RNT is underpinned by a process of abstraction: RNT is conceptualized as being predominantly abstract rather than concrete in nature and this abstract nature would be maladaptive. Overall, abstraction can be defined as the “process of identifying a set of invariant central characteristics of a thing” (Burgoon, Henderson, & Markman, 2013, p. 502) in which “thing” can refer to events or actions as well as objects or ideas (for a review, see Burgoon et al., 2013). This definition is very large because abstraction has been defined more precisely in several ways depending on the field in which it has been explored (e.g., impression formation, behavioral regulation). Therefore, the abstraction definition used in the present dissertation will be further developed.

5.1. Worry

According to the reduced concreteness theory of worry (Stöber & Borkovec, 2002), worry is characterized by few concrete thoughts. In this theory, a concrete thought is operationalized as “distinct, situationally specific, unequivocal, clear, singular” (e.g., “Today, I will drive to Lyon and go shopping”), whereas an abstract thought is “indistinct, cross-situational, equivocal, unclear, aggregated” (e.g., “Maybe something bad will happen”) (Stöber & Borkovec, 2002, p. 4). Empirical evidence of the reduced concreteness of worry comes from studies in which participants were asked to describe problems they worry about or not. These descriptions were rated by independent judges according to their level of concreteness on a scale ranging from 1 (*abstract*) to 5 (*concrete*) (Stöber & Borkovec, 2002). Results revealed that descriptions of worrisome problems were less concrete than descriptions of problems about which participants did not worry (e.g., Stöber, Tepperwien, & Staak, 2000). These elaborations were especially less concrete in GAD clients relative to controls (Stöber & Borkovec, 2002). These findings were replicated in more recent studies using mentation sampling method (Behar et al., 2012; Goldwin & Behar, 2012; McGowan et al., 2017) in which the written content of thought samples was rated according to the Stöber and Borkovec’s scale (2002). These studies also evidenced that worry become increasingly less concrete over time (Behar et al., 2012; McGowan et al., 2017; see however Goldwin & Behar, 2012).

This abstract nature would be responsible for negative consequences of worry. Abstract thoughts would lead to the cognitive avoidance of unpleasant mental images of the event, impeding emotional processing of the event (Foa & Kozak, 1986). Consistent with the reduced concreteness theory (Stöber & Borkovec, 2002), the abstractness of thoughts positively correlated with the reduced imagery activity (Behar et al., 2012;

McGowan et al., 2017; but also see Goldwin & Behar, 2012). Abstract thoughts would also lead to a reduced problem solving ability compared to concrete thoughts.

5.2. Rumination

In the following section, we will present the most important theory of rumination (i.e., the processing-mode theory, Watkins, 2008), which highlights two important aspects of rumination. The first *processual* aspect differentiates two modes of processing –an abstract and a concrete mode– during rumination, associated with different consequences. This distinction is based on three different theoretical backgrounds stem from research on worry or information processing, such as emotional information, as well as from social-cognitive theories. The second *structural* aspect suggests that consequences of the mode of processing are moderated by psychopathology. We will first develop the processual aspect, with the distinction between the two modes and its theoretical basis, before addressing the structural aspect of psychopathology.

5.2.1. The processing-mode theory.

A literature review by Watkins (2008) revealed that the level of abstraction can account for the maladaptive consequences of RNT. The processing-mode theory (Watkins, 2008) specifies that the level of abstraction moderates the consequences of RNT when in a negative mood or in clinical or subclinical populations, so that abstract RNT has unconstructive consequences, whereas concrete RNT has constructive consequences. In this account, an abstract mode of RNT refers to thoughts focused on the analysis of causes, consequences, and implications of the event or action (e.g., “Why did this happen?”). This abstract, analytic, and evaluative mode of thinking is mainly focused on the past and the future. On the contrary, a concrete mode of RNT corresponds to

thoughts about the means and the steps of the event or action (e.g., “how did this happen?”). This concrete and experiential mode of thinking is mainly focused on the present and immediate experience.

Although the RRS or the RRQ scales differentiates between maladaptive (i.e., brooding and rumination) and adaptive (i.e., reflection) forms of rumination (Trapnell & Campbell, 1999; Treynor et al., 2003), they do not take into account the processing-mode adopted and are focused on rumination only. Therefore, Douilliez et al. (2014) recently developed a measure differentiating abstract and concrete RNT: the Mini Cambridge Exeter Repetitive Thought Scale (Mini-CERTS). This scale contains two subscales of concrete RNT (i.e., the Mini-CERTS Concrete) and abstract RNT (i.e., the Mini-CERTS Abstract). Despite the fact that the Mini-CERTS is still rarely used, it represents a useful tool in both clinical research and practice to assess the process adopted during RNT, independently of the content (e.g., rumination or worry).

The distinction between an abstract maladaptive and a concrete adaptive mode was based on three theoretical frameworks that will be developed in the following sections: the reduced concreteness theory (Stöber & Borkovec, 2002), the Interacting Cognitive Subsystems (ICS) theory (Teasdale, 1999) as well as social-cognitive theories (Carver & Scheier, 1982; Trope & Liberman, 2003; Vallacher & Wegner, 1987).

Reduced concreteness theory of worry. The reduced concreteness theory of worry (Stöber & Borkovec, 2002), which was presented in the previous section, is also relevant to understand rumination. Indeed, several studies documented the reduced concreteness of rumination. For example, Goldwin and Behar (2012) evidenced that rumination and worry did not differ regarding their level of concreteness but were significantly more abstract than baseline mentation. Similarly to results found for worry, Watkins and Moulds (2007) found that elaborations of problems about which currently depressed

patients ruminate were more abstract than elaborations of recovered or never-depressed individuals. Importantly, never-depressed participants had lower levels of trait rumination than currently or recovered depressed patients –who have similar levels–. As concreteness differs between these latter two groups, these findings add support to the idea that concreteness –or abstraction– in rumination is an important process implicated in psychopathology.

Consistent with this view, in an ESM study conducted in a non-clinical sample, Takano and Tanno (2010) showed that the level of depression was associated with lower levels of concrete thoughts and less variation of that level of concreteness (see however Kircanski et al., 2015). Ruminative thoughts were also associated with an increase in negative affect, especially at low levels of concreteness (Takano & Tanno, 2010). Thus, rumination is characterized by an abstract nature, especially in clinical or subclinical populations, which contribute to maladaptive consequences.

ICS theory. The ICS theory (Teasdale, 1999) posits that there are different forms of emotional processing, associated with adaptive or maladaptive consequences. This theory differentiates two different subsystems, related to two qualitatively different levels of meaning. The first subsystem, the *propositional* subsystem, represents lower order meaning derived from specific information, which can be conveyed by the language (i.e., the meaning of individual words of a sentence taken in isolation, such as “I am stupid”). The second subsystem, the *implicational* subsystem, represents higher-order implicit meaning in the form of recurring patterns or themes (e.g., the meaning of the total pattern of the sentence “I am stupid”).

The transformation process from one subsystem to another can operate in two modes. The *direct* mode processes information online, chunk by chunk, whereas the *buffered* mode processes information stocked in memory with many accumulated chunks.

However, in the buffered mode, only one subsystem can be implicated. Hence, there are three ways to process emotional past events: (i) emotional processing in which neither the propositional, nor the implicational subsystems are buffered, (ii) emotional processing in which the propositional subsystem is buffered, and (iii) emotional processing in which the implicational subsystem is buffered.

In the first way, called *mindless emoting*, individuals are immersed in emotional information with little self-awareness. In the second way, called *conceptualizing/doing*, self-awareness involves evaluative thoughts about the self or emotion and about the evaluation of goal discrepancies between current and desired states. Depressive rumination about the self, depression, and its causes and consequences (Nolen-Hoeksema & Morrow, 1991) is an example of this emotional processing (Teasdale, 1999). Finally, in the third way, called *mindful experiencing/being*, there is a non-evaluative self-awareness of thoughts and feelings of the present experience, from one moment to another.

The *conceptualizing/doing* way of emotional processing would be similar to an abstract and analytical level of construal, whereas the *experiencing/being* way of emotional processing would be close to a concrete and experiential level of construal (Watkins, 2008). According to Nolen-Hoeksema (2004), the former would also be close to the brooding maladaptive factor and the latter would be close to the reflection adaptive factor of Treynor and colleagues (2003).

Social-cognitive theories. Social-cognitive theories (i.e., Control theory, Carver & Scheier, 1982; Construal-level theory, Trope & Liberman, 2003, 2010, Action identification theory, Vallacher & Wegner, 1987, 1989) posit that each goal, action or event can be processed at different levels of construal, from a high level to a low level. These levels of construal are organized in a hierarchy from more concrete goals or means to more abstract goals or ends. High levels of construal refer to abstract, general,

superordinate, and decontextualized representations that give the essential meaning of goals or events (i.e., the “why” aspects of goals or events). In contrast, low levels of construal are concrete, specific, subordinate, and contextualized mental representations that specify the means and the steps of the goals or events (i.e., the “how” aspects of goals or events). At any given moment, a level of this hierarchy would be prepotent and would correspond to the level at which the individual is focally attentive at that moment.

In presence of a discrepancy between one’s current state and one’s goal, a negative feedback loop would generate and maintain a behavior towards the goal, in order to reduce the discrepancy (Carver & Scheier, 1982; Trope & Liberman, 2003; Vallacher & Wegner, 1987). This requires a good coordination and connection between the levels as well as the adoption of a prepotent optimal level in relation to the circumstances. By default, individuals tend to adopt an abstract level of construal to be sensitive to broader meaning and implications of their actions (i.e., “Why to do this?”). However, when the progress towards a goal is insufficient because of difficulty, complexity, or unfamiliarity, individuals tend to shift to a more concrete level of construal to focus on the means to perform the action (i.e., “How to do this?”). Hence, social-cognitive theories posit that an abstract, high level of construal will be maladaptive when the goal –or his attainment– is difficult, complex, or unfamiliar, contrary to a concrete, low level of construal.

Inspired by these three theoretical backgrounds, Watkins (2008) developed his processing-mode theory about the moderation effect of the level of construal on consequences of RNT. His substantial literature review (2008) has evidenced that the adoption of an abstract level of construal during RNT is associated with negative affective, cognitive, motivational, and social consequences, compared with a concrete level of construal (for a review, see Baeyens et al., 2012; Watkins, 2008). His literature review was based on experimental studies which adapted rumination and distraction

inductions (Nolen-Hoeksema & Morrow, 1993). They induced abstract versus concrete RNT with identical symptom-focused items. For example, abstract instructions asked participants to “think about...” (e.g., “...the way you feel inside”) whereas concrete instructions asked participants to “focus your attention on the experience of...” (e.g., “...the way you feel inside”; Watkins & Teasdale, 2001, 2004). These experimental studies showed for example that a concrete rumination led to better problem solving (Watkins & Baracaia, 2002; Watkins & Moulds, 2005a) and less recall of overgeneral autobiographical memories (Watkins & Teasdale, 2001, 2004) than an abstract rumination in depressed patients.

In light of the unconstructiveness of abstract RNT, one could ask “why people persist in it?”. Abstract RNT would be maintained because of negative metacognitive beliefs about concrete RNT. Indeed, Philippot, Baeyens, and Douilliez (2006) showed that individuals with or without social phobia thought that adopting a concrete level of construal will lead to an increase in negative affect, relative to an abstract level of construal. However, the results also evidenced that, contrary to participants’ beliefs, a concrete level of construal reduced anxiety, compared to an abstract level of construal. Thus, negative metacognitive beliefs about the adaptiveness of the concrete level of construal would encourage people to adopt an abstract, although maladaptive, level of construal during RNT.

5.2.2. The processing mode theory and psychopathology.

In parallel of the processual aspect (i.e., an abstract level of construal), the processing-mode theory (Watkins, 2008) also hypothesizes that structural factors (e.g., the level of psychopathology, mood state) can account for adaptive versus maladaptive consequences of RNT. The level of psychopathology would moderate the consequences

of RNT, so that RNT in clinical or subclinical populations would have unconstructive consequences, whereas RNT in non-clinical populations would not always have such unconstructive consequences. Similarly, the mood state would also moderate the consequences of RNT, with RNT associated with unconstructive consequences when in a negative compared to a positive or a neutral mood (Nolen-Hoeksema, 2004; Watkins, 2008). For example, Lyubomirsky and Nolen-Hoeksema (1993) showed that rumination is associated with reduced willingness to engage in pleasant activities compared to distraction but only in dysphoric people. Similarly, Kashdan and Roberts (2007) showed that post-event rumination about personal disclosure interactions was associated with greater negative affect among individuals suffering from high levels of social anxiety but not among individuals with low levels of social anxiety. The processing-mode theory (Watkins, 2008) therefore highlights the importance of psychopathology or negative mood in negative consequences of RNT.

More recently, Watkins (2011) expanded his processing-mode theory by combining these processual and structural aspects. He suggested that clinical or subclinical populations, such as people suffering from mood or anxiety symptoms, would have a dysregulation in the level of construal adopted. These populations would adopt an abstract level of construal by default, without flexibly shifting to a more concrete level of construal when needed according to the circumstances (e.g., when negative affect is engendered in a context in which it seems difficult or complex to reduce the discrepancy between individual's current and desired states). Consistent with this theory, when compared to depressed participants, only never-depressed participants experiencing an increase in a sad mood shifted towards the adoption of a concrete level of construal (Watkins, Moberly, & Moulds, 2011). This lack of psychological flexibility in clinical or subclinical populations in the adoption of one level of construal would be responsible for

maladaptive consequences. As the dysregulation in the level of construal is not specifically limited to depression but has been shown in other emotional difficulties, such as social anxiety, GAD, or PTSD (Ehring & Watkins, 2008), this bias in adopting an abstract level of construal is considered as a transdiagnostic process causally implicated in the development and maintenance of several emotional disorders.

In summary, the processing-mode theory (Watkins, 2008, 2011) hypothesizes negative consequences associated with the adoption of an abstract level of construal in vulnerable populations (i.e., clinical and subclinical populations), compared to a concrete level. The consequences associated with an abstract or a concrete level of construal would not differ in non-clinical populations. Empirical evidence of this theory comes from two lines of research. The first line of research has examined the differential consequences of each level of construal by comparing non-clinical samples with vulnerable samples selected a priori on the basis of a psychopathology measure (e.g., the level of social anxiety or depression). The second line of research has explored the consequences associated with psychopathology, measured as a continuous variable, by differentiating abstract and concrete levels of construal.

The first series of studies has shown that the psychopathology interacts with the level of construal adopted during RNT to predict mood, valence of thoughts, problem solving, or self-judgments. An abstract level of construal during rumination was associated with more negative self-judgments in depressed participants (Rimes & Watkins, 2005) and less positive thoughts in high socially anxious individuals (Vassilopoulos, 2008), whereas a concrete level of construal during RNT was associated with improved problem solving in depressed participants (Watkins & Baracaia, 2002; Watkins & Moulds, 2005a), more positive thoughts, less anxious mood (Vassilopoulos, 2008) as well as fewer negative self-judgments in high socially anxious individuals

(Vassilopoulos & Watkins, 2009). No differences between an abstract and a concrete level appeared in non-depressed (Rimes & Watkins, 2005; Watkins & Baracaia, 2002; Watkins & Moulds, 2005a) or low socially anxious individuals (Vassilopoulos, 2008; Vassilopoulos & Watkins, 2009). However, it is noteworthy that all these studies focused on the interaction effect of psychopathology and the level of construal adopted *during* RNT on emotion, cognition, or behavior.

The second series of studies has examined the effect of the level of construal adopted using a continuous measure of psychopathology, and more specifically, a trait rumination measure. Indeed, rumination is highly correlated with psychopathology and is considered as a transdiagnostic process implicated in psychopathology. Trait rumination can be therefore considered as an indicator of psychopathology. These studies evidenced that trait rumination interacts with the level of construal to predict mood or intrusive thoughts. Higher levels of trait rumination were associated with less positive affect (Moberly & Watkins, 2006), more negative affect (Watkins, 2004), more thought intrusions, and an increase in heart rate (Schaich, Watkins, & Ehring, 2013) when adopting an abstract level of construal. Higher levels of trait rumination were associated with less negative mood (Watkins, 2004) and a decrease in heart rate (Schaich et al., 2013) when adopting a concrete level of construal. Therefore, these studies add evidence to the hypothesis that psychopathology –or trait rumination– interacts with the level of construal to determine emotion, cognition, or behavior.

In summary, these two lines of research supported the processing-mode theory (Watkins, 2008, 2011) according to which (i) the adoption of an abstract level of construal would be associated with negative consequences in vulnerable populations, compared to a concrete construal and (ii) the level of construal would have no effect in non-clinical populations.

However, one limitation of this theory concerns the maladaptive *emotional* consequences of the level of construal in vulnerable populations: Some studies found a difference between a concrete and an abstract level in these populations (e.g., Moberly & Watkins, 2006; Vassilopoulos, 2008; Watkins, 2004), whereas other did not (e.g., Vassilopoulos & Watkins, 2009; Watkins & Moulds, 2005a; Watkins & Teasdale, 2001, 2004). However, it is possible that cognitive consequences of the abstract level in vulnerable populations would lead to emotional consequences. For example, Rimes and Watkins (2005) showed that depressed individuals experienced an increase in their depressed mood and negative self-judgments when they adopted an abstract level, compared with a concrete level, but that the increase in the negative mood depended upon the increase in negative self-judgments. Future research is therefore needed to determine emotional consequences of the level of construal in vulnerable populations.

As suggested by Watkins (2008), one possible explanation of the maladaptive consequences of abstract RNT is that it promotes *generalization*. Generalization refers to the tendency to generalize from a single negative or positive event, such as a failure, to the entire self (Carver, 1998). Generalization, especially *negative* generalization, is associated with depression and anxiety (Carver, 1998; Carver & Ganellen, 1983; Fulford, Rosen, Johnson, & Carver, 2012). Adopting an abstract level of construal would lead to more generalization (i.e., to overgeneralize), therefore leading to cognitive and emotional consequences. Consistent with this explanation, experimental studies showed that the adoption of an abstract level of construal led to a greater negative generalization than the adoption of a concrete level of construal in a sample of dysphoric participants (Van Lier, Vervliet, Vanbrabant, Lenaert, & Raes, 2014) or in a non-clinical sample (Van Lier, Vervliet, Boddez, & Raes, 2015). In the same way, when thinking about a positive event, the adoption of an abstract level of construal also promotes generalization, especially in

individuals with high self-esteem (Van Lier, Moulds, & Raes, 2015). Thus, applied to RNT, adopting an abstract level of construal during RNT would promote *negative* consequences through *negative* generalization (Watkins, 2008; Watkins, Moberly, & Moulds, 2008). Despite these three experimental studies, more research is needed to determine the role of generalization in negative consequences associated with an abstract level of construal as well as to determine the similarities and differences between abstraction and generalization.

In summary, maladaptive RNT is characterized by a predominance of verbal thoughts over images. This reduced imagery seems to be underpinned by a process of abstraction (i.e., the adoption of an abstract level of construal or an abstract mode).¹ Clinical or subclinical populations, such as people with high levels of depression or anxiety, tend to have abstract RNT, maintained by negative metacognitive beliefs about concrete RNT. Even if more research is needed, the process of abstraction in clinical or subclinical populations would lead to greater generalization and be responsible for negative emotional, cognitive, motivational, and social consequences. Finally, we will develop therapies targeting RNT.

6. Therapies targeting repetitive negative thinking

Based on his substantial work, Watkins (2008, 2011) has developed an intervention for depression based on the idea that training people to adopt a concrete mode of thinking would decrease the negative consequences of the abstract mode of thinking. This training –known as the concreteness training– has been shown to decrease rumination and depressive symptoms (Watkins et al., 2012; Watkins, Baeyens, & Read, 2009; Watkins &

¹ In this dissertation, we will refer to the abstract versus concrete *level of construal* by using the terms abstract versus concrete *mode*, or abstract versus concrete *level* in an undifferentiated way.

Moberly, 2009). More recently, Watkins has developed a more complete therapy grounded in cognitive behavior therapy and focused on rumination: the rumination-focused cognitive behavioral therapy (RFCBT). The RFCBT targets the underlying process of abstraction as well as the avoidance function and lead to a decrease in depressive symptoms through a decrease in rumination (Jacobs et al., 2016; Watkins et al., 2007; Watkins, Mullan, et al., 2011). An internet-based RFCBT has also been created (Cook & Watkins, 2016; Topper, Emmelkamp, Watkins, & Ehring, 2017). A recent meta-analysis conducted by Querstret and Cropley (2013) showed that these therapies –among others such as those using mindful techniques– are effective at reducing RNT.

7. Conclusion

To conclude, RNT, including both rumination and worry, is considered as a transdiagnostic process implicated in many psychological disorders. It is characterized by a predominance of verbal thoughts over mental images, has an avoidance function, and is underpinned by an abstraction process. Several disorder-specific and transdiagnostic measures have been developed, with some of them differentiating between maladaptive and adaptive forms of RNT. Therapies targeting RNT and more specifically abstract RNT have been created and seem to offer a promising area for treating psychological disorders with RNT (e.g., depression, GAD). Alongside this large body of research focused on verbal thoughts, another field is interested in mental images of events, more especially in the visual perspective adopted in mental images, and will be developed.

CHAPTER 2. Visual perspective in mental imagery

1. Definition of mental imagery

The simulation or re-creation of objects, actions, or events across sensory modalities requires mental imagery ability (Kosslyn, Ganis, & Thompson, 2001). This ability allows us to transcend the present and engage in mental time travel into the past or the future (Schacter, Addis, & Buckner, 2007). Mental imagery can include all sensory modalities (e.g., visual, auditory, olfactory) but visual imagery is the most important.

Visual imagery refers to the experience of “seeing with the mind eyes” (Kosslyn et al., 2001, p. 635). This capacity appears at a very young age, with children relying more on mental imagery –as opposed to a verbal-linguistic activity– than adults (Burnett Heyes, Lau, & Holmes, 2013). The visual imagery capacity as well as the tendency to use it vary from one person to another (Greenberg & Knowlton, 2014). Mental images can represent, for example, recollection of autobiographical memories or future anticipated events as well as imagined counterfactual events. They can be positive or negative, generated voluntary or involuntary.

Mental images have a powerful “emotional amplifier” impact on emotions that exceeds the impact of verbal thoughts (Holmes & Mathews, 2005, 2010). This finding has led to the idea that mental imagery and more specifically negative mental imagery play an important role in psychopathology.

2. Visual perspective in mental imagery as a transdiagnostic process

As RNT, mental imagery is more than just an epiphenomenon. It has been considered as a transdiagnostic process implicated in the development and maintenance of several disorders, such as depression, social phobia, or PTSD (Brewin, Gregory, Lipton, &

Burgess, 2010; Hagenars & Holmes, 2012). One important feature of this mental imagery is the visual –or vantage– perspective adopted (Nigro & Neisser, 1983). Indeed, people can see the event from an *actor* perspective, also named field or first-person perspective, or from an *observer* perspective, also named third-person perspective. In visual mental images from an actor perspective, individuals see the event from their original point of view. They can see their surroundings through their own eyes. In visual mental images from an observer perspective, individuals see the event from an external point of view. They can see their surroundings as well as themselves, which is only occasionally possible in real life with mirrors or photos (Nigro & Neisser, 1983). These two perspectives are illustrated in Figure 1 for a neutral action. However, the visual perspective is also relevant for emotional situations. For example, when Camille thinks about her annual interview with her manager, she could have pictures of the severe face of her manager, looking at her without approval when Camille is explaining the bad profit of this last year (i.e., an actor perspective). She could also have pictures of her own anxious face when she announces the situation (i.e., an observer perspective).



Figure 1. The action of stapling depicted from an actor (left picture) and an observer (right picture) perspective.

The visual perspective adopted in mental imagery has been mainly measured by providing a short description of what is meant by an actor or observer perspective, before

asking participants to report the perspective adopted when recalling a specific event. Let's take an example of the given description used in our PhD studies:

Memories are often accompanied by visual images. These pictures can be depicted from an actor or from an observer perspective. From an actor perspective, we see the event from the same perspective that we originally did. In other words, we see our surroundings through our own eyes. This perspective is different from an observer perspective in which we see the event from the outside. In other words, in our memory, we can see yourself as well as our surroundings (e.g., Study 1a, Chapter 3, adapted from Libby, Valenti, Pfent, & Eibach, 2011).

Visual perspective is commonly assessed as a *state* perspective. People recall or imagine an event and indicate the visual perspective adopted to picture this event (Nigro & Neisser, 1983). However, visual perspective can also be measured as a *trait*, i.e., the stable tendency to adopt one perspective or the other when mental time traveling into the past or the future (e.g., Christian, Miles, Parkinson, & Macrae, 2013).

More generally, visual perspective is often assessed in a categorical or a continuous way. In some studies, participants were asked to categorize their visual perspective as “field/actor”, “observer”, or “neither” (e.g., Nigro & Neisser, 1983). This measure conceptualizes the actor and observer perspectives as *mutually exclusive*. According to this framework, individuals can have only one perspective. Other studies have assessed the visual perspective using continuous measures –most often visual analog scales– ranging from “completely actor perspective” to “completely observer perspective” (e.g., Williams & Moulds, 2007). This measure considers the actor and observer perspectives as *complementary*. According to this framework, individuals can experience both perspective but the experience of one requires less experience of the other. More recently, Rice and Rubin (2009) suggested using two separate continuous measures for actor and observer perspectives, so that these perspectives are *independent*

rather than complementary. This conceptualization allows the experience of both perspectives independently, so that individuals can have a strong actor perspective as well as a strong observer perspective. Indeed, Rice and Rubin (2009) showed that mental images generally involve more than one perspective: People switch from one perspective to the other or experience both perspectives simultaneously. They also evidenced that the two perspectives are highly negatively correlated, consistent with both *complementary* and *independent* conceptualizations. However, each perspective correlated differentially with other phenomenological variables, such as the vividness of the memory (i.e., the actor perspective was positively associated with the vividness but not the observer perspective), suggesting that their experience is independent rather than complementary (Rice & Rubin, 2009). In the present dissertation, we will use the terms *mutually exclusive*, *complementary*, or *independent* when it will be necessary to differentiate each type of measure used.

Studies have demonstrated that people often adopt more an actor than an observer perspective (e.g., Nigro & Neisser, 1983; Robinson & Swanson, 1993). There are also differences according to the culture or the gender, with Western societies and females adopting more actor perspective than Eastern societies and males, respectively (Christian et al., 2013). However, these differences are not consistent across studies. For example, Christian et al. (2013) showed that the images from an observer perspective represented approximately a half of all images and Rice and Rubin (2009) evidenced that women reported more observer perspective than men.

As Holmes and Mathews' (2010) proposition that mental imagery acts as an emotional amplifier, one could propose that the actor perspective in visual mental images shares the same role. Indeed, images from an actor perspective are generally more vivid, associated with more information relative to bodily sensations, affective reactions, and

psychological states, involve more sense of “reliving”, less self-awareness and concern more recent events (e.g., McIsaac & Eich, 2002; Nigro & Neisser, 1983; Robinson & Swanson, 1993). Mental images of future events are more likely to be depicted from an observer perspective than mental images of past events (D’Argembeau & Van Der Linden, 2004; Finnbogadóttir & Berntsen, 2011; McDermott, Wooldridge, Rice, Berg, & Szpunar, 2016). However, involuntary and voluntary mental images do not seem to differ according to the visual perspective adopted (e.g., Finnbogadóttir & Berntsen, 2011; L. A. Watson, Berntsen, Kuyken, & Watkins, 2012).

Contrary to non-clinical populations, clinical or subclinical populations are more likely to adopt an observer perspective. This has been shown in samples suffering from depression (e.g., Kuyken & Howell, 2006; Lemogne et al., 2006), PTSD (e.g., Kenny et al., 2009), social phobia (e.g., Coles, Turk, & Heimberg, 2002), agoraphobia (Wells & Papageorgiou, 1999), body dysmorphic disorder (Osman, Cooper, Hackmann, & Veale, 2004), and also schizophrenia (Potheegadoo, Berna, Cuervo-Lombard, & Danion, 2013; Wang et al., 2017). These findings supported the hypothesis that the visual perspective is a transdiagnostic feature of psychological disorders. However, it is noteworthy that there is a lack of empirical evidence of the *causal* implication of the visual perspective in these disorders. Rather, the visual perspective has been generally studied and described as an important feature of the transdiagnostic process of mental imagery (e.g., Holmes & Mathews, 2010).

3. An avoidance function

The adoption of an observer perspective is generally conceptualized as associated with maladaptive consequences, for example in emotional processing. Several studies have evidenced that the adoption of an observer perspective is associated with less

emotion information (McIsaac & Eich, 2002, 2004). Moreover, experimental studies have evidenced that switching from an actor to an observer perspective decreased emotional intensity but that the reverse had no effect (Berntsen & Rubin, 2006a; Robinson & Swanson, 1993; Vella & Moulds, 2014; Williams & Moulds, 2008). These findings lead to consider the observer perspective as an avoidance strategy of the negative emotion information associated with the event.

Consistent with this proposition, Kenny and Bryant (2007) showed that trauma-exposed participants with high levels of cognitive and behavioral avoidance visualized more their trauma from an observer perspective than trauma-exposed participants with low levels of avoidance. Similarly, Williams and Moulds (2007) found that participants who pictured an intrusive memory from an observer perspective use more avoidance strategies. After selecting extreme participants with high and low levels of depression, the association between observer perspective and avoidance remained only in the high dysphoric subsample but not in the low dysphoric subsample.

Even if the observer perspective leads to a reduction of negative affect in the short term, this strategy has been hypothesized to have long term maladaptive consequences. By avoiding emotion information associated with an event, individuals would prevent emotional processing (e.g., Foa & Kozak, 1986; Williams & Moulds, 2007). Consistent with this view, in Kenny et al. (2009), participants who initially remembered their trauma from an observer perspective had higher levels of PTSD symptoms at that time as well as one year later. Moreover, participants who shifted from a field to an observer perspective between the two measurement times have greater PTSD symptoms one year later. These findings lead to the consideration in the clinical literature that the dampening effect of the observer perspective is associated with both immediate and delayed negative consequences.

4. An underlying process of abstraction

Even if mental images are more concrete than abstract by nature, mental imagery can also represent abstract information (Libby & Eibach, 2013). Visual perspective would be a representational tool for manipulating abstract versus concrete information. As for RNT, the consequences of adopting a specific visual perspective have been conceptualized within social-cognitive theories, and more specifically the Construal-level theory (Trope & Liberman, 2003, 2010) and Action identification theory (Vallacher & Wegner, 1987, 1989). In experimental studies which manipulate the visual perspective adopted, instructions for inducing an actor perspective generally are:

“You should picture the event from a first-person visual perspective. With the first-person visual perspective you see the event from the visual perspective you had when the event was originally occurring. In other words, you can see your surroundings in the event looking through your own eyes” (Libby & Eibach, 2011, p. 189).

Instructions for inducing an observer perspective are:

“You should picture the event from a third-person visual perspective. With the third-person visual perspective you see the event from the visual perspective an observer would have had when the event was originally occurring. In other words, you can see yourself in the event as well as your surroundings” (Libby & Eibach, 2011, p. 189).

Libby and collaborators (Libby, Shaeffer, & Eibach, 2009; Shaeffer, Libby, & Eibach, 2015) evidenced in several experimental studies a bidirectional causal relationship between the visual perspective and the level of construal. In these experiments, the level of construal was measured with the Behavior Identification Form (BIF, Vallacher & Wegner, 1989). The BIF assesses individual differences in the level of identification –i.e., the level of construal– adopted to think about simple actions. Each item of the BIF presents an action (e.g., “Locking a door”) followed by two propositions regarding the description of the action: a concrete (e.g., “Putting a key in the lock”) and an abstract

(e.g., “Securing the house”) descriptions of the action. Participants have to choose the description that best describes the action for them. Libby et al. (2009) showed that picturing one of the BIF’s actions from an observer perspective, or viewing a photo of this action from an observer perspective, led to more preference for an abstract description of this action, compared to an actor perspective. Reciprocally, an abstract description of an action elicited more visualization from an observer perspective or more preference for a photo depicted from an observer perspective, compared to a concrete description. This effect is also transferred to unrelated actions: A photo picturing an action from an observer perspective led to more preference for abstract descriptions of unrelated actions, compared to an actor perspective (Shaeffer et al., 2015). Importantly, in these experiments, the actor and observer perspectives did not differ in the photo scope, the distance to the action, or objects depicted (Libby et al., 2009; Shaeffer et al., 2015).

Other studies have replicated the observed association between visual perspective and level of construal regarding neutral to mildly negative and positive actions. Agerström, Björklund, and Carlsson (2013) showed that picturing an immoral action (i.e., “not to sort their trash in an outside recycling center and instead dump it as it was, because of unpleasant weather”) from an observer perspective was associated with more preference for an abstract description of this action, compared to an actor perspective. Finally, in Vasquez and Buehler (2007), participants who visualized an important academic task they would perform in the next few weeks from an observer perspective preferred abstract descriptions of this task, compared to an actor perspective. In summary, these different studies supported that, at a processual level, the visual perspective adopted in mental imagery would be underpinned by a process of abstraction, like RNT.

Libby and Eibach (2011) developed a theory on visual perspective according to which the observer perspective would be underpinned by an abstract level of construal, whereas

the actor perspective would be underpinned by a concrete level of construal. Each perspective would provide access to a specific mode of events understanding. When adopting an actor –concrete– perspective, people would process events in a bottom-up way. They would make sense to the event by relying on associative evaluations evoked by its concrete features (Libby, Valenti, Hines, & Eibach, 2014). Salient information includes for example the constituent steps of the event or sensory information. In contrast, when adopting an observer –abstract– perspective, people would process events top-down. They would make sense to the event by integrating it in their broader self-knowledge. Therefore, they would rely on propositional self-beliefs and theories about self’s traits, preferences and values (Libby et al., 2014). Salient information includes for example the causes, consequences, implications, and broader meaning of the event (Hines, 2014; Libby & Eibach, 2011; Libby et al., 2014).

This actor and observer distinction refers to the notion of the “I” self and the “me” self of James (1890/1950, cited by Libby & Eibach, 2011). Individuals would have two facets of the self: the *experiential* “I” self and the *conceptual* “me” self. The experiential self, emerging with a bottom-up process through concrete features of the event, is the present self. The conceptual self, emerging with a top-down process, is a framework of general self-theories and self-schemas, where the self is considered as an abstract entity than persists across time (Libby & Eibach, 2011). During an event, both facets of the self would be involved and interact to give a meaning to the event. However, when events are visualized in mental imagery, the actor perspective would involve greater experiential self but less conceptual self. On the contrary, the observer perspective would involve greater conceptual self but less experiential self.

According to Libby and Eibach’s (2011) theory, the emotional impact of each perspective would be determined by its subjective meaning. In the case of an actor

perspective, this impact would be based on concrete features of the event. The impact of the observer perspective would depend on the subjective meaning derived from the event in relation to broader self-knowledge. When the subjective meaning “highlights a discrepancy between present and pictured selves, picturing an event from the third-person rather than the first-person perspective should indeed help detach the event from the present self”, whereas when the subjective meaning “highlights continuity, picturing an event from the third-person rather than first-person perspective should enhance the connection between the pictured and present selves” (Libby & Eibach, 2011, p. 199). In people who hold negative views of the self, the others, or the world, adopting an observer perspective to visualize a negative event which is consistent with these negative views is likely to increase negative affect. On the contrary, in people who have a more positive view of the self, the others, or the world, adopting an observer perspective to picture this inconsistent event would decrease negative affect.

Empirical evidence of this theory comes from studies conducted by Libby and collaborators in which the effects of each visual perspective in non-clinical populations and vulnerable populations, such as people with low self-esteem, were compared. As vulnerable populations tend to generalize from a single negative event (e.g., people with depression or low self-esteem, Carver, 1998; Carver & Ganellen, 1983; or with anxiety disorders, Fulford et al., 2012), picturing this event from an observer perspective would lead them to generalize compared to an actor perspective and would generate negative affect. Indeed, Libby, Valenti, et al. (2011) showed that the adoption of an observer perspective to picture a past failure was associated with a greater negative generalization to the self in individuals with low self-esteem, compared with the adoption of an actor perspective, as well as greater feelings of shame regarding this failure. No such difference emerged in individuals with high self-esteem (Libby, Valenti, et al., 2011). Similarly,

when individuals with high attachment anxiety pictured past transgressions from an observer perspective, they made fewer positive evaluations of their romantic relationship (i.e., a negative generalization to their relationship), compared to an actor perspective (Marigold, Eibach, Libby, Ross, & Holmes, 2015). Once again, there was no difference in people with low attachment anxiety.

In summary, the visual perspective adopted would moderate the influence of broader self-knowledge on cognitive (e.g., negative generalization to the self or the relationship) and emotional (e.g., shame) consequences. Each perspective can have adaptive or maladaptive consequences, such as the power to increase or decrease emotions, depending on the subjective meaning derived from the event. Contrary to some authors (e.g., Kenny & Bryant, 2007; Williams & Moulds, 2007) who conceptualize the observer perspective as a maladaptive avoidance strategy, particularly in clinical and subclinical populations, this theory (Libby & Eibach, 2011) posits that the observer perspective does not necessarily imply the avoidance of negative emotion information associated with the event but can also be an attempt at giving a meaning to the event by integrating it within broader self-knowledge.

However, these conceptualizations are not incompatible. As previously explained, mental images from an observer perspective are associated with less emotional information, such as bodily sensations or affective reactions, than an actor perspective (McIsaac & Eich, 2002; Nigro & Neisser, 1983; Robinson & Swanson, 1993). To our knowledge, there is no research on the metacognitive beliefs about visual perspective. However, as for RNT, it is possible that people have positive metacognitive beliefs about the adoption of an observer perspective, especially clinical populations, such as thinking that adopting a remote observer perspective could protect them from the emotional information associated with the event, compared with an actor perspective. Adopting an

observer perspective would represent an avoidant strategy of emotional information (Kenny & Bryant, 2007; Williams & Moulds, 2007). However, in reality, the observer perspective would enhance the connection or the discrepancy with the event, leading to adaptive or maladaptive consequences depending on self-broader knowledge (Libby & Eibach, 2011).

Clinical or subclinical populations, who have a high avoidance tendency (e.g., people suffering from depression, Quigley et al., 2017), would prefer adopting the observer perspective as an avoidant strategy, which would result in maladaptive consequences, such as generalization and greater shame. It is possible that negative metacognitive beliefs would then appear and lead them to –unsuccessfully– try to avoid the emotional information associated with mental images of the event, which would result in greater latter avoidance. On the contrary, in non-clinical populations, such as people with a high self-esteem, adopting an observer perspective would highlight the discrepancy with the event (e.g., “even though this event is a failure, it’s just a one-time occurrence where I did not meet a specific goal”²), leading to adaptive consequences, such as less generalization (Libby & Eibach, 2011; Libby, Valenti, et al., 2011). In this case, the observer perspective would help people to give a meaning to the event (e.g., “a one-time occurrence”). Despite this lack of empirical evidence about metacognitive beliefs associated with the observer perspective, this hypothesis could build bridges between different observer perspective conceptualizations (Libby & Eibach, 2011; Williams & Moulds, 2007). It could also explain the high prevalence of the observer perspective in clinical and subclinical populations (e.g., Kuyken & Howell, 2006; Lemogne et al., 2006) as an avoidant strategy leading to maladaptive consequences.

² This proposition is an item of the modified version of the Generalization subscale of the Attitude Towards Self scale (ATS, Carver, 1998) of Libby and collaborators (Libby, Valenti, et al., 2011).

There is another way by which the observer perspective can lead to adaptive consequences. Visualizing a negative event as it was happening to someone else can help to put the event into perspective and reconstrue it in a more positive way. Indeed, some authors have conceptualized the actor and observer perspectives as respectively a *self-immersed* perspective (e.g., “go back to the time and place of the experience and relive the situation as if it were happening to you all over again”) and a *self-distanced* perspective (e.g., “take a few steps back and move away from your experience (...) watch the conflict unfold as if it were happening all over again to the distant you”, Kross, Ayduk, & Mischel, 2005, p. 711). They showed that a self-distanced perspective is beneficial for clinical or subclinical populations (e.g., Ayduk & Kross, 2010; Kross et al., 2005). However, their measures or manipulations of the self-distanced perspective differ from the original conceptualization and operationalization of the observer perspective (i.e., to imagine the event as if it was happening to a *distant self*). This “distant-self” manipulation involves both less experiential self and conceptual self and is likely to produce other effects than the observer perspective (Hines, 2014; Libby & Eibach, 2011). Therefore, in the present dissertation, we will focus on the original conceptualization of the observer perspective. We will now develop the therapies which target mental imagery.

5. Therapies targeting mental imagery

The use of mental imagery has a long tradition in cognitive and behavior therapies, such as techniques for fear-based imagery including the systematic desensitization (Wolpe, 1958; cited by Hackmann, Bennett-Levy, & Holmes, 2011) or the imaginal exposure (Foa & Kozak, 1986). Aaron Beck (Beck, Emery, & Greenberg, 1958; cited by Hackmann et al., 2011) also developed the use of mental imagery in cognitive restructuring.

In recent years, the use of imagery or the focus on mental images in therapy has increased (Holmes, Arntz, & Smucker, 2007). Emily Holmes has conceptualized mental imagery as an emotional amplifier representing an interesting way for therapy (Holmes & Mathews, 2010). She has developed therapies aiming at encouraging positive mental imagery (Holmes, Lang, & Shah, 2009; Holmes, Mathews, Dalgleish, & Mackintosh, 2006). Another recent form of therapy is imagery rescripting, which aims at transforming negative mental images into a more benign form (for a review, see Arntz, 2012; Smucker, 2005).

Interventions targeting mental imagery have in common the consideration either that the actor perspective is an important prerequisite when working with mental imagery (Hackmann et al., 2011) or that the visual perspective can be used to distance or put into perspective vivid mental images.

6. Conclusion

In summary, mental imagery is an important transdiagnostic process implicated in psychological disorders such as depression or PTSD. The visual perspective adopted seems to be an important feature of mental images, with clinical or subclinical populations adopting greater observer perspective than non-clinical populations. Visual perspective is underpinned by an abstraction process: The observer perspective is determined by an abstract level of construal and the actor perspective by a concrete level of construal. The observer perspective could have both adaptive and maladaptive consequences, depending on the subjective meaning derived from the integration of the event within broader self-knowledge. Depending on the subjective meaning, the observer perspective can serve an avoidance function and have negative cognitive and emotional consequences.

Synthesis and overview of the empirical section

1. Repetitive negative thinking and visual perspective: A special relationship?

The first two chapters of this dissertation have outlined the role of verbal maladaptive RNT and mental images from an observer perspective, conceptualized as two important transdiagnostic processes in several psychological disorders, such as depressed and anxious disorders (Holmes & Mathews, 2010; Watkins, 2008). Based on the literature, we have developed the idea that RNT and visual perspective can be determined by the level of construal adopted. The adoption of an abstract level of construal –focused on the analysis of causes, consequences, and implications of events or actions– would lead to an abstract RNT and an observer perspective, which are predominant in vulnerable populations, i.e., clinical and subclinical populations (e.g., Coles et al., 2002; Kuyken & Howell, 2006; Lemogne et al., 2006; Watkins, 2008, 2011). However, this abstract level would have negative consequences in these populations, possibly through generalization. Indeed, vulnerable populations differ from non-clinical populations on their tendency to generalize from a single negative event (Carver, 1998; Carver & Ganellen, 1983; Fulford et al., 2012). The adoption of an abstract level of construal would promote generalization in vulnerable individuals and lead to negative consequences.

Even if RNT and visual perspective have often been studied independently, one hypothesis on which the present dissertation has been based is that they can be considered as the product of other processes. This idea of processes that can be defined at different levels is somewhat recent (Philippot, 2016). In the present case, the central process is *abstraction*, i.e., the adoption of an abstract level of construal. Furthermore, RNT and visual perspective seem to serve an avoidance function: Avoiding focusing on concrete

features would be associated with fewer feelings, even if this also has negative consequences through abstraction (Sibrava & Borkovec, 2006 for RNT; Williams & Moulds, 2007 for visual perspective, but also see Libby & Eibach, 2011).

Given processual and functional similarities between RNT and visual perspective, one could make the hypothesis that RNT, more specifically abstract RNT, and the observer perspective are positively correlated. Indeed, cognitive behavioral models of psychopathology often postulate that several psychological processes operate in interaction and contribute to the onset and maintenance of the disorder (e.g., combined cognitive biases hypothesis, Hirsch et al., 2006). It would be therefore necessary to study the role of RNT and visual perspective in mental disorders in a more integrative manner. Despite the fundamental and clinical relevance of this proposition, only a few studies have explored the relationship between RNT and the visual perspective adopted. In the following sections, we will review these studies.

2. Previous studies on the relationship between repetitive negative thinking and visual perspective

Several studies have been conducted on the frequency of verbal thoughts and mental images during RNT (e.g., Behar et al., 2012; Borkovec & Inz, 1990; Hirsch et al., 2012). In this section, we will review studies which specifically explored the association between verbal thoughts and the visual perspective adopted during mental images.

Only few correlational studies explored this relationship. Some of them evidenced a positive association between the adoption of an observer perspective and the *trait* tendency to ruminate or worry (Finnbogadóttir & Berntsen, 2014; Williams & Moulds,

2007)³ or between the adoption of an observer perspective to visualize an event and the *state* rumination on this event (Kuyken & Moulds, 2009). However, other studies did not find a correlation between the observer perspective and *trait* (Finnbogadóttir & Berntsen, 2011; Kuyken & Moulds, 2009) or *state* RNT (Williams & Moulds, 2007).⁴

More precisely, Williams and Moulds (2007) asked dysphoric and non-dysphoric participants to recall a spontaneous intrusive memory occurring during the past week and to indicate its visual perspective, using a complementary measure. Participants also completed the RRS measuring their *trait* tendency to ruminate and rated their *state* rumination on the memory. The results showed that, overall, a greater *trait* tendency to ruminate was associated with more observer perspective when picturing the intrusive memory. When selecting extreme participants on the depression measure (i.e., higher and lower scores), results indicated that this association was only present in the dysphoric subsample compared to the non-dysphoric subsample. However, *state* rumination did not correlate with the visual perspective adopted.

Similarly, in a first study conducted by Finnbogadóttir and Berntsen (2014), high and low worriers (i.e., selected on their *trait* tendency to worry using the PSWQ) recalled or imagined events following neutral word cues, positive and negative emotion cues, or personally important events, and rated their visual perspective using complementary measures. The results indicated that high worriers adopted greater observer perspective to visualize the events compared with low worriers. In a second study, Finnbogadóttir and Berntsen (2014) asked a student sample to report the visual perspective adopted to picture past events following positive and negative emotion cues, using complementary

³ Note that one study (Ayduk & Kross, 2010) also showed a negative correlation between the *trait* tendency to ruminate and the adoption of an observer perspective. However, this study did not use the same conceptualization and operationalization of the observer perspective (i.e., a self-distanced perspective).

⁴ More specifically, what we call “state RNT” actually refers to the tendency to ruminate or worry on a specific event rather than how or how much individuals ruminate or worry on general topics at a particular moment.

measures, and to rate its *trait* tendency to worry and to ruminate using the PSWQ and the RRQ. Again, higher levels of *trait* worry or rumination were associated with greater use of an observer perspective.

Kuyken and Moulds (2009) asked patients with a history of recurrent depression to retrieve memories following positive or negative emotion cues and to rate the visual perspective adopted using mutually exclusive measures. They also rated their *state* rumination on these events and completed a *trait* measure of rumination using the RRQ. Results showed that participants who pictured memories from an observer perspective had higher levels of *state* rumination on the event compared to participants who pictured memories from an actor perspective. However, *trait* rumination was not associated with the visual perspective adopted.

Finnbogadóttir and Berntsen (2011) recruited high and low worriers (i.e., based on their *trait* tendency to worry using the PSWQ) and asked them to voluntarily recall and imagine events following neutral word cues and to retrieve involuntary past and future events. They rated their visual perspective adopted using complementary measures. The results did not show any difference according to the level of *trait* worry (i.e., high versus low) or the nature of retrieval (i.e., voluntary versus involuntary) on the visual perspective adopted when picturing past or future events.

In summary, four studies evidenced a positive association between RNT and visual perspective (i.e., for *trait* RNT, Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007; for *state* RNT, Kuyken & Moulds, 2009) but three studies did not find an association (i.e., for *trait* RNT, Finnbogadóttir & Berntsen, 2011; Kuyken & Moulds, 2009; for *state* RNT, Williams & Moulds, 2007).

3. Overview of the empirical section

Given these inconsistent findings, the first aim of the present dissertation was to explore (1) the relationship between state or trait RNT and the visual perspective adopted in mental imagery. Based on their similarities, we hypothesized a positive association between RNT, and more specifically abstract RNT, and the observer perspective.

Moreover, previous studies on this relationship did not explore the association between RNT, visual perspective as well as the abstraction process and the avoidance function. Consequently, the second and third aims of the present work were to expand our knowledge by also investigating (2) the avoidance function and (3) the underlying process of abstraction. We hypothesized that RNT, more specifically abstract RNT, and the observer perspective would be associated with avoidance strategies in people with higher levels of psychopathology and an abstract level of construal.

Finally, previous studies did not assess consequences of the observer perspective. Therefore, the fourth aim was to explore (4) the cognitive and emotional correlates of the observer perspective. We hypothesized that the adoption of an observer perspective in people with higher levels of psychopathology would be associated with more negative cognitive and emotional correlates, compared to an actor perspective.

All along this dissertation, we will refer to the main aims by using this numbering system, i.e., (1), (2), (3), & (4). In the following sections, we will briefly present our studies and their progression chapter by chapter. These studies will be then developed in detail in the following chapters and discussed in the general conclusion.

Chapter 3

Given that RNT and visual perspective seem to have processual and functional similarities (Libby & Eibach, 2011; Watkins, 2008, 2011; Williams & Moulds, 2007),

they seem to be associated. However, previous studies have found mixed results regarding this potential association (e.g., Finnbogadóttir & Berntsen, 2011, 2014). Furthermore, RNT and the observer perspective would lead to maladaptive consequences in vulnerable populations. When adopting an observer perspective to visualize an event, these consequences would depend on the meaning derived by vulnerable populations (Libby & Eibach, 2011). Therefore, the third chapter of the present work was dedicated to correlational studies exploring (1) the relationship between RNT and visual perspective as well as their association with (2) avoidance and (3) the level of construal. This chapter also investigated (4) the emotional and cognitive correlates of the visual perspective in function of the level of psychopathological symptoms (see Table 1 for a summary of the measures used in the studies of the Chapter 3).

Study 1a. The first study was designed to explore the associations between *trait* rumination, the visual perspective adopted when remembering a past failure, and experiential avoidance. Based on Libby and Eibach's (2011) theory, we also explored the association with psychological flexibility. Psychological flexibility is defined as "the ability to fully contact the present moment and the thoughts and feelings it contains without needless defense, and, depending upon what the situation affords, persisting in or changing behavior in the pursuit of goals and values" (Bond et al., 2011, p. 678). This concept seemed relevant as some authors have suggested that people suffering from emotional difficulties have a bias towards adopting an abstract level of construal, irrespective of the context (Watkins, 2011). Participants also rated the meaning of the failure (i.e., defined here as the degree of meaning and connection of the event with the self) and assessed their distress while remembering the failure.

Table 1

Summary of the measures of the correlational studies (Chapter 3).

<i>St.</i> ^a	Main variables				Functional and processual measures			Consequences
	Rumination ^b		Visual perspective		Avoidance	Abstraction		
<i>St. 1a</i>	<i>Trait:</i> Rum. frequency (RRS-10)		<i>State:</i> Complementary measure		<i>Trait:</i> MEAQ	<i>Trait:</i> Psychological flexibility (AAQ-II)		<i>Emotional:</i> Distress <i>Cognitive:</i> Integrative meaning
<i>St. 1b</i>	<i>Trait:</i> RRS-22, Mini-CERTS	<i>State:</i> Rum. frequency (VAS) on the event	<i>State:</i> Complementary measure		<i>Trait:</i> CAQ	<i>Trait:</i> BIF	<i>State:</i> Level of construal of the memory	<i>Emotional:</i> Negative Affect <i>Cognitive:</i> Integrative meaning; Psychological distance; ATS-Generalization modified
<i>St. 1d</i>	<i>Trait:</i> Mini-CERTS	<i>State:</i> Rum. frequency (VAS); Concrete & Abstract ruminations (VAS) on the event	<i>Trait:</i> Actor & Observer perspectives (independent measures)	<i>State:</i> Actor & Observer perspectives (independent measures)	/	<i>Trait:</i> ATS-Generalization	<i>State:</i> ATS-Generalization modified	/

Note. RRS-10 = 10-item Ruminative Response Scale; RRS-22 = 22-item Ruminative Response Scale; Mini-CERTS = Mini Cambridge Exeter Repetitive Thought Scale; MEAQ = Multidimensional Experiential Avoidance Questionnaire; CAQ = Cognitive Avoidance Questionnaire; AAQ-II = Action and Acceptance Questionnaire; BIF = Behavior Identification Form; ATS = Attitude Towards Self scale.

Each study also included a measure of psychopathology (i.e., trait anxiety and trait depression).

^aSt. = Study.

^bRum. = Rumination.

The Study 1c was designed to replicate a result of the Study 1b regarding abstraction and rumination.

Inconsistent with our prediction, the results showed that (1) rumination and the observer perspective did not correlate. As predicted, rumination was associated with (2) more experiential avoidance and (3) less psychological flexibility, but visual perspective did not. Also unexpectedly, (4) individuals with higher levels of psychopathology perceived greater meaning, regardless of the visual perspective adopted. However, greater meaning was associated with greater distress.

Study 1b. The second study replicated and expanded the first study by investigating the associations between *state* and *trait* rumination, the visual perspective adopted to recall a past failure, *state* and *trait* level of construal, and cognitive avoidance. Participants also rated the meaning given to the failure, their state generalization and the subjective temporal distance of the failure.

Once again, (1) we did not evidence an association between rumination and visual perspective. At a functional level, (2) only rumination was associated with the use of avoidant strategies. At a processual level, (3) rumination but not visual perspective was associated with a specific level of construal. As expected, state rumination was associated with an *abstract* state level of construal. However, our results also showed an association between maladaptive trait rumination and a *concrete* trait level of construal. Therefore, we attempted to replicate this surprising association in the following study. Finally, (4) as predicted, higher levels of psychopathology predicted greater meaning but only from an observer perspective. Inconsistent with our prediction, higher levels of psychopathology predicted more negative generalization, regardless of the visual perspective adopted. Neither psychopathology, nor visual perspective, nor their interaction predicted the subjective temporal distance. However, as predicted, greater meaning, greater generalization, less subjective distance, and greater negative affect were associated.

Study 1c. As previously said, we were quite surprised and intrigued to find that trait rumination correlated with a *concrete* trait level of construal. Therefore, the third study was designed to test whether this effect could be replicated. We focused mainly on *trait* rumination and were interested in differentiating the abstract and concrete modes of RNT (Watkins, 2008), as they might be differentially related to the level of construal. We also used two different measures of abstraction, one related to the tendency of negative generalization, the other related to the tendency to adopt a concrete or an abstract level of construal.

As expected, the results showed that (3) an abstract mode of rumination positively correlated with the tendency of negative generalization. However, this abstract mode of rumination did not correlate with the tendency to adopt an abstract or concrete level of construal, but a concrete mode of rumination correlated with an abstract level of construal.

Study 1d. In the fourth study, we integrated the modifications of the last three studies: (i) we explored *state* and *trait* versions of our variables, (ii) we differentiated concrete and abstract modes of rumination, and (iii) we focused on negative generalization as reflecting an abstract level of construal. We also used independent measures of the visual perspective. However, contrary to the first two studies, we decided not to include an avoidance measure.

For the first time, our results indicated (1) an association between *state* rumination, more specifically abstract rumination, and the adoption of an observer perspective. However, we did not find an association for *trait* measures of these variables. At a processual level, (3) an abstract mode of rumination, as measured as a *state* or *trait*, positively correlated with negative generalization. However, once again, the observer perspective did not correlate with generalization, regardless of *state* or *trait* measures.

Chapter 4

The main conclusion of our correlational studies is that RNT and visual perspective were not always correlated despite their supposed processual and functional similarities (Libby & Eibach, 2011; Watkins, 2008, 2011; Williams & Moulds, 2007) and that visual perspective was not underpinned by an abstraction process, contrary to Libby and Eibach's (2011) theory and previous studies (Agerström et al., 2013; Libby et al., 2009; Shaeffer et al., 2015; Vasquez & Buehler, 2007). In the studies of this chapter, we wanted to manipulate the abstraction process. The induction of a specific level of construal during rumination has often been used in experimental studies exploring the consequences of concrete versus abstract modes of rumination (for a review, see Watkins, 2008). However, these studies did not investigate the effect of a concrete versus abstract mode of rumination on visual perspective.

Therefore, the studies of the fourth chapter were designed to manipulate the level of construal adopted during rumination while using a mentation sampling method. We explored its effects on thoughts nature (i.e., verbal or imagery activity), visual perspective, and emotion reactivity. We hypothesized that higher levels of psychopathology or trait rumination would be associated with more verbal thoughts and fewer mental images, more images from an observer perspective, and more emotional reactivity, especially during an abstract mode rumination.

Study 2a. In the first study, participants' level of depression, anxiety, and trait rumination as well as abstract and concrete trait rumination were measured. The level of construal adopted (i.e., abstract versus concrete) during a period of rumination on a past failure was manipulated. At several moments during the rumination period, participants assessed the nature of their ongoing thoughts (i.e., thoughts, images, or neither) and the visual perspective adopted in their ongoing mental images, using complementary

measures. They also indicated the intensity of their negative affect before and after the rumination period.

Our results replicated findings from previous studies by showing that rumination was predominantly verbal and that mental images were predominantly pictured from an actor perspective. However, unexpectedly, higher levels of psychopathology predicted less verbal thoughts and more mental images and did not predict the observer perspective or emotional reactivity. Inconsistent with our prediction, the level of maladaptive trait rumination did not predict the thoughts nature, observer perspective, or emotional reactivity. Finally, we failed to find a main or an interaction effect of the level of construal on our measures.

Study 2b. The second study partly replicated the design of the first study. We again manipulated the level of construal adopted (i.e., abstract versus concrete) during a period of rumination on a past failure, while adopting a mentation sampling method. Once again, at several moments, participants were asked to indicate the percentage of each nature of thoughts (i.e., verbal thoughts and images) and their visual perspective using independent measures. Contrary to our previous study, participants did not answer questions about their ongoing cognitions *at the time of the interruption* but they answered questions about their cognitions *during the time between two interruptions*. They also indicated the intensity of their negative affect before and after the rumination period.

Again, as predicted, rumination was predominantly verbal and mental images were more pictured from an observer perspective. Inconsistent with our prediction, neither the level of psychopathology or maladaptive trait rumination, nor the level of construal, nor their interaction predicted thoughts nature, the observer perspective, or emotional reactivity.

Chapter 5

The studies of the previous chapter manipulated the level of construal adopted during RNT and failed to find effects on visual perspective or emotion. In this fifth chapter, we wanted to manipulate the abstraction process and use an emotional situation rather focusing on the recall of a negative event. Regarding the abstraction process, we relied on a broad literature in social psychology, which manipulated the level of construal adopted to think about a general goal (Freitas, Gollwitzer, & Trope, 2004). Regarding the emotional situation, we used an in-vivo social-evaluative situation. Indeed, cognitive models of social anxiety (e.g., Clark, 2001; Clark & Wells, 1995) described the importance of RNT in this context but also of mental images from an observer perspective. These models distinguished the anticipation and post-event processing of the situation.

Study 3. We adapted the induction of an abstract versus concrete level of construal to a social evaluation context, before inducing an anxious anticipation of an in-vivo social-evaluative task. Participants were also contacted 36 hours later on average and answered questions about their cognitions and feelings when spontaneously remembering the task. In other words, this study allowed us to assess both anticipation and post-event phases. During these phases, we were interested in the visual perspective adopted in mental images, rumination, and emotional response. During both anticipation and post-event processing, we predicted that higher levels of psychopathology or trait rumination would be associated with more observer perspective, state rumination, abstract state rumination, and anxiety, especially after the adoption of an abstract level of construal.

During the anticipation, as predicted, results indicated that higher levels of psychopathology predicted greater observer perspective, rumination, abstract rumination, and anxiety. Partially consistent with our predictions, a higher tendency to ruminate did

not predict the observer perspective but predicted greater state rumination, especially abstract, and anxiety. We failed to find a main or an interaction effect with the level of construal.

During the post-event processing, partially consistent with our predictions, results showed that higher levels of psychopathology did not predict the observer perspective and abstract state rumination but predicted greater state rumination and anxiety. Moreover, higher levels of maladaptive trait rumination did not predict observer perspective, abstract state rumination, and anxiety but predicted greater state rumination. Once again, we failed to find a main or an interaction effect with the level of construal.

Chapter 6

At this point of our studies, we generally did not find an evidence of an association between RNT and visual perspective. However, our PhD studies are different from literature studies (e.g., measures, type of event recalled), which also found mixed results (Finnbogadóttir & Berntsen, 2011, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007). Therefore, we decided to use meta-analytic techniques to combine findings (a) from literature studies in a first step, (b) from our PhD studies in a second step, and (c) from all these studies in a third step.

Meta-analysis. The meta-analysis explored (i) the association between *trait* RNT and visual perspective and (ii) the association between *state* RNT and visual perspective. Results indicated that both *trait* or *state* RNT and observer perspective did not correlate. Even without including our own studies, the association between *trait* RNT and visual perspective was quite weak and the association between *state* RNT and visual perspective was non-significant. We failed to find support for moderators of these relationships.

CHAPTER 3. Mental rumination and visual perspective:

Common function and process?

Introduction

Mental rumination and visual perspective adopted in mental imagery are conceptualized as two transdiagnostic features of many disorders, such as depression or anxiety disorders (e.g., Holmes & Mathews, 2010; Watkins, 2008). Rumination, which is characterized by a predominance of verbal thoughts (e.g., Borkovec & Inz, 1990) serves an avoidance function of emotional information (e.g., Martell et al., 2013; Sibrava & Borkovec, 2006) and can have constructive or unconstructive consequences depending on its level of construal (Watkins, 2008, 2011). On the opposite side, visual perspective adopted during mental imagery of events is also conceptualized as having an avoidance function (e.g., Kenny & Bryant, 2007; Williams & Molds, 2007) and also seems to be associated with constructive or unconstructive consequences depending on the level of construal (Libby & Eibach, 2011). Despite these similarities, only three studies evidenced a positive correlation between rumination –or other forms of RNT– and the visual perspective adopted to remember an event (i.e., for *trait* RNT: Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007; for *state* RNT: Kuyken & Moulds, 2009). As replication is central to science (e.g., Cumming, 2008, 2012), the first aim of the present studies was to replicate and expand studies on the existence of a link between rumination and visual perspective. The second aim of these studies was to investigate their similar underlying process (i.e., the level of construal) and function (i.e., an avoidance strategy).

Mental rumination corresponds to behaviors and thoughts that focus one's attention on one's depressive symptoms and on the implications and consequences of these symptoms (Nolen-Hoeksema, 1991). Two forms of rumination can be distinguished: brooding and

reflection, with brooding being generally conceptualized as the “maladaptive” form of rumination and reflection as the “adaptive” form (Treyner et al., 2003). Mental rumination is one of the main forms of RNT, like worry, which is a “chain of thoughts and images, negatively affect-laden and relatively uncontrollable” (Borkovec et al., 1983, p. 10). Although rumination and worry share many similarities, they differ in their temporal orientation: Rumination is mainly past-oriented while worry is mainly future-oriented (e.g., Watkins et al., 2005).

The brooding and the reflection forms of rumination would depend on two different levels of construal: a concrete or an abstract level of construal adopted during rumination, and more generally during RNT. According to the processing-mode theory (Watkins, 2008), the processing-mode –equivalent to the level of construal– adopted during RNT is implicated in its consequences. Social-cognitive theories (Control theory, Carver & Scheier, 1982; Construal-level theory, Trope & Liberman, 2003; Action identification theory, Vallacher & Wegner, 1989) differentiate a concrete and an abstract level of construal. A concrete level of construal refers to specific, subordinate, and contextualized mental representations that specify the means and the steps of a goal, an action, or an event. This concrete level focuses on their “how” details (e.g. “how did this happen?”) Conversely, an abstract level of construal corresponds to general, superordinate, and decontextualized mental representations that give the essential meaning of a goal, an action, or an event. This abstract level focuses on their “why” aspects (e.g., “why did this happen?”). Abstract representations tend to be perceived as more psychologically distant (i.e., temporal, physical, social and likelihood distances) than concrete representations (Soderberg, Callahan, Kochersberger, Amit, & Ledgerwood, 2015; Trope & Liberman, 2003). By default, non-clinical populations tend to adopt an abstract level of construal but are able to adapt this level in response to the context or their mood (Vallacher & Wegner,

1987; Watkins, 2011). However, there is a dysregulation in the level of construal in clinical populations (e.g., suffering from depression, social anxiety), who have difficulties to flexibly adapt their level according to external or internal demands (Watkins, 2011; Watkins & Nolen-Hoeksema, 2014).

Applying this distinction to RNT, Watkins (2008) differentiates concrete and abstract RNT. Concrete RNT, characterized by a concrete level of construal, corresponds to thoughts focused on what makes the event unique (e.g., its context and constituent steps), about “how” the event took –or will take– place. Abstract RNT, characterized by an abstract level of construal, refers to thoughts about the analysis of causes, consequences, and implications of an event, about “why” this event took –or will take– place. According to the processing-mode theory (Watkins, 2008), abstract RNT is associated with unconstructive consequences in clinical and subclinical populations (i.e., people with moderate to severe levels of psychopathology or trait RNT) and concrete RNT with constructive consequences. Results of several experimental studies supported this theory. More specifically, it has been shown that abstract RNT was associated increased negative emotions (Moberly & Watkins, 2006), reduced problem solving abilities (Watkins & Moulds, 2005a) or increased negative global self-judgments (Rimes & Watkins, 2005). Above the distinction between an adaptive and a maladaptive level of construal, it is the lack of psychological flexibility in the adoption of one or the other level in function of the context or the mood which is maladaptive (Watkins, 2011). Therefore, the adoption of an abstract RNT as a default mode by clinical or subclinical populations is associated with maladaptive consequences.

Moreover, RNT is characterized by a predominance of verbal thoughts over mental images (e.g., Borkovec & Inz, 1990; Goldwin & Behar, 2012). According to the cognitive avoidance theory of worry (Sibrava & Borkovec, 2006) and the processing-mode theory

(Watkins, 2008), the verbal nature of RNT is conceptualized as a cognitive avoidance strategy of unpleasant mental images associated with an event, whether internal or external. This idea has been supported by many studies, for example by demonstrating a positive correlation between rumination and avoidance strategies (e.g., Cribb et al., 2006; Moulds et al., 2007).

The reduced concreteness theory (Stöber & Borkovec, 2002) posits that the reduction of images experienced during worry is also associated with the abstract nature of worry. In other words, thinking abstractly leads to less vivid imagery and reinforced the avoidance function of worry –or other forms of RNT–. Consistent with this theory, studies showed that worry and rumination are mostly abstract (e.g., Goldwin & Behar, 2012; McGowan et al., 2017; Watkins & Moulds, 2007) and that this abstractness positively correlates with the reduced imagery (e.g., Behar et al., 2012). In summary, RNT, including rumination and worry, is characterized by an avoidance function and an underlying process of abstraction.

Contrary to verbal thoughts, mental imagery corresponds to the visualization of past events or projections into the future (Schacter et al., 2007). These mental images can be depicted from an actor or an observer perspective (Nigro & Neisser, 1983). From an actor perspective, also named first-person perspective, people see the event from their own eyes, with the same visual perspective that they would have during the event. From an observer perspective, also named third-person perspective, people see the event from the outside, with the same visual perspective that an observer of the situation would have during the event. Memories from an actor perspective are generally more vivid, distressing, and less older (Nigro & Neisser, 1983).

Although non-clinical populations predominantly adopt an actor perspective (Nigro & Neisser, 1983; Robinson & Swanson, 1993), clinical populations tend to visualize events

from an observer perspective (e.g., Finnbogadóttir & Berntsen, 2014; Kuyken & Howell, 2006; Lemogne et al., 2006). This observer perspective is considered as a cognitive avoidance of the emotion associated with the event in clinical or subclinical populations (e.g., Kenny & Bryant, 2007; Williams & Moulds, 2007), leading to maladaptive consequences on the long-term, such as poor emotional processing (e.g., Holmes & Mathews, 2010; Williams & Moulds, 2007). Several studies supported the idea that the observer perspective adopted during mental imagery seems to have an avoidance function in these populations (e.g., Kuyken & Moulds, 2009; Williams & Moulds, 2007).

According to Libby and Eibach (2011), the kind of visual perspective is determined by the level of construal adopted: The actor perspective is characterized by a concrete level of construal and the observer perspective by an abstract level of construal. This idea has been supported by several studies showing not only the correspondence between the kind of visual perspective and the level of construal but also showing that this relationship was bidirectional (Agerström et al., 2013; Libby & Eibach, 2009; Shaeffer et al., 2015; Vasquez & Buehler, 2007).

According to Libby and Eibach's (2011) theory, the actor and the observer perspectives are not intrinsically adaptive or maladaptive in coping with negative events. Each perspective provides a certain sense of meaning to events, what they called the *meaning-making process* (e.g., Libby & Eibach, 2011). When adopting an actor – concrete– perspective, people define the event in terms of its constituent steps and focus on the information evoked by concrete features of the event (Libby & Eibach, 2011). Conversely, when adopting an observer –abstract– perspective, people make meaning by integrating the event with their broader self-knowledge. Therefore, adopting an observer perspective to visualize a negative event can result in the perception of both continuity or distance from the present self, depending on the subjective meaning derived from the

event integration into the individual broader self-knowledge (Libby & Eibach, 2011; Shaeffer, 2009).

The subjective meaning when adopting an observer perspective can be first reflected in the degree of *generalization* from the event. The generalization refers to the tendency to draw a general conclusion on the basis of isolated incidents, such as a failure, and to apply this conclusion to all events, even if they are unrelated. This generalization affects the broader sense of the self –referring to broader self-knowledge in Libby and Eibach’s theory– (Carver, 1998; Carver & Ganellen, 1983). Clinical or subclinical populations, such as suffering from depressed or anxious disorders, are characterized by a negative generalization to the self (Carver, 1998; Fulford et al., 2012).

According to Watkins (2008), one possible explanation of maladaptive consequences of an abstract level of construal is that it influences the degree of generalization in response to emotional events, especially in people having a tendency to generalize. In line with this hypothesis, an abstract level of construal has been found to promote a negative generalization compared to a concrete level of construal but only in people with higher levels of psychopathology, such as depression (Van Lier et al., 2014). Hence, adopting an observer –abstract– perspective in clinical or subclinical populations is likely to result in greater negative generalization from the event. The findings of Libby, Valenti, et al. (2011) supported this explanation: When picturing a past failure from an observer perspective, individuals with low self-esteem generalize more from the failure, compared with an actor perspective. No differences emerged in individuals with high self-esteem.

The subjective meaning derived from the event when adopting an observer perspective can also be reflected in the *subjective temporal distance* of the event. A negative event pictured from an observer perspective can be perceived as both psychologically close or distant from the self, depending on general self-knowledge

(Libby & Eibach, 2011; Shaeffer, 2009). For example, people with positive self-views, like people having a high self-esteem, tend to perceive less self-change since a positive past event when this event is pictured from an observer perspective rather than from an actor perspective. In other words, this event seems closer. No such difference emerges in people with low self-esteem (Libby, Eibach, & Gilovich, 2005). Even though this study focused on a *positive* past event, we can make the hypothesis that people with negative self-views would perceive less change since a *negative* event when picturing this event from an observer perspective rather than from an actor perspective and that no difference would be present in people with positive self-views.

This idea can seem at odds with the Construal-level theory (Trope & Liberman, 2003, 2010) in which abstract representations are perceived as more psychologically distant than concrete representations (for a meta-analysis of this bidirectional causal relationship, see Soderberg et al., 2015). However, the Construal-level theory deals with “cold” cognitive processes, i.e., neutral events, but not with “hot” cognitive processes, i.e., emotional events (Siedlecka, Capper, & Denson, 2015), and relies on objective measures of psychological distance (e.g., if an event took place yesterday or the previous year) rather than subjective feeling of psychological distance (Libby & Eibach, 2011). In the present dissertation, we are interested in “hot” events. We can make the hypothesis that adopting an observer perspective for *emotional events* in clinical or subclinical populations would result in *less* perceived temporal distance since the event.

Finally, the subjective meaning when adopting an observer perspective can also be reflected in the degree of *integrative meaning* of the event. The integrative meaning refers to attempts to make meaning of the event and drawing connections to other memories or to the identity (Singer & Blagov, 2004). The concept of integrative meaning was originally developed for studying a particular type of memories, i.e., self-defining

memories, which are vivid and affectively intense memories, repeatedly recalled, linked to other similar memories, and focused on an enduring concern or unresolved conflict of the personality (Conway, Singer, & Tagini, 2004; Singer & Blagov, 2004). Self-defining memories tend to have a high degree of integrative meaning (Singer & Blagov, 2004). Hence, adopting an observer –abstract– perspective to visualize a negative event in clinical or subclinical populations who have negative self-views is likely to “color” the event, and result in a greater perceived integrative meaning.

Hence, in clinical or subclinical populations, the adoption of an observer perspective to visualize negative events is likely to result in greater generalization and integrative meaning as well as less perceived distance. Alongside these cognitive consequences, the observer perspective would also have negative emotional consequences in vulnerable populations, such as greater negative affect. Indeed, Libby, Valenti, et al. (2011) showed that people with low self-esteem experienced greater shame when adopting an observer perspective to visualize a past failure, compared to an actor perspective. No differences emerged in people with high self-esteem.

In summary, the visual perspective theory of Libby and Eibach (2011) shares many similarities with the processing-mode theory of Watkins (2008). From a processual point of view, the level of construal seems to be implicated in both RNT and visual perspective as well as their negative consequences. From a functional point of view, RNT and the observer perspective would serve an avoidance function in clinical or subclinical populations. In light with these process and function similarities, one could ask whether RNT and the observer perspective in mental imagery are associated. Despite four correlational studies supporting a positive association between *trait* RNT and visual perspective as well as between *state* RNT and visual perspective (Finnbogadóttir & Berntsen, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007), some other studies

did not find this association (Finnbogadóttir & Berntsen, 2011; Kuyken & Moulds, 2009; Williams & Moulds, 2007).

Regarding *trait* RNT and visual perspective, Williams and Moulds (2007) found that people who used an observer perspective to visualize an intrusive memory had a greater tendency to ruminate than people who adopted an actor perspective, especially in a subsample of high dysphorics compared to a subsample of low dysphorics. Finnbogadóttir and Berntsen (2014) also evidenced that the adoption of an observer perspective to picture past or future events was positively associated with both tendencies to worry and to ruminate. However, Kuyken and Moulds (2009) did not find an association between the tendency to ruminate and the adoption of an observer perspective to visualize past negative events in patients with a history of depression. In the same way, Finnbogadóttir and Berntsen (2011) did not show a difference in the visual perspective adopted to picture past or future events between high and low worriers (but see also Ayduk & Kross, 2010, who found a negative correlation between the observer perspective and tendency to ruminate).⁵ Regarding *state* RNT and visual perspective, Kuyken and Moulds (2009) showed that patients with a history of depression adopted more an observer perspective to visualize past negative events that were frequently remembered. On the contrary, Williams and Moulds (2007) did not find an association between the visual perspective adopted to picture an intrusive memory and rumination on this memory.

Although RNT and visual perspective adopted in mental imagery seem to be processually (i.e., the level of construal, Libby & Eibach, 2011; Watkins, 2008) and functionally (i.e., an avoidance strategy, Kenny & Bryant, 2007; Sibrava & Borkovec, 2006) associated, studies have given inconsistent results regarding their relationship. In

⁵ Some studies used a total score of trait rumination (Finnbogadóttir & Berntsen, 2014, Study 2; Williams & Molds, 2007) or trait worry (Finnbogadóttir & Berntsen, 2011, 2014, Study 2), whereas other studies used a subscore of maladaptive rumination (Kuyken & Moulds, 2009).

light with these contradictory findings and the need for replication in science (e.g., Cumming, 2008, 2012), the first aim of the studies of this chapter was to explore the link between RNT, more specifically mental rumination, and visual perspective (Studies 1a, 1b, and 1d). Based on similarities between RNT and visual perspective, we hypothesized that (1) rumination would be positively associated with the adoption of an observer perspective.

As previous studies on their relationship (i.e., Finnbogadóttir & Berntsen, 2011, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007) did not measure the level of construal and avoidance in parallel of visual perspective and rumination, the second aim of these studies was to expand previous findings on the underlying function and process of rumination and perspective. More specifically, we aimed to examine the associations between rumination or visual perspective and (2) avoidance strategies, i.e., cognitive and experiential (Studies 1a and 1b) as well as (3) the level of construal (Studies 1a, 1b, 1c, & 1d). Based on the conceptualizations of rumination and the observer perspective as an avoidance strategy (Kenny & Bryant, 2007; Sibrava & Borkovec, 2006), we hypothesized that (2) higher levels of rumination or observer perspective would be positively correlated with avoidance strategies, especially in clinical or subclinical populations. According to the processing-mode theory (Watkins, 2008) and Libby and Eibach's theory (2011), we predicted that (3) higher levels of rumination or observer perspective would be associated with a more abstract level of construal.

Finally, previous studies (Finnbogadóttir & Berntsen, 2011, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007) did not measure the consequences of the observer perspective either. Based on Libby and Eibach's theory (2011), the adaptiveness of the observer perspective depends on the individual broader self-knowledge, which gives to the event a subjective meaning that can be reflected in its integrative meaning,

generalization, and subjective temporal distance. The third aim of these studies was therefore to examine the correlates of the observer perspective in clinical or subclinical populations, i.e., the integrative meaning, generalization, and subjective temporal distance (Studies 1a, 1b, and 1d) as well as their interrelations and their associations with the emotion response (Studies 1a and 1b). More specifically, according to the theory of Libby and Eibach (2011), we hypothesized that (4) (a) higher levels of psychopathology would be associated with more generalization and integrative meaning as well as less perceived temporal distance only to the extent that participants pictured the event from an observer perspective. We also hypothesized that (b) these indicators would positively correlate and be associated with a greater emotional response.

Study 1a

The Study 1a investigated (1) the association between rumination and visual perspective as well as their (2) function and (3) underlying process in a student sample. As clinical populations tend to adopt by default an abstract level of construal and thereby lack psychological flexibility (Watkins, 2011), the Study 1a explored the association between rumination, visual perspective, and psychological flexibility. Finally, this study examined (4) the influence of the level of psychopathology in combination with the visual perspective on integrative meaning and the association between integrative meaning and emotional response.

More concretely, after answering psychopathology measures, participants answered questions about their psychological flexibility as well as their tendencies to avoid experiential information and ruminate. Then, they pictured a past failure and rated their visual perspective and its correlates. We predicted that (1) participants with higher levels of rumination would use greater observer perspective to picture the failure

(Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007), that higher levels of rumination or observer perspective would be associated with (2) more experiential avoidance, especially in people with higher levels of psychopathological symptoms (Sibrava & Borkovec, 2006; Williams & Moulds, 2007), and (3) less psychological flexibility (Libby & Eibach, 2011; Watkins, 2011). Finally, we predicted that (4) (a) for participants who adopted an observer perspective, higher levels of psychopathology would be associated with higher integrative meaning but not for participants who adopted an actor perspective (Libby & Eibach, 2011), and that (b) greater integrative meaning would be associated with more distress when remembering the event (Libby & Eibach, 2011).

Method

Participants

Three hundred and twenty undergraduates completed this study. They were recruited from introductory classes on a voluntary basis. However, due to missing data ($n = 14$) and participants who did not respect instructions about the age of the memory ($n = 3$) (see the Results section for more details), the final sample was composed of 303 participants (227 women, 74.92%, mean age = 19.81, $SD = 2.31$). The only exclusion criterion was not being fluent in French. In the final sample, 62 participants practiced meditation or mindfulness, 5 participants currently took a treatment for psychological disorders, and 32 participants had already taken a treatment for this.

Material

Rumination measure.

Ruminative Responses Scale – 10 items (RRS-10, Treynor et al., 2003; French translation by Guimpel, Douilliez, & Philippot, 2012). We used the 10-item version of the original RRS, a 22-item self-report questionnaire that measures frequency of rumination over the last week. Each item is scored on a 4-point fully labeled scale ranging from 1 (*almost never*) to 4 (*almost always*). The total score can be subdivided in two scores corresponding to the brooding and reflection dimensions of rumination. In the current study, internal consistencies for the RRS-10 Total ($\alpha = .78$) and each subscale (Brooding, $\alpha = .72$ and Reflection, $\alpha = .76$) were good.

Psychopathological measures.

State Trait Anxiety Inventory – Trait version (STAI-T, Spielberger, Gorsuch, Luschene, Vagg, & Jacobs, 1983; French validation by Gauthier & Bouchard, 1993). The STAI-T is a 20-item self-report questionnaire that measures symptoms of trait anxiety with a 4-point scale ranging from 1 (*almost never*) to 4 (*almost always*). Higher scores indicate greater anxiety. Internal consistency in this sample was high ($\alpha = .92$).

Beck Depression Inventory – II (BDI-II, Beck, Steer, & Brown, 1996; French validation by Beck, Steer, & Brown, 1998). The BDI-II is a 21-item self-report questionnaire that measures severity of depression. Items are rated on 4-point scale ranged from 0 to 3, with higher scores indicating higher severity of depression. The Cronbach's alpha of this scale in this sample was high ($\alpha = .91$).

Functional measure.

Multidimensional Experiential Avoidance Questionnaire (MEAQ, Gámez, Chmielewski, Kotov, Ruggero, & Watson, 2011; French translation by Monestès,

Baeyens, Cheval, & Villatte, unpublished)⁶. The MEAQ is a 62-item self-report questionnaire that measures experiential avoidance, with six subscales: behavioral avoidance, distress aversion, procrastination, distraction/suppression, repression/denial, and distress endurance. Items are rated on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). In the present study, we only used the total score, with higher scores indicating higher experiential avoidance. Clinical and subclinical populations have high scores of experiential avoidance. Internal consistency in this sample was high ($\alpha = .88$).

Processual measure.

Acceptance and Action Questionnaire – II (AAQ-II, Bond et al., 2011; French validation by Monestès, Villatte, Mouras, Loas, & Bond, 2009). The AAQ-II comprises 7 reversed scored items measuring psychological flexibility on a 7-point scale ranging from 1 (*never true*) to 7 (*always true*). Lower scores indicate lower psychological flexibility. Clinical and subclinical populations have low scores. Internal consistency for this scale in this sample was high ($\alpha = .87$).

Memory characteristics measures. As previous studies (e.g., Nigro & Neisser, 1983; Robinson & Swanson, 1993) have demonstrated that actor and observer mental images differ according to some characteristics of memories (i.e., vividness, age of the event, distress while remembering the event), these characteristics were used as control variables of visual perspective. Participants indicated the age of their memory by choosing a unit of measurement between “days”, “months”, or “years” and wrote the approximate number (e.g., “days” and “7” for one week). We computed the age of the memory. The vividness of the memory was assessed using a VAS ranging from 1 (*vague*

⁶ A preliminary validation work of this questionnaire has been presented during a poster session.

Baeyens, C., Philippot, P., Bouvard, M., Dethier, V., Douce, P., & Monestès, J.-L. (2015, Mai). *Données préliminaires de validation du Questionnaire Multidimensionnel d'Évitement Expérientiel*. Poster présenté aux journées du Groupe de Réflexion en Psychopathologie Cognitive, Poitiers, France.

and dim) to 9 (*perfectly clear and vivid*) (adapted from Libby, Valenti, et al., 2011). Finally, participants assessed their distress while remembering the memory on a VAS ranging from 1 (*no distress*) to 9 (*extremely intense distress*) (adapted from Williams & Moulds, 2007).

Visual perspective measure. The scale used in this study was adapted from Williams and Moulds (2007). Visual perspective was measured on a VAS ranging from -3 (*totally in actor perspective*) to +3 (*totally in observer perspective*).

Integrative meaning measure. As the integrative meaning refers to attempts to make meaning and drawing connections to the self (Singer & Blagov, 2004), we adapted continuity and meaning measures from Vignoles, Manzi, Regalia, Jemmolo, and Scabini (2008). Participants rated the extent in which the memory gives them “a sense of continuity (between past, present, and future)” and “a sense of meaning” in their lives on two VASs ranging from 0 (*not at all*) to 10 (*extremely*). These answers were averaged to create a single measure of integrative meaning. Internal consistency in this sample was high ($\alpha = .73$).

Procedure

Participants completed the questionnaires in a group session in a large auditorium. After providing their informed consent to take part in the survey, they completed demographic measures (i.e., level of education, current employment, date, age, and gender) and trait questionnaires (i.e., MEAQ, AAQ-II, STAI-T, BDI-II, and RRS-10). Then, participants were asked to remember a memory of a past failure with the instructions used by Libby, Valenti, et al. (2011). Specifically, they were asked to remember:

“...a time when you failed at something that was important to you. This might be a social or interpersonal failure, an academic failure, a failure in a competitive event, or any time when you failed at something that was important to you. This situation should have taken place less than 5 years ago and should be a specific situation lasting less than one day, that occurs in a particular time and place”.

Participants were then asked to report the approximate age of the event and to describe it in few words. Then, they closed their eyes and formed a visual image of the event for one minute. While keeping it in mind, they assessed the vividness of their images and their actual emotional distress while thinking about the event. Participants received information related to the visual perspective. Specific instructions are:

“...memories are often accompanied by visual images. These pictures can be depicted from an actor or from an observer perspective. From an actor perspective, we see the event from the same perspective that we originally did. In other words, we see our surroundings through our own eyes. This perspective is different from an observer perspective, in which we see the event from the outside. In other words, in our memory, we can see ourselves as well as our surroundings” (adapted from Libby, Valenti, et al., 2011).

Participants were then asked to estimate the relative proportion of images experienced from each perspective and the integrative meaning. Finally, they were asked whether they had an experience in meditation or mindfulness and whether they had already taken or currently took a treatment for psychological disorders (see Appendix A for the protocol of the study).

Results

Preliminary analyses

Missing data. Among the 320 participants, 95 participants (29.69%) had missing data. However, participants had predominantly one or two missing observations, except some participants who had a lot of missing observations (e.g., more than 5% per participant). Missing data represented only 1.04% of total observations. According to Tabachnick and Fidell's (2006) recommendations, if fewer than 5% of data are missing, any procedure for handling missing data yields similar results. Moreover, data were missing completely at random (Little's MCAR test, $\chi^2 = 9301.48$, $df = 9194$, $p = .21$). Therefore, we chose to exclude participants with more than 5% of missing data ($n = 14$). Moreover, we excluded participants who did not respect instructions about the age of the memory and recalled an older memory ($n = 3$).

Memory characteristics and visual perspective. Memories were generally more than one year older ($M = 443.26$, approximately 1 year and 3 months, $SD = 508.97$), vivid ($M = 7.09$, $SD = 2.14$), and associated with a moderate distress while remembering the event ($M = 4.56$, $SD = 2.46$).

Regarding the visual perspective adopted ($M = -.25$, $SD = 2.21$), 145 participants (48.01%) visualized the failure from an actor perspective (with 77 participants entirely from an actor perspective, 25.50%), 22 participants (7.28%) used a blended perspective, and 135 participants (44.71%) pictured the failure from an observer perspective (with 38 entirely from an observer perspective, 12.58%).⁷

Visual perspective was not associated with the vividness of the memory ($r = -.02$, $p = .71$), the distress while remembering the event ($r = -.04$, $p = .49$) or the age of the memory ($r = -.02$, $p = .72$). Older memories were less distressing ($r = -.24$, $p < .001$) but

⁷ One participant did not answer the visual perspective question (i.e., $N = 302$ for visual perspective).

not less vivid ($r = -.11, p = .05$) and distressing and vivid memories were more distressing ($r = .34, p < .001$).

Associations between psychopathology and trait measures. As shown in Table 1, measures of psychopathology (i.e., BDI and STAI-T) positively correlated. Moreover, they were negatively associated with psychological flexibility measure (i.e., AAQ-II) and positively correlated with experiential avoidance measure (i.e., MEAQ). Finally, they positively correlated with rumination measures (RRS-10 Reflection, RRS-10 Brooding, RRS-10 Total) but not with visual perspective.

Given the strong positive correlation between the BDI and STAI-T scores ($r = .75, p < .001$), we created a general score of *psychopathology* by converting BDI and STAI-T scores to z-scores and averaging them for each participant. This method of combining several symptoms measures has been used in previous studies (e.g., Aldao & Nolen-Hoeksema, 2012; Wong & Moulds, 2010).

Table 1
Correlations, Means, and Standard Deviations for Trait Measures, Visual Perspective, Integrative Meaning, and Distress.

	1	2	3	4	5	6	7	8	9	10
1. MEAQ	-									
2. AAQ	-.56***	-								
3. STAI-T	.39***	-.74***	-							
4. BDI	.34***	-.66***	.75***	-						
5. RRS-10 Total	.25***	-.49***	.52***	.52***	-					
6. RRS-10 Reflection	.07	-.27***	.29***	.34***	.84***	-				
7. RRS-10 Brooding	.35***	-.56***	.59***	.53***	.81***	.36***	-			
8. Visual perspective	-.11	.08	.02	-.01	.03	-.00	.05	-		
9. Integrative meaning	.10	-.26***	.31***	.33***	.28***	.19**	.28***	-.00	-	
10. Distress	.28***	-.42***	.42***	.46***	.29***	.13*	.36***	-.04	.51***	-
<i>M</i>	201.27	32.01	48.96	13.19	22.76	11.22	11.52	-.25	5.21	4.56
<i>SD</i>	36.68	9.19	10.12	9.92	5.70	3.60	3.30	2.21	2.60	2.46

Note. MEAQ = Multidimensional Experiential Avoidance Questionnaire; AAQ-II = Acceptance and Action Questionnaire II; STAI-T = State Trait Anxiety Inventory – Trait version; BDI-II = Beck Depression Inventory II; RRS-10 = 10-item Ruminative Response Scale. $N = 251-303$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Main analyses

An alpha of .01 was used for all statistical tests to strike a balance between avoiding Type I errors because of the large number of analyses and avoiding Type II errors (e.g., O’Keefe, 2003).

(1) Association between visual perspective and mental rumination. As shown in Table 1, contrary to our hypothesis, visual perspective did not correlate with rumination.⁸

(2) Interaction between psychopathology and mental rumination or visual perspective on avoidance. To test the prediction that higher levels of rumination or observer perspective would predict more experiential avoidance, especially in participants presenting higher levels of psychopathological symptoms, we used multiple hierarchical regressions with psychopathology and rumination or observer perspective as predictors. All predictors were centered and individual variables were only interpreted when the overall model was significant in order to reduce Type I errors (Cohen, Cohen, West, & Aiken, 2003).

Rumination. For rumination, we used the RRS-10 Brooding subscale, which is considered as the maladaptive form of rumination. However, as the RRS-10 Brooding and psychopathology scores are highly correlated ($r = .58, p < .001$), there were problems with multicollinearity between them in the multiple regression.⁹ Therefore, instead of testing the interaction between the RRS-10 Brooding and the psychopathology on the MEAQ, we only tested the correlation between the RRS-10 Brooding and the MEAQ: As

⁸ Results were the same according to significance and direction even after the exclusion of participants who did meditation or mindfulness, or currently took or had taken a treatment for psychological disorders.

⁹ Consistent with our reasoning, if we made the multiple hierarchical regression with centered predictors (i.e., the RRS-10 Brooding and the psychopathology scores), investigations revealed problems with multicollinearity: The average VIF is greater than 1, reflecting a potential bias in the regression (Bowerman & O’Connell, 1990; cited by Field, 2013). Results of the multiple hierarchical regression indicated that there were a main effect of the RRS-10 Brooding scores and a main effect of the psychopathology scores but no interaction effect.

shown in Table 1, the Brooding subscale –and rumination measures more generally– were associated with more experiential avoidance.

Visual perspective. Initial investigations revealed no issues with multicollinearity, linearity, homoscedasticity, and normality in the multiple hierarchical regressions. To detect multivariate outliers, we looked for standardized residuals greater than $|3.29|$ (Field, 2013). Mahalanobis distances were calculated between the variables to see if any values were greater than the critical value at $p < .01$ following Barnett and Lewis's table (1978) (in this case, 21.47). We also followed Stevens's recommendations (2002; cited in Field, 2013) for leverage values: Critical values are higher than $3*((k+1)/n)$ (i.e., in this case, .04). We followed Field's (2013) recommendations for Cook's distance (i.e., values greater than 1), standardized DFBETA (i.e., values greater than 1), standardized DFFIT (i.e., values had to be approximately equal to 0) and the covariance ratio (i.e., which had to be approximately equal to 1). We removed participants who scored above at least two of these criteria. Multivariate outliers are reported in each regression as well as results without their exclusion in footnotes.

One participant with higher leverage and Mahalanobis values was excluded from the analyses.¹⁰ As shown in Table 2, in the first step, we entered psychopathology scores. The model was significant, $F(1, 247) = 52.72, p < .001$. The inclusion of psychopathology scores explained a significant variance of 18%. Higher psychopathology scores predicted greater experiential avoidance, $\beta = .42, t(299) = 7.26, p < .001$. At the second step, when entering the visual perspective scores, the overall model remained significant, $F(1, 246) = 27.08, p < .001$. However, the visual perspective did not predict experiential avoidance, $t(298) = -1.17, p = .25$. At the third step, we entered the interaction term (i.e., psychopathology x visual perspective scores). The overall model remained significant,

¹⁰ Without his exclusion, results remained the same. After the exclusion of this individual, some other participants ($n = 9$) had leverage values greater than .04 but their exclusion did not affect results.

$F(1, 245) = 18.48, p < .001$. However, inconsistent with our prediction, visual perspective did not moderate the effect of psychopathology on experiential avoidance, $t(297) = -1.12, p = .27$.

(3) Associations between visual perspective or mental rumination and psychological flexibility. As shown in Table 1, consistent with our predictions, rumination measures were associated with less psychological flexibility. However, visual perspective did not correlate with psychological flexibility.¹¹

(4) (a) Interaction between psychopathology and visual perspective on integrative meaning. We also used multiple hierarchical regressions to test our assumptions, as for experiential avoidance. We entered psychopathology scores in a first step (Model 1), visual perspective scores in a second step (Model 2), and their interaction in a third step (Model 3). One participant with higher leverage and Mahalanobis values was excluded from the analyses.¹² As shown in Table 3, the first model was significant, $F(1, 299) = 33.96, p < .001$. The inclusion of psychopathology scores explained a significant variance of 10%. Higher psychopathology scores predicted greater integrative meaning, $\beta = .32, t(299) = 5.83, p < .001$. The second model and third models remained significant, $F(1, 298) = 16.94, p < .001$ for Model 2; $F(1, 297) = 11.27, p < .001$ for Model 3. However, nor the visual perspective, $t(298) = -.19, p = .85$, nor its interaction with psychopathology, $t(297) = .17, p = .87$, predicted integrative meaning.

(4) (b) Association between integrative meaning and emotional response. As shown in Table 1, consistent with our prediction, greater integrative meaning was associated with more distress when remembering the event.

¹¹ Results were similar even after the exclusion of participants who did meditation or mindfulness, or currently took or had taken a treatment for psychological disorders.

¹² Without his exclusion, results remained the same. After the exclusion of this individual, some other participants ($n = 8$) had leverage values greater than .04 but their exclusion did not affect results.

Table 2

Multiple Hierarchical Regressions Predicting Experiential Avoidance from Psychopathology, Visual Perspective, and Their Interaction.

Variable	Experiential avoidance											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI
Constant	201.13	2.11		[196.98, 205.29]	201.25	2.11		[197.09, 205.40]	201.07	2.12		[196.90, 205.24]
Psychopathology	16.31	2.25	.42***	[11.88, 20.73]	16.10	2.25	.41***	[11.66, 20.53]	15.78	2.27	.41***	[11.32, 20.25]
Visual perspective					-2.49	2.14	-.07	[-6.70, 1.72]	-2.42	2.14	-.07	[-6.64, 1.79]
Psychopathology * Visual perspective									-2.50	2.24	-.07	[-6.92, 1.92]
<i>R</i> ²	.18				.18				.19			
<i>F</i>	52.72***				27.08***				18.48***			
ΔR^2	.18				.01				.00			
ΔF	52.72***				1.36				1.25			

Note. *B* = Regression coefficient; *SE_B* = Standard error for the regression coefficient; β = Change in the outcome due to a unit of change in the predictor; CI = Confidence intervals; *R*² = Variance in the outcome accounted by the model; *F* = F-ratio. ΔR^2 = Variation in the *R*²; ΔF = Variation in the F-ratio. 95% CI reported in brackets¹³. *N* = 249.

* *p* < .05. ** *p* < .01. *** *p* < .001.

¹³ In order to simplify tables, the following regression tables will not include details about what each statistic represents (e.g., *B*, *SE_B*, ΔR^2).

Table 3

Multiple Hierarchical Regressions Predicting Integrative Meaning from Psychopathology, Visual Perspective, and Their Interaction.

Variable	Integrative meaning											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI
Constant	5.22	.14		[4.94, 5.50]	5.22	.14		[4.94, 5.50]	5.22	.14		[4.94, 5.50]
Psychopathology	.89	.15	.32***	[.59, 1.19]	.89	.15	.32***	[.59, 1.19]	.89	.16	.32***	[.59, 1.20]
Visual perspective					-.03	.14	-.01	[-.31, .25]	-.03	.14	-.01	[-.31, .25]
Psychopathology * Visual perspective									.03	.15	.01	[-.28, .33]
<i>R</i> ²	.10				.10				.10			
<i>F</i>	33.96***				16.94***				11.27***			
ΔR^2	.10				.00				.00			
ΔF	33.96***				.04				.03			

Note. CI = confidence intervals. 95% CIs reported in brackets. *N* = 301.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Discussion

The aim of this first study was to investigate the associations (1) between rumination and visual perspective as well as with (2) an avoidant strategy and (3) psychological flexibility. This study also examined (4) the cognitive and emotional correlates of the visual perspective in function of the level of psychopathological symptoms. Specifically, we predicted that (1) mental images in participants with higher levels of rumination would be more pictured from an observer perspective. We also predicted that higher levels of rumination or observer perspective would be associated with (2) more experiential avoidance, especially in participants with higher levels of psychopathological symptoms and (3) less psychological flexibility. Finally, we hypothesized that (4) (a) for participants who adopt an observer perspective to picture the event, higher levels of psychopathology would be associated with greater integrative meaning but not for those who adopted an actor perspective. We also predicted that (b) higher integrative meaning would be associated with higher distress while remembering the event.

Inconsistent with our first prediction, trait rumination was not associated with the visual perspective adopted. As previously mentioned, previous results have been rather inconsistent regarding this association, some studies evidencing this association (Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007) while others did not (Finnbogadóttir & Berntsen, 2011; Kuyken & Moulds, 2009). One factor that differentiates studies is the way that rumination was considered in association with the visual perspective: Some studies explored *trait* rumination (Finnbogadóttir & Berntsen, 2011, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007), as we did, while others explored *state* rumination (Kuyken & Moulds, 2009; Williams & Moulds, 2007). Even though we could hypothesize that adopting an abstract level of construal would globally

determine both the tendency to ruminate in a maladaptive form and the adoption of an observer perspective, it might also be possible that the association appears when ruminating or having an image about a specific situation. In other words, the association would be evidenced between *state* rumination –and more specifically abstract state rumination– and the observer perspective adopted in mental imagery.

Regarding our following prediction, rumination was associated with more experiential avoidance and less psychological flexibility. Consistent with the processing-mode theory of Watkins (2008) and the cognitive avoidance theory of worry (Sibrava & Borkovec, 2006), individuals who have RNT, such as rumination, may use it as a way to – unsuccessfully– avoid the emotional information associated with the event. The avoidance function of rumination is also reinforced by the adoption of an abstract level of construal whatever the context –internal or external–, leading to a lack of psychological flexibility (Watkins, 2011). Our study thus replicated a study conducted by Cribb et al. (2006) on the negative association between rumination, as measured by the RRS, and psychological flexibility, as measured by the AAQ. It is important to underline that our measure of avoidance, the MEAQ, assesses different forms of avoidance, which can be cognitive or behavioral. Therefore, the observed correlation between rumination and the MEAQ is not a direct test of the processing-mode and the cognitive avoidance theories (Sibrava & Borkovec, 2006; Watkins, 2008) but rather an indirect support that rumination might be one strategy among other strategies.

When looking at the association between experiential avoidance and the visual perspective, even if the observer perspective had also been considered as associated with an abstract level of construal (Libby & Eibach, 2011) and an attempt to cognitively avoid emotion in clinical or subclinical populations (Kenny & Bryant, 2007; Williams & Moulds, 2007), we did not find an association between visual perspective and experiential

avoidance –whatever the level of psychopathology– or psychological flexibility. One of our intriguing and counterintuitive results when considering previous studies (e.g., Finnbogadóttir & Berntsen, 2014; Kuyken & Howell, 2006; Lemogne et al., 2006) is that our participants with higher levels of anxio-depressive symptoms did not use more observer perspective in mental images.

Regarding our final hypothesis, individuals with greater levels of anxio-depressive symptoms perceived a greater integrative meaning but this meaning was independent of the visual perspective. As expected, the perception of more integrative meaning was associated with greater distress while remembering the event.

To summarize, we did not find some expected results regarding the intensity of psychopathological symptoms and the tendency to ruminate. However, none of our predictions about the visual perspective have been supported by our results. As previously discussed, one potential limitation of our study is that we only assessed *trait* rumination. Therefore, *state* rumination on the recalled failure will also be measured in the following study as well as a measure differentiating between concrete and abstract trait RNT, in order to explore the association between abstract RNT and the observer perspective.

Another potential limitation concerns the assessment of psychological flexibility. One might highlight two major problems with the measure used. First, at a conceptual level, being inflexible does not necessarily means being in an abstract mindset. Indeed, inflexibility could also be characterized by a concrete mindset, whatever the context. Second, at a methodological level, the measure of psychological flexibility, the AAQ, has been strongly criticized (e.g., Rochefort, Baldwin, & Chmielewski, 2017; Wolgast, 2014): There was an overlap in the way psychological flexibility has been operationalized and measures of psychological well-being, suggesting substantial problems with the discriminant validity of the AAQ. The AAQ would function as a measure of negative

affect or distress rather than measuring psychological flexibility (Rocheffort et al., 2017; Wolgast, 2014). Therefore, it seems necessary to replicate these findings with a direct measure of abstraction. The following study will include a direct measure of *state* and *trait* level of construal.

As previously discussed, our avoidance measure assesses different forms of avoidance. As we were predominantly interested in cognitive avoidance strategies associated with rumination and visual perspective (Sibrava & Borkovec, 2006; Williams & Moulds, 2007), the following study will include a measure of cognitive avoidance.

A final potential limitation might be due to our measures of the observer perspective correlates. We used a new measure of integrative meaning, based on Vignoles et al. (2008). To increase the comparability with other results, the following study will also include a generalization measure used by Libby, Valenti, et al. (2011) as well as a measure of the subjective temporal distance of the event (Siedlecka et al., 2015). Moreover, to measure the emotional response in this study, we have used a single item assessing distress. Therefore, in the following study, we will use another measure of emotional response.

Study 1b¹⁴

The aims of the second study were similar to the ones in the first study, except that we included a measure of state rumination (i.e., on a specific situation), a measure of abstract and concrete RNT, new measures of the avoidance, the level of construal (state

¹⁴ This study has been presented during a poster session.

Douce, P., Baeyens, C., & Blatier, C. (2016, Juin). *Rumination et imagerie: Processus commun et fonction identique?*. Poster présenté aux Journées du Groupe de Réflexion en Psychopathologie Cognitive (GREPACO), Chambéry, France.

and trait) and the subjective meaning (i.e., integrative meaning, subjective temporal distance, and state generalization) as well as distress.

We hypothesized that (1) higher levels of rumination (state and trait) and more adoption of an observer perspective would be associated (Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007), that higher levels of rumination or observer perspective would be associated with a tendency to report (2) more cognitive avoidance strategies, especially in people with higher levels of psychopathology (Sibrava & Borkovec, 2006; Williams & Moulds, 2007) and (3) an abstract level of construal (Libby & Eibach, 2011; Watkins, 2011). We also hypothesized that (4) (a) when adopting an observer perspective, higher levels of psychopathology would be associated with (i) higher integrative meaning, (ii) less subjective temporal distance, and (iii) more state generalization and (b) that these cognitive measures would correlate and be associated with greater emotional response (Libby & Eibach, 2011).

Method

Participants

A total of 235 participants (168 women, 71.49%; mean age = 29.88, $SD = 12.43$) completed the online survey. They were recruited by an advertisement delivered by email or social networks. The two exclusion criteria were being less than 18 years old and not being fluent in French. Eleven participants (4.68%) who did not respect instructions about the recalled memory were excluded, so that 224 participants (159 women, 70.98%; mean age = 29.78, $SD = 12.37$) were included in the final sample. Participants were predominantly undergraduates (53.57%), employees (15.18%), or executives (14.29%).

Material

Rumination measures.

Ruminative Responses Scale (Guimpel et al., 2012; Treynor et al., 2003). The 22-item version of the RRS, measuring the frequency of trait rumination over the last week, was used. Each item is scored on a 4-point fully labeled scale ranging from 1 (*almost never*) to 4 (*almost always*). The RRS-22 contains three subscales (i.e., Brooding, Reflection, and Depression), allowing to compute a global trait rumination score and three sub-scores. Internal consistency in the current sample was acceptable for the RRS-22 Total ($\alpha = .89$) as well as for the Brooding ($\alpha = .75$), Reflection ($\alpha = .66$) and Depression ($\alpha = .87$) subscales. Based on the recommendations of Treynor et al. (2003), we did not use the Depression subscale.

Mini Cambridge Exeter Repetitive Thought Scale (Mini-CERTS, Douilliez et al., 2014). The Mini-CERTS is a 16-item self-report questionnaire that measures the trait level of construal adopted during RNT. Each item is scored on a 4-point fully labeled scale ranging from 1 (*almost never*) to 4 (*almost always*). The Mini-CERTS contains two subscales, one measuring concrete RNT (e.g., “I have very rapid impressions and intuitions of what is happening around me”) and the other measuring abstract RNT (e.g., “I think about why I can’t get started on something”).¹⁵ Internal consistency for these two scores in this sample was good (respectively $\alpha = .75$ and $\alpha = .75$).

State rumination. This measure refers more precisely to ruminative thoughts focused *on the recalled event*. Participants indicated the extent to which they had ruminated about this failure over the last month on four items (adapted from Brewin et al., 2009). The items measure frequency, interference, uncontrollability, and distress associated with rumination on the failure on VASs ranging from 0 to 10. The responses

¹⁵ To simplify and homogenize our speech, we will refer to the subscores of the Mini-CERTS as “abstract and concrete trait *rumination*” rather than “abstract and concrete trait *RNT*”.

were summed so that high scores indicated high state rumination on the failure. Internal consistency of this scale was high ($\alpha = .89$).

Psychopathological measures.

Center of Epidemiologic Studies for Depression scale (CES-D, Radloff, 1977; French validation by Fuhrer & Rouillon, 1989). The CES-D is a 20-item self-report questionnaire that assesses symptoms of depression. Each item is scored on a 4-point scale ranging from 0 (*never or rarely*) to 3 (*frequently or all the time*) addressing how frequently the symptom has been experienced within the last week, with higher scores indicating greater depression. Internal consistency for the CES-D in this sample was high ($\alpha = .91$).

State Trait Anxiety Inventory – Trait version (STAI-T, Gauthier & Bouchard, 1993; Spielberger et al., 1983). As in Study 1a, the STAI-T measures symptoms of anxiety.¹⁶ Internal consistency in this sample is high ($\alpha = .93$).

Processual measures.

Behavior Identification Form (BIF, Vallacher & Wegner, 1989; French validation by Belayachi & Van der Linden, *submitted*). The BIF contains 23 actions (e.g., “To brush teeth”), each described in an abstract (e.g., “To prevent cavities”, coded as 1) and a concrete way (e.g., “To shake a brush in his/her mouth”, coded as 0). Participants choose which description best describes the action. These abstract responses were summed to create an index of trait abstraction. Internal consistency for the BIF in this sample was good ($\alpha = .76$).

State level of construal of the memory. Five items adapted from Burrus and Roesse (2006) assessed the level of construal adopted to think about the failure on VASs ranging

¹⁶ Due to confusion between the trait and the state versions of the STAI, the 4-point scale of the trait version used in this study was labeled from “no” to “yes” rather than from “almost never” to “almost always”.

from -5 to +5: importance (from *not at all important* to *extremely important*), priority (from *low priority* to *high priority*), centrality (from *secondary in my life* to *central in my life*), short- or long-term goal (from *short-term goal* to *long-term goal*), focus on how or why (from *how* to *why*). These items were summed, so that negative scores indicated a concrete level of construal and vice-versa. Although acceptable, the Cronbach's alpha of this scale was relatively low ($\alpha = .73$). Excluding the fifth item of the scale (i.e., how vs why) resulted in a better alpha ($\alpha = .81$). Therefore, we used the four items as the state level of construal score in the analyses.

Functional measures.

Cognitive Avoidance Questionnaire (CAQ, Questionnaire d'Evitement Cognitif, Gosselin et al., 2002). The CAQ is a 25-item self-report questionnaire assessing cognitive avoidance. Each item is scored on a 5-point scale ranging from 1 (*not at all*) to 5 (*totally*), so that higher scores indicating greater cognitive avoidance. Internal consistency in this sample was good ($\alpha = .94$).

Visual perspective measure. The measure was the same as in Study 1a.

Memory characteristics measures. As in Study 1a, participants indicated the age of their memory, its vividness, and their distress while remembering the event. The only modification was the use of two VASs ranging from 1 to 10 for vividness and distress.

Measures of cognitive correlates of the visual perspective.

Subjective temporal distance. Participants indicated the subjective temporal distance of the event on a VAS ranging from 1 (*close*) to 10 (*far away*).

Integrative meaning. This measure was similar as the one used in Study 1a. Internal consistency in this sample was relatively low ($\alpha = .58$).

Attitude Toward Self Scale – State Generalization (ATS, Libby, Valenti, et al., 2011). Participants rated their tendency to generalize from the failure they recalled on 4

items. These items were adapted by Libby, Valenti, et al. (2011) from the Attitude Toward Self Scale (ATS, Carver & Ganellen, 1983) so that they referred to state generalization, rather than trait tendency to generalize. Participants rated on a 5-point scale ranging from 1 (*not at all*) to 5 (*extremely*) their agreement with four statements (e.g., “When I think about this event, I feel like I am a failure”). The responses were summed to create an index of state generalization (Libby, Valenti, et al., 2011). Although acceptable, the Cronbach’s alpha of this scale was relatively low ($\alpha = .72$). As in Van Lier, Moulds, et al. (2015), we finally excluded the second item of the scale, which resulted in a better alpha for the scale ($\alpha = .81$). Therefore, we ran the analyses with three items as the state generalization score.

Measures of emotional correlates of the visual perspective.

Positive And Negative Affect Scale – Negative Affect subscale (PANAS, D. Watson, Clark, & Tellegen, 1988; French validation by Gaudreau, Sanchez, & Blondin, 2006). The negative affect subscale of the PANAS assesses the nature and intensity of negative emotions. Participants indicate to what extent they “...feel that way right now” for 10 negative emotion words (e.g., ashamed) using a 5-point fully labeled scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). These responses were summed to create an index of negative affect. In this study, internal consistency of this scale was high ($\alpha = .84$).

Procedure

The study protocol was approved by the local research ethical committee and the French National Commission for Data Protection and Liberties (CNIL¹⁷, France) (see Appendix B1). The survey was created on the Qualtrics® platform. Participants received

¹⁷ The CNIL (Commission Nationale Informatique et Libertés) is a French commission monitoring the storage of sensitive information in studies using internet (e.g., survey platforms).

an email offering them to participate in a 30-min online survey about “mental thoughts and images during the recall of negative past events”. After providing their informed consent to take part in the survey, they were asked to recall a specific memory of a past failure having taken place in the last 5 years (see Libby, Valenti, et al., 2011 and Study 1a), to write down a short description of it and to estimate the age of the event.

Then, they were asked to close their eyes, form a visual image of the event for one minute, and to assess the vividness of their images and their actual emotional distress while thinking about the event. After having received the information related to the actor and observer perspectives (see Study 1a), they estimated the relative proportion of images experienced from each perspective, the subjective temporal distance of the event, and its integrative meaning. Finally, they completed different state measures (i.e., the negative affect subscale of the PANAS, the ATS-State Generalization, the state rumination and the state level of construal) as well as trait questionnaires in an identical order (i.e., RRS-22, Mini-CERTS, BIF, CES-D, STAI-T, CAQ) and demographic questions (i.e., age, gender, socio-economic status) (see Appendix B2 for the protocol of the study).

Results

As in the first study, because of the number of analyses conducted, an alpha of .01 was used for preliminary and main analyses to strike a balance between avoiding Type I and Type II errors (e.g., O’Keefe, 2003).

Preliminary analyses

Memory characteristics and visual perspective. Memories were generally old ($M = 599.26$, approximately 1 year and 8 months, $SD = 571.81$), vivid ($M = 7.18$, $SD =$

1.71), and associated with a moderate distress while remembering the event ($M = 4.68$, $SD = 2.21$).

Regarding the visual perspective adopted ($M = -.51$, $SD = 2.09$), the majority of the participants ($n = 126$, 56.25%) visualized the failure from an actor perspective (with 53 participants entirely from an actor perspective, 23.66%), 10 participants (4.46%) used a blended perspective, and 88 participants (39.29%) pictured the failure from an observer perspective (with 17 entirely from an observer perspective, 7.59%).

As expected, memories visualized predominantly from an observer perspective were less vivid ($r = -.25$, $p < .001$) but not less distressing ($r = -.11$, $p = .10$) or recent ($r = .07$, $p = .30$). The age of the memory did not correlate with the vividness ($r = -.10$, $p = .16$) or the distress ($r = -.13$, $p = .05$). However, vivid memories were more distressing ($r = .32$, $p < .001$).

Associations between state and trait measures. As shown in Table 4, state rumination was correlated with the RRS-22 Brooding score, the RRS-22 Reflection score, RRS-22 Total score as well as with the Mini-CERTS Abstract score, and was negatively associated with the Mini-CERTS Concrete score. The state and trait (i.e., the BIF) measures of the level of construal did not correlate.

Associations between trait measures. As shown in Table 4, psychopathology measures (CES-D and STAI-T) positively correlated. They were positively associated with the CAQ but negatively with the BIF. They were positively associated with the RRS-22 (Brooding, Reflection, and Total score) as well as with the Mini-CERTS Abstract subscale, and negatively associated with the Mini-CERTS Concrete subscale. Psychopathology measures did not correlate with the visual perspective.

Table 4
Correlations, Means, and Standard Deviations for Trait and State Measures.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. CAQ	-															
2. BIF	-.06	-														
3. STAI-T	.51***	-.23**	-													
4. CES-D	.48***	-.16*	.82***	-												
5. RRS-22 Total	.46***	-.22**	.70***	.71***	-											
6. RRS-22 Reflection	.18**	-.14*	.17**	.29***	.63***	-										
7. RRS-22 Brooding	.45***	-.13*	.67***	.60***	.80***	.31***	-									
8. Mini-CERTS Concrete	-.19**	.16*	-.41***	-.32***	-.18*	.15*	-.22**	-								
9. Mini-CERTS Abstract	.52***	-.19**	.69***	.66***	.73***	.33***	.66***	-.17*	-							
10. State level of construal	.15*	-.08	.30***	.38***	.27***	.16*	.22**	-.04	.22**	-						
11. State rumination	.25***	-.11	.46***	.49***	.40***	.20**	.36***	-.14*	.34***	.55***	-					
12. Visual perspective	-.04	-.09	.04	.03	.01	-.01	.01	-.01	.04	-.11	.01	-				
13. Integrative meaning	.07	.11	.16*	.22**	.20**	.18**	.21**	.16*	.15*	.39***	.27***	-.10	-			
14. Subjective temporal distance	.01	-.10	-.06	-.08	-.07	-.02	-.06	-.03	.00	-.14*	-.29***	.16*	-.18**	-		
15. ATS – State generalization	.32***	-.11	.58***	.53***	.52***	.16*	.45***	-.26***	.56***	.46***	.54***	-.06	.25***	-.15*	-	
16. PANAS Negative	.17*	.09	.39***	.41***	.37***	.19**	.33***	-.03	.38***	.44***	.53***	-.05	.25***	-.22**	.50***	-
<i>M</i>	59.38	15.01	46.94	19.75	48.75	10.75	11.45	17.54	19.14	4.93	11.31	-.51	5.00	4.61	7.98	26.05
<i>SD</i>	20.08	3.91	11.58	11.27	11.83	3.46	3.48	4.05	4.68	9.48	10.62	2.09	2.43	2.40	3.56	8.44

Note. CAQ = Cognitive Avoidance Questionnaire; BIF = Behavior Identification Form; STAI-T = State Trait Anxiety Inventory – Trait version; CES-D = Center of Epidemiologic Studies for Depression scale; RRS-22 = 22-item Ruminative Response Scale; Mini-CERTS = Mini Cambridge Exeter Repetitive Thought Scale; ATS = Attitude Towards Self scale; PANAS = Positive and Negative Affect Scale. $N = 224$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

As in Study 1a, given the strong positive correlation between STAI-T and CES-D scores ($r = .82, p < .001$), we created a general score of *psychopathology* by converting STAI-T and CES-D scores to z-scores and averaging them for each participant.

Associations between state measures. As shown in Table 4, state rumination negatively correlated with subjective temporal distance and positively correlated with integrative meaning, state generalization, and the negative affect subscale of the PANAS.

Main analyses

(1) Associations between rumination and visual perspective. As shown in Table 4, contrary to our hypothesis, visual perspective did not correlate with state or trait rumination.

(2) Interaction between psychopathology and mental rumination or observer perspective on avoidance. As in Study 1a, we used multiple hierarchical regressions with psychopathology and rumination or observer perspective as predictors of cognitive avoidance. All predictors were centered and individual variables were only interpreted when the overall model was significant in order to reduce Type I errors (Cohen et al., 2003).

Rumination. We used the Mini-CERTS Abstract subscale, which is considered as the maladaptive form of rumination. However, as the Mini-CERTS Abstract score and psychopathology scores highly correlated ($r = .71, p < .001$), there were problems with multicollinearity between them in the multiple regression.¹⁸ Therefore, we only used the correlation between rumination and cognitive avoidance to test our hypothesis (as in

¹⁸ Consistent with our reasoning, if we made a multiple hierarchical regression with centered predictors, investigations revealed problems with multicollinearity: The average VIF is greater than 1, reflecting a potential bias in the regression (Bowerman & O'Connell, 1990; cited by Field, 2013). Results of the multiple hierarchical regression indicated that there were a main effect of the Mini-CERTS Abstract scores and a main effect of the psychopathology scores but no interaction effect.

Study 1a). As shown in Table 4, consistent with our prediction, the Mini-CERTS Abstract subscale and rumination measures more generally were positively associated with more cognitive avoidance.

Visual perspective. We entered psychopathology in a first step (Model 1), visual perspective in the second step (Model 2), and their interaction in the third step (Model 3) (see Study 1a). Prior to the analyses, we looked for multicollinearity, linearity, homoscedasticity, and normality and used the same procedure as in Study 1a to detect multivariate outliers, with adapted critical values for Mahalanobis distances (in this study, 21.47) and leverage values (i.e., in this study, .05). Multivariate outliers are reported in each regression as well as results without their exclusion in footnotes.

One participant with higher leverage and Mahalanobis values was excluded.¹⁹ As shown in Table 5, the first model was significant, $F(1, 221) = 76.29, p < .001$. The inclusion of psychopathology scores explained a significant variance of 26%. Higher psychopathology scores predicted greater cognitive avoidance, $\beta = .51, t(221) = 8.74, p < .001$. The second and third models remained significant, $F(1, 220) = 38.83, p < .001$ for Model 1; $F(1, 219) = 25.96, p < .001$ for Model 2. However, nor the visual perspective, $t(220) = -1.13, p = .26$, nor its interaction with psychopathology, $t(219) = -.65, p = .52$, predicted cognitive avoidance.

(3) Associations between mental rumination or observer perspective and an abstract level of construal. As shown in Table 4, as expected, state rumination was associated with an abstract state level of construal. However, the BIF negatively correlated with the RRS-22 scores and the Mini-CERTS Abstract subscale and positively correlated with the Mini-CERTS Concrete subscale. Inconsistent with our hypothesis,

¹⁹ Without his exclusion, results remained the same. After his exclusion, some participants ($n = 7$) had leverage values greater than .05 but their exclusion did not affect results.

visual perspective did not correlate with the state or trait (i.e., BIF) measures of the level of construal.

(4) Interaction between psychopathology and visual perspective on cognitive correlates of visual perspective, i.e., (i) integrative meaning, (ii) subjective temporal distance, and (iii) state generalization. As in the first study, we used multiple hierarchical regressions to test our hypotheses, with psychopathology entered in a first step (Model 1), visual perspective entered in the second step (Model 2), and their interaction entered in the third step (Model 3).

(i) Integrative meaning. One participant with higher leverage and Mahalanobis values was excluded from analyses.²⁰ As shown in Table 6, the first model was significant, $F(1, 221) = 7.41, p < .01$. The inclusion of psychopathology scores explained a significant variance of 3%. Higher psychopathology scores predicted higher integrative meaning, $\beta = .18, t(221) = 2.72, p < .01$. The second model remained significant, $F(1, 220) = 5.31, p < .01$. However, visual perspective did not predict integrative meaning, $t(220) = -1.77, p = .08$. The third model remained significant, $F(1, 219) = 5.90, p < .01$. The inclusion of the interaction term explained an additional variance of 3%, $t(219) = 2.61, p = .01$. As the interaction effect was nearly significant, we conducted simple slopes analysis using Hayes's (2013) PROCESS macro for SPSS. This revealed that higher psychopathology scores were associated with greater integrative meaning when the failure was predominantly pictured from an observer perspective, $b = .90 [.44, 1.36], SE = .23, t(219) = 3.86, p < .001$, but not when it was predominantly pictured from an actor perspective, $b = .03 [-.42, .48], SE = .23, t(219) = .14, p = .89$.

²⁰ Without his exclusion, results remained the same. After his exclusion, some participants ($n = 7$) had leverage values greater than .05 but their exclusion did not affect results (except for the interaction term, for which the p -value became $p < .05$).

(ii) **Subjective temporal distance.** Because of problems with normality, we used bootstraps (Field, 2013). Bootstrapping is a resampling method that generates an approximation of the sampling distribution of parameters from the data. Each parameter of interest (e.g., the mean) is calculated in each bootstrap sample and a 95% confidence interval (CI) is calculated for it. We used 2000 bootstrap resamples and focused on the bias corrected accelerated 95% CI (BCa 95% CI). The parameter is significant when the BCa 95% CI does not include zero (Field, 2013).

One participant had higher leverage and Mahalanobis values and was excluded from analyses.²¹ As shown in Table 7, none of the three models were significant, $F(1, 221) = 1.81, p = .18$ for Model 1; $F(1, 220) = 3.70, p = .03$ for Model 2²²; $F(1, 219) = 2.56, p = .06$ for Model 3. Inconsistent with our prediction, neither psychopathology, nor the visual perspective, nor their interaction predicted the subjective temporal distance.

(iii) **State generalization.** One participant with higher leverage and Mahalanobis values was excluded.²³ As shown in Table 8, the first model was significant, $F(1, 221) = 108.15, p < .001$. The inclusion of psychopathology scores explained a significant variance of 33%. Higher psychopathology scores predicted greater state generalization, $\beta = .57, t(221) = 10.40, p < .001$. The second and third models remained significant, $F(1, 220) = 55.60, p < .001$ for Model 2; $F(1, 219) = 38.62, p < .001$ for Model 3. However, neither the visual perspective, $t(220) = -1.54, p = .13$, nor its interaction with psychopathology, $t(219) = 1.85, p = .07$, predicted state generalization.

²¹ Without his exclusion, results remained the same. After his exclusion, some participants ($n = 7$) had leverage values greater than .05 but their exclusion did not affect results.

²² The model is not significant at .01 but nearly significant. Looking at this tendency, results showed that higher scores of visual perspective tend to predict greater subjective temporal distance, $b = .38 [.03, .73], SE = .17, p = .03$

²³ Without his exclusion, results remained the same. After his exclusion, some participants ($n = 7$) had leverage values greater than .05. Their exclusion affected results, with the interaction-term becoming significant, $t(212) = 2.73, p < .01$. Simple slopes analysis using Hayes's (2013) PROCESS macro for SPSS revealed that higher psychopathology scores were associated with greater state generalization, particularly when the failure was pictured predominantly from the observer perspective, $b = 2.72 [2.19, 3.26], t(212) = 10.02, p < .001$, compared with the actor perspective, $b = 1.46 [.70, 2.21], t(212) = 3.79, p < .001$.

(4) (b) Association between cognitive correlates of visual perspective and emotional response. As shown in Table 4, consistent with our predictions, (i) higher levels of integrative meaning, (ii) higher levels of state generalization, and (iii) less subjective distance were associated. They were also associated with more negative affect.

Table 5

Multiple Hierarchical Regressions Predicting Cognitive Avoidance from Psychopathology, Visual Perspective, and their Interaction.

Variable	Cognitive avoidance											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI
Constant	59.29	1.15		[57.02, 61.56]	59.25	1.15		[56.98, 61.52]	59.27	1.15		[57.00, 61.54]
Psychopathology	10.63	1.22	.51***	[8.23, 13.03]	10.66	1.22	.51***	[8.26, 13.05]	10.64	1.22	.51***	[8.23, 13.04]
Visual perspective					-1.32	1.17	-.07	[-3.63, .98]	-1.38	1.17	-.07	[-3.69, .94]
Psychopathology * Visual perspective									-.81	1.24	-.04	[-3.26, 1.64]
<i>R</i> ²	.26				.26				.26			
<i>F</i>	76.29***				38.83***				25.96***			
ΔR^2	.26				.00				.00			
ΔF	76.29***				1.28				.42			

Note. CI = confidence intervals. 95% confidence intervals reported in brackets. *N* = 223.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Table 6

Multiple Hierarchical Regressions Predicting Integrative Meaning from Psychopathology, Visual Perspective, and Their Interaction.

Variable	Integrative meaning											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI
Constant	4.98	.16		[4.66, 5.29]	4.97	.16		[4.66, 5.28]	4.96	.16		[4.66, 5.27]
Psychopathology	.46	.17	.18**	[.13, .79]	.46	.17	.18**	[.13, .79]	.48	.17	.19**	[.15, .80]
Visual perspective					-.29	.16	-.12	[-.60, .03]	-.25	.16	-.10	[-.57, .06]
Psychopathology * Visual perspective									.44	.17	.17*	[.11, .77]
<i>R</i> ²	.03				.05				.08			
<i>F</i>	7.41**				5.31**				5.90**			
ΔR^2	.03				.01				.03			
ΔF	7.41**				3.14				6.78*			

Note. CI = confidence intervals. 95% confidence intervals reported in brackets. *N* = 223.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Table 7

Multiple Hierarchical Regressions Predicting Subjective Temporal Distance from Psychopathology, Visual Perspective, and Their Interaction.

Variable	Subjective temporal distance											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	4.59	.16		[4.27, 4.91]	4.60	.16		[4.30, 4.91]	4.60	.16		[4.29, 4.92]
Psychopathology	-.23	.17	-.09	[-.57, .15]	-.24	.17	-.09	[-.58, .13]	-.23	.17	-.09	[-.58, .15]
Visual perspective					.38	.17	.16*	[.03, .73]	.39	.17	.16*	[.04, .73]
Psychopathology * Visual perspective									.09	.18	.04	[-.27, .43]
<i>R</i> ²	.01				.03				.03			
<i>F</i>	1.81				3.70*				2.56			
ΔR^2	.01				.02				.00			
ΔF	1.81				5.56*				.31			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 223.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 8

Multiple Hierarchical Regressions Predicting State Generalization from Psychopathology, Visual Perspective, and Their Interaction.

Variable	State generalization											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI
Constant	7.97	.20		[7.59, 8.36]	7.97	.19		[7.58, 8.35]	7.96	.19		[7.58, 8.34]
Psychopathology	2.14	.21	.57***	[1.74, 2.55]	2.15	.21	.58***	[1.74, 2.55]	2.16	.20	.58***	[1.76, 2.56]
Visual perspective					-.30	.20	-.09	[-.69, .09]	-.28	.20	-.08	[-.67, .11]
Psychopathology * Visual perspective									.39	.21	.10	[-.03, .80]
<i>R</i> ²	.33				.34				.35			
<i>F</i>	108.15***				55.60***				38.62***			
ΔR^2	.33				.01				.01			
ΔF	108.15***				2.37				3.43			

Note. CI = confidence intervals. 95% confidence intervals reported in brackets. *N* = 223.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Discussion

The aim of this study was to replicate and extend findings from the first study by examining (1) the relationship between rumination and visual perspective as well as their associations with (2) the avoidance and (3) the level of construal. We also investigated (4) the influence of psychopathology and visual perspective on (i) integrative meaning, (ii) subjective temporal distance, and (iii) state generalization as well as their association with the intensity of negative affect.

We first hypothesized that (1) higher levels of rumination would be associated with more use of an observer perspective. However, *state* or *trait* rumination did not correlate with visual perspective, replicating the results found in Study 1a. Our findings contrast with four correlational studies evidencing an association between the visual perspective and *trait* (Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007) and *state* RNT (Kuyken & Moulds, 2009) but add evidence to three other correlational studies which did not find this relationship for *trait* (Finnbogadóttir & Berntsen, 2011; Kuyken & Moulds, 2009) or *state* RNT (Williams & Moulds, 2007). However, it is noteworthy that our state rumination measure does not really reflect how or how much individuals ruminate on general topics at a particular moment. Actually, it reflects the tendency individuals have had to ruminate *on a specific situation over the last month*. Therefore, we should have called this measure “specific rumination”, or more precisely, “trait rumination on a specific topic” rather than state rumination. Considering this specification, this measure allows us to explore differences between the general tendency to ruminate, whatever the content, and the tendency to ruminate on a specific situation as well as addressing the main question of how an event we ruminate about is visualized. Moreover, our measure is similar to those used in previous studies conducted on the

relationship between visual perspective and RNT *about a specific situation* (Kuyken & Moulds, 2009; Williams & Moulds, 2007).

We also predicted that higher levels of rumination would be associated with more (2) avoidance and (3) an abstract level of construal. In accordance with the cognitive avoidance theory (Sibrava & Borkovec, 2006), higher levels of trait rumination –more specifically abstract trait rumination– were positively associated with cognitive avoidance, as measured by the CAQ. However, our results partially support the processing-mode theory (Watkins, 2008, 2011) as *state* rumination was associated with an *abstract* state level of construal, whereas *trait* rumination was associated –even though weakly– with a *concrete* trait level of construal, measured by the BIF. Before drawing conclusions, two explanations of this last result can be considered.

First, it is important to underline the fact that the BIF reflects the level of construal adopted to think about *neutral to mildly positive* everyday actions (e.g., “Locking a door”, “Going to the cinema”) rather than *negative* events. However, the level of construal dysregulation hypothesis (Watkins, 2011) posits that depressed and anxious populations tend to have by default an abstract level of construal when thinking about *negative* events. Hence, the BIF measure could not be really appropriate to examine a dysregulation in response to negative events. Watkins (2008) has suggested that one possible mechanism by which the level of construal influences consequences of RNT is generalization. Therefore, a possible solution would be to use the ATS-Trait Generalization (Carver, 1998), which measures the tendency to generalize in response to *negative* events. Even if the BIF does not appear as an appropriate measure, the question remains regarding its negative association with maladaptive rumination and psychopathology and its positive association with adaptive rumination.

These findings might be first explained by methodological differences with previous studies assessing the level of construal in function of psychopathology. Watkins, Moberly, et al. (2011) asked participants to recall a happy and a sad memory, in a counterbalanced order, as positive and negative mood inductions in depressed and never-depressed participants. They assessed the level of construal adopted after each mood induction, as measured by the BIF. They showed that depressed and never-depressed participants did not differ according to their level of construal after each mood induction. However, when they became sadder or less happy (i.e., depending on the order of the inductions), never-depressed participants adopted a more concrete, adaptive, level but depressed participants did not shift toward a more concrete level of construal. Several methodological differences between this study and our studies prevent us from drawing conclusions. Watkins, Moberly, et al. (2011) assessed the level of construal after each mood induction but did not assess the baseline level of construal. In our studies, participants were also asked to remember a past failure and complete several measures about it, before answering trait questionnaires, among which the BIF. There are two possibilities. The negative mood induced by the memory recall could have influenced the level of construal adopted. However, as we had no measured baseline level of construal, we cannot make inferences about the variation of the level of construal in response to the negative mood. Alternatively, it is possible that this induction was not strong enough to maintain over time and that our measure of the level of construal adopted would actually be close to the baseline level of construal. Therefore, future studies should explore the level of construal adopted after the recall of a failure but also at the baseline, apart from a mood induction.

These findings might also be explained at a theoretical level. Indeed, these findings are consistent with two other studies having explored the BIF in relation to

psychopathology. In the first one, Moldovan (2011) evidenced that several measures of depression were negatively associated with the BIF. In another study, Jamnadass, Badcock, and Maybery (2014) found that individuals with high anxiety levels had significantly lower scores on the BIF than individuals with low levels of anxiety. However, they did not find an association between the BIF score and the level of depression. From a theoretical point of view, our results and previous results can be understood according to the action identification theory (Vallacher & Wegner, 1987, 1989). Identifying easy, habitual, or familiar actions at an abstract level is adaptive because it allows goal directedness (Belayachi & Van der Linden, 2017; Watkins, 2011). In this way, non-clinical populations tend to adopt an abstract level of construal when confronted with habitual actions and a concrete level when confronted with unusual or stressful situations (Vallacher & Wegner, 1987). Our findings might reflect that tendency, with non-clinical samples, defined here as people adopting a concrete level when thinking about negative, unusual or difficult situations (i.e., high levels of concrete trait rumination) using an *abstract* level of construal to think about familiar actions. On the other side, clinical populations, defined here as people suffering from psychopathological symptoms or adopting an abstract level when thinking about negative, unusual, or difficult situations (i.e., high levels of anxiety, depression, or abstract trait rumination) tend to adopt a *concrete* level of construal to think about these familiar actions.

However, it is also possible that this effect was a Type-I error because of the large number of statistical analyses. Therefore, it would be necessary to replicate this finding with adequate statistical power. In light with these two explanations, the following study (Study 1c) aimed at exploring whether we could replicate the unexpected negative correlation between the BIF and rumination measures, apart from a mood induction.

Based on Watkins (2008), we also used another measure of an abstract level of construal targeting the tendency to generalize when confronted with negative events.

In the current study, we also predicted (2) an avoidance function and (3) an abstract level of construal associated with the observer perspective. However, we replicated findings from Study 1a. State visual perspective was not associated either with (2) a cognitive avoidance, whatever the clinical status of the sample, or with (3) an abstract *state* or *trait* level of construal. Our results are in contradiction with the conceptualization of the observer perspective as an attempt to avoid emotional information associated with an event in clinical or subclinical populations (e.g., Kenny & Bryant, 2007; Williams & Moulds, 2007) and with Libby and Eibach's (2011) theory according to which the observer perspective is characterized by an abstract level of construal. Moreover, the current study adds evidence to the first study showing that psychopathology was not associated with the observer perspective, contrary to previous studies (e.g., Kuyken & Howell, 2006; Lemogne et al., 2006). In order to account for these mixed results, one potential explanation lies in the fact of using a single –two anchored– item to measure the visual perspective. Indeed, the actor and observer perspectives might be independent rather than complementary (Rice & Rubin, 2009), so it has been suggested to measure them separately, using two items. Then, Study 1d will replicate the Study 1b with these dual measures. Moreover, the Study 1d will include a measure of the *trait* tendency to adopt an actor or observer perspective. Indeed, it is possible to assess a trait visual perspective (Christian et al., 2013). Such as rumination, *state* and *trait* differences could account for our absence of results. Therefore, the Study 1d would include a trait measure of visual perspective.

Finally, in the current study, we predicted that (4) (a) when adopting an observer perspective to picture a negative past event, higher levels of psychopathology would be

associated with (i) greater integrative meaning, (ii) less subjective temporal distance, and (iii) more state generalization, (b) which would be associated with greater emotional response. Consistent with our hypothesis, higher levels of psychopathology were associated with more (i) integrative meaning when the event was pictured from an observer perspective but not from an actor perspective.

Unexpectedly, (ii) psychopathology did not predict the subjective temporal distance and this effect was not moderated by the visual perspective adopted. However, greater state rumination was associated with less perceived temporal distance, which is consistent with Siedlecka et al. (2015). If we had used less strict *p*-value criteria, greater observer perspective would also have been associated with more subjective temporal distance. Even if this non-significant result needs to be interpreted with caution, one possible explanation is related to social-cognitive theories (e.g., Trope & Liberman, 2003, 2010) for which abstract representations tend to be perceived as more distant. Our result could suggest that our measure reflects the abstract level of construal characterizing the observer perspective, rather than the subjective closeness or distance with the event. Hence, the subjective temporal distance measure may not be appropriate to study the subjective meaning given by clinical or subclinical populations when adopting an observer perspective.

Higher levels of psychopathology were associated with (iii) greater state generalization, whatever the visual perspective adopted. It is interesting to note that if we had used stricter outlier criteria, the visual perspective would have moderated this association: Higher levels of psychopathology would predict greater state generalization, especially from an observer perspective, as predicted. It is important to underline that, such as state rumination, our measure of state generalization actually refers to the

tendency to generalize *from a specific situation*, in contrast with the trait tendency to generalize from events.

Finally, as expected, greater negative affect was associated with (i) more integrative meaning, (ii) less subjective temporal distance, and (iii) more state generalization. This finding is consistent with Libby and Eibach's theory (2011) according to which cognitive correlates of the visual perspective are associated with a negative emotional response.

Study 1c

The aim of the Study 1c was to explore whether the findings of the previous study on the relationship between a concrete trait level of construal (i.e., the BIF) and rumination measures could be replicated, apart from a mood-inducing failure recall. We also added a measure of *trait* level of construal in response to negative events, the ATS-Trait Generalization. We computed the necessary sample size to have sufficient statistical power to draw conclusions.

Participants were asked to complete several trait questionnaires regarding rumination and the level of construal. First, we hypothesized that both measures of the level of construal would positively correlate. Second, the dysregulation hypothesis of the level of construal in clinical and subclinical populations (Watkins, 2011) suggests that clinical and subclinical populations have by default an abstract level of construal. As rumination and psychopathological measures are highly correlated and rumination, especially maladaptive rumination, is theoretically relevant to study psychopathology (i.e., as a transdiagnostic process, Ehring & Watkins, 2008), we used rumination measures as a proxy for psychopathology. We predicted that an abstract level of construal would be positively associated with *maladaptive* rumination measures (i.e., trait rumination and

abstract trait rumination), and negatively associated with *adaptive* rumination measures (i.e., concrete trait rumination).

Method

Participants

A power analysis was used to determine the necessary sample size with the software G*Power (Faul, Erdfelder, Lang, & Buchner, 2007). We set statistical parameters for exact tests, correlation bivariate normal model, two-tailed, with an alpha level of $p = .01$ and power = .80. Since we had no idea of the effect size, we chose a medium effect size of $r = 0.30$. This resulted in a recommended overall sample of 125 participants. They were recruited by an advertisement delivered by email. The two exclusion criteria were being less than 18 years old and not being fluent in French. A total of 133 participants (99 women, 74.44%, mean age = 23.85, $SD = 6.40$) completed an online study. Participants were predominantly students (78.20%), executives (6.77%), or job seekers (6.77%).

Material

Rumination measures. As in Study 1a and 1b, trait rumination was measured with the RRS-10 (Guimpel et al., 2012; Treynor et al., 2003) ($\alpha = .69$ for the RRS-10 Total, $\alpha = .65$ for the RRS-10 Brooding, and $\alpha = .67$ for the RRS-10 Reflection) and the Mini-CERTS (Douilliez et al., 2014) ($\alpha = .76$ for the Concrete and $\alpha = .75$ for the Abstract subscales).

Processual measures.

Behavior Identification Form (Belayachi & Van der Linden, *submitted*; Vallacher & Wegner, 1989). The level of construal was measured with the BIF ($\alpha = .74$).

ATS – Trait Generalization (Carver & Ganellen, 1983). Participants assessed their trait tendency to generalize by answering 4 items of the Generalization subscale of the ATS. Participants rated their agreement with four statements (e.g., “I hardly ever let unhappiness over one bad time influence my feelings about other parts of my life”) on a 5-point fully labeled scale ranging from 1 (*I disagree a lot*) to 5 (*I agree a lot*). Except for the second item (i.e., “When even one thing goes wrong I begin to wonder if I can do well at anything at all”), the scores were reversed and summed to create an index of generalization, with higher scores indicating higher trait generalization. Although acceptable, the Cronbach’s alpha of this scale was relatively low ($\alpha = .77$). Excluding the second item of the scale resulted in a better alpha ($\alpha = .81$).

Procedure

The study protocol was approved by the local research ethical committee and the French National Commission for Data Protection and Liberties (CNIL, France) (see Appendix C1). The survey was created on the Qualtrics® platform. Participants received an email offering them to participate to a 5-min online study about “thoughts about events”. After providing their informed consent to take part in the survey, participants completed the questionnaires (i.e., the RRS-10, Mini-CERTS, BIF, and ATS-Trait Generalization) and demographic measures (i.e., age, gender, and socio-professional group) (see Appendix C2 for the protocol of the study).

Results

Preliminary analyses

Association between trait measures. As shown in Table 9, maladaptive rumination measures (i.e., RRS-10 Brooding, RRS-10 Total, and Mini-CERTS Abstract)

were correlated. The RRS-10 Reflection subscale also positively correlated with maladaptive rumination measures. Regarding adaptive rumination measures, the Mini-CERTS Concrete subscale was negatively correlated with maladaptive rumination measures.

Table 9
Correlations, Means, and Standard Deviations for Scores on the BIF, ATS-Trait Generalization, RRS-10, and Mini-CERTS.

Measure	1	2	3	4	5	6	7
1. BIF	-						
2. ATS-Trait Generalization	.05	-					
3. RRS-10 Total	.10	.52***	-				
4. RRS-10 Reflection	.07	.17*	.79***	-			
5. RRS-10 Brooding	.08	.65***	.78***	.24**	-		
6. Mini-CERTS Concrete	.21*	-.30**	-.00	.29**	-.29**	-	
7. Mini-CERTS Abstract	.02	.69***	.63***	.28**	.72***	-.32***	-
<i>M</i>	14.80	9.87	23.04	11.35	11.69	17.63	20.20
<i>SD</i>	3.83	3.36	4.94	3.17	3.11	3.90	4.61

Note. BIF = Behavior Identification Form; ATS = Attitude Towards Self scale; RRS-10 = 10-item Ruminative Response Scale; Mini-CERTS = Mini Cambridge Exeter Repetitive Thought Scale. *N* = 133.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Main analyses

Like the previous studies, an alpha of .01 was used to strike a balance between Type I and Type II errors (e.g., O’Keefe, 2003).

Association between processual measures. As shown in Table 9, the BIF and the ATS-Trait Generalization did not correlate.

Association between rumination and processual measures. As in Study 1b, the BIF was positively associated with adaptive rumination but not with maladaptive rumination measures. Conversely, the ATS-Trait Generalization was negatively

associated with adaptive rumination and positively associated with maladaptive rumination measures (Table 9).

Discussion

Based on Watkins (2011), we have hypothesized that an abstract level of construal would be positively associated with maladaptive rumination and negatively associated with adaptive rumination. However, the results of the Study 1b evidenced that maladaptive rumination and psychopathology measures were associated with a *concrete* trait level of construal when thinking about neutral everyday actions. The current study aimed at exploring whether these findings could be replicated. We used two different measures of the level of construal, one with the tendency to think abstractly to *neutral* everyday actions (i.e., the BIF) and the other assessing the tendency to generalize from a single *negative* event (i.e., the ATS-Trait generalization).

We predicted that both measures would be positively correlated and that an abstract level of construal would be positively associated with maladaptive rumination and negatively associated with adaptive rumination. Contrary to our prediction, the BIF and the ATS-Trait generalization did not correlate. Furthermore, the BIF was not associated with maladaptive rumination but positively associated with adaptive rumination. Alternatively, the ATS-Trait Generalization was positively associated with maladaptive rumination and negatively associated with adaptive rumination.

As already discussed in the previous study, the BIF only assesses the level of construal adopted when thinking about *neutral* –or mildly positive– familiar actions, e.g., “Locking a door” (Watkins, Moberly, et al., 2011). In contrast, the ATS-Trait Generalization reflects the tendency to generalize when thinking about *negative* events. According Watkins (2011), clinical or subclinical populations tend to adopt an abstract

level of construal by default when thinking about *negative* events. Hence, the BIF does not seem appropriate to examine this tendency, contrary to the ATS-Trait Generalization. Overall, the results of our two studies suggest that non-clinical populations (i.e., with high levels of concrete trait rumination, as in Study 1b and 1c) use an abstract adaptive level when thinking about *neutral* events and a concrete adaptive level when thinking about *negative* events. On the contrary, vulnerable populations (i.e., with high levels of abstract trait rumination or psychopathology, as in Study 1b), adopt a concrete maladaptive level when thinking about *neutral* events and an abstract maladaptive level when thinking about *negative* events. Hence, vulnerable populations could not only have a dysregulation in the level of construal when thinking about *negative* events (i.e., an abstract level) but also a dysregulation in the level of construal when thinking about *neutral* everyday actions (i.e., a concrete level). As already recommended (Watkins, 2011), more research is needed to determine what level of construal is adopted in response to *negative* but also *positive* or *familiar* events in clinical, subclinical and non-clinical populations.

Study 1d

The aim of the Study 1d was to replicate the Study 1b by assessing the relationship between mental rumination and visual perspective as well as their associations with the level of construal adopted. Based on the Study 1c, we used the ATS-Trait generalization instead of the BIF as a measure of the tendency to adopt an abstract level of construal in clinical or subclinical populations. In order to have a *state* and a *trait* measure for each of our main variables (i.e., rumination, perspective, and level of construal), we used the same questionnaires as before and added a state measure of concrete and abstract rumination and a trait measure of visual perspective. Our state and trait visual perspective measures differentiated actor and observer perspective (Rice & Rubin, 2009). Finally, we also used

a unique measure of psychopathology rather than distinct measures of depression and anxiety.

As in Study 1b, participants had to recall a past negative event and then completed state and trait measures. If rumination and observer perspective both depend on an abstract level of construal (Libby & Eibach, 2011; Watkins, 2008, 2011), then (1) *state* and *trait* rumination –more specifically abstract rumination– would positively correlate with the use of a *state* and *trait* observer perspective (Finnbogadóttir & Berntsen, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007). Moreover, (3) an abstract *state* and *trait* level of construal would be associated with higher levels of *state* and *trait* rumination –more specifically abstract rumination– and *state* and *trait* observer perspective in people with higher levels of psychopathology (Libby & Eibach, 2011; Watkins, 2011).

Method

Participants

We conducted a power analysis to determine the necessary sample size with the software G*Power (Faul et al., 2007). As in the previous study, we set statistical parameters for exact tests, correlation bivariate normal model, two-tailed, with an alpha level of $p = .01$ and power = .80. Since we had no idea of the effect size, we chose a medium effect size of $r = 0.30$. This resulted in a recommended overall sample of 125 participants. They were recruited by an advertisement delivered by email. As previously, the two exclusion criteria were being less than 18 years old and not being fluent in French. A total of 133 participants (103 women, 77.44%; mean age = 23.41, $SD = 5.34$) completed the online survey. Three participants were excluded because they did not respect instructions about the age of the memory. The final sample was composed of 130

participants (100 women, 76.92%; mean age = 23.37, $SD = 5.36$). Participants were predominantly students (75.40 %), employees (11.50 %), or executives (6.90 %).

Material

Rumination measures.

Mini-CERTS (Douilliez et al., 2014). As in previous studies, the Mini-CERTS was used as a trait measure of concrete and abstract trait rumination (respectively $\alpha = .71$ and $\alpha = .75$).

State rumination. Our measure of state rumination refers to ruminative thoughts focused on the recalled failure. State rumination about the failure was measured with 5 items adapted from Study 1b and from the study of Kircanski et al. (2015). Participants were asked to judge several dimensions of their thoughts on five VASs ranging from 0 (*not at all*) to 100 (*totally*): thoughts frequency about the failure during the last two weeks, their repetitiveness, associated distress, uncontrollability, and interference with everyday life activities. Internal consistency for this scale was high ($\alpha = .90$).

Concrete and abstract state rumination. Participants assessed to what extent their thoughts were concrete (i.e., “focused on how the situation happened, step by step”) or abstract (i.e., “focused on the analysis of causes, consequences, and meaning of the situation”) on two separate VASs ranging from 0 (*not at all*) to 100 (*totally*).

Psychopathological measure. Hospital Anxiety and Depression Scale (HADS, Zigmond & Snaith, 1983; French validation by Bocéréan & Dupret, 2014). The HADS is 14-item self-report questionnaire, with 7 items measuring anxious symptoms and 7 items measuring depressive symptoms. Each item is scored on a 4-point scale ranging from 0 (e.g., *never*) to 3 (e.g., *most of the time*), addressing how frequently the symptom has been experienced within the last week. It is possible to compute two sub-scores of anxiety and

depression or a general score of intensity of emotional distress, higher scores indicating higher anxious and depressive symptoms or higher emotional distress (Bocéréan & Dupret, 2014). We chose to use the HADS as a general score of emotional distress, close to a measure of psychopathology. The Cronbach's alpha for the general score of emotional distress was high ($\alpha = .79$).

Processual measures.

ATS – Trait generalization (Carver & Ganellen, 1983). As in Study 1c, we used the Generalization subscale of the ATS ($\alpha = .81$). Excluding the second item of the scale resulted in the same alpha ($\alpha = .81$). To ensure the comparability of the ATS-State or Trait-Generalization scales among studies, we ran the analyses with three items as the abstract trait level of construal score (see Study 1c).

ATS – State generalization (Libby, Valenti, et al., 2011). As in Study 1b, we used the ATS-State generalization as a measure of state level of construal. The Cronbach's alpha of this scale was high ($\alpha = .81$). Excluding the second item of the scale resulted in a better alpha ($\alpha = .84$). Therefore, we ran the analyses with three items as the abstract state level of construal score.

Memory characteristics measures. Participants rated the domain, the importance, and the age of the failure. The domain of the failure was assessed by choosing between scholar/professional, social, romantic, competitive/leisure activities, or another domain (for this last domain, participants could write details in a box). The importance of the failure was rated on a VAS ranging from 0 (*not at all*) to 100 (*extremely*). Finally, participants indicated the age of their failure, which was then converted in days, as in previous studies.

Visual perspective measures.

Trait visual perspective. Participants were asked to estimate the visual perspective they adopted when thinking about past events (adapted from Christian et al., 2013) on two separate VASs (i.e., actor and observer perspectives) ranging from 0 (*not at all*) to 100 (*totally*) (adapted from Rice & Rubin, 2009).

State visual perspective. Participants indicated the proportion of images from respectively an actor and an observer perspective when thinking about the failure during the two previous weeks, on two separate VASs ranging from 0 (*not at all*) to 100 (*totally*) (adapted from Rice & Rubin, 2009). This resulted in a score for actor and a score for observer perspective.

Vividness of mental imagery. The vividness of mental images was assessed on a VAS ranging from 0 (*vague and dim*) to 100 (*perfectly clear and vivid*).

Procedure

The study protocol was approved by the local research ethical committee and the French National Commission for Data Protection and Liberties (CNIL, France) (see Appendix C1). The survey was created on the Qualtrics® platform. Participants received an email offering them to participate to a 10-min online study about “mental images during the recall of past events”. After providing their informed consent to take part in the survey, they were asked to recall a past failure and write down few words about the event, with the same instructions as in Study 1a. They indicated the domain, the importance and estimated the age of the memory. Then, they assessed their state rumination and concrete and abstract state rumination. They received the same information related to visual perspective as in Study 1b and assessed their state actor and observer perspectives and the vividness of these images. Then, they completed the ATS-State generalization measure.

Finally, they answered the trait questionnaires: the Mini-CERTS, the actor and observer perspectives, the ATS-Trait generalization, the HADS; and completed demographic questions (i.e., age, gender, socio-economic status) (see Appendix D for the protocol of the study).

Results

Preliminary analyses

Memory characteristics and visual perspective. Regarding the domain of the failure, 43.80 % of the sample reported a scholar/professional failure, 25.40% a romantic failure, 14.60 % a failure in competitive or leisure activities, 10.00 % a failure in another domain, and 6.20 % a social failure. Failures were generally important ($M = 76.95$, $SD = 20.94$), old ($M = 649.58$, approximately 1 year and 8 months, $SD = 519.55$), and vivid ($M = 59.85$, $SD = 33.02$).

Images were more depicted from a state actor perspective ($M = 56.67$, $SD = 39.68$) than from a state observer perspective ($M = 31.77$, $SD = 35.02$), $t(132) = 4.49$, $p < .001$. Similarly, images were more depicted from a trait actor perspective ($M = 61.42$, $SD = 30.16$) than from a trait observer perspective ($M = 42.76$, $SD = 30.02$), $t(132) = 3.89$, $p < .001$.

As expected, higher levels of state actor perspective were associated with more vivid memories ($r = .40$, $p < .001$) but this was also the case with higher levels of state observer perspective ($r = .19$, $p < .05$). However, both state actor and observer perspectives did not correlate with the age of the memory ($r = .01$, $p = .92$ and $r = -.11$, $p = .21$, respectively) or its importance ($r = .12$, $p = .16$ and $r = .15$, $p = .09$, respectively). The age of the memory did not correlate either with its vividness ($r = .02$, $p = .85$) or

importance ($r = .06, p = .49$). Finally, the importance of the failure positively correlated with state rumination ($r = .44, p < .001$).

Interrelations between measures.

Rumination measures. Regarding the associations between state and trait versions of rumination, abstract state rumination and the Mini-CERTS Abstract positively correlated ($r = .31, p < .001$). However, concrete state rumination and the Mini-CERTS Concrete did not correlate ($r = .01, p = .89$). Regarding the associations between concrete and abstract versions of rumination, as shown in Tables 10 and 11, the Concrete and Abstract subscales of the Mini-CERTS negatively correlated but concrete and abstract state rumination positively correlated. State rumination positively correlated with both concrete and abstract state rumination.

Concerning the relation between psychopathology and rumination (see Tables 10 and 11), the results showed that the HADS positively correlated with the Mini-CERTS Abstract, state rumination, and abstract state rumination. Conversely, the HADS negatively correlated with the Mini-CERTS Concrete and did not correlate with concrete state rumination.

Visual perspective measures. Regarding the associations between state and trait versions of visual perspective: State and trait actor perspectives positively correlated ($r = .52, p < .001$) as well as state and trait observer perspectives ($r = .50, p < .001$). Regarding the associations between actor and observer perspectives, trait actor and observer perspectives were negatively correlated (Table 10) as well as state actor and observer perspectives (Table 11).

Regarding the relation between psychopathology and visual perspective (see Tables 10 and 11), the HADS did not correlate with trait actor or observer perspectives, or with state actor or observer perspective.

Level of construal measures. Regarding the associations between state and trait versions of generalization, the ATS State and Trait generalization positively correlated ($r = .73, p < .001$). Regarding the relation between psychopathology and generalization (see Tables 10 and 11), the HADS positively correlated with ATS-Trait generalization and ATS-State generalization.

Table 10
Correlations, Means, and Standard Deviations for Trait Measures.

Measure	1	2	3	4	5	6
1. Mini-CERTS Concrete	-					
2. Mini-CERTS Abstract	-.25**	-				
3. Actor perspective	.05	.10	-			
4. Observer perspective	.02	.05	-.65***	-		
5. ATS-Trait generalization	-.38***	.72***	.18*	-.03	-	
6. HADS	-.28**	.59***	.16	.04	.49***	-
<i>M</i>	18.39	21.39	61.42	42.76	10.05	15.09
<i>SD</i>	3.62	4.59	30.16	30.02	3.17	6.23

Note. Mini-CERTS = Mini Cambridge Exeter Repetitive Thought Scale; ATS = Attitude Towards Self scale; HADS = Hospital Anxiety and Depression scale. $N = 130$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 11
Correlations, Means, and Standard Deviations for State Measures and Psychopathology.

Measure	1	2	3	4	5	6	7
1. Rumination	-						
2. Concrete rumination	.48***	-					
3. Abstract rumination	.51***	.34***	-				
4. Actor perspective	.21*	.19*	.23**	-			
5. Observer perspective	.28**	.21*	.26**	-.43***	-		
6. ATS-State generalization	.48***	.16	.38***	.20*	.23**	-	
7. HADS	.37***	.05	.25**	.11	.16	.45***	-
<i>M</i>	127.84	26.59	44.05	56.67	31.77	9.04	15.09
<i>SD</i>	132.90	32.86	38.34	39.68	35.02	3.56	6.23

Note. ATS = Attitude Towards Self scale; HADS = Hospital Anxiety and Depression Scale. $N = 130$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Main analyses

(1) Association between rumination and observer perspective. As shown in Tables 10 and 11, state observer perspective positively correlated with state rumination and abstract state rumination. However, trait observer perspective did not correlate with the Mini-CERTS abstract.²⁴

(3) Interaction between psychopathology and rumination or observer perspective on generalization (state and trait). As in previous studies, we used multiple hierarchical regressions with psychopathology and rumination or observer perspective as predictors. All predictors were centered and individual variables were only interpreted when the overall model was significant in order to reduce Type I errors (Cohen et al., 2003).

Rumination. We used the Mini-CERTS Abstract subscale as well as abstract state rumination as predictors. However, as the Mini-CERTS Abstract and abstract state rumination correlated with psychopathology (respectively $r = .59, p < .001$ and $r = .25, p < .001$), there was problems with multicollinearity between them in the multiple regression (see Studies 1a and 1b).²⁵ Therefore, we only used the correlation between rumination and generalization to test our hypothesis. Consistent with our predictions, the Mini-CERTS Abstract positively correlated with the ATS-Trait generalization ($r = .72, p < .001$, see Table 10) and state rumination and abstract state rumination positively

²⁴ If we excluded participants of whom the failure was not important (i.e., importance < 30, $n = 3$), the results remained the same. State observer perspective positively correlated with state rumination and abstract state rumination ($r = .27, p < .01$ and $r = .24, p < .01$, respectively) and trait observer perspective did not correlate with Mini-CERTS abstract score ($r = .04, p = .63$).

²⁵ Consistent with our reasoning, if we made multiple hierarchical regressions with centered predictors, investigations revealed problems with multicollinearity: The average VIF is greater than 1, reflecting a potential bias in the regression (Bowerman & O'Connell, 1990; cited by Field, 2013). Results of the multiple hierarchical regressions indicated that there were a main effect of the Mini-CERTS Abstract scores and a main effect of the psychopathology scores but no interaction effect. Results were identical for the regression with abstract state rumination scores.

correlated with the ATS-State generalization ($r = .48, p < .001$ and $r = .38, p < .001$, respectively; see Table 11).²⁶

Visual perspective. We entered psychopathology in a first step, observer perspective (state or trait) in the second step, and the interaction term (HAD scores x observer perspective) in the third step. Prior to the analyses, we looked for multicollinearity, linearity, homoscedasticity, normality, and used the same procedure as in previous studies to detect multivariate outliers, with adapted critical values for Mahalanobis distances (in this study, 21.47) and leverage values (i.e., in this study, .05). Multivariate outliers are reported in each regression as well as results without their exclusion in footnotes.

Effect of psychopathology and trait observer perspective on trait generalization. Initial investigation revealed no outlier.²⁷ As shown in Table 12, the first model was significant, $F(1, 128) = 40.35, p < .001$. The inclusion of psychopathology scores explained a significant variance of 24%. Higher psychopathology scores predicted higher ATS-Trait Generalization scores, $\beta = .49, t(128) = 6.35, p < .001$. The second and third models remained significant, $F(1, 127) = 20.30, p < .001$ for Model 2; $F(1, 126) = 13.56, p < .001$ for Model 3. However, the results showed that neither trait observer perspective, $t(127) = -.65, p = .52$, nor its interaction with psychopathology, $t(126) = .55, p = .58$, predicted the ATS-Trait Generalization scores.

Effect of psychopathology and state observer perspective on state generalization. Initial investigation revealed no outlier.²⁸ As shown in Table 13, the first model was significant, $F(1, 128) = 31.70, p < .001$. The inclusion of psychopathology scores

²⁶ If we excluded participants of whom the failure was not important (i.e., importance < 30, $n = 3$), the results remained the same. ATS state generalization was positively associated with state rumination and abstract state rumination ($r = .47, p < .001$ and $r = .36, p < .001$, respectively). ATS trait generalization positively correlated with Mini-CERTS abstract score ($r = .71, p < .001$).

²⁷ Some participants ($n = 4$) had leverage values greater than .05 but their exclusion did not affect results.

²⁸ Some participants ($n = 3$) had leverage values greater than .05 but their exclusion did not affect results.

explained a significant variance of 20%. Higher psychopathology scores predicted higher ATS-State Generalization scores, $\beta = .45$, $t(128) = 5.63$, $p < .001$. The second and third models remained significant, $F(1, 127) = 18.22$, $p < .001$ for Model 2; $F(1, 126) = 12.25$, $p < .001$ for Model 3. However, neither state observer perspective, $t(127) = 2.00$, $p = .05$ ²⁹, nor its interaction with psychopathology, $t(126) = -.69$, $p = .49$, predicted the ATS-State Generalization scores.

²⁹ The model is not significant at .01 but nearly significant. Looking at this tendency, results showed that higher visual perspective scores tend to predict greater state generalization, $\beta = .16$, $p = .048$.

Table 12

Multiple Hierarchical Regression Predicting Trait Generalization from Psychopathology, Trait Observer Perspective, and their Interaction.

Variable	Trait generalization											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI
Constant	10.06	.24		[9.58, 10.54]	10.06	.24		[9.58, 10.54]	10.06	.25		[9.57, 10.54]
Psychopathology	1.55	.24	.49***	[1.07, 2.03]	1.56	.25	.49***	[1.07, 2.04]	1.58	.25	.50***	[1.09, 2.07]
Trait observer perspective					-1.16	.25	-.05	[-.64, .33]	-1.16	.25	-.05	[-.65, .33]
Psychopathology * Trait observer perspective									.13	.24	.04	[-.35, .61]
<i>R</i> ²	.24				.24				.24			
<i>F</i>	40.35***				20.30***				13.56***			
ΔR^2	.24				.00				.00			
ΔF	40.35***				.42				.30			

Note. CI = confidence intervals. 95% confidence intervals reported in brackets. *N* = 130.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Table 13

Multiple Hierarchical Regression Predicting State Generalization from Psychopathology, State Observer Perspective, and their Interaction.

Variable	State generalization											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI	<i>B</i>	<i>SE_B</i>	β	95% CI
Constant	9.05	.28		[8.50, 9.61]	9.06	.28		[8.51, 9.61]	9.10	.28		[8.54, 9.66]
Psychopathology	1.58	.28	.45***	[1.03, 2.14]	1.49	.28	.42***	[.93, 2.05]	1.45	.29	.41***	[.88, 2.02]
State observer perspective					.57	.28	.16*	[.01, 1.13]	.58	.29	.16*	[.01, 1.14]
Psychopathology * State observer perspective									-.23	.33	-.06	[-.87, .42]
<i>R</i> ²	.20				.22				.23			
<i>F</i>	31.70***				18.22***				12.25***			
ΔR^2	.20				.02				.00			
ΔF	31.70***				3.99*				.48			

Note. CI = confidence intervals. 95% confidence intervals reported in brackets. *N* = 130.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Discussion

The Study 1d aimed to replicate the Study 1b by examining the relationships between mental rumination, visual perspective, and the level of construal adopted. First, based on processual (Libby & Eibach, 2011; Watkins, 2008) and functional similarities (Kenny & Bryant, 2007; Sibrava & Borkovec, 2006) between rumination and observer perspective, we predicted that (1) rumination and more specifically abstract rumination would be associated with greater observer perspective. Some previous studies evidenced a positive correlation (i.e., for *trait* RNT: Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007; for *state* RNT: Kuyken & Moulds, 2009), whereas others did not find this relationship (i.e., for *trait* RNT: Finnbogadóttir & Berntsen, 2011; Kuyken & Moulds, 2009; for *state* RNT: Williams & Moulds, 2007). Our results are more clear-cut in the sense that they suggest that ruminating on a failure, and more specifically ruminating in an abstract mode, is associated with the visualization of this failure from an observer perspective. However, when looking at trait measures of rumination and observer perspective without focusing on a specific event, there is no association.

Second, according to Watkins (2008, 2011) and Libby and Eibach (2011), clinical or subclinical populations would adopt an abstract level of construal, which underpins both rumination and observer perspective. As generalization could be one mechanism by which an abstract level of construal has negative consequences in vulnerable populations (Watkins, 2008), we used a generalization measure as a proxy for an abstract level of construal in response to negative events. Regarding rumination, our results support Watkins's theory (2008): They showed that the general tendency to ruminate in an abstract mode is associated with the tendency to generalize. This association was replicated when considering the rumination and the generalization about a specific event.

However, regarding visual perspective, our results do not support Libby and Eibach's theory (2011): Higher levels of psychopathology predicted greater *state* and *trait* generalization, regardless of *state* and *trait* observer perspective. In support of the results found in the Study 1b, our findings outline the importance of the level of psychopathology in determining the generalization process.

In summary, regarding *state* measures, rumination and abstract rumination positively correlated with an observer perspective. The adoption of an abstract level of construal positively correlated with rumination and abstract rumination but not with an observer perspective, whatever the level of psychopathology. Regarding *trait* measures, abstract rumination did not correlate with observer perspective. The adoption of an abstract level of construal positively correlated with abstract rumination but not with an observer perspective, whatever the level of psychopathology.

Our study is the only one to assess *state* and *trait* versions of the visual perspective using two different scales, for the actor and observer perspectives respectively, as recommended by Rice and Rubin (2009). While we did not find an association between rumination and the observer perspective using complementary measures in Studies 1a and 1b, the differentiation between actor and observer perspectives in the current study has allowed us to find an association. Moreover, to our knowledge, only one study used a trait measure of the visual perspective (Christian et al., 2013) but with a mutually exclusive measure (i.e., actor or observer). By using both *state* and *trait* versions of visual perspective in the current study, we have been able to explore the association between rumination and the observer perspective more accurately. We are convinced that future research should explore visual perspective by differentiating between actor and observer perspectives and be cautious to use both state and trait versions of each main variable (i.e., visual perspective, rumination) to enable comparison between studies.

General discussion

Four studies were conducted to investigate (1) the association between mental rumination –more specifically maladaptive abstract rumination– and visual perspective adopted in mental imagery –more specifically the observer perspective– (Studies 1a, 1b, and 1d). We also investigated their relationships with (2) an avoidance (Studies 1a and 1b) and (3) the level of construal (Studies 1b and 1d), on the basis that both maladaptive rumination and observer perspective would be underpinned by a common process –an abstract level of construal– (Libby & Eibach, 2011; Watkins, 2008, 2011) and would serve the same function –the avoidance of negative emotional information– in clinical or subclinical populations (Kenny & Bryant, 2007; Sibrava & Borkovec, 2006).

In addition to exploring the association between rumination, visual perspective, avoidance strategies, and the level of construal, the Studies 1a and 1b also explored whether adopting an observer perspective when presenting high levels of psychopathology leads to more (i) integrative meaning (Studies 1a and 1b), (ii) subjective temporal distance (Study 1b), and (iii) state generalization (Study 1b).

In the Study 1c, we explored our target associations by using two measures of the level of construal –one referring to abstract thinking about *neutral* everyday events and the other referring to abstract thinking about *negative* events– and a measure of rumination allowing the differentiation between abstract and concrete rumination.

Finally, the Study 1d extended the Studies 1a and 1b by investigating our target associations by using a *state* and a *trait* measure for each main variable (i.e., rumination, visual perspective, generalization) and exploring whether a *state* or *trait* observer perspective in people with high levels of psychopathology leads to more *state* or *trait* generalization.

(1) Association between rumination and visual perspective.

Our main hypothesis was that higher levels of rumination would be associated with a greater adoption of an observer perspective. Contrary to some studies showing an association between *state* observer perspective and *trait* RNT (Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007), we did not find this association (Study 1a and 1b), even when we distinguished between concrete and abstract trait rumination (Studies 1b and 1d). When also using a *trait* visual perspective measure and differentiating actor and observer perspective, we did not find a correlation between a *trait* observer perspective adopted to recall past events and a *trait* tendency to ruminate in a concrete or an abstract mode (Study 1d). In summary, our findings from three studies add evidence to the absence of an association between visual perspective and the general *trait* tendency to ruminate, consistent with some other studies (Finnbogadóttir & Berntsen, 2011; Kuyken & Moulds, 2009).

Regarding *state* rumination, as Williams and Moulds (2007), we did not find a link between the *state* observer perspective adopted to recall a past negative event and *state* rumination about this event (Study 1b). However, when differentiating actor and observer perspectives as well as concrete and abstract rumination, we found a positive –although weak– association: Visualizing a past failure from an observer perspective was associated with more rumination, especially abstract rumination, on this failure (Study 1d), as evidenced by Kuyken and Moulds (2009). In summary, it seems that *state* mental rumination and *state* visual perspective are sometimes associated. However, as already discussed, it is noteworthy that our measures of state rumination (Studies 1b and 1d) do not really reflect how or how much individuals ruminate on general topics at a particular moment. Actually, they reflect the tendency to ruminate *about a specific event* (as Kuyken & Moulds, 2009; Williams & Moulds, 2007), in opposition to the trait tendency to

ruminate, whatever the content. These measures have allowed us to address the main question of how an event we ruminate about is visualized.

Altogether, these findings could suggest that the relationship between mental rumination –and more generally RNT– and visual perspective in mental imagery would be moderated by some variables. For example, it is possible that *state* and *trait* RNT would not be both associated with an observer perspective. The relationship between rumination and visual perspective could also be dependent on the type of event (e.g., past or future, negative or positive), which could explain inconsistencies between previous studies using different events (e.g., Finnbogadóttir & Berntsen, 2014; Kuyken & Moulds, 2009). Therefore, these findings underline the necessity for future research to investigate the relationship between RNT and visual perspective in mental imagery by differentiating *state* and *trait* measures and using similar methodologies to enable comparisons. It would also be necessary to examine the magnitude of these associations and explore its potential moderators. The Chapter 6 will be especially dedicated to meta-analyze the studies on the association between RNT and visual perspective.

(2) Avoidance function of both rumination and visual perspective in people with higher levels of psychopathology.

We will first discuss the results for rumination before discussing those for visual perspective in the next sections.

Rumination. Rumination, and more generally RNT, is conceptualized as serving an avoidance function of negative information associated with the event (e.g., Martell et al., 2013; Sibrava & Borkovec, 2006). As expected, our findings showed that *trait* rumination (Studies 1a and 1b), more specifically abstract *trait* rumination (Study 1b) as

well as *state* rumination (Study 1b) positively correlated with avoidance strategies (i.e., experiential, Study 1a; cognitive, Study 1b).

Visual perspective. According to some authors (e.g., Kenny & Bryant, 2007; Williams & Moulds, 2007), the observer perspective would serve an avoidance function in clinical or subclinical populations. However, our findings do not support this conceptualization. Two of our studies showed that, as demonstrated in several studies, high levels of psychopathology were associated with greater experiential (Study 1a) or cognitive avoidance (Study 1b) but this association was not affected by the visual perspective adopted.

One possible explanation of this finding is related to the fact that we measured *trait* avoidance. It seems unlikely that the adoption of an observer perspective to picture a specific event in people with higher psychopathological symptoms influence their general tendency to use avoidance strategies. Indeed, it would be more relevant to test the influence of trait avoidance and the level of psychopathology on state observer perspective. Another possibility might be to measure the tendency to avoid the information associated with a specific event –a form of *state* avoidance–, even if, methodologically, this seems complicated. Future research should determine appropriate measures for studying state avoidance and examine potential differences between the association of *state* and *trait* avoidance and the adoption of an observer perspective.

(3) Abstract level of construal in both rumination and visual perspective.

Regarding the implication of an abstract level of construal in both mental rumination and observer perspective (Libby & Eibach, 2011; Watkins, 2008, 2011), our findings are once again inconsistent. In the next paragraphs, we will first discuss the results for rumination before discussing those for the visual perspective.

Rumination. Consistent with Watkins (2011), mental rumination was associated with a lack of psychological flexibility (Study 1a). Moreover, mental rumination seems to be characterized by an *abstract* level of construal in response to negative events, conceptualized as the tendency to generalize (Studies 1b, 1c, and 1d) but also a *concrete* level of construal when faced with neutral everyday life events (Studies 1b and 1c), as already discussed. As suggested by Watkins (2011), future research should examine the abstraction in response to *negative*, *neutral* as well as *positive* events, in people with higher levels of psychopathology (like Jamnadass et al., 2014; Moldovan, 2011) or mental rumination.

Visual perspective. The adoption of an observer perspective does not seem to be associated with psychological flexibility (Study 1a), an abstract level of construal when faced with neutral everyday events (Study 1b), or an abstract level of construal in response to negative events (Studies 1b and 1d). In summary, our findings are at odds with several studies evidencing a positive association between the observer perspective and an abstract level of construal when faced with *neutral* to *midly positive* or *negative* events (Agerström et al., 2013; Libby et al., 2009; Shaeffer et al., 2015; Vasquez & Buehler, 2007). They have failed to support the hypothesis of an association between the observer perspective and an abstract level of construal in response to *negative* events either. As for rumination, future research should investigate the relationship between visual perspective and abstraction in response to *negative*, *neutral*, or *positive* events, as well as appropriate measures for studying abstraction in the visual perspective field.

Overall, one of the main challenges for future research is to determine appropriate measures for abstraction. In this chapter, we have used different abstraction measures (i.e., the AAQ; ATS-State and trait generalization; BIF; an adaptation of Burrus & Roese, 2006). Even though the tendency to generalize seems appropriate and relevant for clinical

studies, it might not completely cover the broader concept of abstraction. Moreover, our state generalization measure –such as our state rumination measures– actually refers to generalization *from a specific situation* rather than how much individuals generalize from general topics at a particular moment. However, this measure allows us to address the main question of how an event we generalize from is visualized. The challenge of defining and measuring abstraction is far than resolved and is at the heart of scientific preoccupations, as suggested by the excellent review on abstraction conducted by Burgoon, Henderson, and Markman (2013).

(4) Maladaptive consequences of the observer perspective in subclinical populations

According to the theory of visual perspective (Libby & Eibach, 2011), the adoption of an observer perspective is underpinned by an abstract level of construal in which people try to make meaning of an event by integrating it with broader self-knowledge. The event pictured from an observer perspective can be associated with more or less integrative meaning, subjective psychological distance, or generalization. These cognitive correlates of the visual perspective would determine its emotional consequences (Libby & Eibach, 2011). Indeed, Libby, Valenti, et al. (2011) found that picturing a past failure from an observer perspective resulted in more negative generalization in people with low self-esteem but also in more shame. On the contrary, there was no difference in people with high self-esteem. Similarly, picturing past transgressions from an observer perspective lead to fewer positive evaluations of the romantic relationship in people with high attachment anxiety, compared to an actor perspective (Marigold et al., 2015). Once again, there was no difference between people with low attachment anxiety. Libby et al. (2005) also showed that people with high self-esteem tend to perceive less self-change

when picturing a positive past event from an observer perspective rather than from an actor perspective but that no such difference emerges in people with low self-esteem.

Partially consistent with this theoretical framework, we found that people with higher levels of psychopathology derived greater integrative meaning when picturing the event from an observer perspective but not when picturing the event from an actor perspective (Study 1b). However, in other results, we did not replicate the moderation effect of the visual perspective: The level of psychopathology prevails to determine the integrative meaning (Study 1a) or the tendency to generalize from this event to other situations (Study 1b).

However, consistent with Libby and Eibach's theory (2011), we found an association between cognitive correlates of the visual perspective and emotional correlates: When we perceive an event as giving a sense of meaning to our lives, this event seems to be closer but also to "color" other events. Intense emotional reactions are therefore associated with this event. In summary, it seems important to study the subjective meaning given to the event when it is pictured from a specific visual perspective and its association with emotional consequences.

The findings of Banks and Salmon (2013) on the consequences of *autobiographical reasoning* are congruent with the theory of Libby and Eibach (2011). Autobiographical reasoning refers to drawing self-event connections and deriving sophisticated meaning from the event (Banks & Salmon, 2013). Banks and Salmon (2013) found that autobiographical reasoning was not directly linked to psychopathology. More precisely, greater autobiographical reasoning was associated with higher levels of psychopathology but only for individuals who have a high propensity to reason about the self in a negative way (i.e., who make negative connections with the self, like "This event is one of the main causes for the long-term depression that I experience", contrary to

“This event made me stronger”). These findings underline the importance of the *way* that individuals reason about the self, in a positive or negative manner (Banks & Salmon, 2013). Our measures of state generalization and integrative meaning probably reflects this negative bias in autobiographical reasoning, with higher generalization and integrative meaning associated with negative self-event connections. However, future research should address more precisely the valence of autobiographical reasoning. To measure it, Banks and Salmon (2013) asked independent judges to rate participants’ narratives of autobiographical memories according to the valence of self-connections. However, it would be possible to use self-report measures to assess this valence, (e.g., asking participants if the memory gives an overall positive or negative tone to their lives). A challenge for future research is to find appropriate ways to determine both the subjective meaning given to the event as well as its valence, in order to examine their relationship with the visual perspective adopted and psychopathology.

Overall, some aspects of Libby and Eibach’s (2011) theory remain unclear. Indeed, we hypothesized that our three measures of generalization, integrative meaning, and subjective temporal distance reflect the subjective meaning given to the event. However, it is not clear whether these variables cover the same underlying construct or represent distinct constructs. Moreover, if these variables represent separate constructs, it would be necessary to explore the exact nature of their interrelations. As our studies were correlational, we cannot make inferences about causal influences of one variable on the others. One could argue that the integrative meaning (i.e., extracting a meaning and drawing connections with the self) would influence the generalization and the subjective temporal distance. Let’s take an example: Marie is thinking about the moment she said goodbye to her school friends, when she was 12, before moving to Toulouse because of her father’s work. According to Marie, this event gives a meaning to her life. When

thinking about it, the event seems close, as if it was yesterday, and she begins to think about all events during which she lost someone: her grandmother Liliane, her dog Oscar, her ex-boyfriend.

However, the reverse may also be possible: The negative generalization will lead to the perception of a higher integrative meaning and less temporal distance. Let's consider the previous example: When Marie is thinking about this event, she also thinks about the death of her grandmother, her split with her ex-boyfriend. When thinking about all these events, Marie begins to perceive that this memory is representative of all her life and seems to be really close. Future experimental studies should therefore examine whether these three variables represent the same construct as well as the exact nature of the interrelations between them.

To conclude, these studies were the first to examine the links between mental rumination and visual perspective adopted during mental imagery, using both state and trait measures. They also investigated whether rumination and the observer perspective were associated with an abstraction process and an avoidance function. Finally, they explored the cognitive and emotional correlates of the visual perspective in function of the level of psychopathological symptoms. Consistent with the literature in clinical psychology, we found that *state* and *trait* rumination is associated with the use of avoidance strategies (Sibrava & Borkovec, 2006) and is characterized by an abstract level of construal when thinking about *negative* events (Watkins, 2008, 2011) as well as a concrete level of construal when thinking about *neutral* everyday events. However, visual perspective is not associated with an abstract level of construal when thinking about neutral everyday events (Libby & Eibach, 2011) or an avoidance function (Williams & Moulds, 2007). When picturing a negative event from an observer perspective, people with higher levels of depression or anxiety were more likely to perceive an integrative

meaning and experience a negative emotional response, consistent with the visual perspective literature (Libby & Eibach, 2011; Libby, Valenti, et al., 2011). Finally, some of our findings support the hypothesis of a special link between mental rumination and visual perspective. We are convinced that future research should examine this relationship and its potential moderators, for example by using two separate measures of actor and observer perspective, as advised by Rice and Rubin (2009), differentiating concrete and abstract rumination as well as state and trait measures for each variable.

CHAPTER 4. Manipulation of the abstraction process during rumination

Introduction

Over the last decade, RNT, such as worry and rumination, has been conceptualized as a transdiagnostic process implicated in the onset and the maintenance of many psychological disorders (e.g., depression, anxiety disorders, eating-related disorders, psychosis; Baeyens et al., 2012; Ehring & Watkins, 2008; Harvey et al., 2004). Beyond the negative valence of these repetitive thoughts, it has been proposed that an abstraction process –a concrete or an abstract level of construal during RNT– (Stöber & Borkovec, 2002; Vallacher & Wegner, 1987) would determine their unconstructive emotional consequences (Watkins, 2008). In parallel of this account, an important feature of mental imagery, its visual perspective, is also considered as a transdiagnostic feature of several psychological disorders (e.g., Holmes & Mathews, 2010) and would also be underpinned by an abstraction process (Libby & Eibach, 2011), responsible for its unconstructive emotional consequences (e.g., Williams & Moulds, 2007). To our knowledge, no study has manipulated the abstraction process during RNT to explore its consequences on visual perspective. Therefore, the present study addresses the question of the influence of a concrete versus abstract level of construal during RNT on mental imagery and visual perspective as well as emotional reactivity.

Repetitive thinking is defined as the “process of thinking attentively, repetitively, or frequently about oneself and one’s world” (Segerstrom et al., 2003, p. 109). Among repetitive thinking, worry is “a chain of thoughts and images, negatively affect-laden and relatively uncontrollable” (Borkovec et al., 1983, p. 10) and rumination corresponds to behaviors and thoughts that focus one’s attention on one’s depressive symptoms and on

the implications and consequences of these symptoms (Nolen-Hoeksema, 1991). Research has shown that RNT may have unconstructive consequences, like greater emotional reactivity following a stressful situation in people with a higher tendency to ruminate (Thomsen, Jorgensen, Mehlsen, & Zachariae, 2004) or increased depressed and anxious affects following a period of worry, particularly in clinical population (Behar et al., 2005).

According to the processing-mode theory (Watkins, 2008), RNT can have constructive or unconstructive consequences, depending on the processing mode –the level of construal– adopted during RNT. Indeed, social-cognitive theories (i.e., Control theory, Carver & Scheier, 1982; Construal-level theory, Trope & Liberman, 2003; Action identification theory, Vallacher & Wegner, 1989) differentiate a concrete and an abstract level of construal. The former refers to specific, subordinate, and contextualized mental representations that specify the means and steps of a goal, an action, or an event. This concrete level focuses on the “how” details of goals, actions, or events (e.g. “How did this happen?”). The latter refers to general, superordinate, and decontextualized mental representations that give the essential meaning of goals, actions, or events. This abstract level focuses on their “why” aspects (e.g., “Why did this happen?”). People tend to adopt an abstract level of construal but are able to adopt a concrete level when needed, i.e., in response to a challenging context or negative mood (Vallacher & Wegner, 1987). However, clinical and subclinical populations (e.g., depression, GAD) would be characterized by a dysregulation in their level of construal: they adopt by default an abstract level of construal and have difficulties to adapt it (Watkins, 2011).

Applied to mental rumination, one could differentiate two kinds of ruminations, depending on the level of construal or abstraction. Concrete rumination, characterized by a concrete level of construal, corresponds to thoughts about what makes an event unique (e.g., its context and constituent steps), about “how” an event took place. Conversely,

abstract rumination, characterized by an abstract level of construal, corresponds to thoughts about the analysis of causes, consequences, and implications of an event, about “why” this event takes place (Watkins, 2008). Clinical populations are characterized by a tendency to ruminate at an abstract level of construal (Watkins, 2008, 2011).

A number of experimental studies have investigated the effect of adopting a concrete versus an abstract level of construal *during rumination* in clinical or subclinical populations (i.e., people with moderate to severe levels of psychopathological symptoms or trait rumination). In these studies, the procedure was often adapted from a classical rumination induction task (Nolen-Hoeksema & Morrow, 1993) and contrasted concrete (e.g., “Focus your attention on your experience of...”) with abstract instructions (e.g., “Think about the causes, meanings, and consequences of...”) (e.g., Watkins & Teasdale, 2004). These studies showed that, compared to adopting a concrete mode of rumination, adopting an abstract mode of rumination increased overgeneral memory (Watkins & Teasdale, 2004) and negative global self-judgments (Rimes & Watkins, 2005), and reduced problem solving (Watkins & Moulds, 2005a) in clinical samples (i.e., depressed participants). Other studies used “pure” inductions of a concrete or an abstract level of construal, independently of a rumination induction. They demonstrated that an abstract level of construal was associated with increased emotional reactivity in individuals with high levels of trait rumination (Moberly & Watkins, 2006) and more negative generalization in dysphoric people (Van Lier et al., 2014).

Besides the abstract nature of maladaptive RNT, another field of research has focused on its verbal or imagery nature. Results have shown that RNT is characterized by a predominantly verbal-linguistic activity (i.e., words people say to themselves) over an imagery activity (i.e., pictures in the mind), particularly in clinical populations suffering, for example, from GAD (e.g., Borkovec & Inz, 1990; Hirsch et al., 2012). The

predominance of the verbal-linguistic nature of RNT has been evidenced in *mentation sampling* studies in which participants are regularly asked to give a brief description of their thoughts content and to report the proportion of verbal-linguistic versus imagery-based activity (e.g., Behar et al., 2012, 2005; Borkovec & Inz, 1990; Hirsch et al., 2012).

According to the cognitive avoidance theory of worry (Sibrava & Borkovec, 2006), unpleasant mental images are avoided by the use of verbal-linguistic activity during worry. The reduced imagery would be further explained by the fact that worrisome thinking is abstract (Stöber & Borkovec, 2002). In this account, a concrete thought is defined as “distinct, situationally specific, unequivocal, clear, singular” (e.g., “Today, I will drive to Lyon and go shopping”), whereas an abstract thought is “indistinct, cross-situational, equivocal, unclear, aggregated” (e.g., “Maybe something bad will happen”) (Stöber & Borkovec, 2002, p. 4). Abstract thoughts might evoke less imagery as well as less emotional responses than concrete thoughts. Several studies have documented the reduced concreteness of both worrisome and ruminative thoughts (e.g., Stöber et al., 2000; Watkins & Moulds, 2007) and their association with reduced mental imagery (e.g., Behar et al., 2012). Beyond its impact on the frequency of images, the reduced concreteness can be considered as the adoption of an abstract level of construal, which could explain differences between visual perspectives adopted during mental imagery.

Indeed, mental images can be depicted from an actor or an observer perspective (Nigro & Neisser, 1983). From an actor perspective, also named first-person perspective, people see the event from their own eyes, with the same visual perspective that they would have if the event took place. Conversely, from an observer perspective, also named third-person perspective, people see the event from the outside, with the same visual perspective that an observer of the situation would have during the event. Usually, mental images are predominantly experienced from an actor perspective, particularly for recent,

vivid, or distressing events (e.g., Nigro & Neisser, 1983; Robinson & Swanson, 1993). According to the theory developed by Libby and Eibach (2011), the actor perspective is characterized by a concrete level of construal and the observer perspective by an abstract level of construal. This idea has been tested in several studies which identified a bidirectional causal relationship between visual perspective and the level of construal (Agerström et al., 2013; Libby & Eibach, 2009; Shaeffer et al., 2015; Vasquez & Buehler, 2007).

Results from different studies have shown that clinical and subclinical populations adopt more an observer perspective than non-clinical populations (e.g., Coles et al., 2002; Finnbogadóttir & Berntsen, 2014; Kuyken & Howell, 2006), suggesting the use of an abstract level of construal. Furthermore, the adoption of an observer perspective rather than an actor perspective was associated with fewer emotional reactions and unconstructive consequences, like generating more global negative self-judgments in emotionally vulnerable participants (Libby, Valenti, et al., 2011).

To resume, it seems that verbal-linguistic activity (i.e., RNT) and imagery activity (i.e., visual perspective) were both influenced by the level of construal adopted. Even though studies have explored the relationship between RNT and imagery frequency, few studies have explored the potential association between RNT and the visual perspective adopted in images.

Four correlational studies demonstrated a correlation between RNT and the adoption of an observer perspective (Finnbogadóttir & Berntsen, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007). Williams and Moulds (2007) found that, in high dysphoric people, the adoption of an observer perspective in intrusive memories was associated with the *trait* tendency to ruminate. Conversely, there was no association between the visual perspective adopted and trait rumination in low dysphoric people. Two other studies

assessed the visual perspective adopted to recall memories following word cues or emotion cues, or to recall important memories (Finnbogadóttir & Berntsen, 2014). In these studies, the *trait* tendency to worry was associated with greater use of an observer perspective in recalled memories. Finally, Kuyken and Moulds (2009) evidenced that, in patients with a history of recurrent depression, past memories recalled from an observer perspective were associated with greater *state* rumination than those recalled from an actor perspective. Even though these four studies have demonstrated a relationship between visual perspective and RNT, like rumination, they did not differentiate the concrete and abstract level of construal during RNT and did not test experimentally the hypothesis that an abstract mode of RNT can lead to images in an observer perspective.

Consequently, the studies reported in this chapter had three aims. First, based on the cognitive avoidance and the reduced concreteness theories (Sibrava & Borkovec, 2006; Stöber & Borkovec, 2002), we aimed at testing whether inducing rumination at an abstract level of construal, compared to a concrete level, led to more verbally- than imagery-based cognitions. We predicted that rumination would be characterized by a predominance of verbal thoughts over mental images, especially among emotionally vulnerable participants, i.e., presenting higher levels of psychopathological symptoms, such as depression and anxiety symptoms, or a high tendency to ruminate (e.g., Borkovec & Inz, 1990; Watkins, 2011). We also predicted an interaction effect: The effect of the level of psychopathological symptoms or trait rumination would be especially pronounced when ruminating at an abstract level of construal, compared to a concrete level.

The second aim was to examine whether adopting an abstract level of construal during rumination, versus a concrete level of construal, leads to images that are more visualized from an observer perspective. Based on the processing-mode theory (Watkins, 2008, 2011) and the visual perspective theory of Libby and Eibach (2011), it was

expected an interaction effect in which high levels of psychopathological symptoms or a high tendency to ruminate would be associated with more images from an observer perspective when ruminating at an abstract level, compared to ruminating at a concrete level.

The third aim of this study was to examine emotional consequences of adopting an abstract level of construal during rumination. Based on the processing-mode theory (Watkins, 2008, 2011), we hypothesized that higher levels of psychopathology and trait rumination would be associated with a greater increase in negative affect (Behar et al., 2005; Thomsen et al., 2004) and that this effect would be stronger in people who adopted an abstract level of construal during rumination, compared to individuals who adopted a concrete level of construal (e.g., Moberly & Watkins, 2006).

In summary, our main hypothesis concerned the *interaction effect* between psychopathology or trait rumination and the level of construal adopted during rumination on (a) the nature of thoughts, (b) the visual perspective adopted, and (c) the variation of negative affect. To test these predictions, we used an abstract or concrete rumination induction about a memory of a past failure, using a modified version of the induction procedure developed by Nolen-Hoeksema and Morrow (1993). During the induction, we measured the nature of cognitions (i.e., verbally- versus imagery-based) as well as the visual perspective of images (i.e., actor versus observer), using a mentation sampling procedure. All participants also completed measures of negative affect intensity as well as measures of psychopathological symptoms and trait rumination.

Study 2a

Method

Participants

A total of 124 participants (103 women, 83.06%; mean age = 20.75, $SD = 4.89$) completed the first part of the study (see Procedure) and 68 participants (58 women, 85.29%; mean age = 21.10, $SD = 5.51$) completed the two parts of the study. Participants were randomly allocated to a concrete ($n = 31$) or an abstract level of construal condition ($n = 37$). All participants were recruited at the University of Grenoble Alpes in exchange of course credits. The only exclusion criterion was not being fluent in French.

Material

Trait rumination measures.

Ruminative Responses Scale – 10 items (RRS, Guimpel et al., 2012; Treynor et al., 2003). A 10-item version of the RRS was used to measure the frequency of rumination over the last week. It is a self-report questionnaire in which participants rate the frequency of their rumination on a 4-point fully labeled scale ranging from 1 (*almost never*) to 4 (*almost always*). The RRS contains two subscales: the Brooding and Reflection subscales. The Brooding subscale is usually considered as representing the maladaptive form of rumination. In the current study, internal consistencies for the RRS total score ($\alpha = .71$) and each subscale (Brooding, $\alpha = .65$ and Reflection, $\alpha = .74$) were relatively low.

Mini Cambridge Exeter Repetitive Thought Scale (Mini-CERTS, Douilliez et al., 2014). The Mini-CERTS is a 16-item self-report questionnaire assessing the level of construal adopted during repetitive thoughts. The Mini-CERTS assessed two dimensions: the abstract (e.g., “I think about why I can’t get started on something”) and the concrete

level of construal adopted during repetitive thoughts (e.g., “I have very rapid impressions and intuitions of what is happening around me”). Each item is scored on a 4-point fully labeled scale ranging from 1 (*almost never*) to 4 (*almost always*). Internal consistencies for these two subscales in the current sample were good (respectively $\alpha = .71$ and $\alpha = .74$).

Psychopathological measures.

Center of Epidemiologic Studies for Depression scale (CES-D, Fuhrer & Rouillon, 1989; Radloff, 1977). The CES-D is a 20-item self-report questionnaire that assesses symptoms of depression. Each item is scored on a 4-point scale ranging from 0 (*never or rarely*) to 3 (*frequently or all the time*) addressing how frequently the symptom has been experienced over the last week. Scores range from 0 to 60, with a higher scores indicating greater depression. Internal consistency for the CES-D in the current sample was high ($\alpha = .91$).

State Trait Anxiety Inventory – Trait version (STAI-T, Gauthier & Bouchard, 1993; Spielberger et al., 1983). The STAI-T is a 20-item self-report questionnaire assessing symptoms of trait anxiety with a 4-point scale from 1 (*no*) to 4 (*yes*)³⁰. Scores range from 20 to 80, so that higher scores indicate greater anxiety. Internal consistency in our sample was high ($\alpha = .93$).

Emotional variability measure.

Negative affect subscale of the Positive and Negative Affect Scale (PANAS, Gaudreau et al., 2006; D. Watson et al., 1988). The negative affect subscale of the PANAS assesses the nature and intensity of negative emotions. Participants indicate to what extent they “...feel that way right now” for 10 negative emotion words (e.g., ashamed) using 5-point fully labeled scales ranging from 1 (*very slightly or not at all*) to 5

³⁰ As in Study 1b, because of confusion, the STAI-T was labeled from “no” to “yes” rather than from “almost never” to “almost always”.

(*extremely*). These answers were summed to create an index of negative affect. Internal consistency in our sample before ($\alpha = .92$) and after the mentation sampling task ($\alpha = .91$) were high. A variation score of negative affect was computed by subtracting the negative affect score before the rumination induction from the negative affect score after the rumination induction.

Rumination induction.

Induction of the level of construal during rumination. To guide and standardize the rumination process in an abstract “why” or a concrete “how” level of construal, a sequence of 12 instructions was presented to participants. These instructions were adapted by Kornacka (personal communication) from the initial instructions developed by Nolen-Hoeksema and Morrow (1993) and contrasted abstract instructions (i.e., “Think about the causes, consequences, and implications of...”) with concrete instructions (i.e., “Focus your attention on...”). In order to avoid that concrete instructions induced more mental imagery than abstract instructions, we homogenized the instructions so that all rumination instructions were preceded with the words “think about...” and ended with “...when remembering this failure”. Therefore, participants in the abstract condition were instructed to “think about the causes, consequences, and implications” of the event (e.g., “Think about the causes, consequences, and implications of the quantity of stress that you experience when remembering this failure”). Participants in the concrete condition were presented instructions to “think about” the event (e.g., “Think about the quantity of stress that you experience when remembering this failure”).

Manipulation check of the level of construal during rumination. Participants wrote a brief description of what they thought. The content of these descriptions was analyzed with the software Tropes (Molette, Landré, & Ghiglione, n.d.) in order to identify causal-type words (e.g., “so”, “because”) as a manipulation check of our

induction. To deal with differences in the length of the descriptions, we identified the number of causal-type words in each description (as in Watkins, 2004) but also the percentage of causal-type words. We predicted that participants in the abstract condition would use more causal-type words and a higher percentage of causal-type words than participants in the concrete condition, because of instructions in the abstract condition to focus on “causes, consequences, and implications”.

Self-report imagery measures.

Nature of thoughts. Participants assessed the nature of their thoughts by choosing between three categories: “verbally-based”, “imagery-based” or “both”. We computed a frequency score for each category (e.g., the total number of verbal thoughts during the mentation sampling task, divided by the total number of thoughts and multiplied by 100).

Visual perspective. This measure is conditioned by the nature of thoughts: Only participants who indicated having “imagery-based” or “both” thoughts assessed the visual point of view adopted in their images. The visual perspective was assessed on a VAS ranging from -5 (*actor perspective*) to +5 (*observer perspective*). We computed the mean perspective for “imagery-based” and “both” thoughts during the mentation sampling task as a global score of imagery perspective.

Other measures.

Perceived mentation sampling task difficulty. Participants indicated their difficulty to follow rumination instructions in the mentation sampling task on a VAS ranging from 0 (*not at all difficult*) to 10 (*extremely difficult*). They also had the opportunity to write down few words to explain why it was difficult.

Distress. Participants rated their current distress on a VAS ranging from 0 (*no distress*) to 10 (*extremely intense distress*).

Procedure

The study protocol was approved by the local research ethical committee and the French National Commission for Data Protection and Liberties (CNIL, France) (see Appendix E1). Participants registered for a 45-min study, which was divided in two parts.

After providing their informed consent to take part in the study, participants first completed an online survey on the platform Qualtrics®, lasting 10 minutes on average, with the measures of rumination (i.e., RRS-10, Mini-CERTS), psychopathology (i.e., CES-D and STAI-T), and demographic information.

Few days later, they came to the laboratory (mean = 5.67 days, $SD = 4.75$) for the second part of the study. Participants were tested in small groups of 9 participants. All the instructions and questions were presented on a computer using Qualtrics® online survey software. Participants initially completed the negative affect subscale of the PANAS. Then, an explanation was given about what was meant by “verbally or imagery-based thoughts”. Actor and observer perspectives were also explained and illustrated using photos (see Appendix E2) depicting each perspective (adapted from the procedure of Libby, Valenti, et al., 2011):

“When we think about a situation, we can make it by various forms: We can think about the situation in a verbal form or in an imagery form. The following explanations will allow you to learn how to differentiate these two types of thoughts and to answer questions in the next step of the study. Please take the time to read this information and to understand it.

Thinking in a verbal form refers to think with words and sentences in your mind. Thinking in an imagery form refers to think with pictures in your mind. These pictures can take all sensory modalities (sight, hearing, smell, taste, touch). There are two categories of imagery thoughts. For example, for the situation “Wipe a spot with a sponge”, we could have an image from two perspectives, illustrated below (...).

With the actor perspective, we see the event as if we were actors here and now. In other words, we see our surroundings through our own eyes. For example, if we take the situation to staple a stack of papers, the image from which we could have an actor perspective would be (...). With the observer perspective, we see the event in the eyes of a spectator. In other words, we can see ourselves, as well as our surroundings. For example, if we take the situation to staple a stack of papers, the image from which we could have an observer perspective would be (...).”

Then, participants were asked to remember a specific autobiographical memory of a past failure. Using the instructions used by Libby, Valenti, et al. (2011), they were asked to remember:

“...a time when you failed at something that was important to you. This might be a social or interpersonal failure, an academic failure, a failure in a competitive event, or any time when you failed at something that was important to you. This situation should have taken place less than 5 years ago and should be a specific situation lasting less than one day, that occurs in a particular time and place.”

Participants were then asked to write down few words to describe the event. Next, they were randomly assigned –by the software– to adopt a concrete or an abstract level of construal during the induced rumination about the memory, while completing a mentation sampling task. During the sampling task, a fixation cross was presented in the middle of the screen for 2 s, followed by a concrete or an abstract level of construal instruction, aleatory presented on the screen for 15, 20, 25, or 30 s to avoid habituation. The sequence of instructions, with different times of presentation, was randomly fixed before the experiment but all participants went through the same sequence.

Each rumination instruction was followed by questions. Participants were asked to write down a short description of their thoughts. They then reported the nature of their thoughts. If they had images (i.e., responses “imagery-based” or “both”), they also

assessed the visual perspective of these images. A new fixation cross appeared, followed by new rumination instructions. This sequence was repeated twelve times for a total period lasting approximately 15 min.

At the end of the task, participants rated their negative affect and the difficulty of the task. To ensure that their mood had returned to the baseline, participants were instructed to think about a specific pleasant memory of an event (i.e., a positive concrete imagery induction) that should have taken place within the last 5 years and occurred in a particular place and time. Participants were guided through the imagery task by instructions encouraging the focus on the concrete details of the memory (e.g., “What do you see around you?”). They finally indicated their current distress. In the case of a moderate to severe distress (i.e., responses from 5 to 10), they were instructed to directly talk to the experimenter. Otherwise, they were told that they could see the experimenter if they wished. This measure allowed us to find any participant who felt excessively intense distress at the end of the study. Finally, participants were thanked and fully debriefed (see Appendix E2 for the protocol of the study).

Results

Preliminary analyses

Dropouts. Out of 124 participants, only 68 participants (54.83%) answered the two parts of the study. Participants who did not complete the second part of the study did not differ significantly from the others regarding age, $t(122) = .89, p = .38$, sex, $\chi^2(1) = .53, p = .47$, and scores on the following measures: STAI-T ($t(122) = .55, p = .58$), CES-D ($t(122) = .12, p = .90$), RRS-10 Total ($t(122) = 1.07, p = .29$), RRS-10 Brooding ($t(122) = 1.37, p = .18$), RRS-10 Reflection ($t(122) = .38, p = .70$), Mini-CERTS Abstract ($t(122) = 1.53, p = .13$) or Concrete ($t(122) = -1.44, p = .15$).

Equivalence between conditions. Descriptive statistics for age and psychopathology variables by condition are displayed in Table 1. Participants in the two conditions did not differ on gender distribution, $\chi^2(1) = 3.10$, $p = .08$, age, psychopathology or trait rumination measures (see Table 1). Participants in the concrete ($M = 15.90$, $SD = 6.36$) and the abstract conditions ($M = 17.86$, $SD = 8.82$) did not differ on negative affect before the experiment, $t(66) = -1.06$, $p = .29$, or on the perception of the difficulty ($M = 3.32$, $SD = 2.40$ for the concrete condition; $M = 4.30$, $SD = 2.46$ for the abstract condition), $t(66) = -1.65$, $p = .11$.

Table 1

Descriptive Statistics for Age, Rumination, and Psychopathology Measures, in Function of the Level of Construal Conditions.

	Level of construal adopted during rumination				$t(66)$
	Concrete ($n = 31$)		Abstract ($n = 37$)		
	M	SD	M	SD	
Age	22.52	7.68	19.92	2.02	1.83
RRS-10 Total	24.16	4.76	24.11	5.15	.04
RRS-10 Reflection	11.84	3.76	12.03	2.95	-.23
RRS-10 Brooding	12.32	2.81	12.08	3.21	.33
Mini-CERTS Concrete	16.68	2.95	17.54	3.95	-1.00
Mini-CERTS Abstract	20.74	4.58	20.05	4.40	.63
CES-D	19.13	11.74	20.08	11.03	-.34
STAI-T	46.77	12.65	47.76	10.72	-.35

Note. RRS-10 = 10-item Ruminative Response Scale; Mini-CERTS = Mini Cambridge Exeter Repetitive Thought Scale; CES-D = Center of Epidemiologic Studies for Depression scale; STAI-T = State Trait Anxiety Inventory-Trait version.

Correlations between rumination and psychopathology measures. As shown in Table 2, psychopathology measures (i.e., the STAI-T and CES-D) positively correlated. They also positively correlated with maladaptive rumination measures (i.e., the RRS-10 Total, the RRS-10 Brooding, and the Mini-CERTS Abstract). Results are mixed regarding the correlations between psychopathology and adaptive rumination measures (i.e., the RRS-10 Reflection and the Mini-CERTS Concrete): only the STAI-T negatively correlated with the Mini-CERTS Concrete.

As the scores on the STAI-T and the CES-D scores were highly correlated ($r = .71, p < .001$), we chose to create a general score of *psychopathology* by converting the STAI-T and CES-D scores to z-scores and averaging them for each participant. This method has been used in previous studies (e.g., Aldao & Nolen-Hoeksema, 2012). Similarly, as the scores on the RRS-10 Brooding and the Mini-CERTS Abstract subscales were correlated ($r = .60, p < .001$), they were converted to z-scores and averaged into a general score of *maladaptive trait rumination*.

Table 2
Correlations, Means, and Standard Deviations for Rumination and Psychopathology Scores.

Measure	1	2	3	4	5	6	7
1. RRS-10 Total	-						
2. RRS-10 Reflection	.80***	-					
3. RRS-10 Brooding	.75***	.22	-				
4. Mini-CERTS Concrete	.00	.16	-.17	-			
5. Mini-CERTS Abstract	.56***	.29*	.60***	-.12	-		
6. CES-D	.39**	.15	.48***	-.19	.57***	-	
7. STAI-T	.38**	.17	.43***	-.40**	.77***	.71***	-
<i>M</i>	24.13	11.94	12.19	17.15	20.37	19.65	47.31
<i>SD</i>	4.94	3.32	3.01	3.53	4.46	11.28	11.56

Note. RRS-10 = 10-item Ruminative Response Scale; Mini-CERTS = Mini Cambridge Exeter Repetitive Thought Scale; CES-D = Center of Epidemiologic Studies for Depression scale; STAI-T = State Trait Anxiety Inventory – Trait version. $N = 68$.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Manipulation check

Contrary to our hypothesis, participants in the abstract condition ($M = 2.57, SD = 2.26$) did not use more causal-type words than participants in the concrete condition ($M = 1.71, SD = 1.94$), $t(66) = -1.67, p = .10$. Participants in the abstract condition ($M = .84, SD = .68$) did not use a higher percentage of causal-type words than participants in the concrete condition either ($M = .89, SD = 1.14$), $t(66) = .23, p = .82$.

Main analyses

Except otherwise stated, our main hypotheses regarding the influence of psychopathology, trait rumination and the level of construal on the predominance of (a) a verbally-based activity over an imagery-based activity, (b) the use of an observer perspective, and (c) the variation of the intensity of negative affect were tested using multiple hierarchical regressions. Psychopathology and maladaptive rumination scores were examined separately in each analysis. Models included psychopathology or maladaptive rumination scores, condition (i.e., concrete or abstract rumination), and their interaction (condition x psychopathology or maladaptive rumination scores) as predictors. For each hierarchical multiple regression, we entered psychopathology or maladaptive rumination scores in a first step, condition in the second step, and the interaction term in the third step. In the results section, we will refer to these different steps as Models 1, 2, and 3, respectively.

In all analyses, an alpha of .01 was used for all statistical tests to strike a balance between avoiding Type I errors associated with the large number of analyses and avoiding Type II errors (e.g., O’Keefe, 2003). Continuous predictor variables (i.e., psychopathology and maladaptive rumination scores) were already centered during their computation. Individual variables were only interpreted when the overall model was significant in order to reduce Type I errors (Cohen et al., 2003). We will only present regression tables with significant results at the end of the results section. Regression tables with non-significant results will be presented in the Appendices.

Initial investigations revealed no issues with multicollinearity and linearity. In order to deal with problems with homoscedasticity and normality, we used bootstraps, as in previous studies (Field, 2013; see Chapter 3). Prior to analyses, we looked for multivariate outliers as in previous studies (Chapter 3), with adapted critical values for

Mahalanobis distances (i.e., in this case, 16.56), and leverage values (i.e., in this case, .18). We removed participants who scored above at least two of those limits. Multivariate outliers are reported in each regression as well as results without their exclusion in footnotes.

Verbally-based versus imagery-based activity during rumination. Rumination was predominantly verbally-based ($M = 44.49$, $SD = 23.11$) rather than imagery-based ($M = 32.11$, $SD = 20.72$), $t(67) = 2.51$, $p < .05$, or “both” ($M = 23.41$, $SD = 16.50$), $t(67) = 5.06$, $p < .001$.³¹ When images are reported, they are mainly depicted from an actor perspective ($M = -.79$, $SD = 2.17$). Following Borkovec and Inz (1990), as independent t -tests revealed that the frequency of “both” (i.e., verbally-based and imagery-based) thoughts did not differ significantly between participants in the concrete ($M = 22.85$, $SD = 12.90$) and the abstract condition ($M = 23.87$, $SD = 19.16$), $t(66) = -.26$, $p = .79$, these data were disregarded in subsequent analyses.

(a) Predictors of the frequency of verbally-based and imagery-based thoughts.

Effects of psychopathology scores, conditions, and their interaction on the frequency of verbal thoughts. Initial investigations revealed no problems with outliers³². As shown in Table 3, the first model was significant, $F(1, 66) = 9.06$, $p < .01$, the inclusion of psychopathology scores explained a significant variance of 12%. Unexpectedly, higher levels of psychopathology predicted lower frequency of verbal thoughts, $b = -8.69$ [-13.89, -3.47], $SE = 2.69$, $p < .01$. The second model became non-significant, $F(1, 65) = 4.46$, $p = .02$, and the third model remained non-significant, $F(1,$

³¹ Rumination was also more imagery-based than “both”, $t(67) = 2.43$, $p < .05$.

³² One multivariate outlier was greater than .18 on leverage value but his exclusion did not affect results.

64) = 3.64, $p = .02$. Contrary to our prediction, the results showed that neither the experimental conditions nor their interaction with psychopathology predicted the frequency of verbal thoughts.

Effects of maladaptive rumination scores, conditions, and their interaction on the frequency of verbal thoughts. Initial investigations revealed no problems with outliers.³³ None of the three models were significant, $F(1, 66) = 3.57, p = .06$ for Model 1; $F(1, 65) = 1.79, p = .18$ for Model 2; $F(1, 64) = 2.62, p = .06$ for Model 3. Contrary to our prediction, the results indicated that neither maladaptive rumination, nor the experimental conditions, nor their interaction predicted the frequency of verbal thoughts (see Appendix E3).

Effects of psychopathology scores, conditions, and their interaction on the frequency of mental images. Initial investigations revealed no problem with outliers.³⁴ As shown in Table 4, the first model was significant, $F(1, 66) = 12.66, p < .01$, the inclusion of psychopathology scores explained a significant variance of 16%. Unexpectedly, higher psychopathology scores predicted higher frequency of images, $b = 9.00 [4.07, 15.12], SE = 2.70, p < .01$. Although the second model remained significant, $F(1, 65) = 6.26, p < .01$, the experimental condition did not predict the frequency of images, $b = -1.04 [-11.28, 8.56], SE = 4.80, p = .85$. The third model remained significant, $F(1, 64) = 4.92, p < .01$. However, contrary to our prediction, the experimental conditions did not moderate the effect of psychopathology on the frequency of images, $b = -7.25 [-18.49, 2.93], SE = 5.74, p = .20$.

Effects of maladaptive rumination scores, conditions, and their interaction on the frequency of mental images. One multivariate outlier on standardized residuals and

³³ One multivariate outlier was greater than .18 on leverage value but his exclusion did not affect results.

³⁴ One multivariate had higher standardized DFBETA and another multivariate outlier had higher leverage values but their exclusion did not affect results.

on standardized DFBETA was excluded from analyses³⁵. None of the three models were significant, $F(1, 65) = 3.03, p = .09$ for Model 1; $F(1, 64) = 1.54, p = .22$ for Model 2; $F(1, 63) = 3.56, p = .02$ for Model 3. Inconsistent with our prediction, the results showed that neither maladaptive rumination, nor the experimental conditions, nor their interaction predicted the frequency of images³⁶ (see Appendix E4).

(b) Predictors of the observer perspective.

Effects of psychopathology scores, conditions, and their interaction. Initial investigations revealed no problems with outliers³⁷. None of the three models were significant, $F(1, 66) = .02, p = .90$ for Model 1; $F(1, 65) = .21, p = .81$ for Model 2; $F(1, 64) = .63, p = .60$ for Model 3. Contrary to our prediction, neither psychopathology, nor the experimental conditions, nor their interaction predicted the adoption of an observer perspective (see Appendix E5).

Effects of maladaptive rumination scores, conditions, and their interaction. Initial investigations revealed no problem with outliers³⁸. None of the three models were significant, $F(1, 66) = .63, p = .43$ for Model 1; $F(1, 65) = .56, p = .58$ for Model 2; $F(1, 64) = .64, p = .59$ for Model 3. Parallel to our results regarding psychopathology and contrary to our prediction, neither maladaptive rumination, nor the level of construal, nor their interaction predicted the adoption of an observer perspective (see Appendix E6).

³⁵ Without the exclusion of the first outlier, results were identical. It should also be noted that two participants were identified as having standardized residuals greater than $|3.29|$ or a leverage value higher than .18. Their exclusion did not affect results.

³⁶ Even though the third model remained non-significant, we conducted simple slopes analysis using Hayes' (2013) PROCESS macro for SPSS. This revealed that the experimental conditions tended to moderate the effect of maladaptive rumination level on the frequency of images, $b = -13.83 [-23.30, -3.13], SE = 4.69, p < .01$. When adopting a concrete level of construal, higher levels of maladaptive rumination were associated with more mental images, $b = 12.70 [4.02, 21.38], SE = 4.35, t(63) = 2.92, p < .01$. When adopting an abstract level of construal, the level of maladaptive rumination did not predict the frequency of mental images, $b = 1.64 [-5.34, 8.61], SE = 3.49, t(63) = 0.47, p = .64$.

³⁷ One multivariate outlier was detected on leverage values but his exclusion did not affect results.

³⁸ One multivariate outlier was detected on leverage values but his exclusion did not affect results.

(c) Predictors of the variation of negative affect.

Effects of psychopathology scores, conditions, and their interaction. One multivariate outlier on standardized residuals and standardized DFBETA was excluded from analyses.³⁹ The first model was significant, $F(1, 65) = 8.73, p < .01$, the inclusion of psychopathology scores explained a significant variance of 12%. However, the level of psychopathology did not predict the variation of negative affect, $b = 2.83 [.77, 4.82], SE = 1.06, p = .01$.⁴⁰ Although the second model remained significant, $F(1, 64) = 5.92, p < .01$, the experimental conditions did not predict the variation of negative affect, $b = -2.93 [-6.16, .29], SE = 1.70, p = .09$. The third model became non-significant, $F(1, 63) = 3.94, p = .01$. Contrary to our prediction, the experimental conditions did not moderate the effect of psychopathology on the variation of negative affect (see Appendix E7).

Effects of maladaptive rumination scores, conditions, and their interaction. One multivariate outlier on standardized residuals and on standardized DFBETA was excluded from analyses.⁴¹ None of the three models were significant, $F(1, 65) = 6.15, p = .02$ for Model 1; $F(1, 64) = 3.99, p = .02$ for Model 2; $F(1, 63) = 2.74, p = .05$ for Model 3. Contrary to our prediction, neither maladaptive rumination⁴², nor the experimental conditions, nor their interaction predicted the variation of negative affect (see Appendix E8).

³⁹ Without the exclusion of the outlier, results were identical. It should also be noted that three participants were identified as having standardized residuals greater than |3.29|, a leverage value higher than .18, or standardized DFBETA greater than 1. Their exclusion did not affect results.

⁴⁰ The model is not significant at .01 but nearly significant. Looking at this tendency, results showed that higher levels of psychopathology tended to predict more elevation of negative affect.

⁴¹ Without the exclusion of this outlier, results were identical. It should also be noted that two participants were identified as having standardized residuals greater than |3.29| or a leverage value higher than .18. Their exclusion did not affect results.

⁴² The model is not significant at .01 but nearly significant. Looking at this tendency, results showed that higher levels of maladaptive rumination tend to predict more elevation of negative affect, $b = 2.50 [0.45, 4.70], SE = 1.09, p < .05$.

CHAPTER 4. Manipulation of the abstraction process during rumination

Table 3

Multiple Hierarchical Regressions Predicting the Frequency of Verbal Thoughts from Psychopathology, Conditions, and their Interaction.

Variable	Frequency of verbal thoughts											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	44.49	2.71		[39.13, 49.78]	44.49	3.45		[37.84, 51.54]	44.32	3.41		[37.66, 51.57]
Psychopathology	-8.69	2.69	-.35**	[-13.89, -3.47]	-8.69	2.73	-.35**	[-13.95, -3.40]	-12.43	2.84	-.50***	[-18.36, -7.78]
Condition					-.01	5.31	.00	[-9.48, 8.93]	-.00	5.26	.00	[-9.54, 9.18]
Psychopathology* Condition									7.96	5.56	.22	[-3.42, 18.50]
<i>R</i> ²	.12				.12				.15			
<i>F</i>	9.06**				4.46*				3.64*			
ΔR^2	.12**				.00				.03			
ΔF	9.06**				.00				1.89			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 68.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Table 4

Multiple Hierarchical Regressions Predicting the Frequency of Images from Psychopathology, Conditions, and their Interaction.

Variable	Frequency of images											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	32.11	2.35		[27.61, 37.04]	32.67	3.38		[26.26, 40.04]	32.83	3.42		[26.35, 40.42]
Psychopathology	9.00	2.70	.40**	[4.07, 15.12]	9.02	2.73	.40**	[4.07, 15.33]	12.44	3.80	.56**	[6.24, 22.35]
Condition					-1.04	4.80	-.03	[-11.28, 8.56]	-1.05	4.76	-.03	[-10.79, 8.60]
Psychopathology * Condition									-7.25	5.74	-.23	[-18.49, 2.93]
<i>R</i> ²	.16				.16				.19			
<i>F</i>	12.66**				6.26**				4.92**			
ΔR^2	.16				.00				.03			
ΔF	12.66**				.05				2.05			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 68.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Discussion

The aim of the present study was to examine whether inducing an abstract level of construal during rumination, compared to a concrete level, leads to (a) more verbal thoughts and less images, (b) more images from an observer perspective as well as (c) greater emotional reactivity, especially among participants experiencing higher levels of psychopathological symptoms or higher levels of trait rumination.

Consistent with previous studies (e.g., Behar et al., 2005; Borkovec & Inz, 1990), ruminative thoughts about the memory were predominantly verbal-linguistic. However, unlike pre-existing studies (e.g., Borkovec & Inz, 1990), our results show that people with higher levels of psychopathology had less verbal thoughts and more mental images during rumination than people with lower levels of psychopathology. There was no difference according to the level of maladaptive rumination as well as no main or moderation effect of the level of construal. This finding is inconsistent with the reduced concreteness theory of worry (Stöber & Borkovec, 2002; Watkins & Moulds, 2007), which posits that reduced concreteness during RNT would be associated with a decrease in mental imagery. It is also inconsistent with previous studies showing that the decrease in mental imagery was especially pronounced in vulnerable participants (Borkovec & Inz, 1990; Watkins, 2011).

When looking more precisely at imagery, mental images were predominantly pictured from an actor perspective, as predicted (e.g., Nigro & Neisser, 1983). Contrary to studies supporting the strong prevalence of the observer perspective in clinical or subclinical populations (e.g., Finnbogadóttir & Berntsen, 2014; Kuyken & Howell, 2006), psychopathology or maladaptive rumination did not predict the adoption of an observer perspective in mental images and the level of construal did not moderate this effect.

Unexpectedly, there was also no difference on the variation of negative affect according to the level of psychopathology or maladaptive rumination. Once again, the

level of construal adopted during rumination did not moderate the effect of psychopathology or maladaptive rumination on negative affect, contrary to previous studies (e.g., Moberly & Watkins, 2006).

The present study suffered from a number of limitations which can explain this absence of effects. A first limitation is related to the procedure of the level of construal induction. First, the instructions were presented for 15, 20, 25, or 30 s. Even if the time of presentation of each instruction was similar between participants in the two conditions, this randomization means that some instructions were presented, and therefore processes, during less time than others. It is important to underline that most of the previous studies using the Nolen-Hoeksema and Morrow (1993) induction procedure did not control for the time used to process each question. Indeed, the questions supposed to induce rumination were presented on a sheet and participants were free to process more or less each question. The main difference in our study is that we have *imposed* a different time for different questions. Therefore, it seems necessary to homogenize these times. Second, our manipulation check measure did not differ according to our conditions. This might suggest that our induction procedure did not succeed. Alternatively, this absence of difference might be due to a floor effect because participants' descriptions were generally too short to contain causal-type words, whatever the condition (i.e., concrete or abstract). Other manipulation-check should therefore be considered.

A second limitation might be related to the mentation sampling procedure itself. Participants had to report and assess their *ongoing* thoughts (i.e., at the time of the question). This procedure might not entirely cover the respective importance of thoughts and images during the rumination process, which is considered as a long-lasting phenomenon. Alternatively, other studies have asked participants to judge the percentage of verbal-linguistic and imagery activities *during the period between two samplings*

prompts (e.g., Behar et al., 2012). Therefore, future research should use this procedure in order to have a better understanding of the rumination process.

A third limitation is related to our *complementary* visual perspective measure. Indeed, we used a two-anchored measure of the visual perspective. However, even though the visual perspective is often measured using a single item (e.g., Finnbogadóttir & Berntsen, 2014; Libby, Valenti, et al., 2011; Williams & Moulds, 2007), Rice and Rubin (2009) suggested examining actor and observer perspectives separately, with the use of *independent* measures. Indeed, people generally switch from one perspective to the other or experience both perspectives simultaneously. Moreover, each perspective correlates differentially with other phenomenological variables, such as the vividness of the memory (Rice & Rubin, 2009).

A fourth limitation is that negative affect was measured before the explanations on the nature of thoughts and visual perspective as well as before remembering a past failure. We cannot be sure that participants in both conditions had similar levels of negative affect after the recall of the failure, i.e., just before the level of construal induction.

A final limitation of the present study is the large number of dropouts between the first and the second part of the study, leading to a rather small sample size (i.e., $N = 68$) and a weak statistical power to draw conclusions.

Study 2b⁴³

The aim of the second study was to replicate the first study in taking into account its limitations. First, each level of construal instruction was presented for the same period

⁴³ This study has been presented during a poster session.

Douce, P., Baeyens, C., & Blatier, C. (2017, Juin). *Lien entre cognitions verbales et imagées ? Le cas des ruminations mentales et de la perspective visuelle*. Poster présenté aux Journées du Groupe de Réflexion en Psychopathologie Cognitive (GREPACO), Lille, France.

of time. Second, another manipulation check of the induction was added. More specifically, we relied on a largely used measure, the Problem Elaboration Questionnaire (PEQ, Stöber & Borkovec, 2002) in which participants have to describe three negative consequences for two major problems they worry about. The descriptions are then coded according to their degree of abstraction (e.g., Stöber et al., 2000; Watkins et al., 2009; Watkins & Moulds, 2007). Third, regarding the mentation sampling procedure, participants were asked to assess the percentage of each thought they had experienced *during the period of time they were guided to ruminate in an abstract or concrete mode* (e.g., Behar et al., 2012). Fourth, regarding measures, the negative affect subscale of the PANAS was measured after having remembered the memory of the negative event, i.e., just before the induction of a level of construal during rumination, and participants assessed their visual perspective on two separate measures (Rice & Rubin, 2009). Finally, in order to increase the statistical power of the study and avoid dropouts, we conducted a power analysis prior to the study and run the experiment during a single session.

Method

Participants

A power analysis with the software G*Power (Faul et al., 2007) was used to determine the sample size. We set statistical parameters for F tests, multiple linear regression, fixed models, R^2 increase with an alpha level of $p = .01$ and power = .80. Since we had no idea of the expected effect size, we chose a medium effect size of $f^2 = 0.15$. We fixed the number of tested predictor to 3 and the total number of predictors to 3 (i.e., main effects of psychopathology or maladaptive rumination and conditions and their interaction). This resulted in a recommended overall sample of 109 participants. In order

to ensure equal number of participants in each condition, we aimed at recruiting a minimum of 110 participants with 55 participants per condition.

Concretely, a total of 115 students (92 women, 80%; mean age = 20.38, $SD = 2.48$) were randomly allocated to one of the two conditions: a concrete ($n = 59$) versus an abstract level of construal ($n = 56$). All participants were recruited at the University of Grenoble Alpes in exchange of course credits. The only exclusion criterion was not being fluent in French.

Material

Trait rumination measures. As in Study 2a, rumination measures included the RRS-10 (Guimpel et al., 2012; Treynor et al., 2003) and the Mini-CERTS (Douilliez et al., 2014). In the current study, the alphas were somewhat low: $\alpha = .63$ for the RRS-10 Total score, $\alpha = .56$ for the RRS-10 Brooding subscale, $\alpha = .53$ for the RRS-10 Reflection subscale as well as $\alpha = .69$ for the Mini-CERTS Concrete and $\alpha = .70$ for the Mini-CERTS Abstract.

Psychopathological measures. As in Study 2a, psychopathology measures included the CES-D (Morin et al., 2011; Radloff, 1977) and the STAI-T⁴⁴ (Gauthier & Bouchard, 1993; Spielberger et al., 1983), with alphas of .88 and .89, respectively.

Emotional variability measure. We used the Negative affect subscale of the PANAS (Gaudreau et al., 2006; D. Watson et al., 1988) to assess negative affect before and after the mentation sampling task ($\alpha = .89$ and $\alpha = .87$ respectively).

Rumination induction.

Level of construal induction during rumination. The instructions were similar to those used in the Study 2a.

⁴⁴ As in Study 2a, because of confusion the STAI-T was labeled from “no” to “yes” rather than from “almost never” to “almost always”.

Manipulation check of the level of construal during rumination.

Causal-type words in thoughts descriptions. As in Study 2a, the number (as in Watkins, 2004) and the percentage of causal-type words in descriptions were analyzed with the software Tropes (Molette et al., n.d.) as a manipulation check of our induction. We predicted that participants in the abstract condition would use more causal-type words and a higher percentage of causal-type words than participants in the concrete condition.

Problem Elaboration Questionnaire (Stöber & Borkovec, 2002). As Watkins and Moulds (2007), we used a modified version of the PEQ in which participants were asked to write down two current major problems and three negative consequences for each problem. The instructions were the following: “Please note down two major problems or issues that you are currently ruminating about (that is repeatedly dwelling on and frequently thinking about). These problems or issues should be ones that you are greatly concerned about and spend a lot of time thinking about. Please describe three negative consequences that you perceive for each problem”. Two judges, blind to conditions, rated the level of abstraction of the descriptions (i.e., problems and consequences) using a Likert scale ranging from 1 (*abstract*, defined as “indistinct, cross-situational, equivocal, unclear, aggregated”) to 5 (*concrete*, defined as “distinct, situationally specific, unequivocal, clear, singular”, Stöber & Borkovec, 2002).

Before rating these descriptions, this first pair of judges went through a practice training and rated a small sample of participants’ descriptions ($n = 50$). However, the interrater reliability was low (intraclass correlation coefficient, $ICC = .40$, $p = .11$). We therefore decided to contact several researchers as well as Joachim Stöber to get more information about a coding scheme we could use to improve the coding and, consequently, the interrater reliability. Based on the recommendations of Stöber (personal communication), we developed a coding manual. This manual contained more details

about the coding and included material for a “coding training” with a sample of descriptions obtained from our Studies 2b and 3 ($n = 105$). A second pair of independent judges was asked to use our coding manual and to share comments about its use. We then computed their interrater reliability, which was acceptable (ICC from .23 to .76, ps from .29 to $< .001$) and adapted the coding manual according to the main identified difficulties reported by them. Then, the first two judges were trained with the coding manual and their interrater reliability became high (ICC from .80 to .84, all $ps < .01$) so that they coded the participants’ descriptions of the present study.

Interrater reliability for the level of abstraction in problems and consequences descriptions was relatively satisfactory ($ICC = .80$, $p < .001$ for problems; and $ICC = .66$, $p < .001$ for consequences). The ratings of the judges were averaged, leading to two scores of abstraction, one for the problems and the other for their consequences. We predicted that participants in the abstract condition would have more abstract problems and consequences descriptions than participants in the concrete condition.

Self-report imagery measures.

Memories characteristics. As the actor and observer mental images differ according to the age of the memory, its vividness, and the distress when remembering the event, we used these characteristics as control variables of the visual perspective.

Age of the memory. Participants indicated the age of their memory by choosing a unit of measurement between “days”, “months”, or “years” and wrote the approximate number (e.g., “days” and “7” for one week). We computed the age of the memory by converting all units of measurement in days (i.e., “months” became 30 days and “years” became 365 days) and multiplying these days by the number indicated (e.g., “3 months” became $3 * 30 = 90$ days).

Vividness of the memory. The vividness of their memory was assessed using a VAS ranging from 0 (*vague and dim*) to 100 (*perfectly clear and vivid*) (adapted from Libby, Valenti, et al., 2011).

Distress when remembering the memory. The current emotional distress when remembering the memory was measured using a VAS ranging from 0 (*no distress*) to 100 (*extremely intense distress*).

Description of thoughts content. Participants wrote a brief description of what they were thinking during the previous period.

Nature of thoughts. Participants assessed the percentages of their verbal thoughts and mental images during the previous period on two VASs ranging from 0% to 100%. A mean score for each category was computed.

Visual perspective. This measure was conditioned by the nature of thoughts: Only participants who indicated having a percentage of mental images greater than 0 were invited to assess the visual point of view in their images. According to Rice and Rubin's (2009) recommendations, participants indicated the percentage of images visualized from an actor and from an observer perspective, on two VASs ranging from 0 (*not at all*) to 100 (*totally*). A mean score for each perspective was computed.

Other measures. Difficulty of the mentation sampling task and the actual distress at the end of the study were assessed using the same measures as in the first study.

Procedure

The study protocol was approved by the local research ethical committee and the French National Commission for Data Protection and Liberties (CNIL, France) (see Appendix F1). Participants were tested in small groups up to 9 participants. The study lasted one hour and all the instructions and questions were presented on a computer using

Qualtrics® online survey software. After providing their informed consent to take part in the study, participants completed the RRS-10, the Mini-CERTS, the CES-D, the STAI-T, and demographic information.

Then, the same instructions as Study 2a were provided to explain what was meant by “think in verbal form”, “think in imagery form” and actor and observer perspectives and to guide participants in remembering a specific memory of a failure. Once the memory identified, participants indicated its age and rated its vividness and their actual distress while remembering it. They also answered the negative affect subscale of the PANAS.

They were next randomly assigned by the software to adopt a concrete or an abstract level of construal during rumination and completed the mentation sampling task. In the first mentation sampling, abstract or concrete instructions presented on the screen during 30 s directed participants to ruminate on the past failure. Participants wrote down about what they thought during the previous period and indicated the percentage of verbal thoughts and images. If they had images (i.e., images greater than 0 %), they assessed the percentage of each visual perspective. Then, new instructions appeared. This mentation sampling was repeated 12 times and lasted approximately 20 min.

At the end of the mentation sampling task, participants rated their negative affect on the PANAS and the difficulty of the task. To ensure that participants' mood returned to the baseline, a positive imagery induction was proposed. Then, they indicated their current distress and were encouraged to contact the experimenter in case of moderate to severe distress. Finally, participants were thanked and fully debriefed (see Appendix F2 for the protocol of the study).

Results

Preliminary analyses

Because of an error in the configuration of the software Qualtrics®, 1 –among the 12– measure of the visual perspective was missing for 32 participants in the abstract rumination condition. Therefore, we excluded these participants and recruited 32 new participants in this condition. A series of independent t -tests revealed that there were no significant differences between excluded and new participants on the STAI-T ($t(62) = 1.45, p = .15$), the CES-D ($t(62) = .99, p = .33$), the RRS-10 Total ($t(62) = 1.15, p = .26$), the RRS-10 Reflection ($t(62) = .21, p = .83$), the RRS-10 Brooding ($t(62) = 1.64, p = .11$), the Mini-CERTS abstract ($t(62) = 1.40, p = .17$) and the Mini-CERTS concrete ($t(62) = -.87, p = .39$). There was also no significant difference on age ($t(62) = .68, p = .50$) or gender distribution, $\chi^2(1) = .57, p = .45$.

Equivalence between conditions. Descriptive statistics for age and psychopathology variables by condition for the final sample are displayed in Table 5. There was no difference on gender distribution, $\chi^2(1) = 1.05, p = .31$. A series of independent t -tests comparing participants in the two conditions (i.e., abstract versus concrete) revealed no significant differences on age, psychopathology and rumination measures, except for the Mini-CERTS Concrete: Participants in the concrete condition had significantly higher scores ($M = 18.32, SD = 3.39$) than participants in the abstract condition ($M = 17.02, SD = 3.58$) (see Table 5). One can consider that is was not problematic. Indeed, the Concrete and Abstract subscales of the Mini-CERTS are considered as independent (Douilliez et al., 2014) and our hypotheses are mainly based on the tendency to be abstract, i.e., on the scores of the Abstract subscale without controlling for the Mini-CERTS Concrete subscale. Therefore, we first conducted our main analyses without controlling for the Mini-CERTS Concrete subscale and also re-run the analyses

while controlling for the Mini-Concrete subscale. These last results are presented in footnotes.

The perceived difficulty of the mentation sampling task ranged from 0 to 8, with a mean of 4.37 ($SD = 2.45$). Perceived mentation sampling task difficulty was not significantly different between the concrete ($M = 4.15$, $SD = 2.49$) and the abstract rumination condition ($M = 4.59$, $SD = 2.42$), $t(113) = -.95$, $p = .34$. Furthermore, negative affect scores before the mentation sampling task did not differ according to the concrete ($M = 21.78$, $SD = 9.12$) or the abstract condition ($M = 24.16$, $SD = 9.57$), $t(113) = -1.37$, $p = .17$.

Table 5

Descriptive Statistics for Age, Rumination, and Psychopathology Measures, in Function of the Level of Construal Conditions.

	Level of construal adopted during rumination				$t(113)$
	Concrete ($n = 59$)		Abstract ($n = 56$)		
	M	SD	M	SD	
Age	20.41	2.44	20.36	2.55	.11
RRS-10 Total	23.54	4.12	23.77	4.74	-.27
RRS-10 Reflection	11.90	2.64	11.63	2.91	.53
RRS-10 Brooding	11.64	2.79	12.14	2.67	-.98
Mini-CERTS Concrete	18.32	3.39	17.02	3.58	2.01*
Mini-CERTS Abstract	20.10	4.16	20.25	4.49	-.18
CES-D	17.76	9.30	17.93	9.54	-.09
STAI-T	47.64	11.32	49.16	8.38	-.82

Note. RRS-10 = 10-item Ruminative Response Scale; Mini-CERTS = Mini Cambridge Exeter Repetitive Thought Scale; CES-D = Center of Epidemiologic Studies for Depression scale; STAI-T = State Trait Anxiety Inventory – Trait version.

* $p < .05$.

Correlations between rumination and psychopathology measures. As shown in Table 6, psychopathology measures (i.e., the STAI-T and the CES-D) positively correlated. They also positively correlated with maladaptive rumination measures (i.e., the RRS-10 Total, the RRS-10 Brooding, and the Mini-CERTS Abstract) and negatively

correlated with adaptive rumination measure (i.e., the Mini-CERTS Concrete). They did not correlate with the RRS-10 Reflection.

Scores on the STAI-T and CES-D scores were highly correlated ($r = .79, p < .001$), so we created a general score of *psychopathology* by converting STAI-T and CES-D scores to z-scores and averaging them for each participant. Similarly, scores on the RRS-10 Brooding and the Mini-CERTS Abstract ($r = .71, p < .001$) were converted to z-scores and averaged into a general score of *maladaptive trait rumination*.

Table 6
Correlations, Means, and Standard Deviations for Rumination and Psychopathology Scores.

Measure	1	2	3	4	5	6	7
1. RRS-10 Total	-						
2. RRS-10 Reflection	.81***	-					
3. RRS-10 Brooding	.80***	.29**	-				
4. Mini-CERTS Concrete	-.07	.12	-.23*	-			
5. Mini-CERTS Abstract	.65***	.33***	.71***	-.24*	-		
6. CES-D	.42***	.18	.49***	-.23*	.55***	-	
7. STAI-T	.48***	.16	.61***	-.36***	.61***	.79***	-
<i>M</i>	23.65	11.77	11.89	17.69	20.17	17.84	48.38
<i>SD</i>	4.41	2.77	2.73	3.53	4.31	9.38	9.98

Note. RRS-10 = 10-item Ruminative Response Scale; Mini-CERTS = Mini Cambridge Exeter Repetitive Thought Scale; CES-D = Center of Epidemiologic Studies for Depression scale; STAI-T = State Trait Anxiety Inventory – Trait version. $N = 115$.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Memory characteristics. Age of memories ranged from 5 days to 5 years, with a mean of 488.34 days (i.e., approximately 1 year and 4 months; $SD = 437.02$). Vividness of the memory ranged from 0 to 100, with a mean of 74.78 ($SD = 22.96$). Distress ranged from 0 to 100, with a mean of 44.02 ($SD = 29.12$). Older memories were less vivid ($r = -.25, p < .05$) and distressing ($r = -.20, p < .05$) and vivid memories were more distressing ($r = .38, p < .001$).

Manipulation check.

Causal-type words in thought descriptions. As expected, participants' descriptions of thoughts in the abstract condition contained more causal-type words ($M = 2.89$, $SD = 2.98$) than those in the concrete condition ($M = 1.76$, $SD = 2.40$), $t(113) = -2.25$, $p < .05$. However, participants' descriptions of thoughts in the abstract condition ($M = 1.06$, $SD = .13$) did not differ from those in the concrete condition ($M = .76$, $SD = .12$) regarding the percentage of causal-type words, $t(113) = -1.75$, $p = .08$.

Degree of abstraction of the PEQ. Contrary to our prediction, participants' problems descriptions in the abstract condition were judged not being more abstract ($M = 2.38$, $SD = .80$) than those in the concrete condition ($M = 2.51$, $SD = 1.00$), $t(113) = .79$, $p = .43$. Similarly, no difference was found when comparing the abstractness of participants' consequences descriptions in the abstract ($M = 1.71$, $SD = .64$) and concrete condition ($M = 1.78$, $SD = .61$), $t(113) = .59$, $p = .56$.

Main analyses

Except otherwise stated, our main hypotheses regarding the influence of psychopathology, maladaptive trait rumination and the level of construal on the predominance of (a) a verbally-based activity over an imagery-based activity, (b) the use of an observer perspective and (c) the variation of the intensity of negative affect were tested using multiple hierarchical regressions (similar to Study 2a).

As in the first study, an alpha of .01 was used for all statistical tests to strike a balance between avoiding Type I and Type II errors (e.g., O'Keefe, 2003). Individual variables were only interpreted when the overall model was significant (Cohen et al., 2003). We also used bootstraps because of problems with homoscedasticity and normality (Field, 2013; see Chapter 3). Prior to analyses, we looked for multivariate outliers (see

Chapter 3), with adapted critical values for Mahalanobis distances (i.e., in this case, 19.26), and leverage values (i.e., in this case, .18). Regression tables with significant results will be presented at the end of the results section and regression tables with non-significant results will be presented in the Appendices.

Verbally-based versus imagery-based activity during rumination. Rumination was predominantly verbally-based ($M = 56.54$, $SD = 21.27$) rather than imagery-based ($M = 40.61$, $SD = 20.61$), $t(114) = 4.33$, $p < .001$. When there were images, they were predominantly visualized from an actor ($M = 59.13$, $SD = 25.14$) rather than an observer perspective ($M = 37.19$, $SD = 23.85$), $t(114) = 5.05$, $p < .001$.

(a) Predictors of the frequency of verbally-based thoughts.

Effects of psychopathology scores, conditions, and their interaction on the frequency of verbal thoughts. Initial investigations revealed no problems with outliers. None of the three models were significant, $F(1, 113) = .86$, $p = .36$ for Model 1; $F(1, 112) = 2.09$, $p = .13$ for Model 2; $F(1, 111) = 1.56$, $p = .20$ for Model 3. Contrary to our prediction, the results showed that neither psychopathology, nor the experimental conditions, nor their interaction predicted the frequency of verbal thoughts (see Appendix F3).⁴⁵

Effects of maladaptive rumination scores, conditions, and their interaction on the frequency of verbal thoughts. Initial investigations revealed no problems with outliers. None of the three models were significant, $F(1, 113) = .03$, $p = .87$ for Model 1;

⁴⁵ After controlling for the Mini-CERTS Concrete scores, results were identical: We included the Mini-CERTS Concrete scores in a first step (Model 1), then we included psychopathology scores in a second step (Model 2), the experimental conditions in a third step (Model 3) and the interaction term in a fourth step (Model 4). None of the four models were significant, $F(1, 113) = .58$, $p = .45$ for Model 1; $F(1, 112) = .55$, $p = .58$ for Model 2; $F(1, 111) = 1.63$, $p = .19$ for Model 3; and $F(1, 110) = 1.36$, $p = .25$ for Model 4.

$F(1, 112) = 1.60, p = .21$ for Model 2; $F(1, 111) = 1.41, p = .24$ for Model 3. Inconsistent with our prediction, neither maladaptive rumination, nor the experimental conditions, nor their interaction predicted the frequency of verbal thoughts (see Appendix F4).⁴⁶

Effects of psychopathology scores, conditions, and their interaction on the frequency of mental images. Initial investigations revealed no problem with outliers. Once again, none of the three models were significant, $F(1, 113) = .84, p = .36$ for Model 1; $F(1, 112) = 3.69, p = .03$ for Model 2; $F(1, 111) = 2.59, p = .06$ for Model 3. Contrary to our prediction, neither psychopathology, nor the experimental conditions⁴⁷, nor their interaction predicted the frequency of images (see Appendix F5).⁴⁸

Effects of maladaptive rumination scores, conditions, and their interaction on the frequency of mental images. Initial investigations revealed no problem with outliers. The first model was non-significant, $F(1, 113) = 1.25, p = .27$, as well as the second model, $F(1, 112) = 3.99, p = .02$. Together, the results showed that neither maladaptive rumination nor the experimental conditions predicted the frequency of images⁴⁹. The third model became significant, $F(1, 111) = 4.40, p < .01$. However, the experimental conditions did not moderate the effect of maladaptive rumination on the frequency of images, $b = -9.31 [-17.84, .20], SE = 4.40, p = .04$ ⁵⁰ (see Appendix F6).⁵¹

⁴⁶ After controlling for the Mini-CERTS Concrete, results were identical (see the 45th footnote for details about the models): None of the four models were significant, $F(1, 113) = .58, p = .45$ for Model 1; $F(1, 112) = .29, p = .75$ for Model 2; $F(1, 111) = 1.46, p = .23$ for Model 3; $F(1, 110) = 1.39, p = .24$ for Model 4.

⁴⁷ The second model is not significant at .01 but nearly significant. Looking at this tendency, results showed that individuals in the abstract condition tended to have less mental images than individuals in the concrete condition, $b = -9.59 [-16.77, -2.27], SE = 3.74, p = .01$.

⁴⁸ After controlling for the Mini-CERTS Concrete, results were identical (see the 45th footnote for details about the models): None of the four models were significant, $F(1, 113) = .17, p = .68$ for Model 1; $F(1, 112) = .69, p = .50$ for Model 2; $F(1, 111) = 2.47, p = .07$ for Model 3; $F(1, 110) = 1.96, p = .11$ for Model 4.

⁴⁹ The second model is not significant at .01 but nearly significant. Looking at this tendency, results showed that individuals in the abstract condition tended to have less mental images than individuals in the concrete condition, $b = -9.69 [-17.36, -2.16], SE = 3.73, p = .01$.

⁵⁰ Even though the model remained non-significant, we conducted simple slopes analysis using Hayes's (2013) PROCESS macro for SPSS. This revealed that, for individuals in the concrete condition, the level of maladaptive rumination tended to be positively associated with the frequency of images, $b = 7.28 [1.49,$

(b) Predictors of the observer perspective.

Effects of psychopathology scores, conditions, and their interaction. Initial investigations revealed no problems with outliers. None of the three models were significant, $F(1, 113) = .01, p = .93$ for Model 1; $F(1, 112) = .16, p = .85$ for Model 2; $F(1, 111) = .29, p = .83$ for Model 3. Contrary to our prediction, neither psychopathology, nor the experimental conditions, nor their interaction predicted the adoption of an observer perspective (see Appendix F7).⁵²

Effects of maladaptive rumination scores, conditions, and their interaction.

Initial investigations revealed no problem with outliers. Once again, none of the three models were significant, $F(1, 113) = .32, p = .57$ for Model 1; $F(1, 112) = .34, p = .71$ for Model 2; $F(1, 111) = .28, p = .84$ for Model 3. Parallel to our results regarding psychopathology and contrary to our hypothesis, neither maladaptive rumination, nor the experimental conditions, nor their interaction predicted the adoption of an observer perspective (see Appendix F8).⁵³

(c) Predictors of the variation of negative affect.

Effects of psychopathology scores, condition, and their interaction. Initial investigations revealed no problem with outliers. None of the three models were significant, $F(1, 113) = .00, p = .97$ for Model 1; $F(1, 112) = .02, p = .98$ for Model 2;

13.08], $SE = 2.92, t(111) = 2.49, p < .05$, but not for individuals in the abstract condition, $b = -2.03, [-7.99, 3.92], SE = 3.01, t(111) = -.68, p = .50$.

⁵¹ After controlling for the Mini-CERTS Concrete, results were identical, except that the fourth model remained non-significant after the inclusion of the interaction term (see the 45th footnote for details about the models): Together, the results showed that none of the four models were significant ($F(1, 113) = .17, p = .68$ for Model 1; $F(1, 112) = .88, p = .42$ for Model 2; $F(1, 111) = 2.66, p = .05$ for Model 3; $F(1, 110) = 3.27, p = .01$ for Model 4).

⁵² After controlling for the Mini-CERTS Concrete, results were identical (see the 45th footnote for details about the models): None of the four models were significant, $F(1, 113) = 1.38, p = .24$ for Model 1; $F(1, 112) = .80, p = .45$ for Model 2; $F(1, 111) = .74, p = .53$ for Model 3; $F(1, 110) = .73, p = .58$ for Model 4.

⁵³ After controlling for the Mini-CERTS Concrete, results were identical (see the 45th footnote for details about the models): None of the four models were significant, $F(1, 113) = 1.38, p = .24$ for Model 1; $F(1, 112) = .72, p = .49$ for Model 2; $F(1, 111) = .69, p = .56$ for Model 3; $F(1, 110) = .54, p = .71$ for Model 4.

$F(1, 111) = .19, p = .90$ for Model 3. Contrary to our prediction, the results showed that neither psychopathology, nor the experimental conditions, nor their interaction predicted the variation of negative affect (see Appendix F9).⁵⁴

Effects of maladaptive rumination scores, conditions, and their interaction.

Initial investigations revealed no problem with outliers. Again, none of the three models were significant, $F(1, 113) = .63, p = .43$ for Model 1; $F(1, 112) = .32, p = .73$ for Model 2; $F(1, 111) = .25, p = .86$ for Model 3. Parallel to our results regarding psychopathology and contrary to our hypothesis, neither maladaptive rumination, nor the experimental conditions, nor their interaction predicted the variation of negative affect (see Appendix F10).⁵⁵

Discussion

The aim of the present study, as for the preceding one, was to investigate the interaction effect between the level of construal adopted during rumination (i.e., concrete versus abstract) and the level of psychopathological symptoms or maladaptive trait rumination on (a) verbal-linguistic and imagery activities, (b) visual perspective, and (c) emotional reactivity.

As expected, ruminative thoughts were predominantly verbal-linguistic (e.g., Borkovec & Inz, 1990) and mental images were more depicted from an actor perspective (e.g., Nigro & Neisser, 1983; Robinson & Swanson, 1993). Moreover, the older the

⁵⁴ After controlling for the Mini-CERTS Concrete, results were identical (see the 45th footnote for details about the models): None of the four models were significant, $F(1, 113) = .21, p = .65$ for Model 1; $F(1, 112) = .11, p = .89$ for Model 2; $F(1, 111) = .10, p = .96$ for Model 3; $F(1, 110) = .22, p = .93$ for Model 4. Furthermore, one participant had higher standardized residuals. His exclusion did not affect results.

⁵⁵ After controlling for the Mini-CERTS Concrete, results were identical (see the 45th footnote for details about the models): None of the four models were significant, $F(1, 113) = .21, p = .65$ for Model 1; $F(1, 112) = .55, p = .58$ for Model 2; $F(1, 111) = .39, p = .76$ for Model 3; $F(1, 110) = .31, p = .87$ for Model 4. Moreover, one participant had higher standardized residuals but his exclusion did not affect results.

memory was, the less vivid and distressing it was. This result replicates those found in previous studies (e.g., Nigro & Neisser, 1983; Robinson & Swanson, 1993).

However, inconsistent with other studies (e.g., Borkovec & Inz, 1990; Sibrava & Borkovec, 2006), we did not find a difference on the frequency of verbal thoughts and mental images according to the level of psychopathology or maladaptive rumination, or between people who adopted a concrete or an abstract level of construal. Moreover, these variables did not interact to predict frequency of verbal thoughts or mental images.

The level of psychopathology or maladaptive rumination did not predict the observer perspective, contrary to studies evidencing the strong prevalence of the observer perspective among emotionally vulnerable participants (e.g., Finnbogadóttir & Berntsen, 2014; Kuyken & Howell, 2006). The level of construal had no main or interaction effect on visual perspective either. This result is intriguing if we consider the theory (Libby & Eibach, 2011) and previous results suggesting that the observer perspective leads to more abstraction but, more relevant to our study, that inducing an abstract level of construal leads to the adoption of an observer perspective (Libby et al., 2009; Shaeffer et al., 2015).

Finally, inconsistent with previous studies (e.g., Behar et al., 2005; Moberly & Watkins, 2006), there were no main or interaction effects of psychopathology or maladaptive rumination and the level of construal adopted during rumination on emotional reactivity.

One potential limitation of the study is the fact that our manipulation possibly failed to induce an abstract and a concrete level of construal. Participants in the abstract condition used a higher number of causal-type words than participants in the concrete condition, as Watkins (2004), but did not differ in the percentage of causal-type words. Their problem and consequences descriptions did not differ according to their degree of abstraction as rated by blind judges either. A first explanation is that our manipulation failed at inducing

a specific level of construal. A second explanation is that our manipulation worked well but did not persist in time, after the mentation sampling task. In support of this last proposition, we measured the number and the percentage of causal-type words *during* the mentation sampling task, whereas the degree of abstraction of the PEQ was measured *after* the mentation sampling task.

Another potential limitation is related to the duration of the mentation sampling task, which lasted approximately 20 min. This duration is similar that those used in other studies using mentation sampling method (e.g., Behar et al., 2012; McGowan et al., 2017) and allowed us to explore the long-lasting phenomenon of rumination. However, one cannot rule out the likelihood that metacognitive processes mobilized when we ask participants to think and to observe their thinking *while thinking* leads to an alteration of the phenomenon, which is not the case in normal rumination. Future studies should use shorter mentation sampling task and explore if the rumination phenomenon changes progressively, through the evolution of thoughts.

A final limitation of the present study might be that we used rather strict criteria in interpreting our results, by considering only individuals variables when the overall model was significant and by choosing a *p*-value at .01. Given our large number of analyses, these criteria were necessary to avoid Type I errors. However, it is possible that we would find other results if we would use less strict criteria.

General discussion

Two experimental studies assessed the effects of a concrete versus an abstract level of construal during rumination on verbal-linguistic and imagery activities, visual perspective, and emotional reactivity.

In both studies, rumination was predominantly verbal-linguistic. From a clinical point of view, this result is consistent with the cognitive avoidance theory of worry (Sibrava & Borkovec, 2006) and the processing-mode theory (Watkins, 2008), which posit that negative mental images of the event are avoided by the use of a verbal-linguistic activity during RNT. This cognitive avoidance is maladaptive for emotion regulation and can lead to subsequent negative intrusions (Stokes & Hirsch, 2010). Moreover, the majority of mental images were depicted from an actor perspective. These findings were consistent with the visual perspective literature (e.g., Nigro & Neisser, 1983; Robinson & Swanson, 1993).

While we expected that the level of emotional vulnerability would be associated with more verbal thoughts and less images, the results of our two studies are intriguing: In the first study, higher levels of psychopathology were associated with *less* verbal thoughts and *more* mental images, whereas the level of psychopathology or rumination did not predict the frequency of verbally-based or imagery-based thoughts in the second study. These results are inconsistent with previous studies showing that clinical or subclinical populations have a greater proportion of verbal thoughts and less images than non-clinical populations (e.g., Behar et al., 2012; Borkovec & Inz, 1990).

In the two studies, the visual perspective adopted in mental imagery was not predicted by the level of psychopathology or maladaptive rumination. Again, these results were contradictory with the strong prevalence of the observer perspective evidenced in clinical or subclinical populations, such as people with a high tendency to worry (Finnbogadóttir & Berntsen, 2014) or depressed people (Kuyken & Howell, 2006; Lemogne et al., 2006). However, they are the first studies which used a mentation sampling procedure to measure the observer perspective.

The variation of the negative affect was not predicted by psychopathology or maladaptive rumination in both studies either. Once again, this is inconsistent with studies showing a greater emotional reactivity in clinical or subclinical populations following a period of rumination (e.g., Behar et al., 2005; Thomsen et al., 2004).

Finally, unexpectedly, the level of construal had no main or interaction effect on any variable in our two studies, inconsistent with the conceptualization of the abstract level of construal as maladaptive compared to a concrete level in clinical or subclinical populations (for a review, see Watkins, 2008).

As previously discussed, one potential limitation of these two studies is that we used strict statistical criteria. Despite our wish to avoid Type I and Type II errors by using a low p -value and interpreting an effect only when the overall model is significant, our criteria could have produced Type II errors. For example, when using a p -value of .05, some results were changed: As predicted, in the first study, higher levels of psychopathology were associated with greater elevation of negative affect and, in the second study, an abstract level was associated with fewer mental images than a concrete level of construal. In both studies, higher levels of maladaptive rumination predicted more mental images, only in the concrete condition. There is, of course, a strong temptation to consider these results as important and to interpret them in this way. There is, however, an alternative: Replicate these studies with less dependent variables in order to be confident in our results. This seems to us the best way to combine the aim of increasing our knowledge with studies which do not increase the likelihood of false positive results.

Another important limitation of our studies is related to our induction of a level of construal during rumination. In the first study, participants in the two conditions did not differ according to their use of causal-type words in their thoughts descriptions. In the second study, participants in the abstract condition used a greater number of causal-type

words than those in the concrete condition but did not differ according to their percentage. Moreover, participants' descriptions of problems and consequences were similar in their degree of abstraction. This absence of differences can be due to a failure of the induction or to the fact that participants' descriptions were generally too brief to allow a difference between the conditions. We chose these two measures to avoid the use of self-report measures as a manipulation check. However, it would be interesting to ask participants to judge if they have more thoughts focused on "how?" (e.g., "How this happened to me?") or on "why?" (i.e., "Why this happened to me?").

There is also a second potential consequence of our induction. Indeed, in both conditions, we used instructions asking participants to "Think about ...". In other procedures, the instructions in the abstract condition specify to "think about the causes, consequences and meanings of" different symptoms, while in the concrete condition, the instructions specify to "focus on the experience of" different symptoms. In other words, in the literature, there is an overlap between manipulating an abstract dimension and a verbally-based process of thinking and manipulating a concrete dimension and an experiential, more imagery-based, mode of processing. Recently, Zoccola, Rabideau, Figueroa, and Woody (2014) tried to manipulate both the verbal/imagery dimension and the abstract/concrete dimension but without being able to find any results. Moreover, their imagery induction also tended to induce the adoption of a specific visual perspective. Therefore, the confusion between the two dimensions –as well as between actor and observer perspectives in imagery– is one of the challenges future studies will have to deal with.

Regarding the frequency of verbally- or imagery-based thoughts, we computed the means of verbal thoughts and mental images following each instruction. However, other studies have focused on the evolution of each nature of thought. For example, Behar et al.

(2012) were interested in the evolution of images for five periods of 4.5 min and evidenced a reduction in imagery during repetitive thinking. Like for emotional reactivity, it would be interesting to examine the evolution of verbal-linguistic and imagery activities in concrete and abstract conditions, for example during four periods (i.e., three measures of frequency in each period). It is possible that frequencies progressively vary across thought samples and that the use of the mean prevents us from finding differences according to psychopathology, maladaptive rumination, or the level of construal.

Regarding visual perspective, we also computed the mean. In studies with visual perspective, participants generally report the visual perspective they adopt to deliberately visualize a past event, like a failure (e.g., Libby, Valenti, et al., 2011). To our knowledge, our study is the first one in which participants were guided to ruminate on a past failure during several minutes and assessed their visual perspective in mentation samples. Like verbal and imagery activities, it is possible that visual perspective progressively varies across thought samples. It would be relevant to look at the evolution of visual perspective according to the level of psychopathology and maladaptive rumination as well as the level of construal.

Another general limitation of these studies is that participants were asked to observe their thinking *while thinking*, with self-report measures. Even if we used a mentation sampling procedure, which is more ecological than other procedures, we cannot rule out this limitation. Future studies should induce a concrete versus abstract level of construal during rumination and use indirect measures of our main variables. For example, the verbal-linguistic activity associated with a rumination induction involves the speech motor system, such as lip muscles, and can be measured indirectly through psychophysiological activity (Nalborczyk et al., 2017).

Finally, it is possible that we did not have sufficient variability of psychopathology or maladaptive rumination in our sample to make conclusions about difference between high or low levels. Following the norms for the STAI-T scores, only 18 participants (26.47 %) in Study 2a and 31 participants (26.96 %) in Study 2b had high or really high scores of anxiety (Spielberger et al., 1983), which represents a small part of our sample. Following the norms for the CES-D scores, 31 participants (45.59%) in Study 2a and 38 participants (33.04 %) in Study 2b had scores indicating the presence of depressive symptoms (Fuhrer & Rouillon, 1989). Therefore, it is possible that we did not have enough variability in our sample. It will be interesting to replicate this study only with individuals with high levels of depression or anxiety, or individuals with high levels of maladaptive rumination. In that case, 164 participants (i.e., 82 in each condition) would be necessary to have sufficient power to detect a medium effect size of the level of construal adopted during rumination.⁵⁶

To conclude, these two studies are the first in which the level of construal during rumination on a past event was manipulated and its effects on verbal-linguistic and imagery activities, visual perspective in mental imagery, and emotional reactivity were assessed through mentation sampling method. Consistent with empirical literature, rumination was predominantly verbal-linguistic (e.g., Borkovec & Inz, 1990), and mental images were generally depicted from an actor perspective (e.g., Nigro & Neisser, 1983). Due to a potential failure of our level of construal induction, as evidenced by our manipulation checks adapted from previous studies (Watkins, 2004; Watkins & Moulds, 2007), more research using mentation sampling method is needed to precisely determine the interaction of the level of psychopathology or maladaptive rumination and the level of

⁵⁶ This number of participants was calculated with a power analysis on the software G*Power (Faul et al., 2007). We set statistical parameters for t tests, difference between two independent means, one tail, with an alpha level of $p = .01$, a power = .80 and a medium effect size of $d = 0.5$.

construal on these variables. More precisely, future research should examine the evolution of verbal thoughts, mental images and visual perspective used in mental images during mentation sampling task, in a clinical sample (i.e., people suffering from depressive or anxiety disorders).

CHAPTER 5. Manipulation of the abstraction process

Introduction

The processing-mode theory proposed by Watkins (2008) and the visual perspective theory of Libby and Eibach (2011) both posit that the adoption of an abstract level of construal is implicated in maladaptive consequences of mental rumination and visual perspective in clinical and subclinical populations. According to the processing-mode theory (Watkins, 2008, 2011), the adoption of an abstract level of construal during rumination is associated with unconstructive cognitive and emotional consequences (Nolen-Hoeksema et al., 2008). In parallel with this account, the theory of Libby and Eibach (2011) on visual perspective proposes that the observer perspective involves an abstract level of construal and might lead to unconstructive cognitive and emotional consequences among clinical and subclinical populations. Despite this hypothesis of a common process, no study has examined the consequences of the level of construal on both rumination and visual perspective. The aim of the present study is to induce a concrete or an abstract level of construal and to assess its consequences on visual perspective, rumination, and emotional response before and after an in-vivo social-evaluative task in a general population, along with a measure of the level of psychopathology and maladaptive trait rumination.

The level of construal adopted during rumination and mental imagery through visual perspective is an important factor that determines their constructive or unconstructive consequences. According to social-cognitive theories (Control theory, Carver & Scheier, 1982; Construal-level theory, Trope & Liberman, 2003; Action identification theory, Vallacher & Wegner, 1989), every goal, action, or event can be represented at a concrete or an abstract level of construal. Concrete mental representations are specific,

subordinate, and contextualized. They specify the means and the step of the goal, action, or event (i.e., the “how?”). Conversely, abstract mental representations refer to general, superordinate, and decontextualized mental representations. They give the essential meaning of the goal, action, or event (i.e., the “why?”). In everyday life, people tend to adopt by default an abstract level of construal but are able to adapt this level in response to specific circumstances, such as being in a negative mood or in a challenging situation, which requires to adopt a concrete level of construal in order to deal concretely with the situation (Vallacher & Wegner, 1987). However, it has been proposed that clinical and subclinical populations would present a dysregulation in switching between an abstract and a concrete level of construal (Watkins, 2011). Remaining at an abstract level might lead to maladaptive consequences, especially in emotional regulation. Some experimental studies have demonstrated that, compared to a concrete level of construal, an abstract level of construal prevents the decrease of negative affect during the anticipation of an in-vivo social-evaluative task (Philippot et al., 2006, Studies 3 & 4) or increases negative affect following a stress-inducing task in non-clinical populations (Watkins et al., 2008).

According to Nolen-Hoeksema’s definition (1991), depressive rumination refers to “behaviors and thoughts that focus one’s attention on one’s depression symptoms and on the implications and consequences of these symptoms” (p. 569). This rumination can take place during the anticipation or during the recall of the event (i.e., post-event). Two forms of rumination were generally distinguished: a maladaptive form of rumination, called *brooding* and a –supposed– adaptive form of rumination, called *reflection*⁵⁷ (Treynor et al., 2003). This differentiation is close to the distinction between *concrete* and *abstract* rumination. Concrete rumination, characterized by a concrete level of construal, refers to thoughts about what makes the event unique (e.g., its context and constituent steps), about

⁵⁷ Despite reflection is generally considered as adaptive, it is often positively associated with psychopathology. Nevertheless, reflection would be adaptive compared to brooding.

“how” the event takes place. Conversely, abstract rumination, characterized by an abstract level of construal, is defined as thoughts about the analysis of causes, consequences, and implications of an event, about “why” this event takes place (Watkins, 2008). Clinical and subclinical populations tend to ruminate in an abstract form (Watkins, 2008).

Beyond a simple effect of the level of construal, it rather seems that the adoption of an abstract level of construal during rumination combined with a high level of psychopathology or trait rumination is maladaptive (Watkins, 2011). Several studies have examined the maladaptive consequences of the interaction between the level of psychopathology or trait rumination and the level of construal. Regarding psychopathology, abstract rumination is associated with increased global negative self-judgments in people with high levels of depression (Rimes & Watkins, 2005) or social anxiety (Vassilopoulos & Watkins, 2009). Similarly, regarding trait rumination, Moberly and Watkins (2006) found that higher levels of trait rumination were associated with reduced positive affect in people who wrote about a failure (i.e., close to a rumination induction) in an abstract form but not in people who wrote in a concrete form. Therefore, mental rumination, and more specifically abstract rumination, is conceptualized as a transdiagnostic process implicated in many disorders as depression or social anxiety (e.g., Ehring & Watkins, 2008).

Ruminative thoughts are predominantly verbally-based rather than imagery-based (e.g., Goldwin & Behar, 2012; Goldwin et al., 2013; McLaughlin et al., 2007). Even if mental imagery is less frequent during rumination, to our knowledge, no study has considered the visual perspective adopted in images. Indeed, mental images can be depicted from an actor or an observer perspective (Nigro & Neisser, 1983). From an actor perspective, also named first-person perspective, people see the event from their own eyes, with the same visual perspective than the one adopted when the event took place.

Conversely, from an observer perspective, also named third-person perspective, people see the event from outside, with the same visual perspective that an observer of the situation would have during the event. Usually, mental images are experienced from an actor perspective, especially for recent, vivid, and distressing memories (Nigro & Neisser, 1983; Robinson & Swanson, 1993).

According to the visual perspective theory of Libby and Eibach (2011), the actor perspective is characterized by a concrete level of construal and the observer perspective by an abstract level of construal. This idea has been tested in several studies which identified a bidirectional causal relationship between visual perspective and level of construal (Agerström et al., 2013; Libby & Eibach, 2009; Shaeffer et al., 2015; Vasquez & Buehler, 2007). The adoption of an observer perspective would involve an abstract level of construal, in which people integrate the event with their broader self-knowledge. Reciprocally, the adoption of an actor perspective would involve a concrete level of construal, in which people define the event in terms of its constituent steps and focus on information evoked by the concrete features of the event (Libby & Eibach, 2011). Clinical and subclinical populations, who have a dysregulation in their level of construal (Watkins, 2011), tend to adopt more observer perspective than non-clinical population, whatever the type of difficulties (e.g., social anxiety, Coles et al., 2002; trait worry, Finnbogadóttir & Berntsen, 2011; depression Kuyken & Howell, 2006). This observer perspective has been shown to be associated with unconstructive consequences, like more global negative self-judgments in people with low self-esteem (Libby, Valenti, et al., 2011) or more cognitive avoidance in dysphoric people (Williams & Moulds, 2007).

In summary, the level of construal adopted by clinical and subclinical populations seems to underpin both mental rumination and visual perspective. Inducing an abstract level of construal should therefore lead to more abstract rumination and observer

perspective. In order to understand the supposed relationship between mental rumination and visual perspective adopted in mental imagery, rather than manipulating mental rumination or visual perspective (e.g., Chapter 4), we wanted to induce a concrete versus an abstract “mindset” (Freitas et al., 2004). Therefore, we explored the effect of priming a concrete versus abstract mindset on both rumination and visual perspective as well as their consequences on emotion regulation.

We also wanted to focus on an emotional situation rather than working on the recall of a negative event (e.g., Chapters 3 & 4). Therefore, we chose to use an in-vivo social-evaluative situation (i.e., giving an impromptu speech), which is generally stress-inducing. Cognitive models of social anxiety (e.g., Clark, 2001; Clark & Wells, 1995) described the importance of rumination but also mental images from an observer perspective in this context. These models distinguished the anticipation and the post-event phases of the situation. Consequently, the aim of the present study was to induce an abstract versus concrete level of construal and measure its consequences during the anticipation and the post-event processing of an in-vivo social evaluative task. More precisely, we wanted to examine visual perspective in mental images, rumination as well as the level of construal adopted during rumination, and anxiety during both the anticipation and the post-event processing of the task.

We hypothesized that the level of construal and the level of psychopathology or maladaptive trait rumination would interact to predict (a) visual perspective, (b) rumination, (c) the level of construal adopted during rumination, and (d) the emotional response. Specifically, we predicted that higher levels of psychopathology (i.e., social anxiety and depression) or maladaptive trait rumination (i.e., trait brooding and abstract trait rumination) would be associated with higher levels of anticipatory and post-event (a) observer perspective (e.g., social anxiety, Coles et al., 2002; depression, Kuyken &

Howell, 2006; trait rumination, Williams & Moulds, 2007), (b) rumination (e.g., Ehring & Watkins, 2008), (c) abstract rumination (Watkins, 2008), and (d) anxiety (e.g., Clark, 2001; Watkins, 2008), especially in people who adopted an abstract level of construal compared to a concrete level of construal (Watkins, 2008, 2011).

Method

Participants

A power analysis using the software G*Power (Faul et al., 2007) was used to determine the sample size. We set statistical parameters for F tests, multiple linear regression, fixed model, R^2 increase with an alpha level of $p = .01$ and power = .80. Without specific information regarding the effect size, we chose a medium effect size of $f^2 = 0.15$. We fixed the number of tested predictors as well as the total number of predictors at 3 (i.e., main effects of psychopathology or maladaptive rumination and condition and their interaction). This resulted in a recommended overall sample of 109 participants. In order to ensure equal number of participants in each condition, we recruited a minimum of 110 participants and assigned a minimum of 55 participants in each condition.

An initial sample of 111 students (90 women; mean age = 21.16, $SD = 3.97$) took part in the study. Participants were randomly allocated to the concrete ($n = 55$) or the abstract level of construal condition ($n = 56$). However, only 77 participants (66 women; $n_{\text{concrete}} = 39$, $n_{\text{abstract}} = 38$; mean age = 21.09, $SD = 4.04$) also participated in the second part of the study (see Procedure). Participants were recruited at the University of Grenoble Alpes in exchange of course credits. The only exclusion criterion was not being fluent in French.

Material

Psychopathological measures.

Patient Health Questionnaire 9 items (PHQ-9; Kroenke, Spitzer, & Williams, 2001; French validation by Carballeira et al., 2007). Based on the DSM-IV criteria for depression, the PHQ-9 is a 9-item self-report questionnaire assessing the severity of depressive symptoms over the last two weeks on a 4-point scale ranging from 0 (*never*) to 3 (*nearly every day*). Higher scores indicate more severe depressive symptoms. Internal consistency in this sample was good ($\alpha = .77$).

Fear of Negative Evaluation scale (FNE, D. Watson & Friend, 1969; French validation by Douilliez, Baeyens, & Philippot, 2008). The FNE is a 30-item self-report measure of social-evaluative anxiety in which participants have to judge their agreement (*true* or *false*) for each statement (e.g., “I am afraid that others will not approve of me”). A social anxiety score is calculated, with higher scores indicating higher social anxiety. Internal consistency in this sample was high ($\alpha = .93$). We used a measure of social anxiety instead of a measure of anxiety because of the social nature of the in-vivo social-evaluative task.

Trait rumination measures.

Ruminative Responses Scale 10 items (RRS-10, Guimpel et al., 2012; Treynor et al., 2003). The RRS-10 is a 10-item self-report questionnaire assessing the frequency of rumination over the last week (i.e., trait rumination). Each item is scored on a 4-point scale ranging from 1 (*almost never*) to 4 (*almost always*). The RRS can be divided in two subscales assessing brooding and reflection so that three scores can be computed: a global score and two subscores of brooding and reflection. The score on the brooding subscale was used as an indicator of maladaptive trait rumination. In the current study, internal

consistencies were good for the RRS total ($\alpha = .78$) and each subscale (Brooding, $\alpha = .68$ and Reflection, $\alpha = .75$).

Mini Cambridge Exeter Repetitive Thought Scale (Mini-CERTS; Douilliez et al., 2014). The Mini-CERTS is a 16-item self-report questionnaire that measures abstract and concrete trait RNT (i.e., the mode of RNT people usually adopt). Each item is scored on a 4-point fully labeled scale ranging from 1 (*almost never*) to 4 (*almost always*). Internal consistency in this sample was good for the abstract and concrete dimensions (respectively $\alpha = .76$ and $\alpha = .78$). In the current study, abstract RNT score was taken as a second indicator of maladaptive rumination.

Induction of the level of construal (Freitas et al., 2004). We adapted the mindset induction of Freitas et al. (2004) in which participants are directed to think about a goal in an abstract “why” or a concrete “how” manner. Similarly to Freitas et al. (2004), participants first read an example of the exercise. We only adapted the example to our cover story so that the exercise was presented as “helping people to be better prepared” instead of “improving people’s life satisfaction”. Participants in the abstract condition were presented the following description:

“For everything we do, there is always a reason why we do it. Moreover, we often can trace the causes of our behavior back to broad life-goals that we have. For example, you currently are participating in a psychology experiment. Why are you doing this? Perhaps to satisfy a course requirement. Why are you satisfying the course requirement? Perhaps to pass a psychology course. Why pass the course? Perhaps because you want to earn a college degree. Why earn a college degree? Maybe because you want to find a good job, or because you want to educate yourself. And perhaps you wish to educate yourself or find a good job because you feel that doing so can bring you happiness in life. Research suggests that engaging in thought exercises like that above, in which one thinks about how

one's actions relate to one's ultimate life goals, can help us to be better prepared. This thought exercise is intended to focus your attention on why you do the things you do.”

Participants in the concrete condition were presented the following description:

“For everything we do, there is always a process of how we do it. Moreover, we often can follow our broad life-goals down to our very specific behaviors. For example, like most people, you probably hope to find happiness in life. How can you do this? Perhaps finding a good job, or being educated, can help. How can you do these things? Perhaps by earning a college degree. How do you earn a college degree? By satisfying course requirements. How do you satisfy course requirements? In some cases, such as today, you participate in a psychology experiment. Research suggests that engaging in thought exercise like that above, in which one thinks about how one's ultimate life goals can be expressed through specific actions, can help us to be better prepared. This thought exercise is intended to focus your attention on how you do the things you do.”

In addition to these descriptions, participants were presented diagrams illustrating the exercise (see Figure 1). Participants in the abstract condition were presented the goal “To participate in a psychology experiment” in a box at the bottom of a diagram with five boxes related by arrows up entitled “Why?”. In the boxes above, there were progressively more abstract reasons to fulfill this goal (e.g., “To satisfy a course requirement”). Participants in the concrete condition were presented a goal “To find happiness in life” in a box at the top of a diagram with five boxes related by down arrows entitled “How?”. In boxes below, there were progressively more concrete steps by which they could fulfill this goal (e.g., “To find a good job or be educated”).

This example was followed by the proper induction phase during which participants were presented a specific goal: “To communicate effectively”. The goal used by Freitas and collaborators, i.e., “Improve and maintain health”, was adapted for the present study (see Figure 2). Participants in the abstract condition were presented a

question in the box at the bottom of the diagram: “Why it is important to communicate effectively?”.⁵⁸ Then, they had to indicate four –instead of three in Freitas et al. (2004)– progressively more abstract reasons to this question in boxes above. Participants in the concrete condition were presented a question in the box at the top of the diagram: “How one can communicate effectively?”.⁵⁹ They had to list four –instead of three in Freitas et al. (2004)– progressively more concrete steps by which they could answer the question in boxes below.

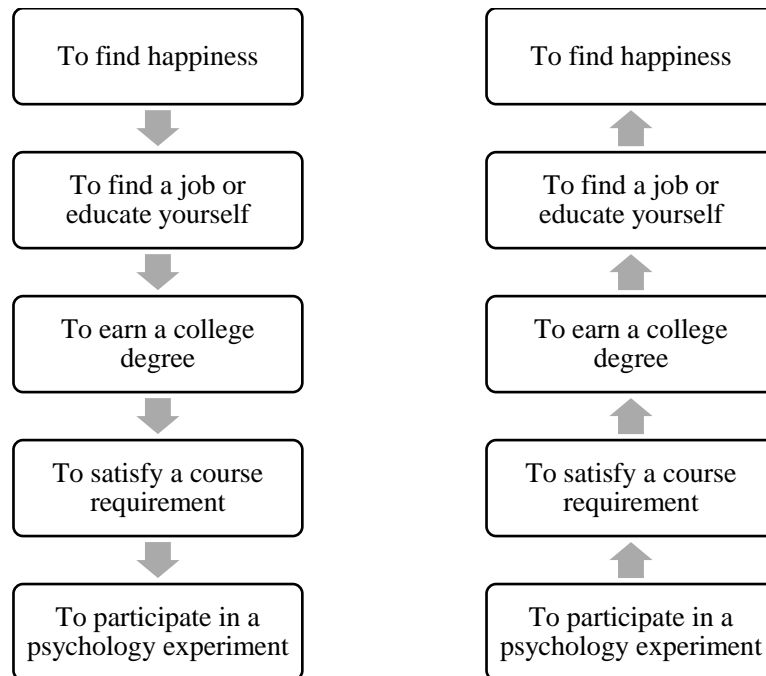


Figure 1. Diagrams presented to participants in the concrete (diagram at left) or the abstract condition (diagram at right) as an example of exercise.

In their task, Freitas et al. (2004) also asked questions about each proposition listed by the participants to ensure the adoption of a concrete or an abstract mindset (e.g., “How much will improving and maintaining your health help you meet this important goal?”). However to reduce the duration of the study, we did not use these questions.

⁵⁸ The French instructions for the abstract condition were « Pourquoi est-il important de bien savoir communiquer ? ».

⁵⁹ The French instructions for the concrete condition were « Comment peut-on bien communiquer ? ».

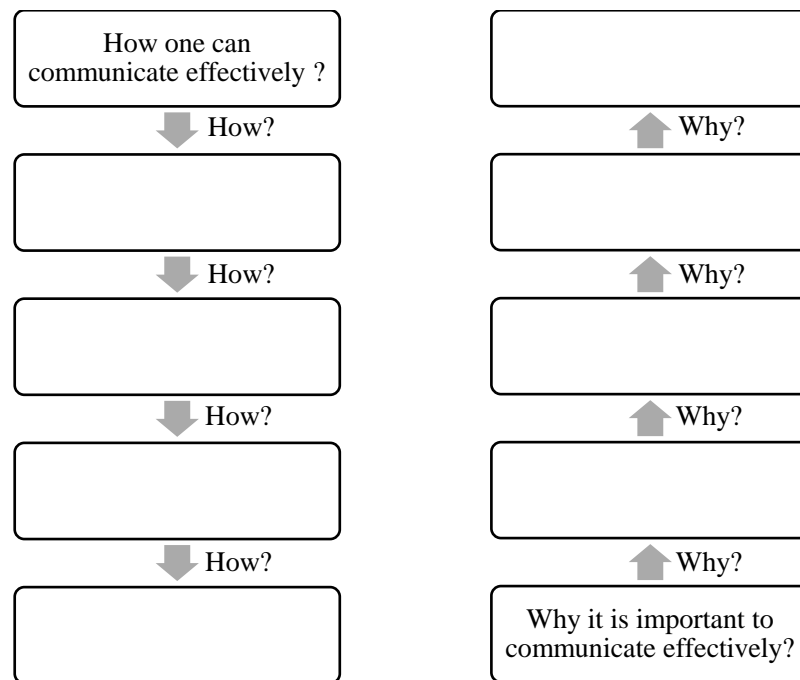


Figure 2. Diagrams presented to participants in the concrete (diagram at left) or the abstract condition (diagram at right) as an induction of a specific mindset.

Manipulation check of the level of construal. As in Study 2b (Chapter 4), using the scale of Stöber and Borkovec (2002), two judges –blind to condition– rated the level of abstraction of participants’ descriptions in boxes from 1 (*abstract*, defined as “indistinct, cross-situational, equivocal, unclear, aggregated”) to 5 (*concrete*, defined as “distinct, situationally specific, unequivocal, clear, singular”). These ratings were used as a manipulation check for the induction of the level of construal. Before rating these descriptions, the two judges were trained with a coding manual (interrater reliability, *ICC* from .80 to .84, all $ps < .01$; see Study 2b, Chapter 4).

For the descriptions of the current study, their interrater reliability was relatively low ($ICC = .49$, $p < .001$). The ratings of the two judges were averaged for each description and a global score of abstraction was computed for each participant by averaging these ratings for the four descriptions (similar to Study 2b, Chapter 4). However, as the global score of abstraction could be influenced by the weak interrater

reliability, we also checked our induction by computing a global score of abstraction for each judge. We predicted that participants in the abstract condition would have more abstract descriptions than participants in the concrete condition.

State rumination measures.

Frequency of thoughts. Participants assessed to what extent they think about the speech on a VAS ranging from 0 (*never*) to 100 (*extremely frequently*).

State rumination. Anticipatory and post-event thoughts about the speech (e.g., “when you are imagining the speech...”) were measured by two VASs ranging from 0 (*not at all*) to 100 (*extremely*). The two scales were adapted from Moberly and Watkins (2008b) in which participants rated their thoughts about their feelings and their problems. Scores were averaged to create a general score of rumination during the anticipation ($\alpha = .72$) and the post-event phases ($\alpha = .57$).

Concrete and abstract state rumination. Two items assessed whether participants’ thoughts were focused on the constituent steps of the speech or on causes, consequences, and meaning of it, on VASs ranging from 0 (*not at all*) to 100 (*extremely*). They were used individually as scores of the level of construal during rumination: a concrete rumination score and an abstract rumination score during the anticipation and the post-event phases.

Measure of state visual perspective. Participants’ visual point of view in imagery when imagining or remembering the speech was measured with two separate VASs assessing to what extent participants had an actor/observer perspective in their images ranging from 0 (*not at all*) to 100 (*extremely*), as advised by Rice and Rubin (2009).

Measure of state anxiety. Participants scored their current anxiety on a (VAS) ranging from 0 (*not at all*) to 100 (*extremely*).

Perceived speech topic difficulty. Participants had to indicate the difficulty of their speech topic on a continuum ranging from 0 (*not at all*) to 100 (*extremely difficult*).

Procedure

The study protocol was approved by the local research ethical committee and the French National Commission for Data Protection and Liberties (CNIL, France) (see Appendix G1). Participants registered for a 45-min study “on communication”. The study was divided in two parts: a first part lasting 35 min in the laboratory and a second part of 10-min online the next day. Participants were tested individually. The questions and the majority of the instructions were presented on a computer using Qualtrics® online survey software. After providing their informed consent to take part in the study, they completed demographic information, psychopathology (i.e., PHQ-9, FNE) and rumination (i.e., RRS-10 and Mini-CERTS) measures. Then, they were randomly assigned to a concrete or an abstract level of construal condition and completed the level of construal induction.

Next, participants were told that they will have to perform an impromptu speech during 3 min on an assigned topic. They were further told that their performance will be “videotape recorded and subsequently evaluated by independent judges trained specifically for this experience (...) on various criteria, such as posture or quality of speech”. This type of induction has been used in several studies on rumination (e.g., Wong & Moulds, 2011; Zoccola et al., 2014).

To select the topic of the speech, 22 participants conducted a pretest aiming at determining the perceived difficulties of three topics: (1) “Advantages and disadvantages of selection in Master of Science”, (2) “Benefits and difficulties of marriage for everyone”, and (3) “Benefits and difficulties of immigration”. Participants indicated the perceived difficulty of each topic on VASs ranging from 0 (*not at all*) to 10 (*extremely*

difficult). One-way repeated measures ANOVA, conducted to determine whether there were differences in difficulty between the three topics, showed that topics were not equal in difficulty, $F(2, 42) = 6.02$, $p < .01$. Post hoc analysis with Bonferroni adjustment revealed that difficulty was significantly higher for Topic 3 ($M = 6.36$, $SD = 2.19$) compared to Topic 1 ($M = 4.32$, $SD = 2.40$), mean difference = 2.05, 95 % CI [.51, 3.58], $p < .01$. There were no significant difference between Topic 2 ($M = 5.23$, $SD = 2.56$) and Topic 1, mean difference = .91, 95 % CI [-.65, 2.47], $p = .43$, and between Topic 3 and Topic 2, mean difference = 1.14, 95 % CI [-.38, 2.65], $p = .19$. Therefore, we chose to use Topics 2 (i.e., “Benefits and difficulties of immigration”) and 3 (i.e., “Benefits and difficulties of marriage for everyone”) because they were enough difficult to represent real social-evaluative stressors of everyday life.

Before doing this speech, the experimenter pretexted having to leave the room to get documents about consent to be filmed and asked participants to assess their state anxiety following the announcement of the speech. This latency period promoted the emergence of anticipatory thoughts about the speech. After 5 min, the experimenter came back and a topic was assigned to participants. Just before doing the speech, participants answered questions about their level of anxiety, rumination, concrete and abstract rumination, and the visual perspective adopted in imagery. Then, they gave the speech before assessing their anxiety and the topic difficulty. Finally, they were told that they will have to answer several online questions the next day.

In the second part of the study,⁶⁰ participants were asked to rate the frequency of their thoughts about the speech over the last 24 to 36 hours and to answer several questions about their level of anxiety, rumination, concrete and abstract rumination as well as visual perspective when they thought about the speech. Finally, participants

⁶⁰ The address of the second part of the study was given by email or on a sheet of paper for participants who preferred no giving their contact information.

received a positive imagery induction allowing a mood to return to the baseline. They were asked to report any comment on the study or its objectives and read a brief presentation of the aims of the study (see Appendix G2 for the protocol of the study).

Results

Preliminary analyses

Dropouts. Out of 111 participants who completed the first part of the study, only 77 (69.37 %) also completed the second part. Participants who only completed the first part of the study did not differ significantly from others regarding age ($t(109) = -.40, p = .69$) and scores on the FNE ($t(109) = .23, p = .82$), PHQ-9 ($t(109) = -1.41, p = .16$), RRS-10 Total ($t(109) = -1.13, p = .26$), RRS-10 Brooding ($t(109) = -.80, p = .42$), RRS-10 Reflection ($t(109) = -1.08, p = .28$), Mini-CERTS Abstract ($t(109) = -.32, p = .75$) or Concrete ($t(109) = .09, p = .93$). Moreover, there were no significant differences in sex distribution between the two samples, $\chi^2(1) = 2.14, p = .14$.

Associations between anticipatory and post-event measures. Correlations between state anxiety, state rumination (i.e., general, concrete, and abstract rumination) and visual perspective reported during the anticipation and the post-event phases were computed. They were significant correlations for state anxiety ($r = .48, p < .001$), general state rumination ($r = .50, p < .001$), concrete state rumination ($r = .36, p < .001$), and abstract state rumination ($r = .34, p < .001$). Even though the correlations were quite small, results also showed significant correlations for the actor perspective ($r = .26, p < .01$) and the observer perspective ($r = .28, p < .01$).

Associations between psychopathology and trait rumination measures. As shown in Table 1, scores of psychopathology (i.e., PHQ-9 and FNE) were positively correlated. They also positively correlated with maladaptive trait rumination scores (i.e.,

RRS-10 Total, RRS-10 Brooding, Mini-CERTS Abstract) and were negatively associated with adaptive trait rumination score (i.e., Mini-CERTS Concrete), except for the PHQ-9.

Given the positive –even though moderate– correlation between FNE and PHQ-9 scores ($r = .34, p < .001$), we created a general score of *psychopathology* by converting FNE and PHQ-9 scores to z-scores and averaging them for each participant. This method of combining several symptoms measures has been used in previous studies (e.g., Aldao & Nolen-Hoeksema, 2012; Wong & Moulds, 2010). Similarly, as RRS-10 Brooding and Mini-CERTS Abstract scores were highly correlated ($r = .76, p < .001$), they were converted to z-scores and averaged into a general score of *maladaptive trait rumination*.

Table 1

Summary of Correlations, Means, and Standard Deviations for Scores on the RRS-10, Mini-CERTS, FNE, and PHQ-9 in the Anticipation Sample.

Measure	1	2	3	4	5	6	7
1. RRS-10 Total	-						
2. RRS-10 Reflection	.86***	-					
3. RRS-10 Brooding	.82***	.42***	-				
4. Mini-CERTS Concrete	-.01	.21*	-.25**	-			
5. Mini-CERTS Abstract	.73***	.49***	.76**	-.23*	-		
6. FNE	.47***	.23*	.58***	-.32**	.69***	-	
7. PHQ-9	.45***	.28**	.50***	-.15	.56***	.34***	-
<i>M</i>	22.69	11.33	11.36	17.32	18.05	16.49	6.32
<i>SD</i>	5.54	3.45	3.12	3.76	4.61	8.23	4.07

Note. RRS-10 = 10-item Ruminative Response Scale; Mini-CERTS = Mini Cambridge Exeter Repetitive Thought Scale; FNE = Fear of Negative Evaluation scale; PHQ-9 = 9-item Patient Health Questionnaire. $N = 111$.

* $p < 0.5$, ** $p < .01$, *** $p < .001$.

During the debriefing, only two participants reported being suspicious about the latency period during which the experimenter left the room to favor the apparition of thoughts and emotions about the speech.

Equivalence between conditions.

Anticipation phase. Descriptive statistics for age and psychopathology variables by condition for our anticipation sample of 111 participants are displayed in Table 2. Independent t tests revealed no significant differences between participants in the two conditions on age, or psychopathology, or trait rumination measures (see Table 2). There were also no significant differences regarding the sex distribution, $\chi^2(1) = .08, p = .77$.

Table 2

Descriptive Statistics for Age, Rumination, and Psychopathology Variables, in Function of the Level of Construal Conditions in the Anticipation Sample.

	Level of construal				$t(109)$
	Concrete ($n = 55$)		Abstract ($n = 56$)		
	M	SD	M	SD	
Age	21.29	4.45	21.04	3.47	.34
RRS-10 Total	22.71	5.64	22.68	5.48	-.90
RRS-10 Reflection	11.62	3.73	11.05	3.17	.86
RRS-10 Brooding	11.09	2.94	11.63	3.30	.03
Mini-CERTS Concrete	17.49	3.67	17.14	3.87	.49
Mini-CERTS Abstract	17.84	4.47	18.27	4.77	-.49
FNE	15.64	7.59	17.32	8.81	-1.08
PHQ-9	6.22	4.31	6.41	3.87	-.25

Note. RRS-10 = 10-item Ruminative Response Scale; Mini-CERTS = Mini Cambridge Exeter Repetitive Thought Scale; FNE = Fear of Negative Evaluation scale; PHQ-9 = 9-item Patient Health Questionnaire.

Furthermore, anxiety scores after the announcement of the impromptu speech⁶¹ in the concrete ($M = 52.83, SD = 24.18$) and abstract ($M = 44.64, SD = 28.35$) conditions did not differ significantly, $t(107) = 1.62, p = .11$. Finally, the perceived topic difficulty ranged from 2 to 100, with a mean of 57.50 ($SD = 25.86$). The perceived topic difficulty was not significantly different between the concrete ($M = 56.67, SD = 24.32$) and the abstract condition ($M = 58.30, SD = 27.49$), $t(109) = -.33, p = .74$.

⁶¹ The anxiety scores were missing for two participants (i.e., one in each condition) because of a technical problem with the software. Therefore, the sample for this t -test was 109 participants.

Post-event phase. Descriptive statistics for age and psychopathology variables by condition for the 77 participants who completed the second part of the study are displayed in Table 3. Independent t tests revealed that there were no significant differences between the two conditions on age, or on psychopathology, or trait rumination measures (see Table 3). There were also no significant differences on the sex distribution, $\chi^2(1) = .08, p = .78$.

Participants barely thought about the speech given that the frequency of thoughts about the speech during the last 24 to 36 hours ranged from 0 to 86, with a mean of 27.45 ($SD = 22.04$).

Table 3
Descriptive Statistics for Age, Rumination, and Psychopathology Variables, in Function of the Level of Construal Conditions in the Post-Event Sample.

	Level of construal				$t(75)$
	Concrete ($n = 39$)		Abstract ($n = 38$)		
	M	SD	M	SD	
Age	21.41	5.21	20.76	2.33	.34
RRS-10 Total	22.51	5.51	22.26	4.90	.21
RRS-10 Reflection	11.33	3.55	10.95	3.04	.51
RRS-10 Brooding	11.18	2.92	11.32	3.09	-.20
Mini-CERTS Concrete	17.28	3.96	17.24	4.06	.05
Mini-CERTS Abstract	17.85	4.76	18.21	4.49	-.35
FNE	15.92	8.11	17.68	8.39	-.94
PHQ-9	6.00	4.41	5.84	3.20	.18

Note. RRS-10 = 10-items Ruminative Response Scale; Mini-CERTS = Mini Cambridge Exeter Repetitive Thought Scale; FNE = Fear of Negative Evaluation scale; PHQ-9 = 9-item Patient Health Questionnaire.

Manipulation check

As expected, participants' descriptions were judged as more abstract in the abstract condition ($M = 1.43, SD = .03$) than in the concrete condition ($M = 1.94, SD = .08$), $t(109) = 5.84, p < .001$. The same pattern of results was found when using the global score of abstraction computed for the first and the second judges: Participants' descriptions in the abstract ($M = 1.12, SD = .02$ for Judge 1; $M = 1.75, SD = .06$ for Judge

2) and concrete condition ($M = 1.43$, $SD = .02$ for Judge 1; $M = 2.46$, $SD = .12$ for Judge 2) did not differ; $t(109) = 4.63$, $p < .001$ for Judge 1, $t(109) = 5.29$, $p < .001$ for Judge 2.

Main analyses

An alpha of .01 was used for all statistical tests to strike a balance between avoiding Type I errors associated with the large number of analyses and avoiding Type II errors (e.g., O'Keefe, 2003). We used multiple hierarchical regressions to test our assumptions, with psychopathology or maladaptive trait rumination and level of construal condition as predictors. Models included psychopathology or maladaptive rumination scores, condition (i.e., concrete or abstract level of construal), and their interaction as predictors. For each hierarchical multiple regression, we entered psychopathology or maladaptive rumination scores in a first step, condition in the second step, and the interaction term in the third step. In the results section, we will refer to these different steps as Models 1, 2, and 3, respectively.

Continuous predictor variables (i.e., psychopathology and maladaptive rumination scores) were centered during their computation. Individual variables were only interpreted when the overall model was significant in order to reduce Type I errors (Cohen et al., 2003). We will only present regression tables with significant results at the end of the results section. Regression tables with non-significant results will be presented in the Appendices.

Initial investigations revealed no issues with multicollinearity and linearity. As we found problems with homoscedasticity and normality, we chose to use bootstrapping to avoid these problems (Field, 2013; see Chapter 3). Prior to the analyses, to detect multivariate outliers, we looked for standardized residuals as in previous studies (see Chapter 3), with adapted critical values for Mahalanobis distances (in this case, 19.26 for

the anticipation and 16.56 for the post-event phase) and leverage values (i.e., in this case, .16). We removed participants who scored above at least two of these criteria. Multivariate outliers are reported in each regression as well as results without their exclusion in footnotes.

Anticipation phase.

(a) Predictors of the observer perspective in anticipatory mental images

Effects of psychopathology, condition, and their interaction. Initial investigations revealed no outlier. As shown in Table 4, the first model was significant, $F(1, 109) = 10.37, p < .01$, the inclusion of psychopathology scores explained a significant variance of 9 %. As expected, higher psychopathology scores predicted higher observer perspective, $b = 10.33 [4.19, 16.50], SE = 3.17, p < .01$. The second model remained significant, $F(1, 108) = 5.14, p < .01$. However, the experimental conditions did not predict the observer perspective, $b = -.62 [-10.51, 8.95], SE = 5.13, p = .92$. The third model became non-significant, $F(1, 107) = 3.40, p < .05$. Inconsistent with our prediction, the experimental conditions did not moderate the effect of psychopathology on the adoption of an observer perspective in anticipatory images.

Effects of maladaptive rumination, condition, and their interaction. Initial investigations revealed no outlier. None of the three models were significant, $F(1, 109) = 3.82, p = .05$ for Model 1; $F(1, 108) = 1.89, p = .16$ for Model 2; $F(1, 107) = 1.78, p = .16$ for Model 3. Inconsistent with our prediction, neither maladaptive rumination, nor the experimental conditions, nor their interaction predicted the adoption of an observer perspective in anticipatory images (see Appendix G3).

(b) Predictors of anticipatory rumination

Effects of psychopathology, condition, and their interaction. Initial investigations revealed no outlier. As shown in Table 5, the first model was significant, $F(1, 109) = 19.30, p < .001$, the inclusion of psychopathology scores explained a significant variance of 15 %. As expected, higher psychopathology scores predicted higher anticipatory rumination, $b = 10.98 [5.99, 15.94], SE = 2.61, p < .01$. The second and third models remained significant, $F(1, 108) = 10.12, p < .001$ for Model 1; $F(1, 107) = 6.91, p < .001$ for Model 2. However, neither the experimental conditions, $b = -3.98 [-12.42, 4.46], SE = 4.16, p = .34$, nor their interaction with psychopathology, $b = 3.80 [-7.06, 13.85], SE = 5.53, p = .50$, predicted anticipatory rumination.

Effects of maladaptive rumination, condition, and their interaction. Initial investigations revealed no outlier. As shown in Table 6, the first model was significant, $F(1, 109) = 27.37, p < .001$, the inclusion of maladaptive rumination scores explained a significant variance of 20 %. As expected, higher maladaptive rumination scores predicted higher anticipatory rumination, $b = 11.06 [6.76, 15.00], SE = 2.17, p < .001$. The second and third models remained significant, $F(1, 108) = 14.22, p < .001$ and $F(1, 107) = 10.38, p < .001$, respectively. However, the results showed that neither the experimental conditions nor their interaction with maladaptive rumination predicted anticipatory rumination, $b = -4.06 [-12.32, 4.01], SE = 4.05, p = .32$ and $b = -6.50 [-14.48, 2.14], SE = 4.42, p = .15$, respectively.

(c) Predictors of anticipatory abstract rumination

Effects of psychopathology, condition, and their interaction. Initial investigations revealed no outlier. As shown in Table 7, the first model was significant, $F(1, 109) = 11.43, p < .01$, the inclusion of psychopathology scores explained a significant variance of

10 %. As expected, higher psychopathology scores predicted higher levels of abstract rumination, $b = 10.88$ [4.67, 16.40], $SE = 2.92$, $p < .001$. The second model remained significant, $F(1, 108) = 6.53$, $p < .01$, as well as the third model, $F(1, 107) = 5.06$, $p < .01$. However, the results indicated that neither the experimental conditions nor their interaction with psychopathology predicted abstract rumination, $b = -6.58$ [-16.83, 3.25], $SE = 5.37$, $p = .22$ and $b = 9.09$ [-2.09, 20.80], $SE = 6.00$, $p = .13$, respectively.

Effects of maladaptive rumination, condition, and their interaction. Initial investigations revealed no outlier. As shown in Table 8, the first model was significant, $F(1, 109) = 23.97$, $p < .001$, the inclusion of maladaptive rumination scores explained a significant variance of 18 %. As expected, higher maladaptive rumination scores predicted higher levels of abstract rumination, $b = 13.08$ [8.57, 17.70], $SE = 2.32$, $p < .001$. The second and third models remained significant, $F(1, 108) = 13.05$, $p < .001$ and $F(1, 107) = 8.74$, $p < .001$, respectively. Together, the results showed that neither the experimental conditions nor their interaction with maladaptive rumination predicted abstract rumination, $b = -6.94$ [-16.55, 3.04], $SE = 5.10$, $p = .18$ and $b = 2.90$ [-6.82, 13.85], $SE = 5.01$, $p = .55$, respectively.

(d) Predictors of anticipatory anxiety

Effects of psychopathology, condition, and their interaction. Initial investigations revealed no outlier.⁶² As shown in Table 9, the first model was significant, $F(1, 107) = 20.49$, $p < .001$, so that the inclusion of psychopathology scores explained a significant variance of 16 %. As expected, higher psychopathology scores predicted higher anticipatory anxiety, $b = 11.90$ [7.14, 16.44], $SE = 2.50$, $p < .001$. The second model remained significant, $F(1, 106) = 11.16$, $p < .001$, as well as the third model, $F(1, 105) =$

⁶² The anxiety scores were missing for two participants (i.e., one in each condition) because of a technical problem with the software. Therefore, the sample for this multiple regression was 109 participants.

7.92, $p < .001$. However, neither the experimental conditions nor their interaction with psychopathology predicted anticipatory anxiety, $b = -5.61 [-14.17, 2.93]$, $SE = 4.33$, $p = .20$ and $b = 6.16 [-3.32, 15.39]$, $SE = 5.07$, $p = .23$, respectively.

Effects of maladaptive rumination, condition, and their interaction. Initial investigations revealed no outlier⁶². As shown in Table 10, the first model was significant, $F(1, 107) = 23.79$, $p < .001$. The inclusion of maladaptive rumination scores explained a significant variance of 18 %. As expected, higher levels of maladaptive rumination predicted higher anticipatory anxiety, $b = 11.15 [6.60, 15.27]$, $SE = 2.26$, $p < .001$. The second model remained statistically significant, $F(1, 106) = 12.85$, $p < .001$, as well as the third model, $F(1, 105) = 8.48$, $p < .001$. However, neither the experimental conditions nor their interaction with maladaptive rumination predicted anticipatory anxiety, $b = -5.62 [-14.04, 2.58]$, $SE = 4.26$, $p = .20$ and $b = -.04 [-9.14, 8.03]$, $SE = 4.82$, $p = .99$, respectively.

Post-event phase.

(a) Predictors of observer perspective in post-event mental images

Effects of psychopathology, condition, and their interaction. Initial investigations revealed no outlier. None of the three models were significant, $F(1, 75) = .10$, $p = .76$ for Model 1; $F(1, 74) = .08$, $p = .93$ for Model 2; $F(1, 73) = .05$, $p = .99$ for Model 3. Together, the results showed that neither psychopathology, nor the experimental conditions, nor their interaction predicted observer perspective in post-event images (see Appendix G4).

Effects of maladaptive rumination, condition, and their interaction. Initial investigations revealed no outlier.⁶³ None of the three models were significant, $F(1, 75) =$

⁶³ One participant had leverage value greater than .16 but his exclusion did not affect results.

.31, $p = .58$ for Model 1; $F(1, 74) = .17$, $p = .84$ for Model 2; $F(1, 73) = .66$, $p = .58$ for Model 3. Inconsistent with our prediction, neither maladaptive rumination scores, nor the experimental conditions, nor the interaction between maladaptive rumination and condition predicted the adoption of an observer perspective in post-event images (see Appendix G5).

(b) Predictors of post-event rumination

Effects of psychopathology, condition, and their interaction. Initial investigations revealed no outlier. As shown in Table 11, the first model was significant, $F(1, 75) = 9.81$, $p < .01$, the inclusion of psychopathology scores explained a significant variance of 12 %. As expected, higher psychopathology scores predicted higher post-event rumination, $b = 8.29$ [3.46, 12.68], $SE = 2.37$, $p < .01$. The second model became non-significant, $F(1, 74) = 4.84$, $p = .01$, and the third model remained non-significant, $F(1, 73) = 3.29$, $p = .03$. Together, the results showed that neither the experimental conditions nor their interaction with psychopathology predicted post-event rumination.

Effects of maladaptive rumination scores, condition, and their interaction. Initial investigations revealed no outlier.⁶⁴ As shown in Table 12, the first model was significant, $F(1, 75) = 9.27$, $p < .01$, the inclusion of maladaptive rumination score explained a significant variance of 11 %. As expected, higher maladaptive rumination scores predicted higher post-event rumination, $b = 7.39$ [2.22, 11.83], $SE = 2.51$, $p < .01$. The second model became non-significant, $F(1, 74) = 4.58$, $p = .01$, and the third model remained non-significant, $F(1, 73) = 3.08$, $p = .03$. Inconsistent with our prediction, the results showed that neither the experimental conditions nor their interaction with maladaptive rumination predicted post-event rumination.

⁶⁴ One participant had a leverage value greater than .16. His exclusion did not affect the results.

(c) Predictors of post-event abstract rumination

Effects of psychopathology, condition, and their interaction. Initial investigations revealed no outlier. None of the three models were significant, $F(1, 75) = 2.62, p = .11$ for Model 1; $F(1, 74) = 1.35, p = .27$ for Model 2; $F(1, 73) = .90, p = .45$ for Model 3. Inconsistent with our prediction, neither psychopathology scores, nor the experimental conditions, nor their interaction predicted post-event abstract rumination (see Appendix G6).

Effects of maladaptive rumination, condition, and their interaction. Initial investigations revealed no outlier.⁶⁵ None of the three models were significant, $F(1, 75) = 3.71, p = .06$ for Model 1; $F(1, 74) = 1.90, p = .16$ for Model 2; $F(1, 73) = 1.30, p = .28$ for Model 3. Inconsistent with our prediction, neither maladaptive rumination, nor the experimental conditions, nor their interaction predicted post-event abstract rumination (see Appendix G7).

(d) Predictors of post-event anxiety

Effects of psychopathology, condition, and their interaction. Initial investigations revealed no outlier. As shown in Table 13, the first model was significant, $F(1, 75) = 7.32, p < .01$, the inclusion of psychopathology scores explained a significant variance of 9 %. As expected, higher psychopathology scores predicted higher post-event anxiety, $b = 8.58 [2.25, 14.86], SE = 3.09, p < .01$. The second model became non-significant, $F(1, 74) = 3.75, p = .03$, as well as the third model, $F(1, 73) = 2.65, p = .06$. Inconsistent with our prediction, neither the experimental conditions nor their interaction with psychopathology predicted post-event anxiety.

⁶⁵ One participant had a leverage value greater than .16 but his exclusion did not affect the results.

Effects of maladaptive rumination, condition, and their interaction. Initial investigations revealed no outlier.⁶⁶ None of the three models were significant, $F(1, 75) = 4.18, p = .04$ for Model 1⁶⁷; $F(1, 74) = 2.23, p = .11$ for Model 2; $F(1, 73) = 2.25, p = .09$ for Model 3. Together, the results showed that neither maladaptive rumination, nor the experimental conditions, nor their interaction predicted post-event anxiety (see Appendix G8).

⁶⁶ One participant had a leverage value higher than .16 but his exclusion did not affect the results.

⁶⁷ The model is not significant at .01 but nearly significant. Looking at this tendency, results showed that higher levels of maladaptive trait rumination tended to predict more post-event anxiety.

Table 4

Multiple Hierarchical Regressions Predicting Observer Perspective in Anticipatory Images from Psychopathology, Condition, and their Interaction.

Variable	Observer perspective in anticipatory images											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	49.80	2.55		[44.95, 54.99]	50.11	3.25		[43.43, 56.54]	50.13	3.26		[43.29, 56.94]
Psychopathology	10.33	3.17	.30**	[4.19, 16.45]	10.36	3.18	.30**	[4.34, 16.47]	10.69	4.49	.31*	[1.73, 19.84]
Condition					-.62	5.13	-.01	[-10.51, 8.95]	-.62	5.16	-.01	[-10.30, 8.81]
Psychopathology * Condition									-.65	6.59	-.01	[-14.37, 11.58]
<i>R</i> ²	.09				.09				.09			
<i>F</i>	10.37**				5.14**				3.40*			
ΔR^2	.09				.00				.00			
ΔF	10.37**				.01				.01			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 111.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5

Multiple Hierarchical Regressions Predicting Anticipatory Rumination from Psychopathology, Condition, and their Interaction.

Variable	Anticipatory rumination											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	30.99	2.07		[27.17, 34.65]	33.00	3.22		[27.03, 38.91]	32.88	3.30		[26.76, 38.95]
Psychopathology	10.98	2.61	.39**	[5.99, 15.94]	11.17	2.67	.40**	[6.01, 16.25]	9.24	4.26	.33*	[1.21, 17.30]
Condition					-3.98	4.16	-.09	[-12.42, 4.46]	-3.98	4.20	-.09	[-12.44, 4.43]
Psychopathology * Condition									3.80	5.53	.10	[-7.06, 13.85]
<i>R</i> ²	.15				.16				.16			
<i>F</i>	19.30***				10.12***				6.91***			
ΔR^2	.15				.01				.00			
ΔF	19.30***				.95				.57			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 111.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6

Multiple Hierarchical Regressions Predicting Anticipatory Rumination from Maladaptive Rumination, Condition, and their Interaction.

Variable	Anticipatory rumination											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	30.99	2.00		[27.25, 34.56]	33.04	2.89		[27.67, 38.20]	33.28	2.95		[27.67, 38.62]
Maladaptive rumination	11.06	2.17	.45***	[6.76, 15.00]	11.21	2.18	.45***	[6.93, 15.13]	14.85	3.26	.60***	[8.01, 20.79]
Condition					-4.06	4.05	-.09	[-12.32, 4.01]	-4.12	4.07	-.09	[-12.18, 3.81]
Maladaptive rumination * Condition									-6.50	4.42	-.20	[-14.48, 2.14]
<i>R</i> ²	.20				.21				.23			
<i>F</i>	27.37***				14.22***				10.38***			
ΔR^2	.20				.01				.02			
ΔF	27.37***				1.05				2.35			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 111.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Table 7

Multiple Hierarchical Regressions Predicting Anticipatory Abstract Rumination from Psychopathology, Condition, and their Interaction.

Variable	Anticipatory abstract rumination											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	45.78	2.67		[40.47, 51.07]	49.09	3.93		[41.17, 57.47]	48.80	3.91		[40.94, 57.19]
Psychopathology	10.88	2.92	.31***	[4.67, 16.40]	11.20	2.91	.32***	[4.83, 16.68]	6.58	4.64	.19	[-3.43, 14.87]
Condition					-6.58	5.37	-.11	[-16.83, 3.25]	-6.56	5.32	-.11	[-16.87, 3.42]
Psychopathology * Condition									9.09	6.00	.18	[-2.09, 20.80]
<i>R</i> ²	.10				.11				.12			
<i>F</i>	11.43**				6.53**				5.06**			
ΔR^2	.10				.01				.02			
ΔF	11.43**				1.57				2.01			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 111.

* $p < .05$. ** $p < .01$. *** $p < .001$.

CHAPTER 5. Manipulation of the abstraction process

Table 8

Multiple Hierarchical Regressions Predicting Anticipatory Abstract Rumination from Maladaptive Rumination, Condition, and their Interaction.

Variable	Anticipatory abstract rumination											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	45.78	2.51		[40.81, 50.71]	49.27	3.71		[42.11, 56.42]	49.17	3.75		[41.81, 56.27]
Maladaptive rumination	13.08	2.32	.43***	[8.57, 17.70]	13.35	2.32	.43***	[8.93, 17.70]	11.72	4.04	.38**	[3.42, 18.83]
Condition					-6.94	5.10	-.12	[-16.55, 3.04]	-6.91	5.11	-.12	[-16.60, 3.17]
Maladaptive rumination * Condition									2.90	5.01	.07	[-6.82, 13.85]
<i>R</i> ²	.18				.20				.20			
<i>F</i>	23.97***				13.05***				8.74***			
ΔR^2	.18				.01				.00			
ΔF	23.97***				1.94				.29			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 111.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 9

Multiple Hierarchical Regressions Predicting Anticipatory Anxiety from Psychopathology, Condition, and their Interaction.

Variable	Anticipatory anxiety											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	48.90	2.19		[44.63, 53.32]	51.73	2.94		[46.07, 57.50]	51.54	2.97		[45.64, 57.41]
Psychopathology	11.90	2.50	.40***	[7.14, 16.44]	12.17	2.55	.41***	[7.42, 16.83]	9.05	3.93	.31*	[1.22, 16.79]
Condition					-5.61	4.33	-.12	[-14.17, 2.93]	-5.63	4.33	-.12	[-14.49, 3.00]
Psychopathology * Condition									6.16	5.07	.15	[-3.32, 15.39]
<i>R</i> ²	.16				.17				.19			
<i>F</i>	20.49***				11.16***				7.92***			
ΔR^2	.16				.01				.01			
ΔF	20.49***				1.69				1.38			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 109.

* $p < .05$. ** $p < .01$. *** $p < .001$.

CHAPTER 5. Manipulation of the abstraction process

Table 10

Multiple Hierarchical Regressions Predicting Anticipatory Anxiety from Maladaptive Rumination, Condition, and their Interaction.

Variable	Anticipatory anxiety											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	48.76	2.19		[44.45, 53.08]	51.59	2.77		[46.26, 57.08]	51.59	2.77		[46.08, 57.05]
Maladaptive rumination	11.15	2.26	.43***	[6.60, 15.27]	11.38	2.30	.44***	[6.61, 15.73]	11.40	3.87	.44**	[3.44, 19.53]
Condition					-5.62	4.26	-.12	[-14.04, 2.58]	-5.62	4.30	-.12	[-14.15, 2.70]
Maladaptive rumination * Condition									-.04	4.82	-.00	[-9.14, 8.03]
<i>R</i> ²	.18				.20				.20			
<i>F</i>	23.79***				12.85***				8.48***			
ΔR^2	.18				.01				.00			
ΔF	23.79***				1.74				.00			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 109.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Table 11

Multiple Hierarchical Regressions Predicting Post-Event Rumination from Psychopathology, Condition, and their Interaction.

Variable	Post-event rumination											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	26.28	2.22		[21.91, 31.07]	26.17	3.20		[20.14, 32.97]	26.08	3.23		[20.05, 32.96]
Psychopathology	8.29	2.37	.34**	[3.46, 12.68]	8.29	2.39	.34**	[3.52, 12.62]	7.01	3.39	.29*	[-.25, 13.06]
Condition					.22	4.22	.01	[-8.08, 8.50]	.29	4.26	.01	[-7.98, 8.56]
Psychopathology * Condition									2.83	5.00	.08	[-7.11, 13.79]
<i>R</i> ²	.12				.12				.12			
<i>F</i>	9.81**				4.84*				3.29*			
ΔR^2	.12				.00				.00			
ΔF	9.81**				.00				.28			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 77.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Table 12

Multiple Hierarchical Regressions Predicting Post-Event Rumination from Maladaptive Rumination, Condition, and their Interaction.

Variable	Post-event rumination											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	26.19	2.23		[21.77, 30.65]	25.94	3.12		[20.04, 32.03]	26.00	3.16		[20.00, 32.15]
Maladaptive rumination	7.39	2.51	.33**	[2.22, 11.83]	7.38	2.53	.33**	[1.93, 12.01]	8.42	3.72	.38*	[.81, 15.03]
Condition					.50	4.28	.01	[-7.83, 8.48]	.45	4.31	.01	[-8.10, 8.49]
Maladaptive rumination * Condition									-2.11	5.23	-.07	[-12.46, 7.93]
<i>R</i> ²	.11				.11				.11			
<i>F</i>	9.27**				4.58*				3.08*			
ΔR^2	.11				.00				.00			
ΔF	9.27**				.01				.20			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 77.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Table 13

Multiple Hierarchical Regressions Predicting Post-Event Anxiety from Psychopathology, Condition, and their Interaction.

Variable	Post-event anxiety											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	23.92	2.62		[18.66, 29.08]	22.59	3.98		[15.60, 30.03]	22.45	4.05		[15.37, 29.99]
Psychopathology	8.58	3.09	.30**	[2.25, 14.86]	8.49	3.14	.30**	[2.06, 15.04]	6.47	4.74	.23	[-2.41, 16.42]
Condition					2.68	5.43	.06	[-9.39, 14.60]	2.79	5.51	.06	[-9.42, 14.52]
Psychopathology * Condition									4.48	6.40	.10	[-8.34, 16.66]
<i>R</i> ²	.09				.09				.10			
<i>F</i>	7.32**				3.75*				2.65			
ΔR^2	.09				.00				.01			
ΔF	7.32**				.26				.49			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 77.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Discussion

The present study explored the consequences of the level of construal (i.e., concrete versus abstract) adopted on visual perspective, rumination, and emotional response, in function of psychopathological symptoms or the tendency to ruminate. We hypothesized that the level of psychopathology or maladaptive trait rumination would predict visual perspective, rumination, and emotional response during the anticipation or the post-event processing of an in-vivo social-evaluative task, and that this effect would be moderated by the level of construal adopted. More specifically, we predicted that higher levels of psychopathology (i.e., depression and social anxiety) or maladaptive trait rumination (i.e., trait brooding and abstract trait rumination) would be associated with more anticipatory and post-event (a) observer perspective, (b) general rumination, (c) abstract rumination, and (d) anxiety, particularly in participants who adopted an abstract level of construal, compared to a concrete level of construal. In this discussion, we will first discuss the results according to the predicting value of psychopathology, before discussing the results found for the tendency to ruminate, and finally those for the level of construal.

The level of psychopathology predicted the adoption of an observer perspective, rumination, more specifically abstract rumination, and anxiety while anticipating an in-vivo social-evaluative task. During the post-event processing of this task, the level of psychopathology predicted rumination and anxiety but not the observer perspective and abstract rumination. However, post-event results need to be interpreted with caution as the sample size was small but also because participants barely thought about the speech.

These results are consistent with cognitive models of social anxiety (Clark, 2001; Clark & Wells, 1995) which posit that socially anxious individuals have mental images from an observer perspective of how they might appear to other. They also experience

intense levels of anxiety and rumination prior and after a social event (Clark, 2001), especially abstract rumination (e.g., Kocovski, Endler, Rector, & Flett, 2005). These results are also consistent with cognitive models of depression such as the response styles theory (Nolen-Hoeksema, 1991, 2004) suggesting that people with depression tend to ruminate in response to their depressed mood. Moreover, depressive rumination is characterized by an abstract level of construal and is associated with increased state anxiety (Watkins, 2008). Finally, depressed people adopt more observer perspective than non-depressed people (Kuyken & Howell, 2006; Kuyken & Moulds, 2009; Lemogne et al., 2006).

Results with maladaptive rumination were very similar. The level of maladaptive trait rumination predicted rumination, more specifically abstract rumination, and anxiety but not the observer perspective while anticipating an in-vivo social evaluative task. During the post-event processing of this task, the level of maladaptive trait rumination predicted rumination but not the observer perspective, abstract rumination, or anxiety. As for the psychopathology, post-event results need to be interpreted with caution as the sample size was small and participants barely thought about the speech.

These results are consistent with the conceptualization of rumination as a transdiagnostic process implicated in disorders, especially abstract rumination (Ehring & Watkins, 2008; Harvey et al., 2004; Watkins, 2008). Maladaptive trait rumination is a good predictor of unconstructive cognitive and emotional consequences, such as greater rumination and anxiety. Nevertheless, in the current study, maladaptive rumination did not predict the use of an observer perspective in anticipatory or post-event images of the social evaluative task. This result is in opposition with other studies (Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007) but consistent with some studies which did not find a link between rumination and visual perspective (Finnbogadóttir & Berntsen,

2011; Kuyken & Moulds, 2009). Despite processual similarities between rumination and observer perspective (Libby & Eibach, 2011; Watkins, 2008), the relationship between trait rumination and the visual perspective is not clear.

Finally, inconsistent with our hypothesis, the adoption of a concrete or an abstract level of construal did not influence visual perspective, rumination, or anxiety. These results were inconsistent with the abundant literature on the implication of the level of construal in mental rumination (e.g., Watkins, 2008) and visual perspective (Agerström et al., 2013; Libby et al., 2009; Shaeffer et al., 2015; Vasquez & Buehler, 2007). Even combined with psychopathology or maladaptive rumination, the level of construal had no effect on any variable, contrary to the hypothesis of the implication of a dysregulation in the level of construal in maladaptive consequences of many psychological disorders (Watkins, 2011).

This absence of effect can be first explained at a methodological level, regarding our induction. Even if we found an effect of our induction on our manipulation check, it is possible that this effect did not maintain over time, especially because the first task (i.e., the induction of the level of construal) and the second task of the study (i.e., the impromptu speech) were presented as separated tasks. Moreover, even if the descriptions of participants in the concrete condition were judged as less abstract than those of participants in the abstract condition, they were overall judged as abstract, as indicated by their mean ratings of abstraction (Stöber & Borkovec, 2002). Therefore, it is possible that we failed to induce a specific level of construal –especially a concrete level– which maintains over time. To counter those problems, future studies should rather train participants to adopt a level of construal through *several* goals. This proposition is based on studies having used cognitive bias modification techniques in which people are repeatedly trained to process information in a certain way (e.g., Mathews & MacLeod,

2002). For example, Watkins, Moberly and Moulds (2008) trained participants to adopt a concrete or an abstract level of construal with between 30 to 64 different scenarios describing a positive or a negative event.⁶⁸ In the abstract condition, participants were asked to think about why it happened but also to “analyze the causes, meanings, and implications” of each event, whereas participants in the concrete condition were asked to “focus on how it happened, and to imagine in [their] mind as vividly and concretely as possible a movie of how [each] event unfolded” –even if this instruction might also induce more mental imagery compared to the abstract instruction–. To check their induction, these authors used the Means Ends Problem Solving Task (Platt & Spivack, 1972), in which participants have to generate strategies for overcoming a problematic situation. These strategies were later rated by blind judges following the scale of Borkovec and Stöber (2002), as in the present study. However, contrary to our study, participants in the concrete condition were overall judged as concrete rather than abstract, as indicated by the means of ratings of abstraction (Stöber & Borkovec, 2002). Even if the content of the induction of Watkins and collaborators’ (2008) study is different from ours, it is possible to adapt their training so that participants would be trained to adopt a specific level of construal to think about *several* goals.

Another limitation is the adaptation of the mindset induction of Freitas et al. (2004) in our study. We chose not to ask some questions to the participants (see Material section), in order to reduce the duration of the study. However, these questions could be key active components of the induction and would have strengthened the mindset. Similarly, we modified the goal used in the induction: Participants in the concrete condition were asked “How one can communicate effectively?” whereas those in the

⁶⁸ For example, one scenario was: “You have an argument with your best friend. You have only had a few minor disagreements in the past, but this argument becomes heated and she tells you that she feels that she will never be able to trust you again. You are shocked and hurt”.

abstract condition were asked “Why it is important to communicate effectively?”. It is possible that these instructions were not really appropriate. For example, the abstract instruction can lead people to focus on their knowledge about their ability to communicate (i.e., close to metacognition) or to assess the discrepancy between their current and desired ability to communicate (i.e., their standard). Even if these two propositions are related to an abstract level of construal, they limited the number of possible responses, contrary to concrete instructions, which were not too specific. Because these instructions were not identical, future studies should adapt these instructions by only indicating the goal “To communicate more effectively” and asking participants “why?” or “how?”, to ensure equivalence between the two groups.

Third, in our induction, participants adopted a construal level concerning an *approach* goal (i.e., to achieve something positive) rather than an *avoidant* goal (i.e., to avoid something negative). However, in anticipatory situations, such as our in-vivo social-evaluative task, people are generally guided by avoidant goals (e.g., “not to appear stupid”). The present study did not explore the effect of the level of construal adopted to think about an avoidant goal during the anticipation or the post-event processing. Investigating this effect would be relevant as vulnerable populations have a high avoidance tendency (e.g., people suffering from depression, Quigley et al., 2017). Therefore, future studies should modify the induction so that participants think about an avoidance goal (e.g., “not to appear stupid in front of people”, “not to be alone”, “to avoid failure”), which is closer to ecological situations encountered by depressed or anxious individuals.

At a theoretical level, the absence of an interaction effect may also suggest that the level of psychopathology or maladaptive trait rumination, conceptualized as a habit, is more important and goes beyond the effect of the level of construal adopted. Our level of

construal induction could be not strong enough to counter these general tendencies. This explanation indicates that future studies should use a repeated training as an induction of the level of construal, which would help to counter general tendencies.

Moreover, previous studies contrasting an abstract and a concrete level of construal did not use the mindset induction of Freitas et al. (2004). Studies on rumination generally induced an abstract level, focusing on the causes, consequences, and implications of the situation versus a concrete level focusing on the steps of the situation (e.g., Watkins et al., 2008). Therefore, the abstraction process was not manipulated –and more generally defined– in the same way as in our study. Participants were also trained on both *positive* and *negative* scenarii. Similarly, in studies on visual perspective (e.g., Libby et al., 2009), participants were trained to adopt an abstract “why” level versus a concrete “how” level when thinking about *neutral* everyday events. These subtle differences in the definition and operationalization of the abstraction process can explain the absence of effects.

More generally, our study has a number of limitations. First, concerning our measures, we did not assess baseline anxiety, which prevents us to ensure that participants in the two conditions were equally anxious at the beginning of the experiment and that the situation was effectively anxiety-provoking. Moreover, our measures of abstract and concrete state rumination have never been used in previous studies. It might have been possible that participants did not really understand the instructions, as indicated by some participants during the debriefing.

Second, regarding our predictors, we used composite scores of psychopathology and maladaptive trait rumination. This method, already used in previous studies (Aldao & Nolen-Hoeksema, 2012; Wong & Moulds, 2010), allowed us to explore transdiagnostic

features. However, it prevented us from testing specific aspects, such as the effect of depression or social anxiety.

Finally, one important limitation of our study is the use of a non-clinical undergraduate population. Even if the generalizability of these results to a clinical sample must be taken carefully, undergraduates refer to a group with a high risk of depression and anxiety disorders. Approximately 5.41% of our participants showed moderately severe to severe depression scores (i.e., scores equal or higher than 15; Kroenke et al., 2001) and 52.25 % of them showed high social anxiety scores (i.e., scores equal or higher than 17, Douilliez et al., 2008). Nevertheless, future studies should examine the effect of the level of construal adopted on rumination, visual perspective, and emotional regulation in clinical samples.

Another important limitation is that we used strict statistical criteria in order to avoid Type I and Type II errors. We used a low p -value and interpreted an effect only when the overall model is significant. However, our criteria could have implied Type II errors. For example, when using a p -value of .05, some results were changed: Higher levels of maladaptive rumination would be associated with more post-event anxiety. We encourage future studies to examine the influence of the level of construal on the main variables in separate, more parsimonious, studies to avoid the use of strict statistical criteria.

To conclude, the present study is the first to use an experimental design to test the effect of the level of construal on the visual perspective adopted in mental imagery, mental rumination as well as emotional regulation, during both the anticipation and post-event processing of an in-vivo social evaluative situation. Consistent with the clinical literature, people with higher levels of psychopathology (i.e., depression, social anxiety) or maladaptive trait rumination (i.e., trait brooding and abstract trait rumination) are at risk of experiencing anticipatory images from an observer perspective, rumination, more

specifically abstract rumination, and anxiety. They may also tend to present more post-event rumination and anxiety. However, the level of construal (i.e., concrete versus abstract) adopted has no effect, even combined with psychopathology or maladaptive trait rumination. These findings add to the body of evidence supporting the implications of mental rumination and mental imagery in many psychological disorders (e.g., Holmes & Mathews, 2010; Watkins, 2008). On the other hand, inconsistent with the hypothesis of a common process (Libby & Eibach, 2011; Watkins, 2011) and studies demonstrating a link between rumination and visual perspective (Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007), maladaptive trait rumination does not seem to be associated with mental images from an observer perspective. Thus, future research should examine evidence for and against a special association between mental rumination and visual perspective, and circumstances under which that link exists.

CHAPTER 6. Repetitive negative thinking and visual perspective: A special relationship? A meta-analysis

Introduction

Many psychological disorders are characterized by the presence of repetitive negative thoughts and mental images from an observer perspective, which are conceptualized as two transdiagnostic features (e.g., Holmes & Mathews, 2010; Watkins, 2008). Repetitive negative thinking (RNT), underpinned by an abstract level of construal would have unconstructive consequences in clinical or subclinical population (Watkins, 2008) and serve an avoidance function (e.g., Sibrava & Borkovec, 2006). Similarly, the adoption of an observer perspective in mental imagery would be characterized by an abstract level of construal (Libby & Eibach, 2011) with unconstructive consequences and would serve an avoidance function in clinical or subclinical populations (Kenny & Bryant, 2007). In line with these similar conceptualizations, some correlational studies showed a positive correlation between RNT and the adoption of an observer perspective (e.g., Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007) while others did not (e.g., Finnbogadóttir & Berntsen, 2011). Given these inconsistent results, the goal of the present paper is to use meta-analytic techniques to explore the link between RNT and the observer perspective in mental imagery, in order to produce greater evidence for or against this supposed special relationship (Cumming, 2012).

Repetitive negative thoughts have been defined in many different ways, depending on the disorder in which they have been explored. In depression, Nolen-Hoeksema (1991) defined mental rumination as “behaviors and thoughts that focus one’s attention on one’s depressive symptoms and on the implication of these symptoms” (p. 569). In GAD, worry is a form of RNT which refers to a “chain of thoughts and images, negatively affect-laden

and relatively uncontrollable” (Borkovec et al., 1983, p. 10). Even though these two forms of RNT differ in their content (e.g., rumination is mainly focused on symptoms of depression, whereas worry is focused on future negative events), they share common characteristics: (1) the repetitiveness of the thoughts, (2) their uncontrollability, and (3) the focus on a negative content. These characteristics have been conceptualized into the general transdiagnostic process of RNT (e.g., Ehring & Watkins, 2008). RNT is present in several disorders, including depression, GAD, social phobia as well as eating disorders for example (Ehring & Watkins, 2008).

At a more specific level, the level of construal underlying RNT is implicated in negative consequences of RNT. Based on social-cognitive theories (Control theory, Carver & Scheier, 1982; Construal-level theory, Trope & Liberman, 2003; Action identification theory, Vallacher & Wegner, 1989), Watkins (2008) differentiates concrete and abstract RNT. Abstract RNT is underpinned by an abstract level of construal in which mental representations are general, superordinate, decontextualized, and give the essential meaning of the event (i.e., the “why”). Abstract RNT refer to thoughts about the analysis of causes, consequences, and implications of an event, about why the event took or will take place (Watkins, 2008). On the contrary, concrete RNT is underpinned by a concrete level of construal in which mental representations are specific, subordinate, contextualized, and specify the means and the steps of the event (i.e., the “how”). Hence, concrete RNT correspond to thoughts focused on what makes the event unique, on how does the event took or will take place. Research has shown that, in clinical or subclinical populations, abstract RNT has unconstructive consequences, whereas concrete RNT has constructive consequences on mood, cognitions, and behaviors (Watkins, 2008). Several experimental studies supported this theory, for example by demonstrating that abstract

RNT was associated with greater emotional reactivity to a subsequent failure (Moberly & Watkins, 2006).

RNT would serve an avoidance function: While thinking repetitively, people avoid engaging in their environment (e.g., Martell et al., 2013), trying to solve problems, or thinking about more distressing topics (Sibrava & Borkovec, 2006). This behavior would therefore be negatively reinforced by a reduction in distress. Cross-sectional studies have demonstrated a positive correlation between RNT and avoidant strategies (e.g., Cribb et al., 2006 for rumination; Santanello & Gardner, 2007 for worry). One of the most influential theory is the cognitive avoidance theory of worry (Sibrava & Borkovec, 2006), which posits that the verbal and abstract form of worry (e.g., Borkovec & Inz, 1990) serves to avoid mental imagery associated with the event. This reduced concreteness was also evidenced in rumination (Moulds et al., 2007). In sum, unconstructive RNT seem to be underpinned by an abstract level of construal and would have an avoidance function. It has been conceptualized as an important predictor of the onset and maintenance of many psychological disorders.

On the opposite of this verbal RNT, mental imagery was also considered as an important transdiagnostic process. The human-being has the ability to mentally visualize past or future events. These mental images can be depicted from an actor or an observer perspective (Nigro & Neisser, 1983). From an observer perspective, people see the event from the outside, with the same visual point of view that an observer would have. From an actor perspective, people see the event with the same point of view that they would have during the event. Non-clinical populations commonly adopt an actor rather than an observer perspective (Nigro & Neisser, 1983), whereas clinical or subclinical populations report visualizing events more from an observer perspective (e.g., Kuyken & Howell, 2006; Kuyken & Moulds, 2009).

At a more specific level, according to the visual perspective theory of Libby and Eibach (2011), the observer perspective is characterized by an abstract level of construal in which people would extract a meaning of the event by integrating it with their broader self-knowledge. On the contrary, the actor perspective is underpinned by a concrete level of construal in which people would extract a meaning based on its constituent steps and the information evoked by its concrete features (Libby & Eibach, 2011).

The adoption of an observer perspective to visualize negative events in clinical or subclinical populations has been conceptualized as an avoidance of emotional information (e.g., Kenny & Bryant, 2007; Williams & Moulds, 2007). The observer perspective would reduce the emotion associated with the event in the short term but would result in poor processing of the event, therefore impeding long term recovery (McIsaac & Eich, 2002, 2004). Hence, the adoption of an observer perspective would have unconstructive consequences, contrary to the actor perspective.

To sum up, abstract RNT and observer perspective seem to share the same underlying process –an abstract level of construal– and function –avoidance– and result in unconstructive consequences in clinical or subclinical population. In light of these similarities, one could ask whether RNT and the observer perspective are associated. Some correlational studies evidenced that RNT and the observer perspective were positively associated (Finnbogadóttir & Berntsen, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007), whereas others did not find a correlation between them (Finnbogadóttir & Berntsen, 2011; Kuyken & Moulds, 2009; Williams & Moulds, 2007). Also, in our previous studies, we generally did not find a significant correlation between RNT and visual perspective, except for the Study 1d (Chapter 3). It is noteworthy that one published study also evidenced a *negative* correlation between RNT and the observer perspective (Ayduk & Kross, 2010).

Inconsistencies between studies might be explained by theoretical and methodological differences, such as sample characteristics, type of design, RNT and visual perspective conceptualization and measures as well as characteristics of the event. These differences will be presented in the following sections.

Sample characteristics. Studies on the relationship between RNT and visual perspective have been conducted with non-clinical, subclinical or clinical samples. The majority of studies focused on non-clinical samples, especially a student sample (e.g., Finnbogadóttir & Berntsen, 2014, Study 2). However, in some studies, participants were selected in a general population according to their high –or low– scores on RNT measures (e.g., Finnbogadóttir & Berntsen, 2011) or according to their psychiatric disorder diagnostic criteria (e.g., Kuyken & Moulds, 2009). In line with the processing-mode theory (Watkins, 2008) and the visual perspective theory (Libby & Eibach, 2011), RNT and the observer perspective have unconstructive consequences in clinical or subclinical populations. Therefore, the relationship between RNT and observer perspective can be moderated by the level of psychopathology. Consistent with this idea, Williams and Moulds (2007) found a positive correlation between RNT and the observer perspective, especially in a subclinical subsample of participants. However, some studies did not evidence differences between non-clinical or subclinical populations (e.g., Finnbogadóttir & Berntsen, 2011). The present meta-analysis will differentiate studies according to the clinical status of the sample.

Type of design. Some studies have explored the relationship between RNT and visual perspective with a correlational design. They have used continuous measures of RNT and visual perspective and computed the correlation between them (Finnbogadóttir & Berntsen, 2014 Study 2). However, others studies used an experimental design. Finnbogadóttir and Berntsen (2011, 2014, Study 1) considered RNT as their independent

variable (IV) and the visual perspective as their dependent variable (DV). They initially recruited a large sample of participants, who completed their RNT measure. Then, they selected only the top or bottom 20% of the sample on this measure and invited them to participate in the study. Therefore, they contrasted low and high RNT groups on visual perspective. On the contrary, Williams and Moulds (2007) consider visual perspective as their IV and RNT as a DV. They measured visual perspective on a continuous scale but conducted analyses only on participants who adopted completely an actor or an observer perspective to visualize the event. Hence, they contrasted actor and observer perspective groups on RNT. In summary, we can distinguish between a correlational design, an experimental design with a manipulation of RNT, and an experimental design with a manipulation of visual perspective. Studies included in the meta-analyses will be coded according to their design.

RNT measure. Rumination and worry are part of RNT. They can be measured as a state or a trait, depending on studies. Hence, our meta-analysis will distinguish the relationship between *trait* RNT and visual perspective and between *state*⁶⁹ RNT and visual perspective. Trait rumination has been widely investigated with the Ruminative Response Scale (RRS, Nolen-Hoeksema & Morrow, 1991; Treynor et al., 2003), e.g., Williams and Moulds (2007), or the Rumination Reflection Questionnaire (Trapnell & Campbell, 1999), e.g., Kuyken and Moulds (2009). Trait worry has been assessed using the Penn State Worry Questionnaire (PSWQ, Meyer et al., 1990), e.g., Finnbogadóttir and Berntsen (2011). State rumination has been measured on an ordinal scale as a single item (Kuyken & Moulds, 2009) or as three items (Williams & Moulds, 2007). Studies included in the meta-analyses will be coded according to the rumination measure.

⁶⁹ As already discussed (see Chapter 3), it is important to note that what we call “state” refers to rumination about a specific event, in opposition with a general tendency to ruminate.

Visual perspective measure. The conceptualization and operationalization of the visual perspective sometimes differ between studies. The actor and the observer perspective can be considered as (1) *mutually exclusive*, so that people can have a single perspective, (2) *complementary*, so that people can experience both perspectives but the experience of one requires less experience of the other, or (3) *independent*, so that people can have a strong actor perspective as well as a strong observer perspective (Rice & Rubin, 2009). The majority of studies used the mutually exclusive (e.g., Kuyken & Moulds, 2009) or the complementary frameworks (e.g., Finnbogadóttir & Berntsen, 2011).

Moreover, in some studies, participants were asked to visualize only one event and assessed their visual perspective on a continuous scale (e.g., Finnbogadóttir & Berntsen, 2014). In other studies, participants visualized several events and indicated their visual perspective on a categorical (i.e., actor or observer, Kuyken & Moulds, 2009) or a continuous scale for each event (e.g., Finnbogadóttir & Berntsen, 2011). Then, a visual perspective score was computed by summing or averaging them.

It is also important to differentiate the traditional visual perspective framework from the self-distancing framework. Ayduk and Kross (2010) contrast a self-immersed perspective and a self-distanced perspective, which differ from the operationalization of the actor and observer perspectives (Hines, 2014; Libby & Eibach, 2011). The visual perspective will be coded in studies included in the meta-analyses.

Type of event(s) visualized. Another major difference between studies is the type of event visualized: positive or negative, past or future, voluntary or involuntary. Regarding the valence, some studies explicitly asked participants to visualize a negative event. For example, in Finnbogadóttir and Berntsen (2014), participants recalled negative emotion-cued events (e.g., a “shame” event). In contrast, Finnbogadóttir and Berntsen (2011)

asked participants to recall neutral word-cued events (e.g., a “bicycle” event) and Williams and Moulds (2007) asked them to recall an intrusive memory, without specifying its valence. Regarding the temporality, participants can recall only past memories (e.g., Kuyken & Moulds, 2009) or imagine future events (e.g., Finnbogadóttir & Berntsen, 2011). Regarding the voluntariness, participants can voluntarily visualize events (e.g., Kuyken & Moulds, 2009). However, in some studies, they were asked about involuntary events that come to their mind (e.g., Williams & Moulds, 2007). The present meta-analyses will differentiate studies according to the characteristics of the event(s).

Given conflicting results between studies who explored the relationship between RNT and visual perspective adopted in mental imagery, a meta-analysis of these studies could “find answers in what looks like a mess” and “produce strong evidence where at first sight there seems to be only weak evidence” (Cumming, 2012, p. 181). Hence, the first aim of the present meta-analysis is to explore the existence of a correlation between RNT and visual perspective as well as to investigate its magnitude and its potential moderators if necessary (e.g., clinical status, event characteristics). Two meta-analyses will be conducted: (1) one regarding *trait* RNT and visual perspective, (2) another regarding *state* RNT and visual perspective. Each meta-analysis will include two steps. First, the average effect size will be computed only on the basis of the results of literature studies. Second, the average effect size will also be based on results of the studies we conducted (see Chapter 3) in addition to the literature studies.

Method

Literature Search

A systematic search was conducted to get published and unpublished studies. This search involved two steps. First, we searched in computerized databases up to June 2017,

6th (i.e., PsycINFO, PsycARTICLES, Psychology and Behavioral Sciences Collection, PubMed). The keywords used in the searches were combinations of words or word stems related to RNT and visual perspective or to commonly used measures of RNT. Words or word stems which referred to RNT were: “ruminat*”, “worr*”, “repetitive thinking”, “ruminative response scale”, “rumination reflection questionnaire”, and “penn state worry questionnaire”. Words or word stems relative to visual perspective were: “visual perspective”, “vantage perspective”, “first person + third person”, “actor + observer”, or “field + observer”.

Second, posters, symposia, doctoral theses, unpublished studies, missing data, or additional information were required via contact with authors in the field of research.

Selection criteria

Several criteria were used to include studies in the meta-analysis. First, we included the studies that have measured the two target variables or that have manipulated at least one of our target variables: RNT and visual perspective in mental imagery. Therefore, studies were included if they investigated (1) the correlation between state or trait RNT and visual perspective adopted in mental imagery, or (2) the effects of manipulating state visual perspective on RNT, or (3) the effects of manipulating RNT on state visual perspective (i.e., experimental studies).

Second, as we were interested in repetitive negative thoughts and negative imagery potentially relevant to psychopathology, we chose to focus on *negative* stimuli (i.e., thoughts or images). Consequently, when several types of events were examined (e.g., positive or negative memories, Finnbogadóttir & Berntsen, 2014, Study 2), we chose to include effect sizes relative to negative events.

Finally, studies had to describe variables as well as any information from which an effect size can be computed (e.g., Pearson's correlation, level of probability, sample size). If some information was not available, it was requested by mail to the author.

No restriction was a priori established concerning the language in which the article or report is written and the methodological quality of the studies. However, we used two exclusion criteria. First, studies including self-distancing measures or manipulations of visual perspective were excluded (e.g., Ayduk & Kross, 2010) because they differed from the traditional conceptualization of visual perspective (Hines, 2014; Libby & Eibach, 2011). In addition, visual perspective had to be measured on a dichotomous or continuous scale, with actor and observer perspectives considered as mutually exclusive or complementary rather than independent (Rice & Rubin, 2009), to avoid heterogeneity between the conceptualization and operationalization of visual perspective. Second, studies could not include a manipulation of another variable –except rumination and perspective– intended to influence rumination or visual perspective (e.g., a manipulation of abstraction or psychological distance).

As shown in Figure 1, we identified 25 publications in the literature. We initially screened the titles and abstracts for all studies to determine their relevance to the meta-analysis. Studies that could be immediately excluded on the basis of their title or abstract were discarded ($n = 15$). For the remaining references, full-text manuscripts were reviewed for a further evaluation of the study according to our inclusion or exclusion criteria. We ended up with a sample of (1) 6 studies from 5 articles for the meta-analysis of the relationship between *trait* RNT and state visual perspective, in addition with 2 of our studies (Studies 1a and 1b, Chapter 3), as well as (2) 2 studies from 2 articles for the meta-analysis of the relationship between *state* RNT and state visual perspective, in addition with 1 of our studies (Study 1b, Chapter 3).

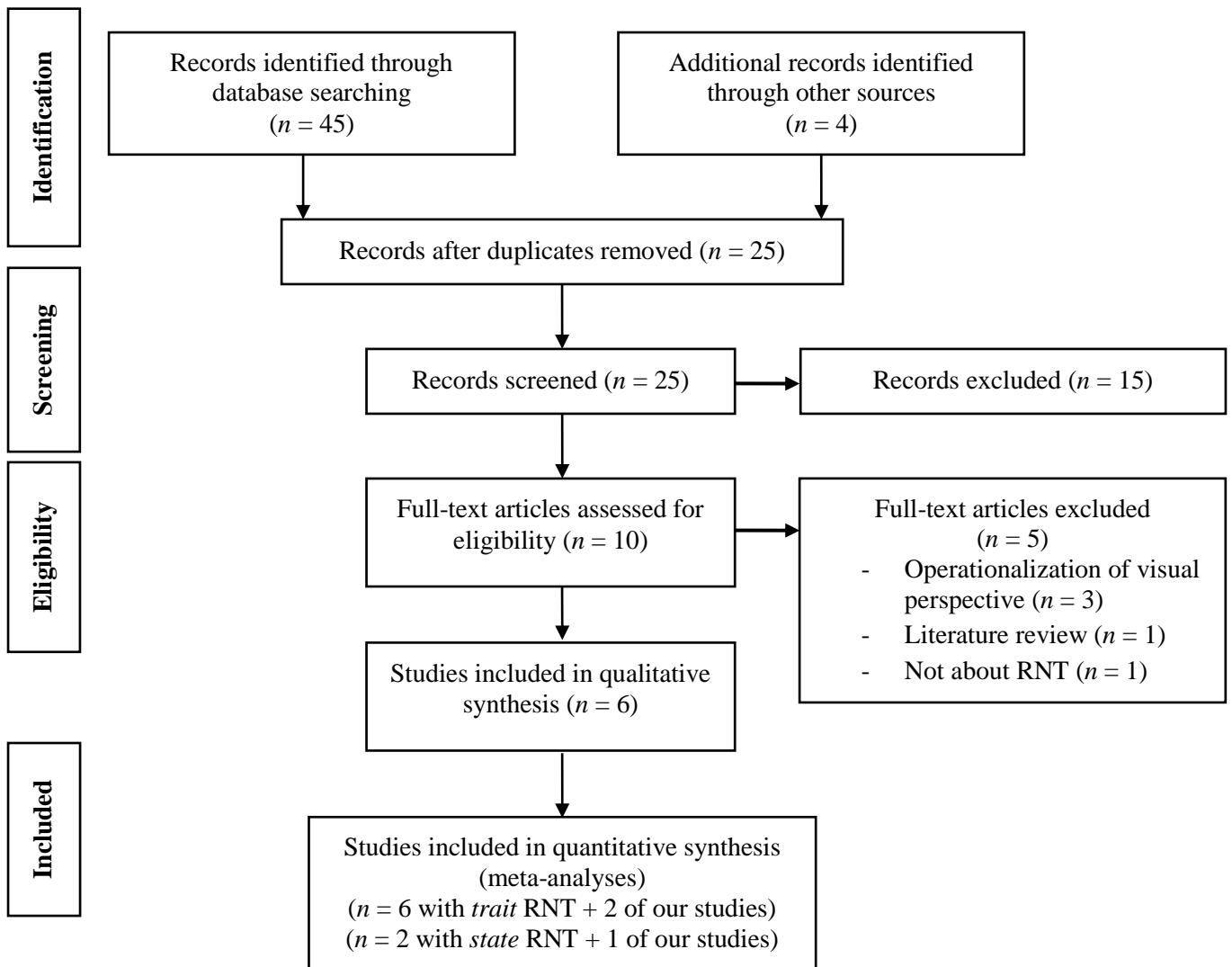


Figure 1. Flowchart showing the search strategy for the systematic review.

Coding procedure

For each included study, extracted information was organized along the following categories: *identification of the study* (author, year of publication, number of the study if several), *characteristics of the sample* (total number of participants, mean age, percentage of female, clinical status), *characteristics of the event* (valence, temporality, voluntariness, and type of event recalled [following neutral cue words, following emotion cue words, or intrusive memory]), *characteristics of measures* (rumination measure and

visual perspective measure), as well as *effect size* (zero-order Pearson correlation coefficient).

Computation of effect sizes

We conducted separate analyses for (1) the meta-analysis of the relationship between *trait* RNT and visual perspective and (2) the meta-analysis of the relationship between *state* RNT and visual perspective.

Effect sizes were based on Pearson's product moment correlation coefficient r , ranging from -1 to +1. Cohen (1977) suggested that effect size of $|.1|$, $|.3|$, and $|.5|$ can be interpreted respectively as small, medium, and large effects. To avoid multiple dependence of effect sizes from one study, effect sizes were chosen *a priori*. Two additional computations were performed on effect sizes.

First, some studies suffered from *direct range enhancement* in the IV (Finnbogadóttir & Berntsen, 2011, 2014, Study 1; Williams & Moulds, 2007). Direct range enhancement is a method of participants' selection in which they are a priori selected on the basis of their extreme scores on a variable. For example, Williams and Moulds (2007) conducted analyses only on participants who entirely adopted an actor or an observer perspective. "Because the correlation is a standardized slope, its size depends on the extent of variation in the independent variable" (Hunter & Schmidt, 2004, p. 37). As the range variation of the IV in a sample composed of extreme participants is artificially inflated compared to the range variation in the initial sample, the correlation is artificially increased and needs to be corrected (Hunter & Schmidt, 2004). Hence, initial effect sizes without direct range enhancement were required to the authors when possible. When it was not possible, effect sizes were corrected for direct range enhancement

(Finnbogadóttir & Berntsen, 2011, 2014, Study 1), using the formula of Pustejovsky (2014), which gives similar results as Hunter and Schmidt's formula (2004).

Effect sizes can also be corrected for error of measurement because each measure contains a random measurement error (e.g., Hunter & Schmidt, 2004). However, the correction formula is based on the assumption that reliabilities are independent of each other, which is wrong. As future research is needed to adapt the current formula (Köhler, Cortina, Kurtessis, & Gözl, 2015), we chose not to correct the effect sizes for error of measurement.

Second, because the variance of r depends on the correlation r , effect sizes were converted into Fisher's z statistic and converted back into r for presentation (Borenstein, Hedges, Higgins, & Rothstein, 2009; Cumming, 2012). Therefore, each effect size was weighted in function of its inverse variance before computing weight average effect size (ρ) so that studies contribute to the conclusions proportionally with the size of their sample, using the Exploratory Software for Confidence Intervals package for Microsoft Excel (Cumming, 2012).

Fixed vs. Random model effects

Meta-analyses are based on one of the two statistical models: a fixed effect model or a random effect model. The fixed effect model relies on the idea that there is one true effect size underlying all the studies in the meta-analysis and that the studies are homogenous. Variability between effect sizes is therefore due to sampling error (Borenstein et al., 2009; Field & Gillett, 2010). The random effect model assumes that the true effect size is similar but not identical from one study to another and that studies are heterogeneous. Effect sizes in the meta-analysis are randomly sampled from a population

of effect sizes. Hence, differences between effect sizes are due to sampling error and variability in the population of effect size (Borenstein et al., 2009; Field & Gillett, 2010).

Fixed and random effect models differ in the way the studies are weighted. The fixed effect model weights each study by its inverse sampling variance. The random effect model also adds an estimate to the inverse sampling variance that accounts for variability across the population of true effect sizes (Cumming, 2012).

Fixed effect models allow inferences that extend only to populations included in the meta-analysis, whereas random effect models allow inferences that are generalizable beyond the populations included in the meta-analysis (Borenstein et al., 2009). In light of the small number of studies included in our present meta-analysis, we chose to use a random effect model to enable the generalization of the results. Moreover, even if there is no heterogeneity, the random effect model will give the same results as the fixed effect model (Cumming, 2012). Hence, many authors recommended using a random effect model as much as possible (e.g., Cumming, 2012; Field & Gillett, 2010).

In the present meta-analyses, we chose to use a random effect model to compute the average effect size, with a 95% confidence interval. To measure heterogeneity, we computed three statistics: the Q , the T^2 and the I^2 .

The Q statistic is a standardized measure computed with the total weighted sum of squares between studies. Q is expected to be close to the degrees of freedom ($k - 1$) – where k is the number of studies included in the meta-analysis– in case of homogeneity (i.e., consistent with a fixed effect model) and is expected to be greater than the degrees of freedom in case of heterogeneous studies (i.e., consistent with a random effect model). Statistically significant Q test indicates heterogeneity (i.e., larger Q). We also used another statistic, T^2 , which represents the amount by which Q exceeds the degrees of

freedom.⁷⁰ Larger T^2 indicate that Q is notably larger than the degrees of freedom and that there is heterogeneity. Finally, we used the I^2 , which is another statistic of homogeneity corresponding to the percentage of total variability between the population of true effect sizes. Larger I^2 signals heterogeneity and close-to-zero I^2 are indicators of homogeneity.

When there was evidence of heterogeneity, potential moderators explaining this variability across the studies were searched through meta-regressions. However, a minimum of ten studies is generally recommended to have the sufficient statistical power to run a meta-regression (e.g., Borenstein et al., 2009; Higgins & Green, 2008).

Results

Trait RNT and state visual perspective

Descriptive characteristics and individual effect sizes for each of the 6 studies of the literature included in the analyses appear in Table 1. Average effect sizes for the literature studies, for our PhD studies as well as for their combination appear in Table 2, along with confidence intervals and homogeneity tests.

⁷⁰ T^2 is an estimation of τ^2 , which represents the variance of the normal distribution of the population of true effect sizes.

Table 1

Descriptive of Studies Included in the Meta-Analysis with Trait Rumination Measures.

Study ^a	<i>N</i>	Mean age (SD)	% Females	Sample ^b	Val. ^c	Temp. ^d	Volun. ^e	Type of event	Rumination measure ^f	Visual perspective measure ^g	Effect size
Finnbogadóttir & Berntsen (2011)	36	23.60 (NR ^f)	77.78	NC	Non spec.	Past	Vol.	9 neutral cue words	High PSWQ (score ≥ 60 , $n = 20$) vs Low (score ≤ 36 , $n = 16$)	Mean across complementary measures ranging from A (+1) to O (+7)	.13 [-.21, .44]
Finnbogadóttir & Berntsen (2014), St. 1	32	23.50 (4.44)	78.26	NC	Neg.	Past	Vol.	An emotion cue word (<i>shame</i>)	High PSWQ (score ≥ 60 , $n = 14$) vs Low (score ≤ 36 , $n = 18$)	Complementary measures ranging from A (+1) to O (+7)	.20 [-.16, .51]
Finnbogadóttir & Berntsen (2014), St. 2	110	23.96 (3.87)	84.77	NC	Neg.	Past	Vol.	An emotion cue word (<i>shame</i>)	RRQ-Rumination	Complementary measures ranging from A (+1) to O (+7)	.17 [-.02, .35]
Kuyken & Moulds (2009)	116	49.16 (11.17)	76.40	C (Dep.)	Neg.	Past	Vol.	6 negative cue words	RRQ-Rumination	Scores for A and O perspectives based on mutually exclusive scales <i>Use of the O score in the meta-analysis</i>	.01 [-.17, .19]
Lemogne et al. (2009)	60	23.45 (1.98)	50.00	NC	Neg.	Past	Vol.	12 negative cue words	RRS-10	Mean score across complementary measures ranging from O (+0) to A (+10)	.19 [-.07, .42]
Williams & Moulds (2007)	147	19.70 (4.18)	69.39	NC	Non spec.	Past	Inv.	An intrusive memory (past week)	RRS-21	Complementary measures ranging from A (-3) to O (+3)	.03 [-.13, .19]

Note. NR = Not reported. ^aSt. = Study. ^bNC = Non-clinical sample; C = Clinical sample with clinical disorder in parentheses; Dep. = Depression. ^cVal. = Valence; Non spec. = Non specified; Neg. = Negative. ^dTemp. = Temporality. ^eVolun. = Voluntariness; Vol. = Voluntary; Inv. = Involuntary. ^fPSWQ = Penn State Worry Questionnaire; RRQ-Rumination = Rumination subscale of the Rumination Reflection Questionnaire, RRS-10 = 10-item Ruminative Response Scale; RRS-21 = 21-item Ruminative Response Scale. ^gA = Actor perspective; O = Observer perspective.

Table 2

Average Effect Sizes for the Relationship Between Trait RNT and Visual Perspective.

	<i>k</i>	<i>N</i>	ρ	95% CI for ρ		<i>p</i>	Heterogeneity		
				Lower	Upper		<i>Q</i>	<i>T</i> ²	<i>I</i> ²
Retrieved studies	6	501	.09	.00	.18	.04	2.97	0	0
PhD studies	2	527	.02	-.06	.11	.62	.05	0	0
All studies	8	1028	.06	-.01	.12	.08	4.31	0	0

Note. *k* = number of data sets; *N* = total number of participants in comparison; ρ = averaged corrected effect size; CI = Confidence Interval; *p* = p-value for the average effect size; *Q*², *T*², and *I*² = homogeneity indicators.

For the studies found in the literature, results showed a significant small positive correlation between *trait* RNT and visual perspective ($\rho = .09$). Effect sizes were homogeneous, as evidenced by a non-significant *Q* statistic as well as *T*² and *I*² close-to-zero.

For our own two studies, results showed a non-significant positive correlation between *trait* RNT and visual perspective ($\rho = .02$). Effect sizes were homogeneous, as evidenced by non-significant *Q* statistic as well as *T*² and *I*² close-to-zero.

Overall, results showed a non-significant correlation between *trait* RNT and visual perspective ($\rho = .06$), as illustrated in Figure 2. Effect sizes were homogeneous, as evidenced by non-significant *Q* statistic as well as *T*² and *I*² close-to-zero.

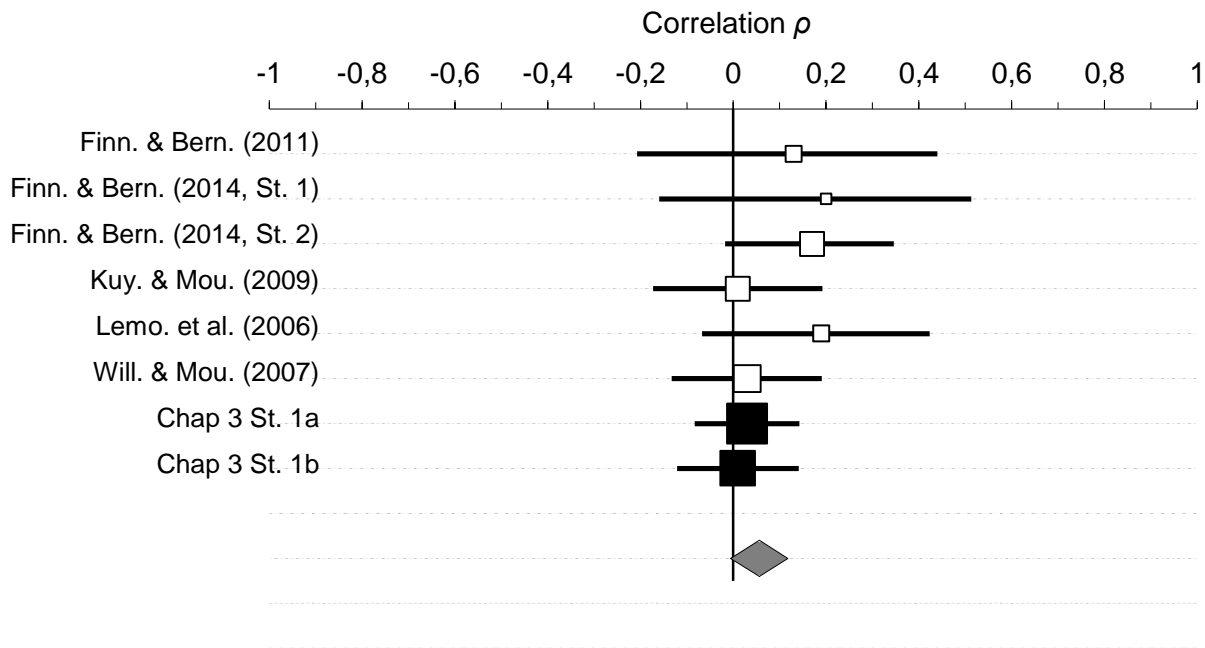


Figure 2. Effect sizes distribution of the relationship between trait RNT and visual perspective. Effect sizes from retrieved studies are represented in white and effect sizes from our PhD studies in black. For each study, the unbiased effect size is represented by a square scaled to reflect proportionate sample size. The 95% confidence interval for each effect size is represented by a horizontal line. The overall weighted effect sizes across all studies (grey diamond) is represented at the bottom. The center of the diamond represents the estimated effect size, the horizontal span of the diamond represents the 95% confidence interval for that effect. This figure was generated with the Meta-Analysis module in the Exploratory Software for Confidence Intervals package for Microsoft Excel (Cumming, 2012). Finn. & Bern. (2011) = Finnbogadóttir & Berntsen (2011); Finn. & Bern. (2014, St. 1) = Finnbogadóttir & Berntsen (2014, Study 1); Finn. & Bern. (2014, St. 2) = Finnbogadóttir & Berntsen (2014, Study 2); Kuy. & Mou. (2009) = Kuyken & Moulds (2009); Lemo. et al. (2006) = Lemogne et al. (2006); Will. & Mou. (2007) = Williams & Moulds (2007); Chap 3 St. 1a = Chapter 3 Study 1a; Chap 3 St. 1b = Chapter 3 Study 1b.

State RNT and state visual perspective

Descriptive characteristics and individual effect sizes for each study included in the analyses appear in Table 3. Average effect size appears in Table 4, along with confidence interval and homogeneity test.

Table 3

Descriptive of Studies Included in the Meta-Analysis with State Rumination Measures.

Study	<i>N</i>	Mean age (SD)	% Females	Sample ^a	Val. ^b	Temp. ^c	Volun. ^d	Type of event	Rumination measure	Visual perspective measure ^e	Effect size
Kuyken & Moulds (2009)	123	49.16 (11.17)	76.40	C (Dep.)	Neg.	Past	Vol.	6 negative cue words	1 item (<i>number of times they have thought about the memory</i>) from +1 (<i>1-5 times</i>) to +5 (<i>more than 100 times</i>)	Scores for A and O perspectives based on mutually exclusive scales <i>Use of the O score in the meta-analysis</i>	.14 [-.04, .31]
Williams & Moulds (2007)	147	19.70 (4.18)	69.39	NC	Non spec.	Past	Inv.	An intrusive memory (past week)	3 items (" <i>I dwell on it</i> ", " <i>I worry that something like that could happen to me/again</i> ", " <i>I think about what I could have done differently</i> ") from +1 (<i>never</i>) to +7 (<i>very often</i>)	Complementary measures ranging from A (-3) to O (+3)	-.02 [-.19, -.16]

Note. ^aNC = Non-clinical sample; C = Clinical sample with clinical disorder in parentheses; Dep. = Depression.

^bVal. = Valence; Neg. = Negative; Non spec. = Non specified.

^cTemp. = Temporality.

^dVolun. = Voluntariness; Vol. = Voluntary; Inv. = Involuntary.

^eA = Actor perspective; O = Observer perspective.

Table 4

Average Effect Sizes for the Relationship Between State RNT and Visual Perspective.

	k	N	ρ	95% CI for ρ		p	Q	T^2	I^2
				Lower	Upper				
Retrieved studies	2	253	.06	-.09	.21	.43	1.46	0	.31
All	3	477	.04	-.05	.13	.43	1.74	0	0

Note. k = number of data sets; N = total number of participants in comparison; ρ = averaged corrected effect size; CI = Confidence Interval; p = p-value for the average effect size; Q^2 , T^2 , and I^2 = homogeneity indicators.

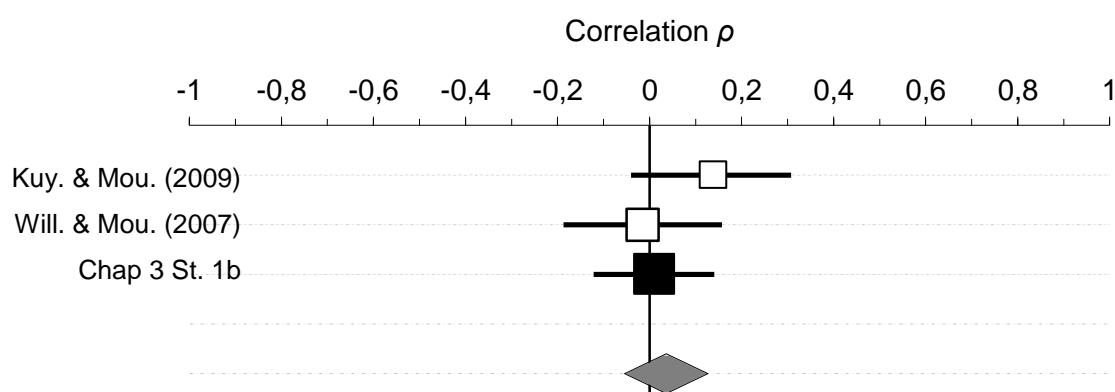


Figure 3. Effect sizes distribution of the relationship between state RNT and visual perspective. Effect sizes from retrieved studies are represented in white and effect sizes from our PhD studies in black. For each study, the unbiased effect size is represented by a square scaled to reflect proportionate sample size. The 95% confidence interval for each effect size is represented by a horizontal line. The overall weighted effect sizes across all studies (grey diamond) is represented at the bottom. The center of the diamond represents the estimated effect size, the horizontal span of the diamond represents the 95% confidence interval for that effect. This figure was generated with the Meta-Analysis module in the Exploratory Software for Confidence Intervals package for Microsoft Excel (Cumming, 2012). Kuy. & Mou. (2009) = Kuyken & Moulds (2009); Will. & Mou. (2007) = Williams & Moulds (2007); Chap 3 St. 1b = Chapter 3 Study 1b.

For the studies found in the literature, results showed a non-significant positive correlation between *state* RNT and visual perspective ($\rho = .06$). Effect sizes were significantly homogenous, as evidenced by non-significant Q statistic as well as T^2 and I^2 close-to-zero.

Overall, results showed a non-significant positive correlation between state RNT and visual perspective ($\rho = .04$), as illustrated in Figure 3. Effect sizes were significantly

homogenous, as evidenced by non-significant Q statistic as well as T^2 and I^2 close-to-zero.

Discussion

RNT and mental images from an observer perspective are conceptualized as two transdiagnostic features (e.g., Holmes & Mathews, 2010; Watkins, 2008). Several theories suggest that they share the same underlying process –an abstract level of construal– and serve the same function –avoidance–, which result in unconstructive consequences, especially in clinical or subclinical population. At an empirical level, some correlational studies evidenced that RNT and the observer perspective were positively associated (e.g., Finnbogadóttir & Berntsen, 2014; Williams & Moulds, 2007), whereas others did not find a correlation between them (e.g., Kuyken & Moulds, 2009). Given these inconsistencies, the goal of the present paper was to use meta-analytic techniques to explore the link between RNT and the observer perspective in mental imagery, in order to produce greater evidence for or against a special relationship (Cumming, 2012). More specifically, the present meta-analysis explored the relationships between (1) *trait* RNT and visual perspective and (2) *state* RNT and visual perspective. Results indicated that *trait* RNT and the observer perspective were non-significantly correlated ($\rho = .06$) as well as *state* RNT and the observer perspective ($\rho = .04$). When only taken into account retrieved studies, the relationship between *trait* RNT and the observer perspective remained quite weak ($\rho = .09$) and the relationship between *state* RNT and the observer perspective was non-significant ($\rho = .06$).

One possible explanation of these non-significant associations is related to the level of construal. Some studies used measures assessing the frequency of RNT (e.g., Finnbogadóttir & Berntsen, 2011; Williams & Moulds, 2007), whereas other studies used

measures differentiating adaptive and maladaptive RNT (e.g., Finnbogadóttir & Berntsen, 2014, Study 2; Kuyken & Moulds, 2009). For example, regarding trait RNT, the PSWQ or the global score of the RRS only explore the frequency of repetitive negative thoughts. On the contrary, the RRS Brooding or the RRQ Rumination subscales are conceptualized as assessing the maladaptive form of RNT, contrary to the RRS Reflection and the RRQ Reflection subscales. However, these conceptualizations do not always differentiate adaptive versus maladaptive forms of RNT, with the Reflection subscale of the RRS frequently positively associated with psychopathological measures for example (see Studies 1a and 1b, Chapter 3; Study 3, Chapter 5). A better distinction between adaptive and maladaptive measures would be to differentiate concrete and abstract forms of RNT (e.g., using the Mini-CERTS). Indeed, maladaptive forms of RNT are considered as underpinned by an abstract level of construal (Watkins, 2008, 2011).

Similarly, the actor and observer perspectives are conceptualized as underpinned by respectively a concrete and an abstract level of construal (Libby & Eibach, 2011). Therefore, the non-significant correlations between RNT and visual perspective can be explained by concrete and abstract RNT being confounded (e.g., Williams & Moulds, 2007). This explanation would signify that RNT and visual perspective would only be associated because they are both influenced by the level of construal. However, our previous work casts doubt on this: Two studies (Studies 2a and 2b, Chapter 4) did not evidence visual perspective differences between people who ruminate with a concrete or an abstract level of construal. Another study (Study 3, Chapter 5) also did not find differential effects of the adoption of a concrete versus abstract level of construal on rumination and visual perspective.

Another possible explanation of these non-significant correlations is related to psychopathology. On the one hand, RNT is considered as a transdiagnostic process (e.g.,

Ehring & Watkins, 2008), with several studies showing that *state* and *trait* RNT correlate with psychopathology (for a review, see Watkins, 2008). On the other hand, the observer perspective was also conceptualized as a transdiagnostic feature (e.g., Holmes & Mathews, 2010), with several studies evidencing that clinical or subclinical populations use more observer perspective (e.g., Kuyken & Howell, 2006; Kuyken & Moulds, 2009; but also see our previous studies for an absence of an association; Chapters 3 and 4). It is possible that RNT and visual perspective would be associated because they are both influenced by the level of psychopathology. One consequence of this explanation would be that the relationship between RNT and observer perspective would be present in clinical or subclinical populations but not in non-clinical populations.

Consistent with this explanation, Williams and Moulds (2007) evidenced that the positive correlation between trait RNT and the observer perspective only remained in a dysphoric subsample but disappeared in a non-dysphoric subsample. Nevertheless, their results need to be interpreted with caution given the fact that they excluded 47% of the sample when differentiating dysphoric and non-dysphoric people. Finnbogadóttir and Berntsen (2014, Study 2) also showed that the positive correlation between RNT and the observer perspective disappeared when trait anxiety, state anxiety, and depression were controlled.

However, inconsistent with this explanation, the negative correlation between trait reflection (i.e., a supposed adaptive form of RNT) and the observer perspective remained significant even though it remained moderate (Finnbogadóttir & Berntsen, 2014, Study 2). Kuyken and Moulds (2009) also did not evidence a correlation between trait RNT and visual perspective in participants with a history of recurrent depression. Furthermore, we did not find heterogeneity between studies included in our meta-analyses, suggesting that there was no moderator despite the differences in the study samples.

A final hypothesis of these non-significant correlations is the combination of the last two explanations. It is possible that RNT and visual perspective would be associated through the influence of the level of construal, only in clinical or subclinical populations. This hypothesis would mean that the level of construal and the level of psychopathology would interact to predict both RNT and visual perspective. However, we did not find an interaction effect in our previous study (Study 3, Chapter 5). Despite our result, future studies should correct current methodological limitations of the studies included in this meta-analysis by using measures differentiating between a concrete and adaptive form of RNT and an abstract and maladaptive form of RNT. Moreover, they should use clinical samples rather than differentiating non-clinical and subclinical populations with direct range enhancement.

Additionally, we did not find any experimental study on RNT and visual perspective to include in the present meta-analysis: No research has explored the influence of RNT on visual perspective or the influence of visual perspective on RNT. Consequently, future research should manipulate those variables, for example by investigating the influence of rumination on a past negative event versus distraction (e.g., by using the instructions developed by Nolen-Hoeksema & Morrow, 1993) on the visual perspective adopted to picture this event. Future research could also induce an actor or an observer perspective (e.g., by using the instructions developed by Libby, Valenti, et al., 2011) to picture a future negative event and measure repetitive thoughts on this event. Experimental studies on the bidirectional causal relationship between RNT and visual perspective are needed to more precisely conceptualize their relationship, as well as their links with other variables (e.g., level of construal, psychopathology).

A second aim of the present meta-analysis was to explore heterogeneity between studies. We failed to find support for potential moderators of effect sizes (e.g., clinical

status, characteristics of events). However, regarding event characteristics, we only selected effect sizes related to voluntary negative past events when several types of events were examined in a study. Only two included studies did not focus on negative voluntary past events (i.e., Finnbogadóttir & Berntsen, 2011; Williams & Moulds, 2007). Hence, this type of event selection can explain the absence of heterogeneity relative to event characteristics between studies.

Overall, more research is needed to have the sufficient statistical power to explore potential moderators of the relationship between RNT and visual perspective, e.g., clinical status, characteristics of the event (Borenstein et al., 2009; Higgins & Green, 2008).

The present meta-analyses suffer from a number of limitations. First, we have used Fisher's z -transformation before computing the average effect size. Although researchers generally recommend this transformation (e.g., Borenstein et al., 2009; Cumming, 2012), some authors argued that correlation coefficients should be meta-analyzed in their initial metric (e.g., Hunter & Schmidt, 2004).

Second, we did not correct for error of measurement (e.g., Hunter & Schmidt, 2004). The formula correction, commonly used in meta-analyses on correlations, was based on the wrong assumption that reliabilities were independent of each other and future research is needed to adapt the current formula (Köhler et al., 2015). As the "error of measurement systematically lowers the correlation between measures in comparison to the correlation between variables themselves" (Hunter & Schmidt, 2004, p. 95), it is likely that our averaged effect sizes were lower than in reality.

Third, visual perspective was always considered as a state in the included studies. Some studies asked participants to assess their visual perspective when picturing only one event, whereas other studies computed a sum or an average perspective adopted across

several events. These summed or averaged perspectives are close to reflect a trait measure (e.g., Lemogne et al., 2009). Indeed, it is possible to measure the trait tendency to adopt an actor or an observer perspective (e.g., Christian et al., 2013). Like RNT, it would be necessary to differentiate the relationship between RNT and *trait* visual perspective and the relationship between RNT and *state* visual perspective.

Finally, it is important to underline the fact that published studies generally found a significant correlation between RNT and visual perspective, contrary to our PhD studies. Despite the fact that we contacted the authors who work in this field, other unpublished studies without any significant effect may not be included in this meta-analysis.

Despite these limitations, the present work has several strengths. First, we corrected studies for extreme participant selection (i.e., direct range enhancement) by contacting the authors or correcting the coefficient correlation. Second, given the small number of studies having explored the relationship between RNT and visual perspective (i.e., $k = 8$ for trait RNT and visual perspective and $k = 3$ for state RNT and visual perspective), we used random effects model to enable generalization of our results beyond studies included.

To conclude, the present work helps to clarify some of the inconsistencies in the literature and our previous studies on the relationship between RNT and visual perspective. Results indicate that both *trait* or *state* repetitive negative thoughts are not associated with an observer perspective. Future research is needed to investigate these relationships and their potential moderators, such as the level of psychopathology and event characteristics. Correlational and especially experimental studies would help to clarify their relationships and to construct a more general model including both RNT and visual perspective, as well as psychopathology, level of construal, and emotion regulation.

GENERAL CONCLUSION

In a sense, this dissertation has been developed on two general ideas. The first one is that current research should benefit from focusing on psychological processes causally implicated in mental disorders. The second one is that psychological processes do not operate independently. Indeed, cognitive behavioral models of psychopathology postulate that *several* processes are implicated in the onset and maintenance of disorders. This highlights the necessity of exploring processes in a more integrative manner, in order to better understand their common effects on psychological disorders (e.g., hypothesis of combined cognitive biases, Hirsch et al., 2006). In this dissertation, we have been focused on RNT and mental imagery, more specifically the visual perspective adopted during mental imagery.

As reviewed in the first two chapters, RNT and visual perspective adopted during mental imagery are both considered as transdiagnostic features of several psychological disorders, such as depression, GAD, social anxiety, PTSD, or psychosis (Ehring & Watkins, 2008; Holmes & Mathews, 2010). They would be underpinned by an abstraction process: People presenting psychopathological symptoms would suffer from a dysregulation of their level of construal and would adopt by default an abstract level of construal, leading to abstract RNT and the adoption of an observer perspective (Libby & Eibach, 2011; Watkins, 2011). These abstract RNT and observer perspective would serve an avoidance function and have maladaptive consequences (Sibrava & Borkovec, 2006; Watkins, 2008; Williams & Moulds, 2007). The processual and functional similarities between RNT and visual perspective suggest that they might have a special relationship. Empirically, only few studies have explored this association and they found inconsistent

results (Finnbogadóttir & Berntsen, 2011, 2014; Kuyken & Moulds, 2009; Lemogne et al., 2009; Williams & Moulds, 2007).

The present dissertation had four major aims. The first aim was to explore (1) the relationship between RNT and the visual perspective adopted in mental imagery. The second et third aims were to investigate the association between RNT, visual perspective as well as (2) the avoidance function and (3) the underlying abstraction process. The fourth aim was to explore (4) cognitive and emotional correlates of the visual perspective adopted, in function of the level of psychopathological symptoms. A total of 4 correlational studies, 3 experimental studies and 1 meta-analysis were conducted. Their results will be discussed aim by aim in the following sections, before discussing clinical implications and future directions.

(1) A special relationship between repetitive negative thinking and visual perspective?

The first major aim of the present dissertation was to determine whether RNT and visual perspective were associated. Two empirical chapters were dedicated to this aim (Chapters 3 and 6). In the 3rd chapter, we conducted 3 studies using a correlational design. Despite the use of complementary and independent measures of visual perspective, measures differentiating abstract and concrete RNT as well as the computation of the necessary sample size, we did not find a correlation between *trait* or *state* RNT and *state* or *trait* observer perspective (Studies 1a, 1b, and 1d), except between state rumination, more specifically abstract state rumination, and state observer perspective (Study 1d).

Even if one might rightly argue that methodological limitations may account for these results, the meta-analysis presented in the 6th chapter, including retrieved studies and our PhD studies, forces us to conclude that *trait* or *state* RNT and the observer perspective

are not associated. When only taken into account retrieved studies, the relationship between *trait* RNT and the observer perspective remains quite weak and the relationship between *state* RNT and the observer perspective is non-significant.

These results cast doubt on the supposed relationship between RNT and visual perspective, despite their processual and functional similarities. Theoretical implications of these results will be discussed later. Future research should replicate and expand these studies through correlational and experimental studies using maladaptive measures of RNT (i.e., measures differentiating abstract and concrete RNT), independent measures of the actor and observer perspectives as well as focusing only on clinical or subclinical populations.

Another result which needs replication is the fact that people suffering from psychopathological symptoms, at least at a subclinical level, adopt an observer perspective more often. Despite several studies showing the high prevalence of the observer perspective in these populations (e.g., Coles et al., 2002 for social anxiety; Kenny & Bryant, 2007 for PTSD; Kuyken & Howell, 2006 for depression; Wang et al., 2017 for schizophrenia), we only replicated this result in 1 (Study 3, Chapter 5) out of 5 studies (Studies 1a, 1b, and 1d, Chapter 3; Studies 2a and 2b, Chapter 4). Some published studies are also consistent with our findings. For example, in Lemogne et al. (2009), the visual perspective adopted to picture negative or positive past events was not determined by depression. Finnbogadóttir and Berntsen (2014, Study 2) found that the adoption of an observer perspective to visualize positive and negative past events was positively associated with trait anxiety but not with depression. Baeyens (2006) did not find either that socially anxious individuals reported more observer perspective. Therefore, future research should use meta-analytic techniques to investigate the relationship between psychopathology and visual perspective and determine its potential moderators (e.g., the

type of disorder). More research is also needed to determine whether this association is driven by other variables, like the abstraction process or the avoidance function (Holmes & Mathews, 2010).

Finally, future research should include more precise measures of the observer perspective. As suggested by Rice and Rubin (2011), the observer perspective can be constructed from a range of spatial locations (e.g., near or distant from one's self, in front or behind one's self, at eye level or above). Some locations are more common than others, such as in front and near of one's self. Rice and Rubin (2011) showed that locations were influenced by the type of event remembered. For example, a face-to-face conversation was more likely to result in a near location than a group performance, an individual presentation resulted in images in front of one's self, or a car accident involved images behind one's self (Rice & Rubin, 2011).

Theoretical models of social anxiety suggest that socially anxious individuals adopt an observer perspective to see how they might appear to others (Clark, 2001; Clark & Wells, 1995). Therefore, they probably have more mental images in front of one's self. On the contrary, individuals who have experienced a traumatic event, such as a car accident, might have a greater proportion of mental images behind one's self. Other hypotheses could also be made for other dimensions of the location of the observer perspective, such as the distance from one's self. Future fundamental research should include more specific imagery measures, such as the ones developed by Rice and Rubin (2011) or by asking people to circle on a picture their perceived location on the overall scene. More research is also needed to examine how different disorders may influence the location of the observer perspective and their relation with psychological distance (e.g., Trope & Liberman, 2003, 2010), subjective temporal distance (e.g., Siedlecka et al., 2015) as well as with abstraction (e.g., Watkins, 2011).

(2) An avoidance function

The second major aim of the present dissertation was to investigate how RNT and visual perspective were associated with an avoidance function. There is a substantial literature on the avoidance function of RNT (Sibrava & Borkovec, 2006). Moreover, the observer perspective would serve an avoidance strategy in clinical or subclinical populations (e.g., Kenny & Bryant, 2007; Williams & Moulds, 2007). For example, in Williams and Moulds (2007), the positive correlation between the observer perspective and avoidance strategies was only present in the *high dysphoric* subsample. Similarly, Kenny and Bryant (2007) found that high avoidant *trauma-exposed survivors* adopted more an observer perspective than low avoidant trauma-exposed survivors. It is noteworthy that, in general, studies have explored the association between avoidance strategies and RNT, rather than really testing the hypothesis that RNT is an avoidance strategy.

In the 3rd chapter of the present dissertation, we have conducted 2 correlational studies on this supposed association with avoidance. Our results indicated that only RNT, but not visual perspective, positively correlated with experiential and cognitive avoidant behaviors, whatever the level of psychopathology (Studies 1a and 1b). As previously discussed, methodological differences can account for this absence of effects for visual perspective. However, at a theoretical level, we have assessed the tendency to use avoidance strategies outside of a specific context. Indeed, experiential avoidance is an example of psychological inflexibility, in opposition with psychological flexibility (Wolgast, 2014), defined as “the ability to fully contact the present moment and the thoughts and feelings it contains without needless defense, and, depending upon what the situation affords, persisting in or changing behavior in the pursuit of goals and values” (Bond et al., 2011, p. 678). This definition highlights the importance of the context in

determining whether the behavior is adapted or not. Future studies should include a functional measure in a specific context, i.e., a form of *state* avoidance. This measure could be used to explore the association between the visual perspective adopted to visualize an event and the use of maladaptive avoidance strategies in this context. However, to our knowledge, there is no state measure of avoidance, and it seems conceptually and methodologically complicated to develop such a measure.

(3) An underlying process of abstraction

The third major aim of the present dissertation was to explore the specific process underlying both RNT and visual perspective, namely abstraction. This process was strongly evidenced in RNT (Watkins, 2008) but also in visual perspective, with the observer perspective characterized by an abstract level of construal (Libby & Eibach, 2011).

In three correlational studies (Chapter 3), we showed that RNT seems to be underpinned by an abstract level of construal when faced with negative events (Studies 1a, 1b, and 1c) and a concrete level of construal when faced with neutral everyday events (Studies 1b and 1c). However, visual perspective did not correlate with an abstract level of construal (Studies 1a, 1b, and 1d).

We also conducted 3 experimental studies in which we manipulated this abstraction process. In the 4th chapter, we did not find support for an influence of abstraction during RNT on visual perspective, even when the interaction with the level of psychopathology or maladaptive trait RNT was considered. Abstraction had no effect on emotional reactivity either (Studies 2a and 2b). In the 5th chapter, once again, we did not find a main effect of abstraction or an interaction effect with the level of psychopathology or maladaptive trait RNT on visual perspective or state RNT. Abstraction had no effect on

emotional response either (Study 3). Altogether, our results showed consistently that the level of psychopathology and maladaptive trait RNT prevailed in determining visual perspective, RNT, or emotion.

Despite methodological limitations which may account for the absence of effects, such as a failure of the induction or of its persistence over time, our studies may cast doubt on the influence of abstraction on both RNT and visual perspective as well as on emotion. Regarding RNT, there is strong evidence of the underlying role of abstraction (Stöber & Borkovec, 2002) and its cognitive, social, motivational, and emotional consequences in clinical or subclinical populations (Watkins, 2008). However, our studies suggest that the effects of psychopathology, or less frequently maladaptive trait rumination, would prevail compared to the effect of the level of construal. Some other studies (Douilliez, personal communication; Granger, 2014) either do not support maladaptive consequences associated with an abstract level of construal during RNT compared to a concrete level. These results highlight the difficulties and potential problems associated with level of construal induction. Future research should determine effective inductions as well as their key active components. In light of the existence of non-significant unpublished studies (e.g., Granger, 2014), future research should also use meta-analytic techniques to determine the effect-size associated with manipulations of the level of construal, for example on rumination, visual perspective, or emotional response.

Regarding visual perspective, the underlying role of abstraction was based on several studies evidencing a bidirectional causal relationship between visual perspective and abstraction (Agerström et al., 2013; Libby & Eibach, 2009; Shaeffer et al., 2015; Vasquez & Buehler, 2007). More recently, Huynh and Moulds (personal communication) expanded Libby and Eibach's (2009) studies on the bidirectional relationship by differentiating high and low dysphoric people. Regarding the influence of abstraction on

visual perspective, their results were inconsistent: In two studies, participants with abstract descriptions of actions adopted more an observer perspective to visualize the actions. In one of the two studies, there was also a main effect of depression, so that high dysphoric people adopted greater observer perspective than low dysphoric people. Regarding the influence of visual perspective on abstraction, they also found mixed results: In one study, high dysphoric participants showed a greater preference for abstract descriptions of actions than low dysphoric participants, regardless of the visual perspective adopted to picture the actions. In the other study, neither depression, nor visual perspective predicted choices for action descriptions. Ruiz (2014) also did not find an effect of visual perspective on abstraction.

However, Hyung and Moulds' (personal communication), Ruiz's (2014) as well as the majority of published studies focused on the level of construal adopted when faced with *neutral or mildly negative* everyday events (Agerström et al., 2013; Libby et al., 2009; Shaeffer et al., 2015), or with *positive* events (Vasquez & Buehler, 2007). Such as RNT, it is possible that the relationship between visual perspective and abstraction would be different regarding *negative* events.

Moreover, abstraction is a broad concept in psychology, with several measures and manipulations according to the field in which it has been studied and its theoretical framework, e.g., the Construal-level theory, the Action identification theory (see Burgoon et al., 2013 for a review). Moreover, abstraction shares similarities with generalization. One might wonder whether they both represent the same process or whether they refer to distinct processes. As previously discussed, future research should also determine reliable measures of *state* (e.g., Burrus & Roese, 2006) and *trait* (e.g., Carver, 1998) abstraction regarding neutral, negative, and positive events, as well as manipulations of abstraction (e.g., Freitas et al., 2004).

(4) Maladaptive consequences of adopting an observer perspective

The final major aim of this dissertation was to investigate the correlates of the visual perspective in function of the level of psychopathological symptoms. Whereas some authors argue that the observer perspective is maladaptive (Kenny et al., 2009; e.g., Kenny & Bryant, 2007; Williams & Moulds, 2007), Libby and Eibach (2011) have adopted a more temperate vision in which the observer perspective can be both adaptive and maladaptive consequences depending on the event meaning derived from its integration with broader self-knowledge (e.g., Libby & Eibach, 2002; Libby, Valenti, et al., 2011; Marigold et al., 2015).

The 3rd chapter of the present dissertation investigated these cognitive and emotional consequences in a general sample in which the intensity of anxio-depressive symptoms was taken into account. Consistent with Libby and Eibach (2011), we found that people suffering from higher levels of anxio-depressive symptoms and who tend to picture their memories with an observer perspective reported greater integrating meaning (Study 1b). Unexpectedly, we also found in two other studies that psychopathology was the only main predictor of maladaptive cognitive consequences: Higher levels of psychopathology predicted greater integrative meaning (Study 1a) and negative generalization (Study 1d). Overall, negative cognitive correlates were associated with negative emotional correlates (Study 1a and 1b).

The theory of Libby and Eibach (2011) was grounded in social psychology. Despite its interest for studying visual perspective, its underlying process and consequences, the theory does not always allow to make specific predictions. Indeed, the observer perspective would involve the integration of the event within what they call “broader self-knowledge”. This concept is quite large and may cover, for example, variation in beliefs and theories about the self, self-schemas, possible selves, ideal or ought selves (Libby &

Eibach, 2011). One might therefore wonder how to operationalize this variety of meaning structures. Some have used quite disparate measures such as the level of *self-esteem* (Libby, Valenti, et al., 2011) or *attachment anxiety* (Marigold et al., 2015) as reflecting variations in self-knowledge. More recently, Libby (personal communication) send us data from on an unpublished study which used *trait rumination* and showed that higher levels of trait rumination were associated with greater negative interpretation of ambiguous scenarios but only when these scenarios were pictured from an observer perspective and not from an actor perspective (Libby, Eibach, & Wisco, 2011). As our studies were grounded in clinical psychology, we focused on *psychopathology* measures as an indicator of self-knowledge. This has the advantage to be highly correlated with self-esteem, rumination, or specific anxiety measures. However, we have not really explored how the level of anxio-depressive symptoms reflects differences in self-knowledge and what type of self-knowledge is determinant in RNT and imagery.

Libby is not the only one to have had an interest in visual perspective and the self. Robins and Sutin (2008) also developed a theory in which the observer perspective can either promote a “dispassionate” perspective of the self or a “salient self”. The dispassionate observer perspective would serve a distancing function by highlighting discontinuity between the current and the past self –or selves– and dampening emotional experience. Alternatively, the salient self observer perspective would strengthen the connection between the current and past self –or selves– and amplify emotional experience. In sum, this conceptualization parallels the theory of Libby and Eibach (2011) in which the observer perspective highlights continuity or discrepancy from broader self-knowledge, therefore increasing or reducing emotions. However, once again, the question is related to the operationalization of the self or self-knowledge. Different answers might be found in the literature on autobiographical memory. For example,

Conway, Singer, and Tagini (2004) explored how autobiographical memories are related to the working self by the bias of self-defining memories. One could imagine that exploring self-defining memories might be more relevant than exploring negative autobiographical memories as they contain information about individual's concerns and goals (e.g., Çili & Stopa, 2015) and that research has shown that people ruminate about these memories (e.g., Sansom-Daly, Bryant, Cohn, & Wakefield, 2016). However, future research should try to specify Libby and Eibach's (2011) theory and to draw more connections with clinical psychology.

Similarly, Libby and Eibach's (2011) theory posits that the event meaning moderates the effect of visual perspective on emotion but does not suggest a measure of this subjective meaning. In our studies, we measured this meaning based on core features of integrative meaning (e.g., Conway et al., 2004): attempts to give a meaning and connect the event with past, present, and future selves. One might also base on the centrality of the event (e.g., Berntsen & Rubin, 2006b, 2007) or autobiographical reasoning (e.g., Banks & Salmon, 2013). Some authors have developed questionnaires about memory experiences which integrate questions about perspective, coherence, or distance (e.g., Luchetti & Sutin, 2016). We have not used these questionnaires but future research should examine reliable measures of the event meaning as well as the context in which they are relevant, such as using the centrality of the event in PTSD.

Clinical implications and future perspectives

In summary, the present dissertation explored the relationships between two important transdiagnostic processes that have been studied independently despite their processual and functional similarities: RNT and visual perspective in mental imagery. In

our PhD studies, we generally did not find an association between these processes and their underlying abstraction process and avoidance function remained unclear.

One possible explanation of these results is that no association exists between RNT and visual perspective. This would suggest that their supposed functional and processual similarities are misleading. However, their potential association have also been suggested or explored in several other studies (Finnbogadóttir & Berntsen, 2011, 2014; Finnbogadóttir & Thomsen, 2013; Kuyken & Moulds, 2009; Lemogne et al., 2009; Watkins, 2011; Williams & Moulds, 2007) and some of them found empirical evidence for this association (Finnbogadóttir & Berntsen, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007). However, rather than just postulating this association or testing it in few studies, there was a need for strong empirical evidence of this association, through more studies and meta-analyses.

Another explanation of our results might be that these processes are actually associated but some methodological and/or theoretical limitations prevent us from finding this association. Overall, there is an important lack of a clear conceptualization and an appropriate operationalization of these processes –even the term “process” is unclear, despite a recent interesting conceptualization (i.e., Philippot, 2016). Regarding RNT, future research should determine appropriate state measures (e.g., for state rumination, see Moberly & Watkins, 2008a, 2008b) as well as measures differentiating concrete and abstract RNT for both trait and state versions (e.g., the Mini-CERTS, Douilliez et al., 2014). Regarding visual perspective, future studies should also determine and investigate trait measures (e.g., Christian et al., 2013) and use separated measures of actor and observer perspectives (Rice & Rubin, 2009). There is also a need for more research on the location of the observer perspective (Rice & Rubin, 2011) and its association with

psychological disorders. Regarding abstraction, several definitions have been proposed depending on the field of research (Burgoon et al., 2013).

However, future research should also use more indirect measures to counter the limitations of self-report questionnaires. Indeed, it is more likely that asking participants to report what they were thinking and to analyze the type of thinking while they were thinking (e.g., in Studies 2a and 2b, participants *thought about what they were thinking*) might have changed the way they were thinking. In other words, the procedure could have altered the phenomenology of the experience we were interested in. Alternatively, future studies could use the interference with other tasks or psychophysiological activity as indicators of RNT (e.g., for rumination, measures of impaired cognitive performance, Desnoyers & Arpin-Cribbie, 2015; measures of the speech motor system activity, Nalborczyk et al., 2017).

Future studies also have to be creative, such as using drawings in which participants specify the location of the self in the scene as representing the visual perspective adopted, or manipulating the visual perspective adopted with a video game in which participants see the scene through their own eyes or can see themselves in the scene. They might also be inspired by other fields of research, for example in social psychology regarding the perceived connection with an event, which is measured by presenting two circles less or more spaced symbolizing the current self and the self during the event, varying from totally distinct to totally overlapped (Ersner-Hershfield, Garton, Ballard, Samanez-Larkin, & Knutson, 2009).

More generally, the present dissertation takes place in a processual and transdiagnostic approach, which focuses on the exploration of psychological processes and their interaction. Therapies subscribing to this approach target the core processes implicated in psychological disorders, independently of a specific content. For example,

therapies like metacognitive (e.g., Wells, 1995) or rumination-focused therapies (e.g., Jacobs et al., 2016) focus on the process of RNT, whatever the content of repetitive thoughts (e.g., future events for worry in GAD, depressive symptoms for rumination in depression). These therapies can achieve this aim through the use of relevant situations for the patient (e.g., in RFCBT, participants are asked to remember an event and to think concretely about it; in imagery rescripting therapies, participants are asked to retrieve a problematic memory and to modify it) or through the use of hypothetical situations, such as cognitive bias modification procedures in which clients are trained through several scenarios (e.g., for rumination, concreteness training, Watkins et al., 2008).

In a processual and transdiagnostic approach, the present dissertation also advocates for more research on the *interaction* of psychological processes. As emphasizing by Cowdrey, Lomax, Gregory, and Barnard (2017), “despite some common ground, significant theoretical heterogeneity has emerged within clinical psychology. This is not due to fundamentally different processes underpinning psychological disorders; rather it is a result of theorists highlighting particular constructs over others, using different language to describe seemingly similar processes or in some cases, attributing a different meaning to the same word” (p. 2). Regarding RNT and visual perspective adopted in mental imagery, there is a need for combining two broad theoretical fields on verbally-versus imagery-based processes, which seem to share several similarities. To date, these processes have been studied independently, despite the potential for a better understanding of psychological disorders and new perspectives for their treatment. For example, in a processual perspective, if RNT and visual perspective would be associated and both underpinned by a process of abstraction, therapies could focus on the abstraction process, whatever a specific content, i.e., verbal thoughts or mental images.

Obviously, the processual and transdiagnostic approach also has several limitations, such as preventing us from exploring the specificities of each psychological disorder. It is also not always clear whether all psychological disorders can be influenced or determined in the same way by similar psychological processes (e.g., depression, anxiety disorders, eating disorders, schizophrenia). Moreover, the combination of two broad fields of research such as RNT and mental imagery can be challenging not only for researchers but more importantly for clinicians, because it requires more investment in terms of time to master these fields.

Conclusion

Subscribing to a processual and transdiagnostic approach, the present dissertation has explored the relationship between two important transdiagnostic features generally studied independently despite their processual and functional similarities: RNT, including worry and rumination, and visual perspective in mental imagery. Through correlational, experimental studies as well as a meta-analysis, we have generally not been able to find an association between these processes. Moreover, their relation with an abstraction process and an avoidance function remains unclear. The present dissertation emphasizes the need for a clear conceptualization and appropriate measures of RNT, visual perspective, subjective meaning, and abstraction in relation with neutral, positive and negative events. More generally, despite the absence of evidence for an association, the present dissertation has the merit of having tried to empirically answering a relevant question for both researchers and clinicians, through several studies and a meta-analysis.

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APPENDICES

Appendix A: Protocol of the Study 1a	306
Appendices B:	
Appendix B1: CNIL and Ethical Committee of the Study 1b	316
Appendix B2: Protocol of the Study 1b	317
Appendices C:	
Appendix C1: CNIL and Ethical Committee of the Studies 1c and 1d	329
Appendix C2: Protocol of the Study 1c	330
Appendix D: Protocol of the Study 1d	335
Appendices E:	
Appendix E1: CNIL and Ethical Committee of the Study 2a	343
Appendix E2: Protocol of the Study 2a	344
Table E3: <i>Multiple Hierarchical Regressions Predicting the Frequency of Verbal Thoughts from Maladaptive Rumination, Conditions, and their Interaction</i>	357
Table E4: <i>Multiple Hierarchical Regressions Predicting the Frequency Of Images From Maladaptive Rumination, Conditions, and Their Interaction</i>	358
Table E5: <i>Multiple Hierarchical Regressions Predicting Mean Perspective of Images from Psychopathology, Conditions, and their Interaction</i>	359
Table E6: <i>Multiple Hierarchical Regressions Predicting Mean Perspective of Images from Maladaptive Rumination, Conditions, and their Interaction</i>	360
Table E7: <i>Multiple Hierarchical Regressions Predicting the Variation of Negative Affect from Psychopathology, Conditions, and their Interaction</i>	361
Table E8: <i>Multiple Hierarchical Regressions Predicting the Variation of Negative Affect from Maladaptive Rumination, Conditions, and their Interaction</i>	362
Appendices F:	
Appendix F1: CNIL and Ethical Committee of the Study 2b	363
Appendix F2: Protocol of the Study 2b	364

APPENDICES

Table F3: <i>Multiple Hierarchical Regressions Predicting the Frequency of Verbal Thoughts from Psychopathology, Conditions, and their Interaction</i>	376
Table F4: <i>Multiple Hierarchical Regressions Predicting the Frequency of Verbal Thoughts from Maladaptive Rumination, Conditions, and their Interaction</i>	377
Table F5: <i>Multiple Hierarchical Regressions Predicting the Frequency of Images from Psychopathology, Conditions, and their Interaction</i>	378
Table F6: <i>Multiple Hierarchical Regressions Predicting the Frequency of Images from Maladaptive Rumination, Conditions, and their Interaction</i>	379
Table F7: <i>Multiple Hierarchical Regressions Predicting Mean Observer Perspective in Images from Psychopathology, Conditions, and their Interaction</i>	380
Table F8: <i>Multiple Hierarchical Regressions Predicting Mean Observer Perspective in Images from Maladaptive Rumination, Conditions, and their Interaction</i>	381
Table F9: <i>Multiple Hierarchical Regressions Predicting the Variation of Negative Affect from Psychopathology, Conditions, and their Interaction</i>	382
Table F10: <i>Multiple Hierarchical Regressions Predicting the Variation of Negative Affect from Maladaptive Rumination, Conditions, and their Interaction</i>	383
Appendices G:	
Appendix G1: CNIL and Ethical Committee of the Study 3	384
Appendix G2: Protocol of the Study 3	385
Table G3: <i>Hierarchical Multiple Regressions Predicting Observer Perspective in Anticipatory Images from Maladaptive Rumination, Condition, and their Interaction</i>	402
Table G4: <i>Hierarchical Multiple Regressions Predicting Observer Perspective in Post-Event Images from Psychopathology, Condition and their Interaction</i>	403
Table G5: <i>Hierarchical Multiple Regressions Predicting Observer Perspective in Post-Event Images from Maladaptive Rumination, Condition and their Interaction</i>	404
Table G6: <i>Hierarchical Multiple Regressions Predicting Post-Event Abstract Rumination from Psychopathology, Condition and their Interaction</i>	405

APPENDICES

Table G7: *Hierarchical Multiple Regressions Predicting Post-Event Abstract Rumination from Maladaptive Rumination, Condition and their Interaction* 406

Table G8: *Hierarchical Multiple Regressions Predicting Post-Event Anxiety from Maladaptive Rumination, Condition and their Interaction* 407

Appendix A

Protocol of the Study 1a (Chapter 3)

RECHERCHE SUR LES ETATS EMOTIONNELS

Nous vous invitons à prendre part à une étude qui explore différents types d'états émotionnels et la façon dont on les appréhende. Il s'agit de remplir un ensemble de questionnaires, ce qui prend entre 15 et 20 minutes.

Avant de commencer, veuillez lire attentivement les informations ci-dessous et ensuite, si vous êtes prêt(e)s, complétez les informations vous concernant se trouvant à la page suivante avant de remplir les questionnaires proprement-dits. Vous pouvez conserver la présente page qui contient les informations sur cette recherche ainsi que les coordonnées des chercheurs qui en sont responsables.

INFORMATION

Cette étude concerne les différents états émotionnels et la façon dont on peut les appréhender. Nous souhaitons mettre en évidence la variabilité qui existe entre les personnes. Ceci nous aidera à mieux comprendre la façon dont les personnes perçoivent leurs émotions. Nous nous intéressons à la manière dont vous réagissez *réellement* dans différentes circonstances et pas à comment vous pensez devoir réagir.

Certaines questions se réfèrent à des moments où vous étiez dans un état d'humeur négatif. Cela peut vous rappeler des périodes moins agréables de votre vie. Si vous préférez ne pas réfléchir à de telles périodes, nous vous suggérons de ne pas prendre part à cette étude.

Vos réponses seront entièrement confidentielles, nous vous demandons de ne pas inscrire votre nom de telle sorte à ce que ce questionnaire soit totalement anonyme (contactez un des chercheurs indépendamment si vous avez des questions ou si vous souhaitez discuter de la recherche).

Vous n'êtes pas obligé(e) de prendre part à cette recherche mais votre contribution serait appréciée. Si vous changez d'avis, vous êtes libre d'arrêter à tout moment de remplir ces questionnaires. Certaines questions peuvent vous sembler redondantes, l'objectif est de vous permettre de nuancer vos réponses.

Les chercheurs responsables de cette étude sont présentés ci-dessous. N'hésitez pas à les contacter si vous avez des questions à propos de cette étude.

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RECHERCHE SUR LES ETATS EMOTIONNELS

Rappelez-vous que votre participation à cette étude est entièrement volontaire. Les réponses à ces questionnaires seront utilisées anonymement dans le cadre de ce projet de recherche. En rendant ce questionnaire complété, vous êtes supposé avoir donné votre consentement à participer à cette étude sur base des informations communiquées précédemment.

A présent, veuillez compléter les informations suivantes vous concernant :

Votre niveau d'étude actuel (ex. Bac +3 signifie que vous avez validé votre 3 ^{ème} année d'études après le bac)
Emploi/études actuel(es)
Date : / /
Age : ans Genre : <input type="checkbox"/> homme <input type="checkbox"/> femme

Instructions

Quand vous accéderez à la page suivante, avancez dans chaque partie du questionnaire assez rapidement et ne passez pas trop de temps sur chacune des questions. Passez à la question suivante dès que vous avez terminé une question. **Quand vous passez à une nouvelle section, veuillez lire attentivement les instructions associées** ; celles-ci étant différentes d'une section à l'autre. Il n'y a pas de bonnes ou de mauvaises réponses, nous nous intéressons à votre première réponse, c'est-à-dire à comment vous réagiriez naturellement dans toutes les situations.

Avant de commencer, vérifiez que vous avez bien rempli toutes les informations biographiques de l'encart ci-dessus.

Merci d'avoir accepté de participer à notre recherche.

APPENDICES

[MEAQ] Questionnaire 1

Merci d'indiquer votre degré d'accord avec chacune des affirmations suivantes à l'aide de l'échelle suivante (entourez le chiffre qui correspond à votre degré d'accord):

	1	2	3	4	5	6
	Tout à fait en désaccord	Moyennement en désaccord	Légèrement en désaccord	Légèrement d'accord	Moyennement d'accord	Tout à fait d'accord
1. Je m'abstiens de faire quelque chose si je pense que ça va me mettre mal à l'aise.	1	2	3	4	5	6
2. Si je pouvais supprimer tous mes souvenirs douloureux d'un coup de baguette magique, je le ferais.	1	2	3	4	5	6
3. Quand quelque chose de bouleversant arrive, je fais tout mon possible pour arrêter d'y penser.	1	2	3	4	5	6
4. J'ai parfois du mal à identifier ce que je ressens.	1	2	3	4	5	6
5. J'ai tendance à remettre à plus tard les choses désagréables que je dois faire.	1	2	3	4	5	6
6. Les gens devraient affronter leurs peurs.	1	2	3	4	5	6
7. Etre heureux signifie ne jamais ressentir de douleur ou de déception.	1	2	3	4	5	6
8. J'évite les activités qui présentent le moindre risque de me faire souffrir.	1	2	3	4	5	6
9. Quand j'ai des pensées négatives, j'essaie de me remplir la tête avec quelque chose d'autre.	1	2	3	4	5	6
10. Il est déjà arrivé qu'on me dise que j'étais dans le déni.	1	2	3	4	5	6
11. Il m'arrive de procrastiner pour éviter d'affronter les problèmes.	1	2	3	4	5	6
12. Même lorsque cela me met mal à l'aise, je n'interromps pas mes efforts pour avancer en direction des choses qui comptent pour moi.	1	2	3	4	5	6
13. Quand j'éprouve de la souffrance, je ferais n'importe quoi pour me sentir mieux.	1	2	3	4	5	6
14. J'entreprends rarement des choses qui pourraient me bouleverser.	1	2	3	4	5	6
15. J'essaie habituellement de me changer les idées lorsque je ressens quelque chose de douloureux.	1	2	3	4	5	6
16. Je suis capable de « débrancher » mes émotions lorsque je ne veux pas les ressentir.	1	2	3	4	5	6
17. Quand j'ai quelque chose d'important à faire, je me retrouve à faire plein d'autres choses à la place.	1	2	3	4	5	6
18. Je suis prêt à supporter la souffrance et à me sentir mal à l'aise pour obtenir ce que je veux.	1	2	3	4	5	6
19. Pour être heureux, il faut se débarrasser de ses pensées négatives.	1	2	3	4	5	6
20. Je fais beaucoup d'efforts pour éviter les situations qui pourraient faire apparaître en moi des émotions et des pensées désagréables.	1	2	3	4	5	6
21. Je ne me rends pas compte que je suis anxieux jusqu'à ce que d'autres personnes me le disent.	1	2	3	4	5	6
22. Quand des souvenirs pénibles me reviennent, j'essaie de me concentrer sur autre chose.	1	2	3	4	5	6
23. J'ai une bonne perception de mes émotions.	1	2	3	4	5	6
24. Je suis prêt(e) à souffrir pour les choses qui comptent à mes yeux.	1	2	3	4	5	6
25. Un de mes objectifs principaux est de ne pas ressentir d'émotions douloureuses.	1	2	3	4	5	6
26. Je préfère m'en tenir aux activités dans lesquelles je me sens à l'aise plutôt que d'en essayer de nouvelles.	1	2	3	4	5	6
27. Je fais beaucoup d'efforts pour éviter les émotions pénibles.	1	2	3	4	5	6
28. On me dit parfois que j'ai du mal à reconnaître que j'ai des problèmes.	1	2	3	4	5	6
29. La peur ou l'anxiété ne m'empêcheront jamais de faire quelque chose d'important.	1	2	3	4	5	6
30. J'essaie de régler les problèmes dès qu'ils arrivent.	1	2	3	4	5	6

APPENDICES

	1	2	3	4	5	6
	Tout à fait en désaccord	Moyennement en désaccord	Légèrement en désaccord	Légèrement d'accord	Moyennement d'accord	Tout à fait d'accord
31. Je ferais n'importe quoi pour être moins stressé(e).	1	2	3	4	5	6
32. Si j'ai le moindre doute à propos de quelque chose que je dois ou que je pourrais faire, je ne le fais pas.	1	2	3	4	5	6
33. Quand des souvenirs désagréables me reviennent, j'essaie de les enlever de mon esprit.	1	2	3	4	5	6
34. A notre époque, les gens ne devraient plus être confrontés à la souffrance.	1	2	3	4	5	6
35. Les autres me disent parfois que je réprime mes émotions.	1	2	3	4	5	6
36. J'essaie de repousser aussi longtemps que possible les choses désagréables que j'ai à faire	1	2	3	4	5	6
37. Même lorsque cela m'est douloureux, je continue à faire ce que j'ai à faire.	1	2	3	4	5	6
38. Ma vie serait formidable si je n'étais jamais anxieux(-se).	1	2	3	4	5	6
39. Dès que je me sens pris(e) au piège dans une situation, je fuis immédiatement.	1	2	3	4	5	6
40. Quand une pensée négative apparaît, j'essaie immédiatement de penser à autre chose.	1	2	3	4	5	6
41. J'ai du mal à savoir ce que je ressens.	1	2	3	4	5	6
42. Je ne fais pas les choses tant que je n'y suis pas obligé(e).	1	2	3	4	5	6
43. Je ne laisse pas la douleur et le malaise m'empêcher d'obtenir ce que je veux.	1	2	3	4	5	6
44. Je suis prêt à beaucoup sacrifier pour ne pas me sentir mal.	1	2	3	4	5	6
45. Je fais tout ce que je peux pour éviter les situations désagréables.	1	2	3	4	5	6
46. Je peux bloquer mes émotions lorsqu'elles sont trop fortes.	1	2	3	4	5	6
47. Pourquoi faire aujourd'hui ce qu'on peut remettre au lendemain.	1	2	3	4	5	6
48. Je suis prêt(e) à supporter d'être triste pour obtenir ce que je veux.	1	2	3	4	5	6
49. On m'a déjà dit que je « fais l'autruche ».	1	2	3	4	5	6
50. La douleur conduit toujours à la souffrance.	1	2	3	4	5	6
51. Si je me trouve dans une situation légèrement inconfortable, j'essaie de partir immédiatement.	1	2	3	4	5	6
52. Quand il arrive que j'aïlle mal, il me faut beaucoup de temps pour m'en apercevoir.	1	2	3	4	5	6
53. Je continue à poursuivre mes objectifs même si j'ai des doutes.	1	2	3	4	5	6
54. J'aimerais pouvoir me débarrasser de toutes mes émotions négatives.	1	2	3	4	5	6
55. J'évite les situations dans lesquelles je pourrais me sentir nerveux(-se).	1	2	3	4	5	6
56. Je me sens déconnecté de mes émotions	1	2	3	4	5	6
57. Je ne laisse pas mes pensées moroses m'empêcher de faire ce que je veux.	1	2	3	4	5	6
58. Le secret d'une belle vie est de ne jamais ressentir de douleur.	1	2	3	4	5	6
59. Je m'échappe rapidement de toute situation qui me met mal à l'aise.	1	2	3	4	5	6
60. On m'a déjà dit que je n'ai pas conscience de mes problèmes.	1	2	3	4	5	6
61. J'espère vivre sans éprouver aucune tristesse ni déception.	1	2	3	4	5	6
62. Quand je travaille sur quelque chose d'important, je n'abandonne pas, même si je rencontre des difficultés.	1	2	3	4	5	6

APPENDICES

[AAQ-II] Questionnaire 2

Voici une liste d'affirmations. Merci d'évaluer à quel point chaque affirmation est vraie pour vous en entourant le chiffre qui correspond à votre réponse en utilisant l'échelle suivante :

1	2	3	4	5	6	7
jamais vrai	très rarement vrai	rarement vrai	parfois vrai	souvent vrai	presque toujours vrai	toujours vrai

1. Mes expériences et mes souvenirs douloureux me gênent pour conduire ma vie comme il me tiendrait à cœur de le faire.	1	2	3	4	5	6	7
2. J'ai peur de mes émotions.	1	2	3	4	5	6	7
3. J'ai peur ne pas être capable de contrôler mes inquiétudes et mes émotions.	1	2	3	4	5	6	7
4. Mes souvenirs douloureux m'empêchent de m'épanouir dans la vie.	1	2	3	4	5	6	7
5. Les émotions sont une source de problèmes dans ma vie.	1	2	3	4	5	6	7
6. J'ai l'impression que la plupart des gens gèrent leur vie mieux que moi.	1	2	3	4	5	6	7
7. Mes soucis m'empêchent de réussir.	1	2	3	4	5	6	7

[STAI-T] Questionnaire 3

Un certain nombre de phrases que l'on utilise pour se décrire sont données ci-dessous. Lisez chaque phrase, puis marquez d'une croix, parmi les 4 points à droite, celui qui correspond le mieux à ce que vous ressentez **généralement**. Il n'y a pas de bonnes ni de mauvaises réponses. Ne passez pas trop de temps sur l'une ou l'autre de ces propositions et indiquez la réponse qui décrit le mieux vos sentiments habituels.

	Jamais	Presque jamais	Presque toujours	Toujours
1 Je me sens de bonne humeur, aimable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Je me sens nerveux (nerveuse) et agité(e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Je me sens content(e) de moi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Je voudrais être aussi heureux (heureuse) que les autres	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 J'ai un sentiment d'échec	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Je me sens reposé(e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 J'ai tout mon sang-froid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 J'ai l'impression que les difficultés s'accumulent- je ne peux plus les surmonter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 Je m'inquiète à propos de choses sans importance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 Je me sens heureux (heureuse)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 J'ai des pensées qui me perturbent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 Je manque de confiance en moi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13 Je me sens sans inquiétude, en sécurité, en sûreté	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14 Je prends facilement des décisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15 Je me sens incompetent(e), pas à la hauteur	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 Je suis satisfait(e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17 Des idées sans importance trottant dans ma tête me dérangent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18 Je prends les déceptions tellement à cœur que je les oublie difficilement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19 Je suis une personne posée, solide, stable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20 Je deviens tendu(e) et agité(e) quand je réfléchis à mes soucis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

[BDI-II]Questionnaire 4

Ce questionnaire comporte 21 groupes d'énoncés. Veuillez lire avec soin chacun de ces groupes puis, dans chaque groupe, choisissez l'énoncé qui décrit le mieux comment vous vous êtes senti(e) **au cours des deux dernières semaines, incluant aujourd'hui**. Encerclez alors le chiffre placé devant l'énoncé que vous avez choisi. Si, dans un groupe d'énoncés, vous en trouvez plusieurs qui semblent décrire également bien ce que vous ressentez, choisissez celui qui a le chiffre le plus élevé et encerclez ce chiffre. Assurez-vous bien de ne choisir **qu'un** seul énoncé dans chaque groupe, y compris le groupe n°16 (modifications dans les habitudes de sommeil) et le groupe n°18 (modifications de l'appétit).

- | | | |
|---|----------|---|
| 1. Tristesse | 0 | Je ne me sens pas triste |
| | 1 | Je me sens très souvent triste |
| | 2 | Je suis tout le temps triste |
| | 3 | Je suis si triste ou si malheureux(se) que ce n'est pas supportable |
| 2. Pessimisme | 0 | Je ne suis pas particulièrement découragé(e) face à mon avenir |
| | 1 | Je me sens plus découragé qu'avant face à mon avenir |
| | 2 | Je ne m'attends pas à ce que les choses s'arrangent pour moi |
| | 3 | J'ai le sentiment que mon avenir est sans espoir et qu'il ne peut qu'empirer |
| 3. Echecs dans le passé | 0 | Je n'ai pas le sentiment d'avoir échoué dans la vie, d'être un(e) raté(e) |
| | 1 | J'ai échoué plus souvent que je n'aurais dû |
| | 2 | Quand je pense à mon passé, Je constate un grand nombre d'échecs |
| | 3 | J'ai le sentiment d'avoir complètement raté ma vie |
| 4. Perte de plaisir | 0 | J'éprouve toujours autant de plaisir qu'avant aux choses qui me plaisent |
| | 1 | Je n'éprouve pas autant de plaisir aux choses qu'avant |
| | 2 | J'éprouve très peu de plaisir aux choses qui me plaisaient habituellement |
| | 3 | Je n'éprouve aucun plaisir aux choses qui me plaisaient habituellement. |
| 5. Sentiment de culpabilité | 0 | Je ne me sens pas particulièrement coupable |
| | 1 | Je me sens coupable pour bien des choses que j'ai faites ou que j'aurais dû faire |
| | 2 | Je me sens coupable la plupart du temps |
| | 3 | Je me sens tout le temps coupable |
| 6. Sentiment d'être puni | 0 | Je n'ai pas le sentiment d'être puni(e) |
| | 1 | Je sens que je pourrais être puni(e) |
| | 2 | Je m'attends à être puni(e) |
| | 3 | J'ai le sentiment d'être puni(e) |
| 7. Sentiments négatifs envers soi-même | 0 | Mes sentiments envers moi-même n'ont pas changé |
| | 1 | J'ai perdu confiance en moi |
| | 2 | Je suis déçu(e) par moi-même |
| | 3 | Je ne m'aime pas du tout |
| 8. Attitude critique envers soi | 0 | Je ne me blâme pas ou ne me critique pas plus que d'habitude |
| | 1 | Je suis plus critique envers moi-même que d'habitude |
| | 2 | Je me reproche tous mes défauts |
| | 3 | Je me reproche tous les malheurs qui arrivent |
| 9. Pensées ou désir de suicide | 0 | Je ne pense pas du tout à me suicider |
| | 1 | Il m'arrive de penser à me suicider, mais je ne le ferai pas |
| | 2 | J'aimerais me suicider |
| | 3 | Je me suiciderais si l'occasion se présentait |
| 10. Pleurs | 0 | Je ne pleure pas plus qu'avant |
| | 1 | Je pleure plus qu'avant |
| | 2 | Je pleure pour la moindre petite chose |
| | 3 | Je voudrais pleurer mais je n'en suis pas capable |

APPENDICES

11. Agitation	0	Je ne suis pas plus agité(e) ou plus tendu(e) que d'habitude
	1	Je me sens plus agité(e) ou plus tendu(e) que d'habitude
	2	Je suis si agité(e) ou tendu(e) que j'ai du mal à rester tranquille
	3	Je suis si agité(e) ou tendu(e) que je dois continuellement bouger ou faire quelque chose
12. Perte d'intérêt	0	Je n'ai pas perdu d'intérêt pour les gens ou pour les activités
	1	Je m'intéresse moins qu'avant aux gens et aux choses
	2	Je ne m'intéresse presque plus aux gens et aux choses
	3	J'ai du mal à m'intéresser à quoi que ce soit
13. Indécision	0	Je prends des décisions toujours aussi bien qu'avant
	1	Il m'est plus difficile que d'habitude de prendre des décisions
	2	J'ai beaucoup plus de mal qu'avant à prendre des décisions
	3	J'ai du mal à prendre n'importe quelle décision
14. Dévalorisation	0	Je pense être quelqu'un de valable
	1	Je ne crois pas avoir autant de valeur ni être aussi utile qu'avant
	2	Je me sens moins valable que les autres
	3	Je sens que je ne vauds absolument rien
15. Perte d'énergie	0	J'ai toujours autant d'énergie qu'avant
	1	J'ai moins d'énergie qu'avant
	2	Je n'ai pas assez d'énergie pour pouvoir faire grand chose
	3	J'ai trop peu d'énergie pour faire quoi que ce soit
16. Modifications dans les habitudes de sommeil	0	Mes habitudes de sommeil n'ont pas changé
	1a	Je dors un peu plus que d'habitude
	1b	Je dors un peu moins que d'habitude
	2a	Je dors beaucoup plus que d'habitude
	2b	Je dors beaucoup moins que d'habitude
	3a	Je dors presque toute la journée
	3b	Je me réveille une ou deux heures plus tôt et je suis incapable de me rendormir
17. Irritabilité	0	Je ne suis pas plus irritable que d'habitude
	1	Je suis plus irritable que d'habitude
	2	Je suis beaucoup plus irritable que d'habitude
	3	Je suis constamment irritable
18. Modifications de l'appétit	0	Mon appétit n'a pas changé
	1a	J'ai un peu moins d'appétit que d'habitude
	1b	J'ai un peu plus d'appétit que d'habitude
	2a	J'ai beaucoup moins d'appétit que d'habitude
	2b	J'ai beaucoup plus d'appétit que d'habitude
	3a	Je n'ai pas d'appétit du tout
	3b	J'ai constamment envie de manger
19. Difficulté de se concentrer	0	Je parviens à me concentrer toujours aussi bien qu'avant
	1	Je ne parviens à me concentrer aussi bien qu'avant
	2	J'ai du mal à me concentrer longtemps sur quoi que ce soit
	3	Je me trouve incapable de me concentrer sur quoi que ce soit
20. Fatigue	0	Je ne suis pas plus fatigué(e) que d'habitude
	1	Je me fatigue plus facilement que d'habitude
	2	Je suis trop fatigué(e) pour faire un grand nombre de choses que je faisais avant
	3	Je suis trop fatigué(e) pour faire la plupart des choses que je faisais avant
21. Perte d'intérêt pour le sexe	0	Je n'ai pas noté de changement récent dans mon intérêt pour le sexe
	1	Le sexe m'intéresse moins qu'avant
	2	Le sexe m'intéresse beaucoup moins maintenant
	3	J'ai perdu tout intérêt pour le sexe

APPENDICES

[RRS-10] Questionnaire 5

Les gens pensent et font différentes choses lorsqu'ils se sentent découragés, tristes ou déprimés. Veuillez lire chacun des énoncés ci-dessous et indiquer à quelle fréquence vous faites ce qui est mentionné lorsque vous vous sentez découragé, triste ou déprimé. Indiquez ce que vous faites habituellement et non ce que vous pensez que vous devriez faire.

	Presque jamais	Parfois	Souvent	Presque toujours
1. Penser: « Qu'ai-je fait pour mériter cela? »	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Analyser des événements récents pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Penser «Pourquoi est-ce que je réagis toujours de cette façon ?»	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Partir seul et penser aux raisons pour lesquelles vous vous sentez comme cela.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Écrire ce à quoi vous pensez et l'analyser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Penser à une situation récente en souhaitant que ça se soit mieux passé.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Penser : «Pourquoi ai-je des problèmes que les autres n'ont pas ? »	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Penser « Pourquoi ne puis-je pas mieux gérer les choses ? »	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Analyser votre personnalité pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Aller quelque part seul(e) pour penser à ce que vous ressentez	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Questionnaire 6

Maintenant, nous allons vous demander de vous rappeler **une situation dans laquelle vous avez échoué à quelque chose d'important pour vous**. Cet échec peut être lié à des domaines divers, comme par exemple le domaine scolaire/professionnel, social, sentimental, les activités de loisirs, de compétition ou tout autre domaine important pour vous. Cette situation doit avoir eu lieu il y a moins de 5 ans et cela doit être une **situation unique**, c'est-à-dire qui a duré moins d'une journée, qui s'est produite à un moment et dans un lieu particulier.

[Description] Q1) Prenez quelques instants pour vous rappeler une situation d'échec et décrivez-la en **1 ou 2 mots**.

[Date] Q2) Veuillez préciser, en termes de jours, de mois ou d'années, le **temps qui s'est approximativement écoulé depuis la situation** (par ex., 7 jours pour une situation il y a une semaine ou 3 mois pour une situation vécue il y a trois mois, etc ...) en choisissant la proposition correspondante.

- Jours : _____
 Mois : _____
 Années : _____

A présent, fermez les yeux et prenez environ **1 minute** pour avoir une **image visuelle** de cette situation. Une fois cette minute écoulée, veuillez répondre aux questions de la page suivante.

[Vivacité] Q3) Évaluez la **vivacité de votre souvenir** sur une échelle allant de 1 (image vague et imprécise) à 9 (image parfaitement claire et vive).

- 1 2 3 4 5 6 7 8 9
 Image vague et Image parfaitement
 imprécise claire et vive

[Détresse] Q4) **Évaluez l'intensité de votre détresse actuelle** quand vous repensez à cette situation, sur une échelle allant de 1 (aucune détresse) à 9 (détresse extrêmement intense).

- 1 2 3 4 5 6 7 8 9
 Aucune Détresse
 détresse extrêmement intense

Nous allons maintenant vous poser des questions sur l'image mentale que vous avez eue quand vous vous rappelez la situation d'échec.

Un souvenir est souvent accompagné d'images visuelles. Ces images peuvent être perçues selon une perspective d'acteur ou d'observateur.

APPENDICES

Dans une perspective d'acteur, nous voyons la situation comme nous l'avons initialement vécue. En d'autres termes, nous voyons ce qui nous entoure au travers de nos propres yeux (pour une illustration, voir Fig. 1). Cette perspective est différente de la perspective d'observateur, dans laquelle nous voyons la situation de « l'extérieur ». En d'autres termes, dans notre souvenir, nous nous voyons ainsi que ce qui nous entoure (pour une illustration, voir Fig. 2).



Fig. 1. Perspective d'acteur



Fig. 2. Perspective d'observateur

[Perspective] Q5) Évaluez **la perspective adoptée dans votre souvenir** sur une échelle de -3 (totalement en perspective d'acteur) à 3 (totalement perspective d'observateur) :

-3 -2 -1 0 1 2 3
 Totalement en perspective d'acteur Totalement en perspective d'observateur

[Continuité] Q6) Dans quelle mesure ce souvenir vous procure un sentiment de « **continuité** » (entre le passé, le présent et le futur) dans votre vie ?

0 1 2 3 4 5 6 7 8 9 10
 Pas du tout Enormément

[Sens] Q7) Dans quelle mesure ce souvenir vous procure un sentiment de « **sens** » dans votre vie ?

0 1 2 3 4 5 6 7 8 9 10
 Pas du tout Enormément

Questions à répondre en oui/non :

- | | | | |
|---|-----|-----|--|
| - Avez-vous une pratique de méditation ou de pleine conscience ? | Oui | Non | |
| - Êtes-vous actuellement sous traitement(s) pour des problèmes psychologiques ? | Oui | Non | |
| - Avez-vous déjà été sous traitement(s) pour des problèmes psychologiques ? | Oui | Non | |

Merci pour votre participation

Appendix B1

CNIL and Ethical Committee of the Study 1b (Chapter 3)

Timbre de la CNIL : 0880326, le 16/12/2015 à 10:20:00

Comité d’Ethique pour les Recherches Non Interventionnelles (CERNI) :



CERNI

Comité d’Ethique pour les Recherches Non Interventionnelles

Objet: Avis sur le projet « Etude des liens entre ruminations, imagerie mentale et abstraction » présenté par Céline BAEYENS du Laboratoire Interuniversitaire de Psychologie (LIP EA4145) à Grenoble.

Compte tenu des éléments fournis dans la demande par Céline BAEYENS, le Comité d’Ethique pour les Recherches Non Interventionnelles émet un AVIS FAVORABLE.

Il relève de la responsabilité des chercheurs de se conformer à leurs obligations légales notamment en ce qui concerne les aspects informatique et liberté, ou encore l’homologation du lieu de recherche.

Numéro de l’avis : 2015-05-12-66

A Grenoble, le 12 mai 2015

Le Président du CERNI,
Jean-Pierre Chevrot
Professeur, Université de Grenoble et Institut Universitaire de France



Appendix B2

Protocol of the Study 1b (Chapter 3)

Procédure de l'étude 1 en ligne « Images mentales lors du rappel de souvenirs »

En ligne

[Les explications générales apparaissent sur l'écran]

Cette étude s'adresse aux personnes de plus de 18 ans, ayant une bonne compréhension et une bonne expression en français.

Vous allez participer à une étude qui a pour objectif d'explorer les images mentales que nous avons lorsque nous nous souvenons d'événements passés.

Pour cela, nous vous proposons de répondre à une étude en 2 parties, constituée de différentes tâches et questionnaires.

Dans une première partie, nous vous demanderons d'identifier un souvenir négatif passé et de répondre à différentes questions concernant ce souvenir et la façon dont vous le percevez actuellement.

Dans une seconde partie, nous vous demanderons de répondre à des questions plus générales sur la manière dont vous vous sentez généralement.

Votre participation à cette étude prendra environ 30 minutes. Si vous décidez de participer, nous vous demandons de remplir toute l'étude en une seule fois (vous ne pouvez pas suspendre l'étude pour la reprendre plus tard). C'est pourquoi nous vous recommandons dès à présent de vous mettre à l'aise, dans un endroit calme.

Votre participation est volontaire. Vous pouvez à tout moment et en toute liberté décider d'interrompre votre participation à cette étude, sans justification et sans conséquence ultérieure. Votre participation sera d'emblée interrompue dès la fermeture de la page de l'étude. Les données déjà enregistrées seront conservées de manière anonyme et confidentielle.

Les données récoltées sont strictement anonymes et confidentielles. Aucun renseignement ne permet de lier vos données à votre identité, c'est pourquoi vous ne pouvez pas rectifier ou supprimer ces informations après votre participation. Les données sont stockées dans un endroit sécurisé auquel seuls les responsables du projet ont accès. À notre connaissance, cette recherche n'implique aucun risque ou inconfort autre que ceux de la vie quotidienne.

Cette recherche sera diffusée dans des colloques et des articles de revue académique. Pour toutes les personnes qui le souhaiteraient, nous pouvons vous envoyer plus d'informations sur les objectifs de cette étude. Si vous souhaitez plus de renseignements, envoyez-nous un message avec le titre « étude sur les souvenirs » à l'adresse suivante : Celine.Baeyens@upmf-grenoble.fr

En participant à cette étude, vous certifiez que vous avez lu et compris les renseignements ci-dessus, que nous avons répondu à vos questions de façon satisfaisante et que nous vous avons avisé que vous étiez libre d'arrêter cette recherche en tout temps, sans préjudice.

- Poursuivre (1)
- Abandonner (0)

Logique de passage :

- Si « Poursuivre » est sélectionné, alors passer à « Répondez à chacune des questions en... »
- Si « Abandonner » est sélectionné, alors passer à « Fin d'enquête »

<Saut de page 1>

Répondez à chacune des questions en choisissant la proposition qui correspond le mieux à votre réponse. Répondez à toutes les questions. Soyez aussi honnête que possible dans toutes vos réponses et essayez de ne pas laisser une de vos réponses en influencer d'autres. Ne passez pas trop de temps à

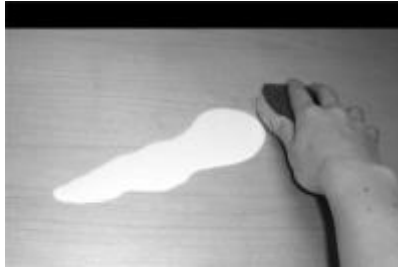


Fig. 1. Perspective d'acteur



Fig. 2. Perspective d'observateur

[Perspective] *Evaluez la perspective adoptée dans votre souvenir :*

-3 -2 -1 0 1 2 3
 Totalemnt en perspective d'acteur Totalemnt en perspective d'observateur

<Saut de page 6>

[Distance temporelle] *Dans quelle mesure ce souvenir vous paraît proche ou lointain dans le temps ?*

0 1 2 3 4 5 6 7 8 9 10
 Proche Lointain

[Continuité] *Imaginer ce souvenir vous donne-t-il un sentiment de continuité entre votre vie passée, présente et future ?*

0 1 2 3 4 5 6 7 8 9 10
 Pas du tout Enormément

[Sens] *Dans quelle mesure ce souvenir donne du sens à votre vie ?*

0 1 2 3 4 5 6 7 8 9 10
 Pas du tout Enormément

<Saut de page 7>

[PANAS] *Voici une liste d'adjectifs qui décrivent des sentiments ou des émotions. Lisez chacun d'entre eux. Pour chaque adjectif, indiquez à quel point il décrit comment vous vous êtes senti(e) en vous remémorant la situation d'échec.*

	Très peu ou pas du tout (1)	Peu (2)	Modérément (3)	Beaucoup (4)	Enormément (5)
1. Angoissé	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Fâché	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Coupable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Effrayé	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Hostile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Irrité	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Honteux	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Nerveux	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Agité	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Craintif	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page 8>

[ATS-Généralisation état] *Indiquez votre degré d'accord ou de désaccord avec chaque proposition en choisissant une des réponses suivantes :*

	Totalement en désaccord	Plutôt en désaccord	Ni d'accord, ni en désaccord	Plutôt d'accord	Totalement d'accord
	(1)	(2)	(3)	(4)	(5)
1. Quand je repense à cette situation, je me demande si je suis capable de faire quoi que soit de bien.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Même si cette situation était un échec, c'est une seule occasion où je n'ai pas atteint un de mes objectifs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Quand je repense à cette situation, j'ai l'impression d'être un(e) raté(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Cette situation unique influence ce que je pense globalement de moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page 9>

[Rumination état 1] *Au cours du dernier mois, à quelle fréquence avez-vous ruminé à propos de cette situation ?*

0 1 2 3 4 5 6 7 8 9 10
Jamais Tout le temps

[Rumination état 2] *Au cours du dernier mois, dans quelle mesure le fait de ruminer sur cette situation a interféré avec vos activités quotidiennes ?*

0 1 2 3 4 5 6 7 8 9 10
Pas du tout Totalement

[Rumination état 3] *Au cours du dernier mois, dans quelle mesure le fait de ruminer sur cette situation vous a paru incontrôlable ?*

0 1 2 3 4 5 6 7 8 9 10
Pas du tout Totalement

[Rumination état 4] *Au cours du dernier mois, dans quelle mesure le fait de ruminer sur cette situation était associé à de la détresse ?*

0 1 2 3 4 5 6 7 8 9 10
Pas du tout Totalement

<Saut de page 10>

[Niveau de traitement état 1] *Dans quelle mesure cette situation est importante pour vous ?*

-5 -4 -3 -2 -1 0 1 2 3 4 5
Pas du tout Extrêmement importante

[Niveau de traitement état 2] *Quel degré de priorité attribuez-vous à cette situation ?*

-5 -4 -3 -2 -1 0 1 2 3 4 5
Faible priorité Haute priorité

APPENDICES

[RRS] *Les gens pensent et font différentes choses lorsqu'ils se sentent découragés, tristes ou déprimés. Veuillez lire chacun des énoncés ci-dessous et indiquer à quelle fréquence vous faites ce qui est mentionné lorsque vous vous sentez découragé, triste ou déprimé. Indiquez ce que vous faites habituellement et non ce que vous pensez que vous devriez faire.*

	Presque Jamais (1)	Parfois (2)	Souvent (3)	Presque Toujours (4)
1. Penser à quel point vous vous sentez seul(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Penser « je ne serai pas capable de faire mon travail parce que je me sens tellement mal »	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Penser à vos sensations de fatigue et de douleur	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Penser à quel point il est difficile de vous concentrer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Penser à quel point vous vous sentez passif(ve) et démotivé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Analyser des événements récents pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Penser à quel point vous ne semblez plus rien ressentir.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Penser « Pourquoi ne puis-je pas me mettre au travail ? »	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Penser « Pourquoi est-ce que je réagis toujours de cette façon ? »	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Partir seul et penser aux raisons pour lesquelles vous vous sentez comme cela.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Écrire ce à quoi vous pensez et l'analyser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Penser à une situation récente en souhaitant que ça se soit mieux passé.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Penser : « Pourquoi ai-je des problèmes que les autres n'ont pas ? »	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Penser à quel point vous vous sentez triste.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Penser à tous vos défauts, faiblesses, fautes et erreurs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Penser à quel point vous n'avez envie de rien faire.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Analyser votre personnalité pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Aller quelque part seul(e) pour penser à ce que vous ressentez	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Penser à quel point vous êtes en colère contre vous-même	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Penser: « Qu'ai-je fait pour mériter cela? »	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Penser: « Je ne serai pas capable de me concentrer si je continue à me sentir comme cela »	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Penser « Pourquoi ne puis-je pas mieux gérer les choses ? »	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page 13>

APPENDICES

[Mini-CERTS] *Lisez chacune des propositions présentées ci-dessous, puis cochez la case qui décrit le mieux ce que vous vivez habituellement. Ne passez pas trop de temps à répondre, c'est votre première impression qui est importante.*

« *Quand des pensées à propos de moi, de mes sentiments ou de situations et d'évènements me viennent à l'esprit ...* »

	Presque jamais (1)	Parfois (2)	Souvent (3)	Presque toujours (4)
1. Mes pensées sont prises dans une ornière, revenant toujours aux mêmes thèmes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je peux comprendre et répondre aux changements de manière intuitive, sans devoir analyser tout en détails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Je me compare aux autres personnes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Je pense de manière ouverte, libre et créative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Je me juge en fonction de mes valeurs et de mes croyances personnelles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me concentre sur la question de savoir pourquoi les choses se sont passées de cette manière là	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Je me demande pourquoi je n'arrive pas à me mettre en action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Mes pensées se développent dans des directions nouvelles et intéressantes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Je semble être immergé(e) dans l'action et en contact avec ce qu'il se passe autour de moi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je pense que je ne suis bon(ne) à rien	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. J'aime me laisser aller à suivre le flux de mes pensées spontanées	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Je me sens sous pression d'empêcher que mes pires craintes se réalisent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Je me concentre sur le fait d'explorer et de jouer avec les idées, curieux (se) d'où elles peuvent me mener	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Mes pensées ont tendances à fuser à partir d'un événement spécifique vers des aspects plus larges et généraux de ma vie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Je m'en fais de ce que les autres pourraient penser de moi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. J'ai très rapidement des impressions et des intuitions de ce qui se passe et de comment réagir	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page 14>

[BIF] *Un comportement peut être identifié de différentes façons. Par exemple, une personne décrirait l'acte de dactylographier comme « écrire à la machine », tandis qu'une autre pourrait décrire ce comportement comme « appuyer sur des touches », ou encore « exprimer des pensées ». Dans ce questionnaire, nous nous intéressons à vos préférences personnelles au sujet de la manière dont un certain nombre de comportements pourraient être décrits. Dans les lignes qui suivent, vous trouverez des listes de différents comportements. Chaque comportement est suivi de deux choix possibles représentant deux manières différentes de le décrire.*

Voici un exemple :

Être en classe :

a. Être assis sur une chaise(0)

b. Regarder un tableau(1)

Votre tâche consiste à choisir l'identification, a ou b, qui, selon vous, décrit le mieux le comportement en question. Cochez la proposition correspondante à l'énoncé que vous choisissez. Merci d'indiquer votre choix pour chaque comportement.

<p>1. Lire</p> <p><input type="checkbox"/> a. Suivre des lignes de caractères</p> <p><input type="checkbox"/> b. Acquérir des connaissances</p>	<p>2. Se laver les mains</p> <p><input type="checkbox"/> a. Respecter les règles d'hygiène</p> <p><input type="checkbox"/> b. Se savonner les mains</p>
<p>3. Cueillir une pomme</p> <p><input type="checkbox"/> a. Avoir quelque chose à manger</p> <p><input type="checkbox"/> b. Enlever une pomme d'une branche</p>	<p>4. Allumer un four</p> <p><input type="checkbox"/> a. Régler le thermostat</p> <p><input type="checkbox"/> b. Préparer un repas</p>
<p>5. Mettre un poster</p> <p><input type="checkbox"/> a. Décorer une pièce</p> <p><input type="checkbox"/> b. Utiliser de l'adhésif ou des punaises</p>	<p>6. Nettoyer la maison</p> <p><input type="checkbox"/> a. Faire preuve de propreté</p> <p><input type="checkbox"/> b. Passer l'aspirateur</p>
<p>7. Aménager un bureau</p> <p><input type="checkbox"/> a. Disposer des meubles</p> <p><input type="checkbox"/> b. Organiser un espace de travail</p>	<p>8. Payer la facture de téléphone</p> <p><input type="checkbox"/> a. Rester en contact avec le monde extérieur</p> <p><input type="checkbox"/> b. Dépenser une certaine somme d'argent</p>
<p>9. S'occuper des plantes d'appartement</p> <p><input type="checkbox"/> a. Arroser des plantes</p> <p><input type="checkbox"/> b. Rendre une pièce agréable</p>	<p>10. Fermer une porte</p> <p><input type="checkbox"/> a. Mettre une clé dans la serrure</p> <p><input type="checkbox"/> b. Sécuriser la maison</p>
<p>11. Voter</p> <p><input type="checkbox"/> a. Influencer les élections</p> <p><input type="checkbox"/> b. Remplir un bulletin de vote</p>	<p>12. Grimper à un arbre</p> <p><input type="checkbox"/> a. Avoir une belle vue</p> <p><input type="checkbox"/> b. S'accrocher aux branches</p>
<p>13. Se brosser les dents</p> <p><input type="checkbox"/> a. Prévenir les caries</p> <p><input type="checkbox"/> b. Agiter une brosse dans sa bouche</p>	<p>14. Saluer quelqu'un</p> <p><input type="checkbox"/> a. Dire le mot « bonjour »</p> <p><input type="checkbox"/> b. Manifester de la sympathie</p>
<p>15. Manger</p> <p><input type="checkbox"/> a. Se nourrir</p> <p><input type="checkbox"/> b. Mâcher et avaler</p>	<p>16. Pratiquer la natation</p> <p><input type="checkbox"/> a. Faire des mouvements dans l'eau</p> <p><input type="checkbox"/> b. Se maintenir en forme</p>
<p>17. Parler à un enfant</p> <p><input type="checkbox"/> a. Apprendre quelque chose à un enfant</p> <p><input type="checkbox"/> b. Utiliser des mots simples</p>	<p>18. Rouler à vélo</p> <p><input type="checkbox"/> a. PédaLER</p> <p><input type="checkbox"/> b. Se rendre quelque part</p>
<p>19. Consulter sa montre</p> <p><input type="checkbox"/> a. Lever le poignet</p> <p><input type="checkbox"/> b. Arriver à l'heure</p>	<p>20. Ouvrir une fenêtre</p> <p><input type="checkbox"/> a. Aérer la pièce</p> <p><input type="checkbox"/> b. Tirer le battant vers soi</p>
<p>21. Aller au cinéma</p> <p><input type="checkbox"/> a. Regarder un film</p> <p><input type="checkbox"/> b. Passer un bon moment entre amis</p>	<p>22. Parler</p> <p><input type="checkbox"/> a. Produire des sons</p> <p><input type="checkbox"/> b. Exprimer des idées</p>
<p>23. Trier les déchets</p> <p><input type="checkbox"/> a. Contribuer au respect de l'environnement</p> <p><input type="checkbox"/> b. Jeter les détritUS dans les poubelles adéquates</p>	

<Saut de page 15>

[CES-D] *Les impressions suivantes sont ressenties par la plupart des gens. Indiquez pour chaque sentiment ou comportement présentés de cette liste combien de fois vous les avez éprouvés durant la semaine qui vient de se passer.*

Cochez la case qui vous correspond selon l'échelle de notation suivante :

Jamais ou très rarement = Moins d'1 jour

Occasionnellement = 1 à 2 jours

Assez souvent = 3 à 4 jours

Fréquemment ou tout le temps = 5 à 7 jours

	Jamais ou très rarement (0)	Occasionnellement (1)	Assez souvent (2)	Fréquemment ou tout le temps (3)
1. J'ai été contrarié(e) par des choses qui d'habitude ne me dérangent pas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je n'ai pas eu envie de manger, j'ai manqué d'appétit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. J'ai eu le sentiment que je ne pouvais pas sortir du cafard même avec l'aide de ma famille et de mes amis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. J'ai eu le sentiment d'être aussi bien que les autres.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. J'ai eu du mal à me concentrer sur ce que je faisais.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me suis senti(e) déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. J'ai eu l'impression que toute action me demandait un effort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. J'ai été confiant(e) en l'avenir.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. J'ai pensé que ma vie était un échec.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je me suis senti(e) craintif(ve).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Mon sommeil n'a pas été bon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. J'ai été heureux(se).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. J'ai parlé moins que d'habitude.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Je me suis senti(e) seul(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Les autres ont été hostiles envers moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. J'ai profité de la vie.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. J'ai eu des crises de larmes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Je me suis senti(e) triste.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. J'ai eu l'impression que les gens ne m'aimaient pas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. J'ai manqué d'entrain. (20)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page 16>

APPENDICES

[STAI-T] *Un certain nombre de phrases que l'on utilise pour se décrire sont données ci-dessous. Lisez chaque phrase, puis reportez le numéro correspondant le mieux à ce que vous ressentez généralement. Ne passez pas trop de temps sur l'une ou l'autre de ces propositions, et indiquez la réponse qui décrit le mieux vos sentiments habituels.*

	Non (1)	Plutôt non (2)	Plutôt oui (3)	Oui (4)
1. Je me sens de bonne humeur, aimable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je me sens nerveux (nerveuse) et agité(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Je me sens content(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Je voudrais être aussi heureux (heureuse) que les autres semblent l'être.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. J'ai un sentiment d'échec.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me sens reposé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. J'ai tout mon sang froid.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. J'ai l'impression que les difficultés s'accumulent à un tel point que je ne peux plus les surmonter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Je m'inquiète à propos de choses sans importance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je suis heureux (heureuse).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. J'ai des pensées qui me perturbent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Je manque de confiance en moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Je me sens sans inquiétude, en sécurité, en sûreté.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Je prends facilement des décisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Je me sens incompetent(e), pas à la hauteur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Je suis satisfait(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Des idées sans importance trottant dans ma tête me dérangent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Je prends les déceptions tellement à cœur que je les oublie difficilement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Je suis une personne posée, solide, stable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Je deviens tendu(e) et agité(e) quand je réfléchis à mes soucis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page 17>

[CAQ] *Les gens réagissent de différentes façons à certains types de pensées. Veuillez utiliser l'échelle ci-dessous pour exprimer jusqu'à quel point chacun des énoncés suivants correspond à votre façon de réagir à certaines pensées.*

	Pas du tout (1)	Un peu (2)	Assez (3)	Très (4)	Tout à fait (5)
1. Il y a des choses auxquelles je ne préfère pas penser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. J'évite certaines situations qui m'amènent à porter attention à des choses auxquelles je ne veux pas penser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Je remplace les images menaçantes que j'ai en tête par un discours intérieur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Je pense à des choses qui me concernent comme si cela arrivait à quelqu'un d'autre que moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. J'ai des pensées que j'essaie d'éviter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. J'essaie de ne pas penser aux aspects les plus dérangeants de certaines situations pour ne pas avoir trop peur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. J'évite parfois des objets qui peuvent déclencher des idées dérangeantes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Je me distrais pour éviter de penser à certains sujets troublants.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. J'évite des gens qui me font penser à des choses auxquelles je ne veux pas réfléchir.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je fais souvent des choses pour me distraire de mes pensées.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Je pense à des détails inutiles pour ne pas penser aux sujets importants qui m'inquiètent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Parfois, je me plonge dans une activité pour ne pas penser à certaines choses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Pour éviter de penser aux sujets qui me dérangent, je m'efforce de penser à autre chose.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Il y a des choses auxquelles j'essaie de ne pas penser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Je maintiens un discours intérieur pour éviter de voir des scénarios (une suite d'images) qui me font peur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Parfois, j'évite des endroits qui me font réfléchir à des choses auxquelles je ne préférerais pas penser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Je pense aux événements passés pour ne pas penser aux événements futurs insécurisants.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. J'évite de poser des gestes qui me rappellent des choses auxquelles je ne veux pas penser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Lorsque je vois des images dans ma tête qui sont trop dérangeantes, je les remplace par des pensées verbales (monologue interne).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Je m'inquiète de beaucoup de petites affaires pour ne pas penser aux choses plus importantes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Parfois, je me garde occupé(e) seulement pour empêcher les pensées de surgir dans mon esprit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. J'évite des situations avec d'autres personnes qui me font penser à des choses désagréables.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. J'essaie de décrire intérieurement des événements dérangeants plutôt que d'en former une image dans ma tête.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Je mets de côté les images associées à une situation menaçante en tentant plutôt de me la décrire intérieurement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Je pense à ce qui inquiète les autres plutôt que de penser à mes propres inquiétudes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page 17>

[Age] *Quel âge avez-vous ?*

[Sexe] *Vous êtes :*

- Une femme (0)
- Un homme (1)

[Profession] *Vous êtes :*

- Etudiant(e) (1)
- Cadre (2)
- Employé(e) (3)
- Ouvrier(e) (4)
- Artisan (5)
- En profession libérale (6)
- Demandeur d'emploi (7)
- Retraité (8)
- Autre : (9) _____

Appendix C1

CNIL and Ethical Committee of the Studies 1c and 1d (Chapter 3)

Timbre de la CNIL : 0880326, le 16/12/2015 à 10:20:00 (idem que l'Etude 1b)

Comité d'Ethique pour les Recherches Non Interventionnelles (CERNI) :



CERNI Comité d'Ethique pour les Recherches Non Interventionnelles

Objet : Amendement de l'avis sur le projet « Etude des liens entre ruminations, imagerie mentale et abstraction » présenté par Céline BAEYENS du Laboratoire Interuniversitaire de Psychologie (LIP EA4145) à Grenoble.

Ce projet a reçu un avis favorable attribué par le Comité d'Ethique pour les Recherches Non Interventionnelles le 12 mai 2015. Le responsable du projet a soumis une demande d'amendement, qui a été examinée par le bureau du CERNI le 6 septembre 2016.

Compte tenu des éléments fournis dans la demande d'amendement de Céline BAEYENS, le Comité d'Ethique pour les Recherches Non Interventionnelles émet un AVIS FAVORABLE.

Numéro de l'amendement : 2016-09-06-13

A Grenoble, le 6 septembre 2016

La Présidente du CERNI,

Carole Peyrin

Chargée de Recherche CNRS

Laboratoire de Psychologie et NeuroCognition (CNRS UMR5105) et Université de Grenoble

Appendix C2

Protocol of the Study 1c (Chapter 3)

En ligne

[Les explications générales apparaissent sur l'écran]

Enquête sur les pensées à propos d'événements

Cette étude s'adresse aux personnes de plus de 18 ans, ayant une bonne compréhension et une bonne expression en français.

Vous allez participer à une étude qui a pour objectif d'explorer la façon dont on pense aux événements. Pour cela, nous vous proposons de répondre à des questions sur la manière dont vous vous sentez généralement.

Votre participation à cette étude prendra environ 5 minutes. Si vous décidez de participer, il vous faudra remplir l'étude en une seule fois.

Votre participation est volontaire. Vous pouvez à tout moment et en toute liberté décider d'interrompre votre participation à cette étude, sans justification et sans conséquence ultérieure. Votre participation sera d'emblée interrompue dès la fermeture de la page de l'étude. Les données déjà enregistrées seront conservées de manière strictement anonyme et confidentielle. Aucun renseignement ne permet de lier vos données à votre identité, c'est pourquoi vous ne pouvez pas rectifier ou supprimer ces informations après votre participation. Les données sont stockées dans un endroit sécurisé auquel seuls les responsables du projet ont accès.

À notre connaissance, cette recherche n'implique aucun risque ou inconfort autre que ceux de la vie quotidienne.

Cette recherche sera diffusée dans des colloques et des articles de revue académique. Pour toutes les personnes qui le souhaiteraient, nous pouvons vous envoyer plus d'informations sur les objectifs de cette étude. Si vous souhaitez plus de renseignements, envoyez-nous un message avec le titre « Enquête sur les pensées à propos d'événements » à l'adresse suivante : Celine.Baeyens@univ-grenoble-alpes.fr

En participant à cette étude, vous certifiez que vous avez lu et compris les renseignements ci-dessus, que nous avons répondu à vos questions de façon satisfaisante et que nous vous avons avisé que vous étiez libre d'arrêter cette recherche en tout temps, sans préjudice.

- Poursuivre (1)*
- Abandonner (0)*
-

Logique de passage :

- Si « Poursuivre » est sélectionné, alors passer à « Répondez à chacune des questions... »
- Si « Abandonner » est sélectionné, alors passer à « Fin d'enquête »

<Saut de page>

Répondez à toutes les questions en choisissant la proposition qui correspond le mieux à votre réponse. Essayez de ne pas laisser une de vos réponses en influencer d'autres. Ne passez pas trop de temps à répondre, c'est votre première impression qui est importante. Il n'y a aucune bonne ou mauvaise réponse. Vous devez simplement exprimer vos propres sentiments.

<Saut de page>

APPENDICES

[RRS-10] *Les gens pensent et font différentes choses lorsqu'ils se sentent découragés, tristes ou déprimés. Veuillez lire chacun des énoncés ci-dessous et indiquer à quelle fréquence vous faites ce qui est mentionné lorsque vous vous sentez découragé, triste ou déprimé. Indiquez ce que vous faites habituellement et non ce que vous pensez que vous devriez faire.*

	Presque jamais (1)	Parfois (2)	Souvent (3)	Presque toujours (4)
1. Penser : « Qu'ai-je fait pour mériter cela ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Analyser des événements récents pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Penser : « Pourquoi est-ce que je réagis toujours de cette façon ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Partir seul et penser aux raisons pour lesquelles vous vous sentez comme cela.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Écrire ce à quoi vous pensez et l'analyser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Penser à une situation récente en souhaitant que ça se soit mieux passé.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Penser : « Pourquoi ai-je des problèmes que les autres n'ont pas ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Penser : « Pourquoi ne puis-je pas mieux gérer les choses ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Analyser votre personnalité pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Aller quelque part seul(e) pour penser à ce que vous ressentez.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page>

APPENDICES

[Mini-CERTS] *Lisez chacune des propositions présentées ci-dessous, puis sélectionnez la case qui décrit le mieux ce que vous vivez habituellement. Ne passez pas trop de temps à répondre, c'est votre première impression qui est importante.*

« *Quand des pensées à propos de moi, de mes sentiments ou de situations et d'évènements me viennent à l'esprit ...* »

	Presque jamais (1)	Parfois (2)	Souvent (3)	Presque toujours (4)
1. Mes pensées sont prises dans une ornière, revenant toujours aux mêmes thèmes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je peux comprendre et répondre aux changements de manière intuitive, sans devoir analyser tout en détails.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Je me compare aux autres personnes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Je pense de manière ouverte, libre et créative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Je me juge en fonction de mes valeurs et de mes croyances personnelles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me concentre sur la question de savoir pourquoi les choses se sont passées de cette manière-là.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Je me demande pourquoi je n'arrive pas à me mettre en action.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Mes pensées se développent dans des directions nouvelles et intéressantes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Je semble être immergé(e) dans l'action et en contact avec ce qu'il se passe autour de moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je pense que je ne suis bon(ne) à rien.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. J'aime me laisser aller à suivre le flux de mes pensées spontanées.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Je me sens sous pression d'empêcher que mes pires craintes se réalisent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Je me concentre sur le fait d'explorer et de jouer avec les idées, curieux(se) d'où elles peuvent me mener.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Mes pensées ont tendance à fuser à partir d'un événement spécifique vers des aspects plus larges et généraux de ma vie.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Je m'en fais de ce que les autres pourraient penser de moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. J'ai très rapidement des impressions et des intuitions de ce qui se passe et de comment réagir.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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[BIF] *Un comportement peut être identifié de différentes façons. Par exemple, une personne décrirait l'acte de dactylographier comme « écrire à la machine », tandis qu'une autre pourrait décrire ce comportement comme « appuyer sur des touches », ou encore « exprimer des pensées ». Dans ce questionnaire, nous nous intéressons à vos préférences personnelles au sujet de la manière dont un certain nombre de comportements pourraient être décrits. Dans les lignes qui suivent, vous trouverez des listes de différents comportements. Chaque comportement est suivi de deux choix possibles représentant deux manières différentes de le décrire. Voici un exemple :*

Être en classe :

a. Être assis sur une chaise (0)

b. Regarder un tableau (1)

Votre tâche consiste à choisir l'identification, a ou b, qui, selon vous, décrit le mieux le comportement en question. Cliquez sur la proposition correspondante à l'énoncé que vous choisissez. Merci d'indiquer votre choix pour chaque comportement.

1. Lire <input type="checkbox"/> a. Suivre des lignes de caractères <input type="checkbox"/> b. Acquérir des connaissances	2. Se laver les mains <input type="checkbox"/> a. Respecter les règles d'hygiène <input type="checkbox"/> b. Se savonner les mains
3. Cueillir une pomme <input type="checkbox"/> a. Avoir quelque chose à manger <input type="checkbox"/> b. Enlever une pomme d'une branche	4. Allumer un four <input type="checkbox"/> a. Régler le thermostat <input type="checkbox"/> b. Préparer un repas
5. Mettre un poster <input type="checkbox"/> a. Décorer une pièce <input type="checkbox"/> b. Utiliser de l'adhésif ou des punaises	6. Nettoyer la maison <input type="checkbox"/> a. Faire preuve de propreté <input type="checkbox"/> b. Passer l'aspirateur
7. Aménager un bureau <input type="checkbox"/> a. Disposer des meubles <input type="checkbox"/> b. Organiser un espace de travail	8. Payer la facture de téléphone <input type="checkbox"/> a. Rester en contact avec le monde extérieur <input type="checkbox"/> b. Dépenser une certaine somme d'argent
9. S'occuper des plantes d'appartement <input type="checkbox"/> a. Arroser des plantes <input type="checkbox"/> b. Rendre une pièce agréable	10. Fermer une porte <input type="checkbox"/> a. Mettre une clé dans la serrure <input type="checkbox"/> b. Sécuriser la maison
11. Voter <input type="checkbox"/> a. Influencer les élections <input type="checkbox"/> b. Remplir un bulletin de vote	12. Grimper à un arbre <input type="checkbox"/> a. Avoir une belle vue <input type="checkbox"/> b. S'accrocher aux branches
13. Se brosser les dents <input type="checkbox"/> a. Prévenir les caries <input type="checkbox"/> b. Agiter une brosse dans sa bouche	14. Saluer quelqu'un <input type="checkbox"/> a. Dire le mot « bonjour » <input type="checkbox"/> b. Manifester de la sympathie
15. Manger <input type="checkbox"/> a. Se nourrir <input type="checkbox"/> b. Mâcher et avaler	16. Pratiquer la natation <input type="checkbox"/> a. Faire des mouvements dans l'eau <input type="checkbox"/> b. Se maintenir en forme
17. Parler à un enfant <input type="checkbox"/> a. Apprendre quelque chose à un enfant <input type="checkbox"/> b. Utiliser des mots simples	18. Rouler à vélo <input type="checkbox"/> a. Pédaler <input type="checkbox"/> b. Se rendre quelque part
19. Consulter sa montre <input type="checkbox"/> a. Lever le poignet <input type="checkbox"/> b. Arriver à l'heure	20. Ouvrir une fenêtre <input type="checkbox"/> a. Aérer la pièce <input type="checkbox"/> b. Tirer le battant vers soi
21. Aller au cinéma <input type="checkbox"/> a. Regarder un film <input type="checkbox"/> b. Passer un bon moment entre amis	22. Parler <input type="checkbox"/> a. Produire des sons <input type="checkbox"/> b. Exprimer des idées
23. Trier les déchets <input type="checkbox"/> a. Contribuer au respect de l'environnement <input type="checkbox"/> b. Jeter les détritres dans les poubelles adéquates	

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[ATS-Généralisation trait] *Indiquez votre degré d'accord ou de désaccord avec chaque proposition en choisissant une des réponses suivantes :*

	Totalement d'accord (5)	Plutôt d'accord (4)	Ni d'accord, ni en désaccord (3)	Plutôt en désaccord (2)	Totalement en désaccord (1)
1. Même si une seule chose se passe mal, je commence à me demander si je suis capable de faire quoi que ce soit de bien.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je ne laisse presque jamais mon mécontentement au sujet d'un mauvais moment influencer mes sentiments concernant les autres domaines de ma vie.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Si je constate un défaut chez moi, cela me fait penser à mes autres défauts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Un seul échec et je ne me focalise que sur mes défauts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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[Age] *Quel âge avez-vous ?*

[Sexe] *Vous êtes :*

- Une femme (0)*
- Un homme (1)*

[Profession] *Vous êtes :*

- Etudiant(e) (1)*
- Cadre (2)*
- Employé(e) (3)*
- Ouvrier(e) (4)*
- Artisan (5)*
- En profession libérale (6)*
- Demandeur d'emploi (7)*
- Retraité (8)*
- Autre : (9) _____*

Appendix D

Protocol of the Study 1d (Chapter 3)

En ligne

[Les explications générales apparaissent sur l'écran]

Enquête sur les images mentales dans les souvenirs

Cette étude s'adresse aux personnes de plus de 18 ans, ayant une bonne compréhension et une bonne expression en français.

Vous allez participer à une étude qui a pour objectif d'explorer les images mentales que nous avons lorsque nous nous souvenons d'événements passés. Pour cela, nous vous proposons de répondre à une étude en 2 parties :

- Dans une 1ère partie, nous vous demanderons d'identifier un souvenir négatif passé et de répondre à différentes questions concernant ce souvenir et la façon dont vous le percevez actuellement.*
- Dans une 2nde partie, nous vous demanderons de répondre à des questions plus générales sur la manière dont vous vous sentez habituellement.*

Votre participation à cette étude prendra environ 10 minutes. Si vous décidez de participer, il vous faudra remplir l'étude en une seule fois.

Votre participation est volontaire. Vous pouvez à tout moment et en toute liberté décider d'interrompre votre participation à cette étude, sans justification et sans conséquence ultérieure. Votre participation sera d'emblée interrompue dès la fermeture de la page de l'étude. Les données déjà enregistrées seront conservées de manière anonyme et confidentielle. Aucun renseignement ne permet de lier vos données à votre identité, c'est pourquoi vous ne pouvez pas rectifier ou supprimer ces informations après votre participation. Les données sont stockées dans un endroit sécurisé auquel seuls les responsables du projet ont accès.

À notre connaissance, cette recherche n'implique aucun risque ou inconfort autre que ceux de la vie quotidienne.

Cette recherche sera diffusée dans des colloques et des articles de revue académique. Pour toutes les personnes qui le souhaiteraient, nous pouvons vous envoyer plus d'informations sur les objectifs de cette étude. Si vous souhaitez plus de renseignements, envoyez-nous un message avec le titre « Enquête sur les images mentales dans les souvenirs » à l'adresse suivante : Celine.Baeyens@univ-grenoble-alpes.fr

En participant à cette étude, vous certifiez que vous avez lu et compris les renseignements ci-dessus, que nous avons répondu à vos questions de façon satisfaisante et que nous vous avons avisé que vous étiez libre d'arrêter cette recherche en tout temps, sans préjudice.

- Poursuivre (1)*
- Abandonner (0)*

Logique de passage :

- Si « Poursuivre » est sélectionné, alors passer à « Partie 1... »
- Si « Abandonner » est sélectionné, alors passer à « Fin d'enquête »

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Partie 1 :

Nous allons vous demander de vous rappeler une situation dans laquelle vous avez échoué à quelque chose d'important pour vous. Cet échec peut être lié à des domaines divers, comme par exemple le domaine scolaire/professionnel, social, sentimental, les activités de loisirs, de compétition ou tout autre domaine important pour vous.

Cette situation doit avoir eu lieu il y a moins de 5 ans et cela doit être une situation unique, c'est-à-dire qui a duré moins d'une journée, qui s'est produite à un moment et dans un lieu particulier.

[Description] *Prenez quelques instants pour vous rappeler une situation d'échec et décrivez-la en 1 ou 2 mots :*

<Saut de page>

[Domaine] *Dans quel domaine cet échec a-t-il eu lieu ?*

- Scolaire/professionnel (1)*
- Social (2)*
- Sentimental (3)*
- Activités de loisirs ou de compétition (4)*
- Autre domaine (5) _____*

[Importance] *Dans quelle mesure cette situation était importante pour vous ?*

Note : Si vous souhaitez indiquer "0", veuillez déplacer le curseur puis le remettre sur "0".

0 ----- 100
Pas du tout *Extrêmement*

[Date] *Veillez préciser le temps qui s'est approximativement écoulé depuis la situation en choisissant une des unités de temps suivantes :*

Exemple :

- pour une situation ayant eu lieu il y a une semaine, cliquez sur "Jours" et indiquez "7" dans la case

-- pour une situation vécue il y a trois mois, cliquez sur "Mois" et indiquez "3" dans la case

- Jours : (1) _____*
- Mois : (2) _____*
- Années : (3) _____*

<Saut de page>

Note : Si vous souhaitez indiquer "0", veuillez déplacer le curseur puis le remettre sur "0".

[Rumination 1] *Au cours des deux dernières semaines, à quelle fréquence avez-vous pensé à cette situation ?*

0 ----- 100
Jamais *Tout le temps*

"Au cours des deux dernières semaines, lorsque vous pensiez à cette situation, dans quelle mesure vos pensées..."

[Rumination 2] *Etaient répétitives ?*

0 ----- 100
Pas du tout *Totalement*

[Rumination 3] *Etaient associées à de la détresse ?*

0 ----- 100
Pas du tout *Totalement*

[Rumination 4] *Vous ont paru incontrôlables ?*

0 ----- 100
Pas du tout *Totalement*

[Rumination 5] *Ont interféré avec vos activités quotidiennes ?*

0 ----- 100
Pas du tout *Totalement*

[Rumination concrète état] *Etaient concrètes (centrées sur la manière dont la situation s'est déroulée, étape après étape) ?*

0 ----- 100
Pas du tout *Totalement*

[Rumination abstraite état] *Etaient abstraites (centrées sur l'analyse des causes, des conséquences et de la signification de cette situation) ?*

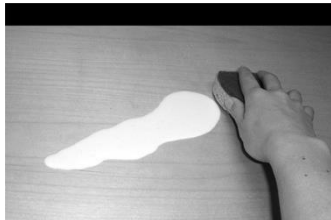
0 ----- 100
Pas du tout *Totalement*

<Saut de page>

Nous allons maintenant vous poser des questions sur les images mentales que vous aviez quand vous vous rappelez la situation d'échec.

Un souvenir est souvent accompagné d'images visuelles. Ces images peuvent être perçues selon une perspective d'acteur ou d'observateur.

Dans une perspective d'acteur, nous voyons la situation comme nous l'avons initialement vécue. En d'autres termes, nous voyons ce qui nous entoure au travers de nos propres yeux :



Cette perspective est différente de la perspective d'observateur, dans laquelle nous voyons la situation de « l'extérieur ». En d'autres termes, dans notre souvenir, nous nous voyons ainsi que ce qui nous entoure :



Note : Si vous souhaitez indiquer "0", veuillez déplacer le curseur puis le remettre sur "0".

"Au cours des deux dernières semaines, lorsque vous pensiez à cette situation, dans quelle mesure aviez-vous..."

[Perspective Observateur état] *Une perspective d'observateur dans vos images mentales ?*

0 ----- 100
Pas du tout *Totalement*

[Perspective Acteur état] *Une perspective d'acteur dans vos images mentales ?*

0 ----- 100

Pas du tout

Totalement

[Vivacité] *Évaluez la vivacité de votre image :*

0 ----- 100

Image vague et imprécise

Image parfaitement claire et vive

<Saut de page>

[ATS-Généralisation état] *Indiquez votre degré d'accord ou de désaccord avec chaque proposition en choisissant une des réponses suivantes :*

	Totalement en désaccord (1)	Plutôt en désaccord (2)	Ni d'accord, ni en désaccord (3)	Plutôt d'accord (4)	Totalement d'accord (5)
1. Quand je repense à cette situation, je me demande si je suis capable de faire quoi que soit de bien.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Même si cette situation était un échec, c'est une seule occasion où je n'ai pas atteint un de mes objectifs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Quand je repense à cette situation, j'ai l'impression d'être un(e) raté(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Cette situation unique influence ce que je pense globalement de moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page>

Partie 2 :

Nous ne vous poserons plus de questions sur la situation que vous avez identifiée.

Nous allons maintenant vous demander de répondre à différents questionnaires sur ce que vous faites habituellement dans différentes situations de votre vie quotidienne.

Répondez à chacune des questions en choisissant la proposition qui correspond le mieux à votre réponse. Essayez de ne pas laisser une de vos réponses en influencer d'autres. Ne passez pas trop de temps à répondre, c'est votre première impression qui est importante. Il n'y a aucune bonne ou mauvaise réponse. Vous devez simplement exprimer vos propres sentiments.

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[Mini-CERTS] *Lisez chacune des propositions présentées ci-dessous, puis sélectionnez la case qui décrit le mieux ce que vous vivez habituellement. Ne passez pas trop de temps à répondre, c'est votre première impression qui est importante.*

« *Quand des pensées à propos de moi, de mes sentiments ou de situations et d'évènements me viennent à l'esprit ...* »

	Presque jamais (1)	Parfois (2)	Souvent (3)	Presque toujours (4)
1. Mes pensées sont prises dans une ornière, revenant toujours aux mêmes thèmes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je peux comprendre et répondre aux changements de manière intuitive, sans devoir analyser tout en détails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Je me compare aux autres personnes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Je pense de manière ouverte, libre et créative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Je me juge en fonction de mes valeurs et de mes croyances personnelles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me concentre sur la question de savoir pourquoi les choses se sont passées de cette manière là	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Je me demande pourquoi je n'arrive pas à me mettre en action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Mes pensées se développent dans des directions nouvelles et intéressantes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Je semble être immergé(e) dans l'action et en contact avec ce qu'il se passe autour de moi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je pense que je ne suis bon(ne) à rien	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. J'aime me laisser aller à suivre le flux de mes pensées spontanées	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Je me sens sous pression d'empêcher que mes pires craintes se réalisent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Je me concentre sur le fait d'explorer et de jouer avec les idées, curieux(se) d'où elles peuvent me mener	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Mes pensées ont tendance à fuser à partir d'un événement spécifique vers des aspects plus larges et généraux de ma vie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Je m'en fais de ce que les autres pourraient penser de moi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. J'ai très rapidement des impressions et des intuitions de ce qui se passe et de comment réagir	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Les souvenirs sont souvent accompagnés d'images visuelles. Ces images peuvent être perçues depuis une perspective d'acteur ou d'observateur.

Note : Si vous souhaitez indiquer "0", veuillez déplacer le curseur puis le remettre sur "0".

"En général, lorsque vous pensez à des événements passés, dans quelle mesure avez-vous..."

[Perspective Acteur trait] *Une perspective d'acteur dans vos images mentales ?*

0 ----- 100

Pas du tout

Totalement

[Perspective Observateur trait] *Une perspective d'observateur dans vos images mentales ?*

0 ----- 100

Pas du tout

Totalement

<Saut de page>

[ATS-Généralisation trait] *Indiquez votre degré d'accord ou de désaccord avec chaque proposition en choisissant une des réponses suivantes :*

	Totalement en désaccord (1)	Plutôt en désaccord (2)	Ni d'accord, ni en désaccord (3)	Plutôt d'accord (4)	Totalement d'accord (5)
1. Même si une seule chose se passe mal, je commence à me demander si je suis capable de faire quoi que ce soit de bien.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je ne laisse presque jamais mon mécontentement au sujet d'un mauvais moment influencer mes sentiments concernant les autres domaines de ma vie.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Si je constate un défaut chez moi, cela me fait penser à mes autres défauts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Un seul échec et je ne me focalise que sur mes défauts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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APPENDICES

[HADS] *Choisissez la réponse qui exprime le mieux ce que vous avez éprouvé au cours de la semaine qui vient de s'écouler :*

1. Je me sens tendu(e) ou énervé(e).	<input type="checkbox"/> La plupart du temps (3)	<input type="checkbox"/> Souvent (2)	<input type="checkbox"/> De temps en temps (1)	<input type="checkbox"/> Jamais (0)
2. Je prends plaisir aux mêmes choses qu'autrefois.	<input type="checkbox"/> Oui, tout autant (0)	<input type="checkbox"/> Pas autant (1)	<input type="checkbox"/> Un peu seulement (2)	<input type="checkbox"/> Presque plus (3)
3. J'ai une sensation de peur comme si quelque chose d'horrible allait m'arriver.	<input type="checkbox"/> Oui, très nettement (3)	<input type="checkbox"/> Oui, mais ce n'est pas trop grave (2)	<input type="checkbox"/> Un peu, mais cela ne m'inquiète pas (1)	<input type="checkbox"/> Pas du tout (0)
4. Je ris facilement et vois le bon côté des choses.	<input type="checkbox"/> Autant que par le passé (0)	<input type="checkbox"/> Plus autant qu'avant (1)	<input type="checkbox"/> Vraiment moins qu'avant (2)	<input type="checkbox"/> Plus du tout (3)
5. Je me fais du souci.	<input type="checkbox"/> Très souvent (3)	<input type="checkbox"/> Assez souvent (2)	<input type="checkbox"/> Occasionnellement (1)	<input type="checkbox"/> Très occasionnellement (0)
6. Je suis de bonne humeur.	<input type="checkbox"/> Jamais (3)	<input type="checkbox"/> Rarement (2)	<input type="checkbox"/> Assez souvent (1)	<input type="checkbox"/> La plupart du temps (0)
7. Je peux rester tranquillement assis(e) à ne rien faire et me sentir décontracté(e).	<input type="checkbox"/> Oui, quoi qu'il arrive (0)	<input type="checkbox"/> Oui, en général (1)	<input type="checkbox"/> Rarement (2)	<input type="checkbox"/> Jamais (3)
8. J'ai l'impression de fonctionner au ralenti.	<input type="checkbox"/> Presque toujours (3)	<input type="checkbox"/> Très souvent (2)	<input type="checkbox"/> Parfois (1)	<input type="checkbox"/> Jamais (0)
9. J'éprouve des sensations de peur et j'ai l'estomac noué.	<input type="checkbox"/> Jamais (0)	<input type="checkbox"/> Parfois (1)	<input type="checkbox"/> Assez souvent (2)	<input type="checkbox"/> Très souvent (3)
10. Je ne m'intéresse plus à mon apparence.	<input type="checkbox"/> Plus du tout (3)	<input type="checkbox"/> Je n'y accorde pas autant d'attention que je devrais (2)	<input type="checkbox"/> Il se peut que je n'y fasse plus autant attention (1)	<input type="checkbox"/> J'y prête autant d'attention que par le passé (0)
11. J'ai la bougeotte et n'arrive pas à tenir en place.	<input type="checkbox"/> Oui, c'est tout à fait le cas (3)	<input type="checkbox"/> Un peu (2)	<input type="checkbox"/> Pas tellement (1)	<input type="checkbox"/> Pas du tout (0)
12. Je me réjouis d'avance à l'idée de faire certaines choses.	<input type="checkbox"/> Autant qu'avant (0)	<input type="checkbox"/> Un peu moins qu'avant (1)	<input type="checkbox"/> Bien moins qu'avant (2)	<input type="checkbox"/> Presque jamais (3)
13. J'éprouve des sensations soudaines de panique.	<input type="checkbox"/> Vraiment très souvent (3)	<input type="checkbox"/> Assez souvent (2)	<input type="checkbox"/> Pas très souvent (1)	<input type="checkbox"/> Jamais (0)
14. Je peux prendre plaisir à un bon livre ou à une bonne émission de radio ou de télévision.	<input type="checkbox"/> Souvent (0)	<input type="checkbox"/> Parfois (1)	<input type="checkbox"/> Rarement (2)	<input type="checkbox"/> Très rarement (3)

<Saut de page>

[Age] *Quel âge avez-vous ?*

[Sexe] *Vous êtes :*

- Une femme (0)*
- Un homme (1)*

[Profession] *Vous êtes :*

- Etudiant(e) (1)*
- Cadre (2)*
- Employé(e) (3)*
- Ouvrier(e) (4)*
- Artisan (5)*
- En profession libérale (6)*
- Demandeur d'emploi (7)*
- Retraité (8)*
- Autre : (9) _____*

Appendix E1

CNIL and Ethical Committee of the Study 2a (Chapter 4)

Timbre de la CNIL : 0875484, le 26/10/2015 à 08:30:00

Comité d’Ethique pour les Recherches Non Interventionnelles (CERNI):



CERNI **Comité d’Ethique pour les** **Recherches Non Interventionnelles**

Objet : Avis sur le projet « Sondage des pensées » présenté par Céline BAEYENS du Laboratoire Inter-universitaire de Psychologie (LIP EA4145) à Grenoble.

Compte tenu des éléments fournis dans la demande par Céline BAEYENS, le Comité d’Ethique pour les Recherches Non Interventionnelles émet un AVIS FAVORABLE.

Il relève de la responsabilité des chercheurs de se conformer à leurs obligations légales notamment en ce qui concerne les aspects informatique et liberté, ou encore l’homologation du lieu de recherche.

Numéro de l’avis : 2015-09-15-73

A Grenoble, le 15 septembre 2015

La Présidente du CERNI,
Carole Peyrin
Chargée de Recherche CNRS
Laboratoire de Psychologie et NeuroCognition (CNRS UMR5105) et Université de Grenoble

Appendix E2

Protocol of the Study 2a (Chapter 4)

Partie 1 – En ligne

[Les explications générales apparaissent sur l'écran]

Cette étude s'adresse aux personnes de plus de 18 ans, ayant une bonne compréhension et une bonne expression en français.

Vous allez participer à une étude qui a pour objectif d'explorer nos pensées et nos images mentales. Pour cela, nous vous proposons de répondre à une étude en 2 parties, constituée de différentes tâches et questionnaires.

Dans une première partie en ligne, nous vous demanderons de répondre à des questions plus générales sur la manière dont vous vous sentez généralement.

Dans une deuxième partie en laboratoire, nous allons vous demander de rappeler un événement négatif et de répondre à différentes questions concernant cet événement et la façon dont vous le percevez actuellement.

Avant de répondre à la première partie de l'étude, nous allons dès maintenant prendre rendez-vous pour la seconde partie en laboratoire. Pour cela, cliquez sur le lien doodle suivant pour vous inscrire : <http://doodle.com/poll/57vend3fvcx24nz>

Maintenant, notez dans votre agenda la date à laquelle vous vous êtes inscrits à la seconde partie en laboratoire.

Votre participation à cette première partie prendra environ 15 minutes. Si vous décidez de participer, nous vous demandons de remplir toute cette partie en une seule fois (vous ne pouvez pas suspendre cette partie pour la reprendre plus tard). C'est pourquoi nous vous recommandons dès à présent de vous mettre à l'aise, dans un endroit calme.

Votre participation est volontaire. Vous pouvez à tout moment et en toute liberté décider d'interrompre votre participation à cette étude, sans justification et sans conséquence ultérieure. Votre participation sera d'emblée interrompue dès la fermeture de la page de l'étude. Les données déjà enregistrées seront conservées de manière anonyme et confidentielle. Les données pourront être utilisées dans le cadre d'études multicentriques de validation d'instruments, ainsi que pour déterminer les caractéristiques des personnes ayant ou non continué de participer à l'étude.

Les données récoltées sont anonymes et confidentielles. Si vous le souhaitez, vous pouvez rectifier ou supprimer ces informations après votre participation, grâce au code anonyme que vous allez générer au début de cette étude. Les données sont stockées dans un endroit sécurisé auquel seuls les responsables du projet ont accès.

A court terme, votre participation à cette recherche permettra d'obtenir une meilleure compréhension des mécanismes fondamentaux liés au rappel de souvenirs personnels. A moyen et à long terme, cette compréhension pourra éclairer la manière dont ces mécanismes opèrent chez des personnes sujettes à ressentir de l'anxiété ou de la dépression à des niveaux intenses.

À notre connaissance, cette recherche n'implique aucun risque ou inconfort autre que ceux de la vie quotidienne.

Cette recherche sera diffusée dans des colloques et des articles de revue académique. Pour toutes les personnes qui le souhaiteraient, nous pouvons vous envoyer plus d'informations sur les objectifs de cette étude. Si vous souhaitez plus de renseignements, envoyez-nous un message avec le titre « Etude sur les pensées et les images mentales » à l'adresse suivante : Celine.Baeyens@upmf-grenoble.fr

En participant à cette étude, vous certifiez que vous avez lu et compris les renseignements ci-dessus, que nous avons répondu à vos questions de façon satisfaisante et que nous vous avons avisé que vous étiez libre d'arrêter cette recherche en tout temps, sans préjudice.

- Poursuivre*
- Abandonner*

Logique de passage :

- Si « Poursuivre » est sélectionné, alors passer à « Nous allons vous demander de générer... »
- Si « Abandonner » est sélectionné, alors passer à « Fin d'enquête »

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Nous allons vous demander de générer un code anonyme, qui nous servira à associer vos réponses à la première partie de l'étude (en ligne), à celles de la deuxième partie de l'étude (en laboratoire).

Celui-ci sera composé de la première lettre du prénom de votre père, suivie de la première lettre du prénom de votre mère, suivie de votre âge, suivie de la première lettre de votre prénom.

Ex :

Père : Jean

Mère : Aurélie

Âge : 20 ans

Moi : Alban

CODE : JA20A

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Nous allons vous demander de répondre à différents questionnaires sur ce que vous faites habituellement dans différentes situations de votre vie quotidienne.

Répondez à chacune des questions en choisissant la proposition qui correspond le mieux à votre réponse. Répondez à toutes les questions. Soyez aussi honnête que possible dans toutes vos réponses et essayez de ne pas laisser une de vos réponses en influencer d'autres. Ne passez pas trop de temps à répondre, c'est votre première impression qui est importante. Il n'y a aucune bonne ou mauvaise réponse. Vous devez simplement exprimer vos propres sentiments.

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APPENDICES

[RSS-10] *Les gens pensent et font différentes choses lorsqu'ils se sentent découragés, tristes ou déprimés. Veuillez lire chacun des énoncés ci-dessous et indiquer à quelle fréquence vous faites ce qui est mentionné lorsque vous vous sentez découragé, triste ou déprimé. Indiquez ce que vous faites habituellement et non ce que vous pensez que vous devriez faire.*

	Presque Jamais (1)	Parfois (2)	Souvent (3)	Presque Toujours (4)
1. Penser: « Qu'ai-je fait pour mériter cela? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Analyser des événements récents pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Penser «Pourquoi est-ce que je réagis toujours de cette façon ?».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Partir seul et penser aux raisons pour lesquelles vous vous sentez comme cela.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Écrire ce à quoi vous pensez et l'analyser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Penser à une situation récente en souhaitant que ça se soit mieux passé.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Penser : «Pourquoi ai-je des problèmes que les autres n'ont pas ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Penser « Pourquoi ne puis-je pas mieux gérer les choses ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Analyser votre personnalité pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Aller quelque part seul(e) pour penser à ce que vous ressentez.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page>

APPENDICES

[Mini-CERTS] *Lisez chacune des propositions présentées ci-dessous, puis cochez la case qui décrit le mieux ce que vous vivez habituellement. Ne passez pas trop de temps à répondre, c'est votre première impression qui est importante.*

« *Quand des pensées à propos de moi, de mes sentiments ou de situations et d'évènements me viennent à l'esprit ...* »

	Presque jamais (1)	Parfois (2)	Souvent (3)	Presque toujours (4)
1. Mes pensées sont prises dans une ornière, revenant toujours aux mêmes thèmes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je peux comprendre et répondre aux changements de manière intuitive, sans devoir analyser tout en détails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Je me compare aux autres personnes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Je pense de manière ouverte, libre et créative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Je me juge en fonction de mes valeurs et de mes croyances personnelles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me concentre sur la question de savoir pourquoi les choses se sont passées de cette manière là	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Je me demande pourquoi je n'arrive pas à me mettre en action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Mes pensées se développent dans des directions nouvelles et intéressantes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Je semble être immergé(e) dans l'action et en contact avec ce qu'il se passe autour de moi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je pense que je ne suis bon(ne) à rien	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. J'aime me laisser aller à suivre le flux de mes pensées spontanées	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Je me sens sous pression d'empêcher que mes pires craintes se réalisent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Je me concentre sur le fait d'explorer et de jouer avec les idées, curieux (se) d'où elles peuvent me mener	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Mes pensées ont tendances à fuser à partir d'un événement spécifique vers des aspects plus larges et généraux de ma vie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Je m'en fais de ce que les autres pourraient penser de moi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. J'ai très rapidement des impressions et des intuitions de ce qui se passe et de comment réagir	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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[CES-D] *Les impressions suivantes sont ressenties par la plupart des gens. Indiquez pour chaque sentiment ou comportement présentés de cette liste combien de fois vous les avez éprouvés durant la semaine qui vient de se passer.*

Cochez la case qui vous correspond selon l'échelle de notation suivante :

Jamais ou très rarement = Moins d'1 jour

Occasionnellement = 1 à 2 jours

Assez souvent = 3 à 4 jours

Fréquemment ou tout le temps = 5 à 7 jours

	Jamais ou très rarement (0)	Occasionnellement (1)	Assez souvent (2)	Fréquemment ou tout le temps (3)
1. J'ai été contrarié(e) par des choses qui d'habitude ne me dérangent pas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je n'ai pas eu envie de manger, j'ai manqué d'appétit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. J'ai eu le sentiment que je ne pouvais pas sortir du cafard même avec l'aide de ma famille et de mes amis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. J'ai eu le sentiment d'être aussi bien que les autres.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. J'ai eu du mal à me concentrer sur ce que je faisais.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me suis senti(e) déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. J'ai eu l'impression que toute action me demandait un effort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. J'ai été confiant(e) en l'avenir.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. J'ai pensé que ma vie était un échec.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je me suis senti(e) craintif(ve).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Mon sommeil n'a pas été bon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. J'ai été heureux(se).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. J'ai parlé moins que d'habitude.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Je me suis senti(e) seul(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Les autres ont été hostiles envers moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. J'ai profité de la vie.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. J'ai eu des crises de larmes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Je me suis senti(e) triste.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. J'ai eu l'impression que les gens ne m'aimaient pas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. J'ai manqué d'entrain. (20)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page>

APPENDICES

[STAI-T] *Un certain nombre de phrases que l'on utilise pour se décrire sont données ci-dessous. Lisez chaque phrase, puis reportez le numéro correspondant le mieux à ce que vous ressentez généralement. Ne passez pas trop de temps sur l'une ou l'autre de ces propositions, et indiquez la réponse qui décrit le mieux vos sentiments habituels.*

	Non (1)	Plutôt non (2)	Plutôt oui (3)	Oui (4)
1. Je me sens de bonne humeur, aimable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je me sens nerveux (nerveuse) et agité(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Je me sens content(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Je voudrais être aussi heureux (heureuse) que les autres semblent l'être.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. J'ai un sentiment d'échec.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me sens reposé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. J'ai tout mon sang froid.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. J'ai l'impression que les difficultés s'accumulent à un tel point que je ne peux plus les surmonter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Je m'inquiète à propos de choses sans importance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je suis heureux (heureuse).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. J'ai des pensées qui me perturbent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Je manque de confiance en moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Je me sens sans inquiétude, en sécurité, en sûreté.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Je prends facilement des décisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Je me sens incompetent(e), pas à la hauteur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Je suis satisfait(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Des idées sans importance trottant dans ma tête me dérangent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Je prends les déceptions tellement à cœur que je les oublie difficilement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Je suis une personne posée, solide, stable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Je deviens tendu(e) et agité(e) quand je réfléchis à mes soucis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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[Age] *Quel âge avez-vous ?*

[Sexe] *Vous êtes :*

Une femme (0)

Un homme (1)

[Statut professionnel] *Vous êtes :*

Etudiant(e) (1)

Cadre (2)

Employé(e) (3)

Ouvrier(e) (4)

Artisan (5)

En profession libérale (6)

Demandeur d'emploi (7)

Retraité (8)

Autre : _____ (9)

Partie 2– En laboratoire

BLOC COMMUN AUX DEUX GROUPES

Cette étude s'adresse aux personnes de plus de 18 ans, ayant une bonne compréhension et une bonne expression du français.

Vous allez participer à une étude qui a pour objectif d'explorer les pensées et les images mentales que nous avons lorsque nous nous souvenons d'événements passés.

Pour cela, vous avez déjà complété une première partie en ligne, constituée de différents questionnaires. Dans cette seconde partie en laboratoire, nous allons vous demander de vous rappeler un événement négatif et de répondre à différentes questions concernant cet événement et la façon dont vous le percevez actuellement.

Votre participation à cette deuxième partie prendra environ 30 minutes. Votre participation est volontaire. Vous pouvez à tout moment et en toute liberté décider d'interrompre votre participation à cette étude, sans justification et sans conséquence ultérieure. Votre participation sera d'emblée interrompue dès information à l'expérimentateur.

Les données récoltées sont anonymes et confidentielles. Si vous le souhaitez, vous pouvez rectifier ou supprimer ces informations après votre participation, grâce au code anonyme que vous allez générer au début de cette étude. Les données sont stockées dans un endroit sécurisé auquel seuls les responsables du projet ont accès.

A court terme, votre participation à cette recherche permettra d'obtenir une meilleure compréhension des mécanismes fondamentaux liés au rappel de souvenirs personnels. A moyen et à long terme, cette compréhension pourra éclairer la manière dont ces mécanismes opèrent chez des personnes sujettes à ressentir de l'anxiété ou de la dépression à des niveaux intenses.

À notre connaissance, cette recherche n'implique aucun risque ou inconfort autre que ceux de la vie quotidienne.

Cette recherche sera diffusée dans des colloques et des articles de revue académique. Pour toutes les personnes qui le souhaiteraient, nous pouvons vous envoyer plus d'informations sur les objectifs de cette étude. Si vous souhaitez plus de renseignements, envoyez-nous un message avec le titre « Etude sondage des pensées » à l'adresse suivante : Celine.Baeyens@upmf-grenoble.fr

En participant à cette étude, vous certifiez que vous avez lu et compris les renseignements ci-dessus, que nous avons répondu à vos questions de façon satisfaisante et que nous vous avons avisé que vous étiez libre d'arrêter cette recherche en tout temps, sans préjudice.

- Poursuivre
- Abandonner

Logique de passage :

- Si « Poursuivre » est sélectionné, alors passer à « Nous allons vous demander de rappeler.... »
- Si « Abandonner » est sélectionné, alors passer à « Fin d'enquête »

[Les participants sont ensuite invités à démarrer l'expérimentation sur l'ordinateur]

Nous allons vous demander de rappeler votre code anonyme, afin que nous puissions associer vos réponses à la première partie de l'étude (en ligne), à celles de la deuxième partie de l'étude (ici, en laboratoire).

Celui-ci était composé de la première lettre du prénom de votre père, suivie de la première lettre du prénom de votre mère, suivie de votre âge, suivie de la première lettre de votre prénom.

Ex :

Père : Jean

Mère : Aurélie

Âge : 20 ans

Moi : Alban
CODE : JA20A

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[PANAS] *Voici une liste d'adjectifs qui décrivent des sentiments ou des émotions. Lisez chacun d'entre eux. Pour chaque adjectif, indiquez à quel point il décrit comment vous vous sentez à cet instant.*

	Très peu ou pas du tout (1)	Peu (2)	Modérément (3)	Beaucoup (4)	Enormément (5)
Angoissé(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fâché(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coupable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effrayé(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hostile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irrité(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Honteux(se)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nerveux(se)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Agité(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Craintif(ve)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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[Explications de la nature des pensées]

Lorsque l'on pense à une situation, on peut le faire de différentes manières : on peut penser à la situation de manière verbale, ou alors de manière imagée.

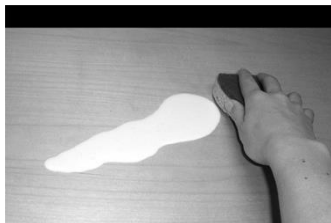
Les explications qui vont suivre vont vous permettre d'apprendre à mieux différencier ces deux types de pensée, afin de répondre à la suite de cette étude. Prenez bien le temps de lire ces informations et de les comprendre.

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Penser de manière verbale : C'est penser avec des mots et des phrases dans la tête.

Penser de manière imagée : C'est penser avec des images dans la tête. Ces images peuvent prendre toutes les modalités sensorielles (vue, ouïe, odorat, goût, toucher). Il existe deux catégories de pensées imagées.

Par exemple, pour la situation "Essuyer une tache avec une éponge", nous pourrions avoir une image depuis deux perspectives, illustrées ci-dessous :



Perspective d'acteur



Perspective d'observateur

- Depuis une perspective d'acteur, nous voyons la situation comme si nous étions l'acteur ici et maintenant. En d'autres termes, nous voyons ce qui nous entoure au travers de nos propres yeux. Par exemple, prenons la situation d'agrafer un paquet de feuilles. L'image que nous pourrions avoir depuis une perspective d'acteur serait :

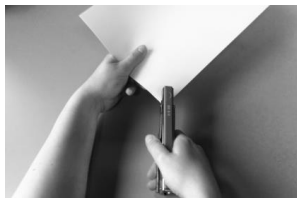


- Depuis une perspective d'observateur, nous voyons la situation depuis les yeux d'un spectateur comme si on regardait de l'extérieur. En d'autres termes, nous nous voyons, ainsi que ce qui nous entoure. Par exemple, prenons la situation d'agrafer un paquet de feuilles. L'image que nous pourrions avoir depuis une perspective d'observateur serait :



Pour résumer, les pensées peuvent être sous forme :

- *Verbale : mots et phrases que l'on se dit.*
- *Imagée depuis une perspective d'acteur : nous voyons la situation au travers de nos propres yeux.*



- *Imagée depuis une perspective d'observateur : nous voyons la situation de l'extérieur.*



Lorsque vous pensez avoir bien compris les différents types de pensées, vous pouvez cliquer sur « suivant » pour passer à la tâche principale de l'étude.

[Rappel d'un échec] A présent, nous allons vous demander de vous rappeler une situation dans laquelle vous avez échoué à quelque chose d'important pour vous. Cet échec peut être lié à des domaines divers, comme par exemple le domaine scolaire/professionnel, social, sentimental, les activités de loisirs, de compétition ou tout autre domaine important pour vous.

Cette situation doit avoir eu lieu il y a moins de 5 ans et cela doit être une situation unique, c'est-à-dire qui a duré moins d'une journée, qui s'est produite à un moment et dans un lieu particulier.

Prenez quelques instants pour vous rappeler cette situation d'échec et décrivez-la en 1 ou 2 mots :

<Saut de page>

Répartition aléatoire dans l'une des deux conditions (présentées de façon égale) par le logiciel :

- Rumination concrète
- Rumination abstraite

BLOC SPECIFIQUE A CHAQUE GROUPE

[Consigne Condition rumination concrète] *Nous allons vous demander de vous souvenir de cet échec pendant une dizaine de minutes*

Focalisez-vous sur la manière dont vous vous sentez intérieurement, sur vos sentiments et vos sensations physiques dans votre corps en vous souvenant de cet échec.

Des consignes vont apparaître pour vous guider dans le rappel de cet échec : vous allez voir apparaître sur l'écran une croix que vous devrez fixer. Cette croix sera suivie par des consignes. Concentrez-vous sur chacune des consignes.

Lorsque la croix disparaîtra (entre 15 et 30 secondes plus tard), différentes questions sur vos pensées lors du rappel de l'échec vous seront posées.

Une autre croix de fixation suivie de consignes vous seront ensuite à nouveau présentées.

Quand vous avez compris ce que vous allez faire et que vous êtes prêt, cliquez sur suivant pour commencer.

[Consigne Condition rumination abstraite] *Nous allons vous demander de vous souvenir de cet échec pendant une dizaine de minutes.*

Focalisez-vous sur les causes, les conséquences, et les implications que peut avoir cet échec.

Des consignes vont apparaître pour vous guider dans le rappel de cet échec : vous allez voir apparaître sur l'écran une croix que vous devrez fixer. Cette croix sera suivie par des consignes. Concentrez-vous sur chacune des consignes en fixant la croix.

Lorsque la croix disparaîtra (entre 15 et 30 secondes plus tard), différentes questions sur vos pensées lors du rappel de l'échec vous seront posées.

D'autres consignes accompagnées d'une croix de fixation vous seront ensuite à nouveau présentées.

Quand vous avez compris ce que vous allez faire et que vous êtes prêt, cliquez sur suivant pour commencer.

[Tâche de rumination Consigne rumination concrète] *Pensez à la quantité de stress que vous éprouvez en vous souvenant de cet échec.*

(Fixez la croix en vous concentrant sur les consignes)

[Tâche de rumination Consigne rumination abstraite] *Pensez aux causes, aux conséquences et aux implications de la quantité de stress que vous éprouvez en vous souvenant de cet échec.*

(Centrez-vous sur la croix de fixation afin de vous concentrer plus aisément la tâche)

[Disparition de la croix de fixation après 15/20/25/30 secondes (pseudo-aléatoire)]

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Décrivez le contenu de votre pensée (ce que vous pensez) :

A l'instant, les pensées qui vous passent par la tête sont essentiellement :

- Verbales
- Imagées
- Les deux

Logique de passage :

- Si le participant répond « Imagées » ou « Les deux », alors passer à « Au niveau des images, vous avez... »
- Si le participant répond « Verbales », alors passer à « Pensez à la qualité de tension... »

Au niveau des images, vous avez une :

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

Perspective d'acteur

Perspective d'observateur

<Saut de page>

[IDEM SONDES A 12 REPRISES avec les consignes suivantes au fur et à mesure :]

[Consignes rumination concrète]

- Pensez à la qualité de tension dans vos muscles en vous souvenant de cet échec.*
- Pensez à la manière dont vous vous sentez intérieurement en vous souvenant de cet échec.*
- Pensez à vos sensations physiques que vous éprouvez en vous souvenant de cet échec.*
- Pensez à la manière dont vous réagissez en vous souvenant de cet échec.*
- Pensez à l'espoir/désespoir que vous éprouvez en vous souvenant de cet échec.*
- Pensez à vos sentiments d'énergie ou de fatigue en vous souvenant de cet échec.*
- Pensez à la clarté/flou de ce que vous pensez juste maintenant en vous souvenant de cet échec.*
- Pensez à la motivation que vous ressentez maintenant en vous souvenant de cet échec.*
- Pensez à la rapidité d'enchaînement de vos pensées à l'instant lorsque vous vous rappelez l'échec.*
- Pensez à votre maîtrise de ce qui est en train de se passer en vous souvenant de cet échec.*
- Pensez à combien vous vous sentez actif ou passif en vous souvenant de cet échec.*

[Consignes rumination abstraite]

- Pensez aux causes, aux conséquences et aux implications de la qualité de tension dans vos muscles en vous souvenant de cet échec.*
- Pensez aux causes, aux conséquences et aux implications de la manière dont vous vous sentez intérieurement en vous souvenant de cet échec.*
- Pensez aux causes, aux conséquences et aux implications des sensations physiques que vous éprouvez en vous souvenant de cet échec.*
- Pensez aux causes, aux conséquences et aux implications de la manière dont vous réagissez en vous souvenant de cet échec.*
- Pensez aux causes, aux conséquences et aux implications de l'espoir/désespoir que vous éprouvez en vous souvenant de cet échec.*
- Pensez aux causes, aux conséquences et aux implications de vos sentiments d'énergie ou de fatigue en vous souvenant de cet échec.*
- Pensez aux causes, aux conséquences et aux implications de la clarté/flou ce que vous pensez juste maintenant en vous souvenant de cet échec.*
- Pensez aux causes, aux conséquences et aux implications de la motivation que vous ressentez maintenant en vous souvenant de cet échec.*
- Pensez aux causes, aux conséquences et aux implications de la rapidité d'enchaînement de vos pensées en vous souvenant de cet échec.*
- Pensez aux causes, aux conséquences et aux implications de votre maîtrise de ce qui est en train de se passer en vous souvenant de cet échec.*
- Pensez aux causes, aux conséquences et aux implications de combien vous vous sentez actif ou passif en vous souvenant de cet échec.*

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[PANAS] *Voici une liste d'adjectifs qui décrivent des sentiments ou des émotions. Lisez chacun d'entre eux. Pour chaque adjectif, indiquez à quel point il décrit comment vous vous sentez à cet instant.*

	Très peu ou pas du tout (1)	Peu (2)	Modérément (3)	Beaucoup (4)	Enormément (5)
Angoissé(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fâché(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coupable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effrayé(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hostile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irrité(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Honteux(se)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nerveux(se)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Agité(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Craintif(ve)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<Saut de page>

[Difficulté] *Dans quelle mesure avez-vous trouvé difficile de suivre les consignes vous guidant dans le rappel de l'échec ?*

0 1 2 3 4 5 6 7 8 9 10

Pas du tout difficile

Extrêmement difficile

Décrivez brièvement en quoi cela a été difficile ?

BLOC COMMUN AUX DEUX GROUPES

[Tâche induction positive] *Nous arrivons à la fin de cette étude. Etant donné le temps passé à vous rappeler un souvenir désagréable, nous vous offrons la possibilité de penser à un souvenir agréable. Pour cela, nous allons vous demander de vous centrer sur le souvenir d'une situation positive. Cet événement doit avoir eu lieu il y a moins de 5 ans et cela doit être une situation unique, c'est-à-dire qui a duré moins d'une journée, qui s'est produite à un moment et dans un lieu particulier. Ce souvenir peut être lié à des domaines divers, comme par exemple le domaine scolaire/professionnel, social, sentimental, les activités de loisirs. Prenez le temps que vous souhaitez pour repenser à cette situation positive. Si vous le souhaitez, vous pouvez vous aider des indices suivants. Vous pouvez également fermer les yeux et penser à cette situation de vous-même.*

Indices :

- *Quand est-ce que cet événement positif s'est déroulé ?*
- *A quel endroit étiez-vous ?*
- *Que voyiez-vous autour de vous ?*
- *Que ressentiez-vous ?*
- *Comment vous sentez-vous maintenant ?*

Lorsque vous vous sentez prêt, vous pouvez cliquer sur suivant pour clôturer l'étude.

<Saut de page>

[Détrese] *Quelle est l'intensité de votre détresse actuelle, en ce moment précis ?*

0 1 2 3 4 5 6 7 8 9 10

Aucune détresse

*Détresse
extrêmement
intense*

Logique de passage :

- Si le participant répond 5 ou plus, alors passer à « Il est possible que vous vous sentiez... »
- Si le participant répond moins de 5, alors passer à « Si vous en ressentez le besoin, vous... »

<Saut de page>

[Si 5 ou plus] *Il est possible que vous vous sentiez mal, en détresse, après vous être rappelé d'un échec pendant cette expérience. C'est pourquoi nous vous demandons d'aller voir l'expérimentateur. Celui-ci vous aidera à vous sentir mieux ou vous mettra en contact avec des personnes susceptibles de vous aider.*

Attendez la sortie des autres participants et allez voir l'expérimentateur.

[Si moins de 5] *Si vous en ressentez le besoin, vous pouvez prendre contact avec l'expérimentateur.*

<Saut de page>

Nous allons vous faire un retour sur l'expérience à laquelle vous venez de participer. Merci de ne pas décrire ces informations à d'autres personnes susceptibles de passer cette étude.

<Saut de page>

Dans cette expérience, nous nous intéressons à la manière dont on se rappelle des événements émotionnels passés (p. ex., un échec). Nous nous demandons s'il existe un lien entre la manière dont nous pensons à des événements passés et la façon dont nous nous rappelons ces événements sous formes d'images mentales.

Pour cela, nous avons répartis les personnes dans deux groupes qui ont reçu des consignes différentes. Certains parmi vous ont dû se focaliser sur les causes, conséquences et significations de l'échec, tandis que d'autres ont dû se focaliser sur les sentiments et sensations physiques associés à l'événement. Vous avez ensuite tous répondu à des questions sur vos pensées verbales et vos images mentales. En effet, certaines personnes se souviennent de ces événements sous formes d'images mentales (c'est-à-dire des choses que nous voyons dans notre esprit). Ces images peuvent être une sorte de "photo" de ce que nous avons vécu, comme si cette photo avait été prise au travers de nos propres yeux (perspective d'acteur), ou elles peuvent être une photo de la situation comme si quelqu'un d'autre avait pris cette photo (perspective d'observateur).

Notre objectif est d'explorer si la façon dont nous nous rappelons un événement émotionnel passé dépend de la façon dont nous pensons à cet événement.

Enfin, vous avez répondu en ligne à des questionnaires plus généraux (p.ex., sur la tendance habituelle à ruminer -c'est-à-dire à penser de manière répétitive à différentes choses-, sur l'état d'humeur au cours des dernières semaines) afin de comprendre la manière dont ces facteurs influencent le rappel des souvenirs.

Nous espérons que ces explications répondent à vos questions. Vous pouvez nous contacter à l'adresse suivante : Celine.Baeyens@upmf-grenoble.fr avec pour objet du message "Etude de sondage des pensées".

Merci de cliquer sur suivant une dernière fois.

APPENDICES

Table E3

Multiple Hierarchical Regressions Predicting the Frequency of Verbal Thoughts from Maladaptive Rumination, Conditions, and their Interaction.

Variable	Frequency of verbal thoughts											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	44.49	2.77		[39.32, 49.79]	45.27	3.64		[38.33, 52.43]	45.76	3.51		[38.91, 52.59]
Maladaptive rumination	-5.85	3.50	-.23	[-12.76, 0.35]	-5.90	3.58	-.23	[-12.81, 0.43]	-13.60	3.18	-.53**	[-19.41, -7.98]
Condition					-1.44	5.56	-.03	[-11.75, 8.50]	-1.67	5.42	-.04	[-11.50, 8.19]
Maladaptive rumination * Condition									12.67	5.73	.38*	[0.53, 23.36]
<i>R</i> ²	.05				.05				.11			
<i>F</i>	3.57				1.79				2.62			
ΔR^2	.05				.00				.07			
ΔF	3.57				.07				4.10			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 68.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table E4

Multiple Hierarchical Regressions Predicting the Frequency Of Images From Maladaptive Rumination, Conditions, and Their Interaction.

Variable	Frequency of images											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	31.18	2.79		[26.59, 36.76]	31.97	3.68		[25.12, 39.85]	31.45	3.50		[24.91, 39.01]
Maladaptive rumination	4.54	2.79	.21	[-0.62, 10.76]	4.46	2.81	.21	[-0.70, 10.85]	12.70	3.34	.59**	[6.53, 19.01]
Condition					-1.49	4.80	-.04	[-11.67, 8.07]	-1.46	4.54	-.04	[-11.44, 7.51]
Maladaptive rumination * Condition									-13.83	4.69	-.50**	[-23.30, -3.13]
<i>R</i> ²	.05				.05				.15			
<i>F</i>	3.03				1.54				3.56*			
ΔR^2	.05				.00				.01			
ΔF	3.03				.10				7.29**			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 67.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table E5

Multiple Hierarchical Regressions Predicting Mean Perspective of Images from Psychopathology, Conditions, and their Interaction.

Variable	Mean perspective of images											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	-.79	.26		[-1.29, -0.27]	-.60	.45		[-1.50, .31]	-.62	.45		[-1.49, .28]
Psychopathology	-.04	.32	-.02	[-0.67, 0.57]	-.03	.32	-.01	[-0.68, 0.59]	-.36	.52	-.15	[-1.39, 0.49]
Condition					-.34	.55	-.08	[-1.45, 0.65]	-.34	.54	-.08	[-1.43, 0.63]
Psychopathology * Condition									.70	.65	.21	[-0.49, 2.15]
<i>R</i> ²	.00				.01				.03			
<i>F</i>	.02				.21				.63			
ΔR^2	.00				.01				.02			
ΔF	.02				.40				1.46			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 68.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table E6

Multiple Hierarchical Regressions Predicting Mean Perspective of Images from Maladaptive Rumination, Conditions, and their Interaction.

Variable	Mean perspective of images											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	-.79	.26		[-1.32, -0.27]	-.59	.43		[-1.43, 0.27]	-.57	.43		[-0.57, 1.67]
Maladaptive rumination	-.24	.29	-.10	[-0.82, 0.33]	-.25	0.30	-.10	[-0.83, 0.31]	-.58	.43	-.24	[-1.47, 0.19]
Condition					-.37	.54	-.09	[-1.41, 0.69]	-.38	.54	-.09	[-1.40, 0.68]
Maladaptive rumination * Condition									.55	.57	.18	[-0.57, 1.67]
<i>R</i> ²	.01				.02				.03			
<i>F</i>	.63				.56				.64			
ΔR^2	.01				.01				.01			
ΔF	.63				.49				.80			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 68.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table E7

Multiple Hierarchical Regressions Predicting the Variation of Negative Affect from Psychopathology, Conditions, and their Interaction.

Variable	Variation of negative affect											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	3.55	0.87		[1.92, 5.11]	5.16	.99		[3.43, 7.03]	5.20	1.02		[3.39, 7.01]
Psychopathology	2.83	1.06	.34*	[0.77, 4.82]	2.94	1.08	.36*	[0.91, 4.94]	3.30	1.12	.40**	[1.11, 5.53]
Condition					-2.93	1.70	-.19	[-6.16, 0.29]	-2.94	1.71	-.20	[-6.19, 0.24]
Psychopathology * Condition									-.75	2.27	-.06	[-5.23, 3.52]
<i>R</i> ²	.12				.16				.16			
<i>F</i>	8.73**				5.92**				3.94*			
ΔR^2	.12				.04				.00			
ΔF	8.73**				2.85				0.00			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 67.

* $p < .05$. ** $p < .01$. *** $p < .001$.

APPENDICES

Table E8

Multiple Hierarchical Regressions Predicting the Variation of Negative Affect from Maladaptive Rumination, Conditions, and their Interaction.

Variable	Variation of negative affect											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	3.54	.90		[1.87, 5.20]	4.84	1.04		[2.96, 7.01]	4.82	1.03		[2.97, 6.89]
Maladaptive rumination	2.50	1.09	.29*	[0.45, 4.70]	2.44	1.09	.29*	[0.46, 4.63]	3.18	0.97	.37**	[1.35, 5.18]
Condition					-2.36	1.72	-.16	[-5.68, 0.98]	-2.37	1.73	-.16	[-5.67, 0.91]
Maladaptive rumination * Condition									-1.18	1.96	-.11	[-4.67, 2.64]
<i>R</i> ²	.09				0.11				0.12			
<i>F</i>	6.15*				3.99*				2.74			
ΔR^2	.09				.03				.01			
ΔF	6.15*				1.76				.32			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 67.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Appendix F1

CNIL and Ethical Committee of the Study 2b (Chapter 4)

Timbre de la CNIL : 0875484, le 26/10/2015 à 08:30:00 (idem que l'Etude 2a)

Comité d'Ethique pour les Recherches Non Interventionnelles (CERNI) :



CERNI **Comité d'Ethique pour les** **Recherches Non Interventionnelles**

Objet : Amendement de l'avis sur le projet « Sondage des pensées » présenté par Céline BAEYENS du Laboratoire Inter-universitaire de Psychologie (LIP EA4145) à Grenoble.

Ce projet a reçu un avis favorable attribué par le Comité d'Ethique pour les Recherches Non Interventionnelles le 15 septembre 2015. Le responsable du projet a soumis une demande d'amendement, qui a été examinée par le bureau du CERNI le 12 novembre 2015.

Compte tenu des éléments fournis dans la demande d'amendement de Céline BAEYENS, le Comité d'Ethique pour les Recherches Non Interventionnelles émet un **AVIS FAVORABLE**.

Numéro de l'amendement : 2015-11-12-8

A Grenoble, le 12 novembre 2015

La Présidente du CERNI,
Carole Peyrin
Chargée de Recherche CNRS
Laboratoire de Psychologie et NeuroCognition (CNRS UMR5105) et Université de Grenoble

Appendix F2

Protocol of the Study 2b (Chapter 4)

[Les explications générales apparaissent sur l'écran]

Cette étude s'adresse aux personnes de plus de 18 ans, ayant une bonne compréhension et une bonne expression en français.

Elle vise à explorer les pensées et les images mentales que nous avons lorsque nous nous souvenons d'événements passés.

Pour cela, nous vous proposons de répondre à différentes tâches et questionnaires.

Dans une 1ère partie, nous vous demanderons de répondre à des questions sur la manière dont vous vous sentez généralement.

Dans une 2e partie, nous vous demanderons de vous rappeler un événement négatif et de répondre à différentes questions concernant cet événement et la façon dont vous le percevez actuellement.

Votre participation prendra environ 1 heure.

Votre participation est volontaire. Vous pouvez à tout moment et en toute liberté décider d'interrompre votre participation à cette étude, sans justification et sans conséquence ultérieure.

Votre participation sera d'emblée interrompue dès que vous en aurez informé

l'expérimentateur. Les données récoltées sont anonymes et confidentielles. Aucun renseignement ne permet de lier vos données à votre identité, c'est pourquoi vous ne pouvez pas rectifier ou supprimer ces informations après votre participation. Les données sont stockées dans un endroit sécurisé auquel seuls les responsables du projet ont accès.

À notre connaissance, cette recherche n'implique aucun risque ou inconfort autre que ceux de la vie quotidienne.

Cette recherche sera diffusée dans des colloques et des articles de revue académique. Pour toutes les personnes qui le souhaiteraient, nous pouvons vous envoyer plus d'informations sur les objectifs de cette étude. Si vous souhaitez plus de renseignements, envoyez-nous un message avec le titre « Enquête sondage des pensées » à l'adresse suivante : Celine.Baeyens@univ-grenoble-alpes.fr

En participant à cette étude, vous certifiez que vous avez lu et compris les renseignements ci-dessus, que nous avons répondu à vos questions de façon satisfaisante et que nous vous avons avisé que vous étiez libre d'arrêter cette recherche en tout temps, sans préjudice.

- Poursuivre*
- Abandonner*

Logique de passage :

- Si « Poursuivre » est sélectionné, alors passer à « Quel âge avez-vous ? »
- Si « Abandonner » est sélectionné, alors passer à « Fin d'enquête »

<Saut de page>

[Age] *Quel âge avez-vous ?*

[Sexe] *Vous êtes :*

- Une femme (0)
- Un homme (1)

<Saut de page>

Partie 1 :

Répondez à toutes les questions en choisissant la proposition qui vous correspond le mieux. Soyez aussi honnête que possible dans toutes vos réponses et essayez de ne pas laisser une de vos réponses en influencer d'autres. Ne passez pas trop de temps à répondre, c'est votre première impression qui est importante. Il n'y a aucune bonne ou mauvaise réponse. Vous devez simplement exprimer vos propres sentiments.

[RSS-10] Les gens pensent et font différentes choses lorsqu'ils se sentent découragés, tristes ou déprimés. Veuillez lire chacun des énoncés ci-dessous et indiquer à quelle fréquence vous faites ce qui est mentionné lorsque vous vous sentez découragé, triste ou déprimé. Indiquez ce que vous faites habituellement et non ce que vous pensez que vous devriez faire.

	Presque Jamais (1)	Parfois (2)	Souvent (3)	Presque Toujours (4)
1. Penser : « Qu'ai-je fait pour mériter cela ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Analyser des événements récents pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Penser : « Pourquoi est-ce que je réagis toujours de cette façon ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Partir seul et penser aux raisons pour lesquelles vous vous sentez comme cela.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Écrire ce à quoi vous pensez et l'analyser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Penser à une situation récente en souhaitant que ça se soit mieux passé.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Penser : « Pourquoi ai-je des problèmes que les autres n'ont pas ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Penser : « Pourquoi ne puis-je pas mieux gérer les choses ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Analyser votre personnalité pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Aller quelque part seul(e) pour penser à ce que vous ressentez.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page>

APPENDICES

[Mini-CERTS] « *Quand des pensées à propos de moi, de mes sentiments ou de situations et d'évènements me viennent à l'esprit ...* »

	Presque jamais (1)	Parfois (2)	Souvent (3)	Presque toujours (4)
1. Mes pensées sont prises dans une ornière, revenant toujours aux mêmes thèmes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je peux comprendre et répondre aux changements de manière intuitive, sans devoir analyser tout en détails.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Je me compare aux autres personnes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Je pense de manière ouverte, libre et créative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Je me juge en fonction de mes valeurs et de mes croyances personnelles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me concentre sur la question de savoir pourquoi les choses se sont passées de cette manière-là.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Je me demande pourquoi je n'arrive pas à me mettre en action.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Mes pensées se développent dans des directions nouvelles et intéressantes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Je semble être immergé(e) dans l'action et en contact avec ce qu'il se passe autour de moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je pense que je ne suis bon(ne) à rien.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. J'aime me laisser aller à suivre le flux de mes pensées spontanées.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Je me sens sous pression d'empêcher que mes pires craintes se réalisent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Je me concentre sur le fait d'explorer et de jouer avec les idées, curieux (se) d'où elles peuvent me mener.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Mes pensées ont tendance à fuser à partir d'un événement spécifique vers des aspects plus larges et généraux de ma vie.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Je m'en fais de ce que les autres pourraient penser de moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. J'ai très rapidement des impressions et des intuitions de ce qui se passe et de comment réagir.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page >

APPENDICES

[CES-D] *Les impressions suivantes sont ressenties par la plupart des gens. Indiquez pour chaque sentiment ou comportement présentés de cette liste combien de fois vous les avez éprouvés durant la semaine qui vient de se passer.*

Sélectionnez la case qui vous correspond selon l'échelle de notation suivante :

Jamais ou très rarement = Moins d'1 jour

Occasionnellement = 1 à 2 jours

Assez souvent = 3 à 4 jours

Fréquemment ou tout le temps = 5 à 7 jours

	Jamais ou très rarement (0)	Occasionnellement (1)	Assez souvent (2)	Fréquemment ou tout le temps (3)
1. J'ai été contrarié(e) par des choses qui d'habitude ne me dérangent pas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je n'ai pas eu envie de manger, j'ai manqué d'appétit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. J'ai eu le sentiment que je ne pouvais pas sortir du cafard même avec l'aide de ma famille et de mes amis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. J'ai eu le sentiment d'être aussi bien que les autres.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. J'ai eu du mal à me concentrer sur ce que je faisais.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me suis senti(e) déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. J'ai eu l'impression que toute action me demandait un effort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. J'ai été confiant(e) en l'avenir.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. J'ai pensé que ma vie était un échec.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je me suis senti(e) craintif(ve).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Mon sommeil n'a pas été bon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. J'ai été heureux(se).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. J'ai parlé moins que d'habitude.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Je me suis senti(e) seul(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Les autres ont été hostiles envers moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. J'ai profité de la vie.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. J'ai eu des crises de larmes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Je me suis senti(e) triste.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. J'ai eu l'impression que les gens ne m'aimaient pas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. J'ai manqué d'entrain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page>

APPENDICES

[STAI-T] *Un certain nombre de phrases que l'on utilise pour se décrire sont données ci-dessous. Lisez chaque phrase, puis sélectionnez celle correspondant le mieux à ce que vous ressentez généralement.*

	Non (1)	Plutôt non (2)	Plutôt oui (3)	Oui (4)
1. Je me sens de bonne humeur, aimable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je me sens nerveux(se) et agité(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Je me sens content(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Je voudrais être aussi heureux(se) que les autres semblent l'être.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. J'ai un sentiment d'échec.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me sens reposé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. J'ai tout mon sang froid.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. J'ai l'impression que les difficultés s'accumulent à un tel point que je ne peux plus les surmonter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Je m'inquiète à propos de choses sans importance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je suis heureux(se).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. J'ai des pensées qui me perturbent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Je manque de confiance en moi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Je me sens sans inquiétude, en sécurité, en sûreté.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Je prends facilement des décisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Je me sens incompetent(e), pas à la hauteur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Je suis satisfait(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Des idées sans importance trottant dans ma tête me dérangent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Je prends les déceptions tellement à cœur que je les oublie difficilement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Je suis une personne posée, solide, stable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Je deviens tendu(e) et agité(e) quand je réfléchis à mes soucis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page>

[Explications de la nature des pensées]

Partie 2 :

Lorsque l'on pense à une situation, on peut le faire de différentes manières : on peut penser à la situation de manière verbale, ou alors de manière imagée.

Les explications qui vont suivre vont vous permettre d'apprendre à mieux différencier ces deux types de pensée. Prenez bien le temps de lire ces informations et de les comprendre.

<Saut de page>

Penser de manière verbale :

C'est "penser avec des mots et des phrases dans la tête".

Penser de manière imagée :

C'est "penser avec des images dans la tête". Ces images visuelles peuvent être perçues selon deux perspectives :

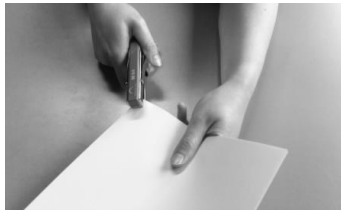
- **Depuis une perspective d'acteur**, nous voyons la situation comme si nous étions l'acteur ici et maintenant. En d'autres termes, nous voyons ce qui nous entoure au travers de nos propres yeux.

Par exemple, prenons la situation d'agrafer un paquet de feuilles. L'image que nous pourrions avoir depuis une perspective d'acteur serait :



- **Depuis une perspective d'observateur**, nous voyons la situation depuis les yeux d'un spectateur comme si on regardait de l'extérieur. En d'autres termes, nous nous voyons, ainsi que ce qui nous entoure.

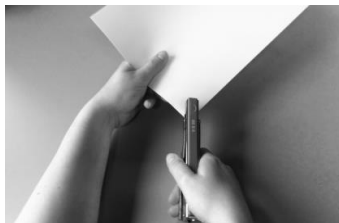
Par exemple, prenons la situation d'agrafer un paquet de feuilles. L'image que nous pourrions avoir depuis une perspective d'observateur serait :



Pour résumer, les pensées peuvent être sous forme :

- *Verbale : mots et phrases que l'on se dit.*

- *Imagée depuis une perspective d'acteur : nous voyons la situation au travers de nos propres yeux.*



- *Imagée depuis une perspective d'observateur : nous voyons la situation de l'extérieur.*



Lorsque vous pensez avoir bien compris les différents types de pensées, vous pouvez cliquer sur « suivant » pour passer à la tâche principale de l'étude.

<Saut de page>

[Rappel d'un échec] *A présent, nous allons vous demander de vous rappeler une situation dans laquelle vous avez échoué à quelque chose d'important pour vous. Cet échec peut être lié à des domaines divers, comme par exemple le domaine scolaire/professionnel, social, sentimental, les activités de loisirs, de compétition ou tout autre domaine important pour vous. Cette situation doit avoir eu lieu il y a moins de 5 ans et cela doit être une situation unique, c'est-à-dire qui a duré moins d'une journée, qui s'est produite à un moment et dans un lieu particulier.*

Prenez quelques instants pour vous rappeler cette situation d'échec et décrivez-la en 1 ou 2 mots:

<Saut de page>

[Date] *Veillez préciser le temps qui s'est approximativement écoulé depuis la situation en choisissant une des unités de temps suivantes :*

Exemple :

- pour une situation ayant eu lieu il y a une semaine, cliquez sur "Jours" et indiquez "7" dans la case

-- pour une situation vécue il y a trois mois, cliquez sur "Mois" et indiquez "3" dans la case

Jours : (1) _____

Mois : (2) _____

Années : (3) _____

[Vivacité] *Évaluez la vivacité de votre souvenir :*

Note : Si vous souhaitez indiquer "0", veuillez déplacer le curseur puis le remettre sur "0".

0 ----- 100

Image vague et imprécise

Image parfaitement claire et vive

[Détresse] *Évaluez l'intensité de votre détresse actuelle lorsque vous repensez à ce souvenir :*

Note : Si vous souhaitez indiquer "0", veuillez déplacer le curseur puis le remettre sur "0".

0 ----- 100

Aucune détresse

Détresse extrêmement intense

<Saut de page>

[PANAS_Avt] *Voici une liste d'adjectifs qui décrivent des sentiments ou des émotions. Lisez chacun d'entre eux. Pour chaque adjectif, indiquez à quel point il décrit comment vous vous sentez à cet instant.*

	Très peu ou pas du tout (1)	Peu (2)	Modérément (3)	Beaucoup (4)	Enormément (5)
Angoissé(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fâché(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coupable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effrayé(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hostile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irrité(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Honteux(se)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nerveux(se)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Agité(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Craintif(ve)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<Saut de page>

Répartition aléatoire dans l'une des deux conditions (présentées de façon égale) par le logiciel :

- Rumination concrète
- Rumination abstraite

BLOC SPECIFIQUE A CHAQUE GROUPE

[Consigne Condition rumination concrète] *Nous allons vous demander de vous souvenir de cet échec pendant une dizaine de minutes en vous focalisant sur la manière dont vous vous sentez intérieurement, sur vos sentiments et vos sensations physiques dans votre corps en vous souvenant de cet échec.*

Concentrez-vous sur l'écran et sur les différentes consignes qui vont vous guider dans le rappel du souvenir. Vous serez interrompus à différents moments et nous vous demanderons ce à quoi vous avez pensé pendant le laps de temps précédent.

Quand vous vous sentez prêt(e), cliquez sur suivant pour commencer.

[Consigne Condition rumination abstraite] *Nous allons vous demander de vous focaliser sur le souvenir de cet échec pendant une dizaine de minutes en vous focalisant sur l'analyse des causes, des conséquences, et des implications que peut avoir cet échec.*

Concentrez-vous sur l'écran et sur les différentes consignes qui vont vous guider dans le rappel du souvenir. Vous serez interrompus à différents moments et nous vous demanderons ce à quoi vous avez pensé pendant le laps de temps précédent.

Quand vous vous sentez prêt(e), cliquez sur suivant pour commencer.

<Saut de page>

[Tâche de rumination Consigne rumination concrète] *Pensez à la quantité de stress que vous éprouvez en vous souvenant de cet échec.*

[Tâche de rumination Consigne rumination abstraite] *Pensez aux causes, aux conséquences et aux implications de la quantité de stress que vous éprouvez en vous souvenant de cet échec.*

[Disparition des consignes après 20 secondes]

Pensez aux causes, aux conséquences et aux implications de vos sentiments d'énergie ou de fatigue en vous souvenant de cet échec.

Pensez aux causes, aux conséquences et aux implications de la clarté/flou ce que vous pensez juste maintenant en vous souvenant de cet échec.

Pensez aux causes, aux conséquences et aux implications de la motivation que vous ressentez maintenant en vous souvenant de cet échec.

Pensez aux causes, aux conséquences et aux implications de la rapidité d'enchaînement de vos pensées en vous souvenant de cet échec.

Pensez aux causes, aux conséquences et aux implications de votre maîtrise de ce qui est en train de se passer en vous souvenant de cet échec.

Pensez aux causes, aux conséquences et aux implications de combien vous vous sentez actif ou passif en vous souvenant de cet échec.

BLOC COMMUN AUX DEUX GROUPES

[PANAS_Ap] *Voici une liste d'adjectifs qui décrivent des sentiments ou des émotions. Lisez chacun d'entre eux. Pour chaque adjectif, indiquez à quel point il décrit comment vous vous sentez à cet instant.*

	Très peu ou pas du tout (1)	Peu (2)	Modérément (3)	Beaucoup (4)	Enormément (5)
Angoissé(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fâché(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coupable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effrayé(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hostile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irrité(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Honteux(se)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nerveux(se)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Agité(e)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Craintif(ve)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<Saut de page>

[PEQ_Descr] *Décrivez deux problèmes majeurs sur lesquels vous ruminez actuellement (c'est-à-dire auxquels vous pensez sans cesse et fréquemment). Ces problèmes devraient être deux problèmes qui vous inquiètent fort et auxquels vous pensez beaucoup :*

1^{er} problème : _____

2^e problème : _____

[PEQ_Conseq] *Veillez décrire trois conséquences négatives que vous percevez pour chacun des problèmes :*

1^{er} problème :
1^{ère} conséquence : _____

2^e conséquence : _____

3^e conséquence : _____

2^e problème :
1^{ère} conséquence : _____

2^e conséquence : _____

3^e conséquence : _____

<Saut de page>

[Difficulté] *Dans quelle mesure était-ce difficile de suivre les consignes qui vous ont guidé dans le rappel de l'échec ?*

0 1 2 3 4 5 6 7 8 9 10

*Pas du tout
difficile*

*Extrêmement
difficile*

Décrivez brièvement en quoi cela a été difficile ?

<Saut de page>

[Tâche induction positive] *Nous arrivons à la fin de cette étude. Etant donné le temps passé à vous rappeler un souvenir désagréable, nous vous offrons la possibilité de penser à un souvenir agréable. Pour cela, nous allons vous demander de vous centrer sur le souvenir d'une situation positive. Cet événement doit avoir eu lieu il y a moins de 5 ans et cela doit être une situation unique, c'est-à-dire qui a duré moins d'une journée, qui s'est produite à un moment et dans un lieu particulier. Ce souvenir peut être lié à des domaines divers, comme par exemple le domaine scolaire/professionnel, social, sentimental, les activités de loisirs.*

Prenez le temps que vous souhaitez pour repenser à cette situation positive. Si vous le souhaitez, vous pouvez vous aider des indices suivants. Vous pouvez également fermer les yeux et penser à cette situation de vous-même.

Indices :

- *Quand est-ce que cet événement positif s'est déroulé ?*
- *A quel endroit étiez-vous ?*
- *Que voyiez-vous autour de vous ?*
- *Que ressentiez-vous ?*
- *Comment vous sentez-vous maintenant ?*

Lorsque vous vous sentez prêt, cliquez sur suivant.

<Saut de page>

[Détresse] *Quelle est l'intensité de votre détresse actuelle, en ce moment précis ?*

0 1 2 3 4 5 6 7 8 9 10

*Aucune
détresse*

*Détresse
extrêmement
intense*

Logique de passage :

- Si le participant répond 5 ou plus, alors passer à « Il est possible que vous vous sentiez... »
- Si le participant répond moins de 5, alors passer à « Si vous en ressentez le besoin, vous... »

<Saut de page>

[Si 5 ou plus] *Il est possible que vous vous sentiez mal, en détresse, après vous être rappelé d'un échec pendant cette expérience. C'est pourquoi nous vous demandons d'aller voir l'expérimentateur. Celui-ci vous aidera à vous sentir mieux ou vous mettra en contact avec des personnes susceptibles de vous aider.*

Attendez la sortie des autres participants et allez voir l'expérimentateur.

[Si moins de 5] *Si vous en ressentez le besoin, vous pouvez prendre contact avec l'expérimentateur.*

<Saut de page>

*Nous allons vous faire un retour sur l'expérience à laquelle vous venez de participer.
Merci de ne pas décrire ces informations à d'autres personnes susceptibles de passer cette étude.
Veuillez cliquer sur suivant.
<Saut de page>*

Dans cette expérience, nous nous intéressons à la manière dont on se rappelle des événements émotionnels passés (par exemple, un échec). Nous nous demandons s'il existe un lien entre la manière dont nous pensons à des événements passés et la façon dont nous nous rappelons ces événements sous formes d'images mentales.

Pour cela, nous avons réparti les personnes dans deux groupes qui ont reçu des consignes différentes. Certains parmi vous ont dû se focaliser sur l'analyse des causes, conséquences et implications de l'échec, tandis que d'autres ont dû se focaliser sur les sentiments et sensations physiques associés à l'événement.

Vous avez ensuite tous répondu à des questions sur vos pensées verbales et vos images mentales. En effet, certaines personnes se souviennent de ces événements sous formes d'images mentales (c'est-à-dire des choses que nous voyons dans notre esprit). Ces images peuvent être une sorte de "photo" de ce que nous avons vécu, comme si cette photo avait été prise au travers de nos propres yeux (perspective d'acteur), ou elles peuvent être une photo de la situation comme si quelqu'un d'autre avait pris cette photo (perspective d'observateur).

Notre objectif est d'explorer si la façon dont nous nous rappelons un événement émotionnel passé dépend de la façon dont nous pensons à cet événement.

Enfin, vous avez répondu en début d'étude à des questionnaires plus généraux (par exemple, sur la tendance habituelle à ruminer -c'est-à-dire à penser de manière répétitive sur différentes choses-, sur l'état d'humeur au cours des dernières semaines) afin de comprendre la manière dont ces facteurs influencent le rappel des souvenirs.

Nous espérons que ces explications répondent à vos questions. Vous pouvez nous contacter à l'adresse suivante : Celine.Baeyens@univ-grenoble-alpes.fr avec pour objet du message "Enquête sondage des pensées".

Merci de cliquer sur suivant une dernière fois.

APPENDICES

Table F3
Multiple Hierarchical Regressions Predicting the Frequency of Verbal Thoughts from Psychopathology, Conditions, and their Interaction.

Variable	Frequency of verbal thoughts											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	56.45	2.02		[52.44, 60.75]	52.96	2.71		[47.09, 58.49]	53.07	2.71		[47.16, 58.93]
Psychopathology	-2.02	2.27	-.09	[-6.18, 2.05]	-2.20	2.22	-.09	[-6.33, 1.97]	-0.89	2.97	-.04	[-6.47, 4.87]
Condition					7.17	3.82	.17	[-0.01, 14.53]	7.06	3.87	.17	[-0.55, 14.51]
Psychopathology* Condition									-3.13	4.69	-.09	[-12.07, 6.26]
<i>R</i> ²	.01				.04				.04			
<i>F</i>	.86				2.09				1.56			
ΔR^2	.01				.03				.00			
ΔF	.86				3.32				.00			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 115.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table F4
Multiple Hierarchical Regressions Predicting the Frequency of Verbal Thoughts from Maladaptive Rumination, Conditions, and their Interaction.

Variable	Frequency of verbal thoughts											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	56.52	2.02		[52.54, 60.62]	53.08	2.66		[47.48, 58.50]	52.88	2.65		[47.48, 57.96]
Maladaptive rumination	-0.37	2.44	-.02	[-5.24, 4.23]	-0.60	2.39	-.03	[-5.53, 4.19]	-2.82	3.43	-.12	[-9.83, 4.47]
Condition					7.04	3.83	.17	[-0.18, 14.40]	7.22	3.86	.17	[-0.38, 14.66]
Maladaptive rumination * Condition									4.56	4.57	.13	[-5.06, 13.14]
<i>R</i> ²	.00				.03				.04			
<i>F</i>	.03				1.60				1.41			
ΔR^2	.00				.03				.01			
ΔF	.03				3.17				1.03			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 115.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table F5
Multiple Hierarchical Regressions Predicting the Frequency of Images from Psychopathology, Conditions, and their Interaction.

Variable	Frequency of images											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	40.70	1.92		[37.02, 44.29]	45.38	2.64		[40.40, 50.43]	45.47	2.66		[40.47, 50.56]
Psychopathology	1.94	2.21	.09	[-2.59, 6.61]	2.18	2.20	.10	[-2.33, 6.78]	3.34	2.77	.15	[-2.40, 9.14]
Condition					-9.59	3.74	-.23*	[-16.77, -2.27]	-9.69	3.77	-.24*	[-17.11, -2.40]
Psychopathology * Condition									-2.76	4.71	-.08	[-11.91, 6.43]
<i>R</i> ²	.01				.06				.07			
<i>F</i>	.84				3.69*				2.59			
ΔR^2	.01				.05				.00			
ΔF	.84				6.50*				.43			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 115.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table F6
Multiple Hierarchical Regressions Predicting the Frequency of Images from Maladaptive Rumination, Conditions, and their Interaction.

Variable	Frequency of images											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	40.71	1.91		[36.98, 44.48]	45.44	2.57		[40.53, 50.44]	45.85	2.56		[40.98, 50.90]
Maladaptive rumination	2.44	2.35	.11	[-2.31, 7.17]	2.75	2.35	.12	[-1.94, 7.61]	7.28	2.92	.31*	[1.79, 12.31]
Condition					-9.69	3.73	-.24*	[-17.36, -2.16]	-10.04	3.69	-.25**	[-17.58, -2.69]
Maladaptive rumination * Condition									-9.31	4.40	-.28*	[-17.84, 0.20]
<i>R</i> ²	.01				.07				.11			
<i>F</i>	1.25				3.99*				4.40**			
ΔR^2	.01				.06				.04			
ΔF	1.25				6.66*				4.93*			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 115.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table F7

Multiple Hierarchical Regressions Predicting Mean Observer Perspective in Images from Psychopathology, Conditions, and their Interaction.

Variable	Mean observer perspective											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	37.18	2.23		[33.04, 41.66]	38.41	3.26		[32.18, 45.36]	38.28	3.28		[31.88, 45.37]
Psychopathology	-.23	2.35	-.01	[-4.95, 4.67]	-.17	2.36	-.01	[-4.88, 4.69]	-1.73	3.56	-.07	[-9.07, 5.87]
Condition					-2.50	4.35	-.05	[-11.31, 6.02]	-2.37	4.36	-.05	[-11.17, 6.28]
Psychopathology * Condition									3.72	4.47	.09	[-5.40, 12.01]
<i>R</i> ²	.00				.00				.01			
<i>F</i>	.01				.16				.29			
ΔR^2	.00				.00				.01			
ΔF	.01				.31				.55			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 115.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table F8

Multiple Hierarchical Regressions Predicting Mean Observer Perspective in Images from Maladaptive Rumination, Conditions, and their Interaction.

Variable	Mean observer perspective											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	37.25	2.24		[33.04, 41.74]	38.56	3.30		[32.07, 45.54]	38.47	3.35		[31.87, 45.58]
Maladaptive rumination	1.44	2.95	.05	[-4.74, 7.39]	1.53	2.96	.06	[-4.75, 7.41]	0.53	4.46	.02	[-8.96, 9.02]
Condition					-2.67	4.35	-.06	[-11.72, 5.91]	-2.59	4.39	-.06	[-11.58, 6.31]
Maladaptive rumination * Condition									2.06	5.84	.05	[-9.43, 14.28]
<i>R</i> ²	.00				.01				.01			
<i>F</i>	.32				.34				.28			
ΔR^2	.00				.00				.00			
ΔF	.32				.36				.16			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 115.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table F9

Multiple Hierarchical Regressions Predicting the Variation of Negative Affect from Psychopathology, Conditions, and their Interaction.

Variable	Variation of negative affect											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	-1.44	0.74		[-2.81, -0.09]	-1.56	0.90		[-3.34, 0.31]	-1.52	0.91		[-3.33, 0.40]
Psychopathology	-0.03	0.74	-.00	[-1.45, 1.39]	-0.3	0.74	-.00	[-1.47, 1.39]	0.45	0.82	.06	[-1.05, 2.13]
Condition					0.26	1.39	.02	[-2.47, 2.81]	0.22	1.41	.02	[-2.49, 2.71]
Psychopathology * Condition									-1.14	1.68	-.09	[-4.55, 1.84]
<i>R</i> ²	.00				.00				.01			
<i>F</i>	.00				.02				.19			
ΔR^2	.00				.00				.01			
ΔF	.00				.03				.53			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 115.

* $p < .05$. ** $p < .01$. *** $p < .001$.

APPENDICES

Table F10

Multiple Hierarchical Regressions Predicting the Variation of Negative Affect from Maladaptive Rumination, Conditions, and their Interaction.

Variable	Variation of negative affect											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	-1.41	0.72		[-2.81, -0.02]	-1.50	0.89		[-3.33, 0.39]	-1.48	0.90		[-3.29, 0.48]
Maladaptive rumination	0.63	0.74	.07	[-0.85, 2.16]	0.62	0.74	.07	[-0.83, 2.18]	0.89	0.99	.11	[-0.98, 3.01]
Condition					0.19	1.38	.01	[-2.48, 2.68]	0.17	1.39	.01	[-2.44, 2.60]
Maladaptive rumination * Condition									-0.54	1.55	-.05	[-3.64, 2.43]
<i>R</i> ²	.01				.01				.01			
<i>F</i>	.63				.32				.25			
ΔR^2	.01				.00				.00			
ΔF	.63				.02				.00			

Note. CI = Confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 115.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Appendix G1

CNIL and Ethical Committee of the Study 3 (Chapter 5)

Timbre de la CNIL : 0899088, le 27/04/2016 à 09:25:00

Comité d’Ethique pour les Recherches Non Interventionnelles (CERNI) :



CERNI **Comité d’Ethique pour les** **Recherches Non Interventionnelles**

Objet : Avis sur le projet « Abstraction induite, rumination et perspective » présenté par Céline BAEYENS du Laboratoire Interuniversitaire de Psychologie (LIP, EA 4145) à Grenoble.

Compte tenu des éléments fournis dans la demande par Céline BAEYENS, le Comité d’Ethique pour les Recherches Non Interventionnelles émet un AVIS FAVORABLE.

Il relève de la responsabilité des chercheurs de se conformer à leurs obligations légales notamment en ce qui concerne les aspects informatique et liberté, ou encore l’homologation du lieu de recherche.

Numéro de l’avis : 2016-05-03-91

A Grenoble, le 3 mai 2016

La Présidente du CERNI,
Carole Peyrin
Chargée de Recherche CNRS
Laboratoire de Psychologie et NeuroCognition (CNRS UMR5105)
Université Grenoble Alpes

Appendix G2

Protocol of the Study 3 (Chapter 5)

<p>Note :</p> <p>Consignes à l'oral (surlignées en gris)</p> <p>Consignes écrites</p>

[Consentement éclairé]

Etude sur la communication

Vous allez participer à une étude qui s'intéresse à la communication.

Pour cela, nous vous proposons de répondre à une étude en 2 parties, constituée de différentes tâches et questionnaires.

Dans une première partie en laboratoire, nous vous demanderons de répondre à des questionnaires généraux, suivis d'une tâche portant sur les mécanismes en jeu lors de situations de communication.

Dans une seconde partie en ligne, nous vous demanderons de répondre à de brèves questions concernant la tâche que vous avez effectuée lors de la première partie de l'étude.

Votre participation à cette première partie de l'étude prendra environ 35 minutes.

Votre participation est volontaire. Vous pouvez à tout moment et en toute liberté décider d'interrompre votre participation à cette étude, sans justification et sans conséquence ultérieure, par simple information à l'expérimentateur. Vous avez également le droit de demander de rectifier ou supprimer vos données sur simple demande à l'expérimentateur à l'aide d'un code d'anonymat que vous allez générer. Sans cette demande, les données déjà enregistrées seront conservées de manière anonyme et confidentielle afin de permettre de déterminer les caractéristiques des personnes ayant ou non continué de participer à l'étude. Les données sont stockées dans un endroit sécurisé auquel seuls les responsables du projet ont accès.

A court terme, votre participation à cette recherche permettra d'obtenir une meilleure compréhension des mécanismes fondamentaux en jeu dans la communication. A moyen et à long terme, cette compréhension pourra éclairer la manière dont ces mécanismes opèrent chez des personnes sujettes à ressentir de l'anxiété ou de la dépression à des niveaux intenses.

À notre connaissance, cette recherche n'implique aucun risque ou inconfort plus important que ceux associés aux situations de communications de la vie quotidienne.

Cette recherche sera diffusée dans des colloques et elle sera publiée dans des actes de colloque et des articles de revue académique. Pour toutes les personnes qui le souhaiteraient, nous pouvons vous envoyer plus d'informations sur les objectifs de cette étude.

Si vous souhaitez plus de renseignements, envoyez- nous un message avec le titre « Etude sur la communication » à l'adresse suivante : Perrine.Douce@univ-grenoble-alpes.fr

En participant à cette étude, vous certifiez que vous avez lu et compris les renseignements ci-dessus, que nous avons répondu à vos questions de façon satisfaisante et que nous vous avons avisé que vous étiez libre d'arrêter cette recherche en tout temps, sans préjudice.

<Saut de page>

[Code d'anonymat] *Nous allons vous demander de générer votre code anonyme, afin que nous puissions associer vos réponses à la première partie de l'étude (ici, en laboratoire), à celles de la deuxième partie de l'étude (en ligne).*

Celui-ci sera composé de la première lettre du prénom de votre père, suivie de la première lettre du prénom de votre mère, suivie de votre âge, suivie de la première lettre de votre prénom.

Ex :

Père : Jean

Mère : Aurélie

Âge : 20 ans

Moi : Alban

CODE : JA20A

<Saut de page>

[Âge] Quel **âge** avez-vous ? (Saisissez juste le nombre)

[Sexe] Vous **êtes** :

Un homme (1)

Une femme (2)

[Année d'étude] Vous **êtes** en :

L1

L2

L3

M1

M2

<Saut de page>

[PHQ9] Au cours des deux dernières semaines, à quelle fréquence avez-vous été dérangé(e) par les problèmes suivants ? Cochez pour indiquer votre réponse.

	Jamais (0)	Plusieurs jours (1)	Plus de la moitié du temps jours (2)	Presque tous les jours (3)
1. J'ai peu d'intérêt ou de plaisir à faire des choses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je me sens triste, déprimé ou désespéré.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. J'ai de la difficulté à m'endormir ou à rester endormi ou je dors trop.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Je me sens fatigué ou j'ai peu d'énergie.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. J'ai peu d'appétit ou je mange trop.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. J'ai une mauvaise perception de moi-même ou je pense que je suis un perdant ou que je n'ai pas satisfait mes propres attentes ou celles de ma famille.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. J'ai de la difficulté à me concentrer dans le cadre d'activités comme lire le journal ou regarder la télévision.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Je bouge ou je parle si lentement que les autres personnes l'ont remarqué. Ou au contraire, je suis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDICES

si agité que je bouge beaucoup plus que d'habitude.				
9. J'ai pensé que je serais mieux mort ou j'ai pensé à me blesser d'une façon ou d'une autre.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dans quelle mesure, ces éléments ont-ils rendu difficiles votre travail, vos tâches à la maison ou votre capacité à bien vous entendre avec les autres ?

Pas du tout difficile
 Plutôt difficile
 Très difficile
 Extrêmement difficile

<Saut de page>

[FNE] Indiquez votre réaction aux propositions suivantes, en cochant soit *Vrai*, soit *Faux*. Répondez aux questions rapidement, sans trop y réfléchir. C'est votre première impression qui nous intéresse.

	VRAI (1)	FAUX (0)
1. Je m'inquiète rarement de paraître stupide devant les autres.	<input type="checkbox"/>	<input type="checkbox"/>
2. Je m'inquiète de ce que les gens vont penser de moi, même si je sais que cela ne fait aucune différence.	<input type="checkbox"/>	<input type="checkbox"/>
3. Je deviens tendu(e) et agité(e) si je sens que quelqu'un me juge.	<input type="checkbox"/>	<input type="checkbox"/>
4. Même si je sais que les gens sont en train de se former une mauvaise impression de moi, je ne me sens pas concerné(e).	<input type="checkbox"/>	<input type="checkbox"/>
5. Je me sens très bouleversé(e) lorsque je commets une faute sociale.	<input type="checkbox"/>	<input type="checkbox"/>
6. Les opinions que les gens importants se font de moi, me préoccupent très peu.	<input type="checkbox"/>	<input type="checkbox"/>
7. J'ai souvent peur de paraître stupide ou de me rendre ridicule.	<input type="checkbox"/>	<input type="checkbox"/>
8. Je réagis très peu lorsque d'autres personnes me désapprouvent.	<input type="checkbox"/>	<input type="checkbox"/>
9. J'ai souvent peur que d'autres personnes remarquent mes défauts.	<input type="checkbox"/>	<input type="checkbox"/>
10. La désapprobation des autres a peu d'effet sur moi.	<input type="checkbox"/>	<input type="checkbox"/>
11. Si quelqu'un m'évalue, j'ai tendance à m'attendre au pire.	<input type="checkbox"/>	<input type="checkbox"/>
12. Je m'inquiète rarement de l'impression que je donne aux autres.	<input type="checkbox"/>	<input type="checkbox"/>
13. J'ai peur que les autres ne m'apprécient pas.	<input type="checkbox"/>	<input type="checkbox"/>
14. J'ai peur que les gens trouvent des choses qui ne vont pas chez moi.	<input type="checkbox"/>	<input type="checkbox"/>
15. Les opinions que les autres se font de moi ne me préoccupent pas.	<input type="checkbox"/>	<input type="checkbox"/>
16. Je ne suis pas nécessairement bouleversé(e) si je déplais à quelqu'un.	<input type="checkbox"/>	<input type="checkbox"/>
17. Quand je parle à quelqu'un, je m'inquiète de ce qu'il peut penser de moi.	<input type="checkbox"/>	<input type="checkbox"/>
18. Je pense qu'il ne faut pas se tracasser pour les faux pas sociaux, vu qu'ils sont inévitables.	<input type="checkbox"/>	<input type="checkbox"/>
19. Je m'inquiète souvent de l'impression que je donne.	<input type="checkbox"/>	<input type="checkbox"/>
20. Je me tracasse beaucoup sur ce que mes supérieurs pensent de moi.	<input type="checkbox"/>	<input type="checkbox"/>
21. Si je sais que quelqu'un me juge, je suis peu affecté(e).	<input type="checkbox"/>	<input type="checkbox"/>
22. Je m'inquiète lorsque les autres pensent que je ne vauds pas grand-chose.	<input type="checkbox"/>	<input type="checkbox"/>
23. Je me tracasse très peu de ce que les autres peuvent penser de moi.	<input type="checkbox"/>	<input type="checkbox"/>
24. Parfois je pense que je suis trop soucieux(se) de ce que les autres pensent de moi.	<input type="checkbox"/>	<input type="checkbox"/>
25. J'ai souvent peur de dire ou de faire une faute.	<input type="checkbox"/>	<input type="checkbox"/>
26. Je suis souvent indifférent(e) aux opinions que les autres ont de moi.	<input type="checkbox"/>	<input type="checkbox"/>
27. J'ai généralement confiance en ce que les autres ont une impression favorable de moi.	<input type="checkbox"/>	<input type="checkbox"/>

APPENDICES

28. Je m'inquiète souvent que les gens importants pour moi ne pensent pas beaucoup à moi.	<input type="checkbox"/>	<input type="checkbox"/>
29. Je rumine sur les opinions que mes amis ont de moi.	<input type="checkbox"/>	<input type="checkbox"/>
30. Je deviens tendu(e) et agité(e) si je sais que je suis jugé(e) par mes supérieurs.	<input type="checkbox"/>	<input type="checkbox"/>

<Saut de page>

[RSS-10] *Les gens pensent et font différentes choses lorsqu'ils se sentent découragés, tristes ou déprimés. Veuillez lire chacun des énoncés ci-dessous et indiquer à quelle fréquence vous faites ce qui est mentionné lorsque vous vous sentez découragé, triste ou déprimé. Indiquez ce que vous faites habituellement et non ce que vous pensez que vous devriez faire.*

	Presque Jamais (1)	Parfois (2)	Souvent (3)	Presque Toujours (4)
1. Penser: « Qu'ai-je fait pour mériter cela? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Analyser des événements récents pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Penser «Pourquoi est-ce que je réagis toujours de cette façon?».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Partir seul et penser aux raisons pour lesquelles vous vous sentez comme cela.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Écrire ce à quoi vous pensez et l'analyser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Penser à une situation récente en souhaitant que ça se soit mieux passé.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Penser : «Pourquoi ai-je des problèmes que les autres n'ont pas ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Penser « Pourquoi ne puis-je pas mieux gérer les choses ? ».	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Analyser votre personnalité pour essayer de comprendre pourquoi vous êtes déprimé(e).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Aller quelque part seul(e) pour penser à ce que vous ressentez.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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[Mini-CERTS] *Lisez chacune des propositions présentées ci-dessous, puis cochez la case qui décrit le mieux ce que vous vivez habituellement. Ne passez pas trop de temps à répondre, c'est votre première impression qui est importante.*

« Quand des pensées à propos de moi, de mes sentiments ou de situations et d'évènements me viennent à l'esprit ... »

	Presque jamais (1)	Parfois (2)	Souvent (3)	Presque toujours (4)
1. Mes pensées sont prises dans une ornière, revenant toujours aux mêmes thèmes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Je peux comprendre et répondre aux changements de manière intuitive, sans devoir analyser tout en détails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Je me compare aux autres personnes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Je pense de manière ouverte, libre et créative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Je me juge en fonction de mes valeurs et de mes croyances personnelles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Je me concentre sur la question de savoir pourquoi les choses se sont passées de cette manière là	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Je me demande pourquoi je n'arrive pas à me mettre en action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Mes pensées se développent dans des directions nouvelles et intéressantes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Je semble être immergé(e) dans l'action et en contact avec ce qu'il se passe autour de moi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Je pense que je ne suis bon(ne) à rien	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. J'aime me laisser aller à suivre le flux de mes pensées spontanées	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Je me sens sous pression d'empêcher que mes pires craintes se réalisent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Je me concentre sur le fait d'explorer et de jouer avec les idées, curieux (se) d'où elles peuvent me mener	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Mes pensées ont tendances à fuser à partir d'un événement spécifique vers des aspects plus larges et généraux de ma vie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Je m'en fais de ce que les autres pourraient penser de moi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. J'ai très rapidement des impressions et des intuitions de ce qui se passe et de comment réagir	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Merci d'appeler l'expérimentateur pour passer à la suite de l'étude.

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[Chaque sujet va alors effectuer une tâche dont le but est d'induire un mode de traitement de l'information particulier (i.e., abstrait ou concret). Chaque participant sera réparti de façon aléatoire dans l'une ou l'autre de ces conditions.]

(A l'oral) Vous allez maintenant devoir effectuer une tâche. Vous allez déjà lire un exemple, et vous pourrez ainsi me poser vos éventuelles questions en ce qui concerne la réalisation de la tâche.

[Condition abstraite] *Pour chaque chose de la vie que nous faisons, il existe toujours une raison, un « pourquoi » nous le faisons. En plus, nous pouvons souvent déterminer les causes de nos comportements à partir de nos buts dans la vie.*

Par exemple, vous êtes en ce moment en train de participer à une expérience en psychologie. Si on vous demandait « pourquoi faites-vous cela » ? Vous pourriez par exemple répondre que cela fait partie des exigences de votre cursus universitaire.

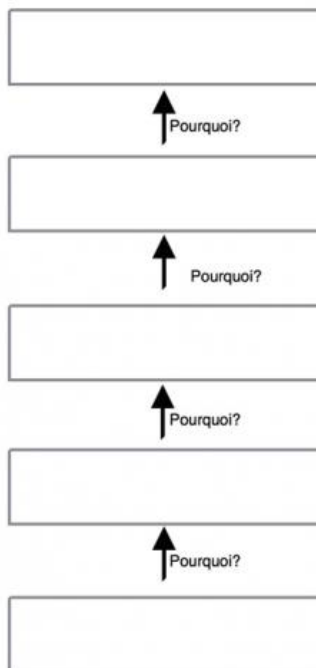
Pourquoi répondre correctement aux exigences de votre cursus universitaire ? Pour obtenir un diplôme.

Pourquoi obtenir un diplôme ? Pour trouver un bon métier ou pour se cultiver.

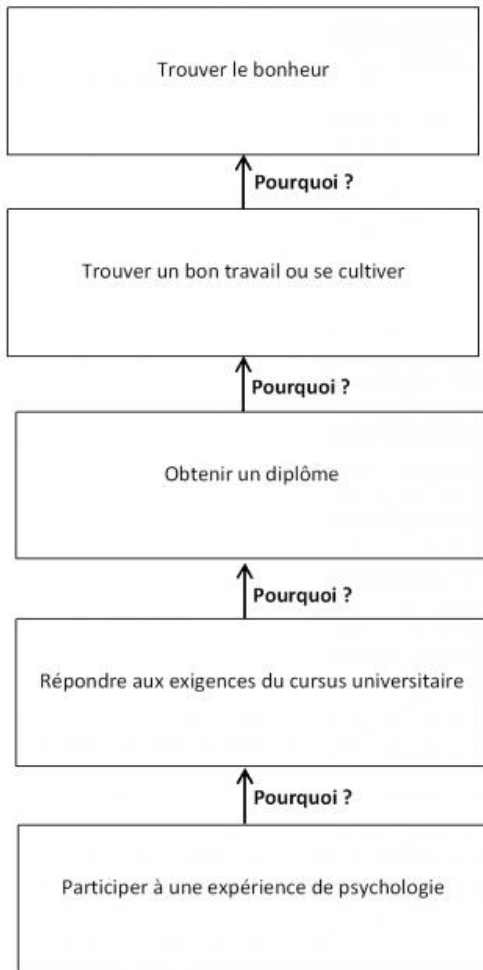
Et pourquoi cela ? Peut-être que vous voulez trouver un bon métier ou vous cultiver parce que vous sentez que c'est en faisant cela que vous pourrez trouver le bonheur.

Les recherches suggèrent que la participation à des exercices de pensée comme celui-ci, dans lequel nous pensons aux liens entre nos comportements et nos buts dans la vie, peut nous aider à mieux nous préparer. Cet exercice de pensée a pour but de focaliser votre attention sur « pourquoi » vous faites les choses.

Ci-dessous, voici une illustration du processus de cet exercice de pensée :



Cela donnerait donc ceci :



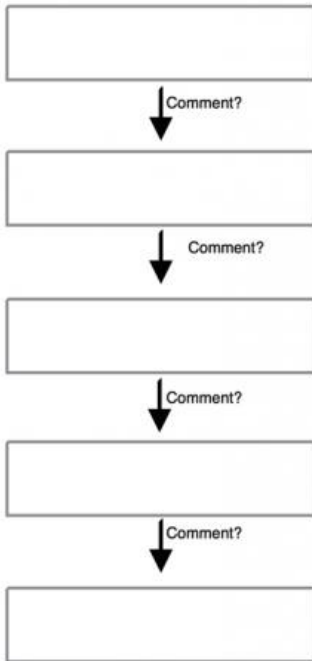
Si vous avez la moindre question, n'hésitez pas à contacter l'expérimentateur.

[Condition concrète] *Pour chaque chose de la vie que nous faisons, il existe toujours une manière, un « comment » le faire. En plus, nous pouvons souvent poursuivre nos buts dans la vie au travers de comportements très spécifiques.*

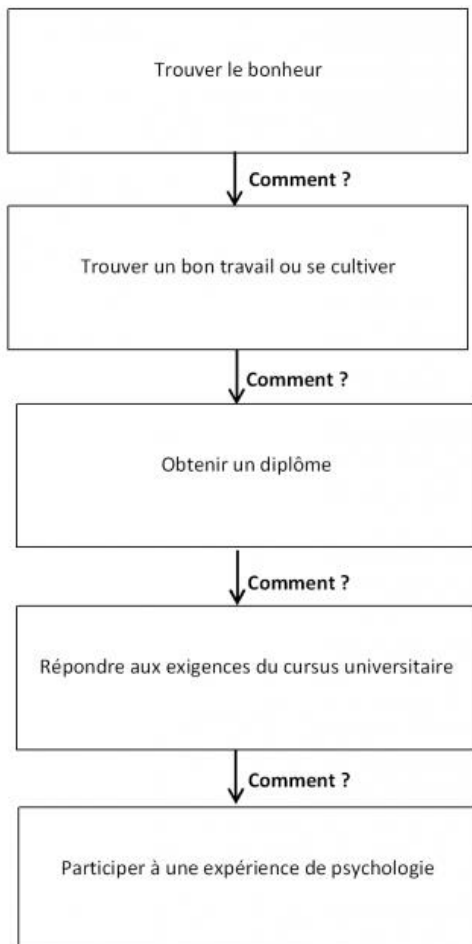
Par exemple, comme la plupart des gens, vous espérez probablement trouver le bonheur dans votre vie. Si on vous demandait « comment y parvenir » ? Vous pourriez par exemple répondre que trouver un bon travail, ou se cultiver sont des aides précieuses. Mais comment y accéder ? Peut-être en obtenant un diplôme. Comment obtenir un diplôme ? En répondant aux exigences de votre cursus universitaire. Comment satisfaire ces exigences ? Dans certains cas, comme aujourd'hui, en participant à une expérience de psychologie.

Les recherches suggèrent que s'engager dans un exercice de pensée comme celui-ci, dans lequel nous pensons aux liens entre nos buts dans la vie et nos comportements, peut nous aider à mieux nous préparer. Cet exercice de pensée a pour but de focaliser votre attention sur « comment » vous faites les choses.

Ci-dessous, voici une illustration du processus de cet exercice de pensée :



Cela donnerait donc ceci :



Si vous avez la moindre question, n'hésitez pas à contacter l'expérimentateur.

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La phase d'exemple est désormais terminée.

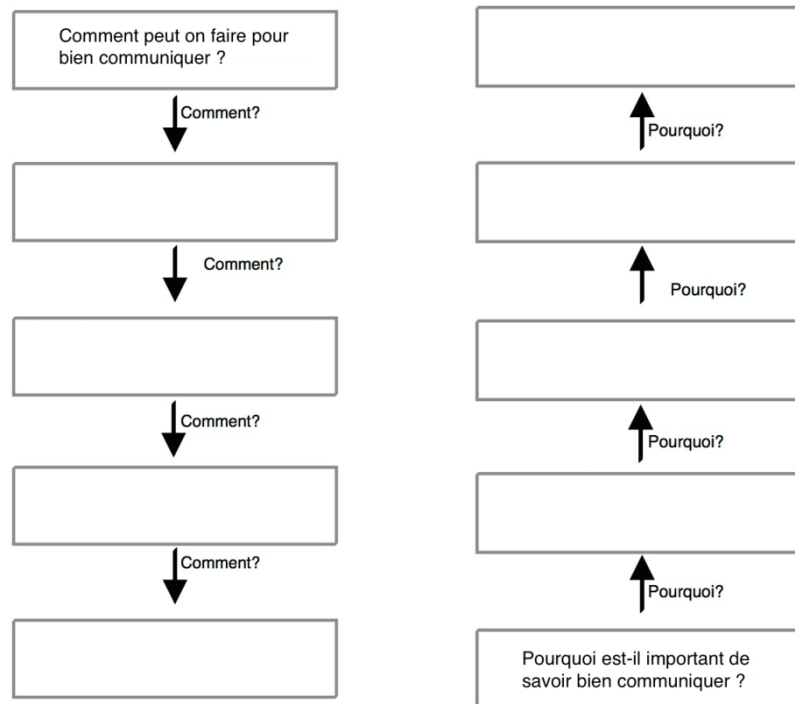
Pour réaliser cet exercice de pensée, nous allons vous demander de penser à l'activité suivante : "Bien communiquer".

[Condition concrète](Commencez par remplir la case vide tout en haut, puis descendez au fur et à mesure en suivant les flèches)

[Condition abstraite](Commencez par remplir la case vide tout en bas, puis remontez au fur et à mesure en suivant les flèches)

[Une fois que la condition d'entraînement réalisée, le participant complète sur l'ordinateur la condition correspondant à son groupe :

- Condition abstraite : « Pourquoi est-il important de bien communiquer? »
- Condition concrète : « Comment peut-on faire pour bien communiquer? »



[Une fois la tâche d'induction du mode de traitement effectuée, annonce au participant qu'il va devoir effectuer un speech filmé afin d'induire une réaction émotionnelle].

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Merci d'appeler l'expérimentateur pour passer à la suite de l'étude.

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(A l'oral) Vous allez maintenant effectuer la tâche de communication qui consiste à réaliser une présentation de 3 minutes sur un sujet imposé. Votre présentation sera filmée et, par la suite, évaluée par des juges formés spécialement pour cette expérience et cotée sur différents critères, tels que la posture ou la qualité d'élocution. Je vais également rester durant votre présentation afin de gérer les détails de l'enregistrement. Je ne serai pas autorisé à intervenir ou à vous aider durant votre présentation. Avez-vous des questions ? Bien, je vais vous demander une signature pour m'autoriser à utiliser une caméra pour vous filmer.

[Faire signer le consentement vidéo]

(A l'oral) Je vous demande de patienter juste un instant en répondant à cette question, pendant que je vais chercher les coupons de consentement.

[L'expérimentateur profite de ces 5 minutes pour remplir le fichier excel des points d'expérience, noter sur la feuille le nom, prénom, n° d'étudiant, année, ; ainsi que remplir la fiche récapitulative de participation aux expériences].

[Mesure de l'anxiété-état] *En cet instant, dans quelle mesure vous sentez-vous anxieux ?*

0 _____ 100
Pas du tout Extrêmement

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Merci d'appeler l'expérimentateur pour passer à la suite de l'étude.

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[L'expérimentateur sort de la pièce et laisse le participant seul pendant 5 minutes afin de favoriser l'apparition de ruminations. Il revient ensuite avec une caméra et l'installe devant le participant. Le participant reçoit différentes questions ci-dessous]

(A l'oral) Juste avant que je ne vous donne le sujet et que vous ne commenciez, j'aimerais que vous répondiez à ces quelques questions.

[Mesure de l'anxiété-état] *Lorsque vous imaginez la présentation que vous allez réaliser, dans quelle mesure vous sentez-vous anxieux ?*

0 _____ 100
Pas du tout Extrêmement

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[Mesure des ruminations] *Lorsque vous imaginez la présentation que vous allez réaliser, dans quelle mesure êtes-vous centré sur vos sentiments ?*

0 _____ 100
Pas du tout Extrêmement

Lorsque vous imaginez la présentation que vous allez réaliser, dans quelle mesure êtes-vous centré sur vos problèmes ?

0 _____ 100
Pas du tout Extrêmement

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[Mesure des ruminations concrètes-état] *Lorsque vous imaginez la présentation que vous allez réaliser, dans quelle mesure êtes-vous centré sur la manière dont la présentation orale va se dérouler, étape après étape ?*

0
Pas du tout

100
Extrêmement

[Mesure des ruminations abstraites-état] *Lorsque vous imaginez la présentation que vous allez réaliser, dans quelle mesure êtes-vous centré sur l'analyse des causes, des conséquences et de la signification de cette présentation orale ?*

0
Pas du tout

100
Extrêmement

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[Avant que le participant ne remplisse la dernière mesure, on lui explique la différence entre la perspective d'acteur et d'observateur].

Penser à une situation (future ou passée) est souvent accompagné d'images visuelles. Ces images peuvent être perçues selon une perspective d'acteur ou d'observateur.

Dans une perspective d'acteur, nous voyons la situation comme nous si nous la vivions. En d'autres termes, nous voyons ce qui nous entoure au travers de nos propres yeux. Voici une illustration de la perspective d'acteur :



Cette perspective est différente de la perspective d'observateur, dans laquelle nous voyons la situation de « l'extérieur ». En d'autres termes, dans notre image, nous nous voyons ainsi que ce qui nous entoure. Voici une illustration de la perspective d'observateur :



[Mesure de la perspective d'acteur] *Lorsque vous imaginez la présentation que vous allez réaliser, dans quelle mesure avez-vous une perspective d'acteur dans votre image ?*

0 _____ 100
Pas du tout *Extrêmement*

[Mesure de la perspective d'observateur] *Lorsque vous imaginez la présentation que vous allez réaliser, dans quelle mesure avez-vous une perspective d'observateur dans votre image ?*

0 _____ 100
Pas du tout *Extrêmement*

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Merci d'appeler l'expérimentateur pour passer à la suite de l'étude.

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[Explications concernant le speech] *(A l'oral) Vous allez maintenant pouvoir présenter votre exposé. Je vais vous demander de piocher votre sujet. Je vais vous demander de vous placer devant la caméra pour l'enregistrement. Vous avez donc 3 minutes pour me parler « des bénéfices et des difficultés liées au mariage pour tous/à l'immigration ». Je vais rester ici et vous rappelle que je ne suis pas autorisé à intervenir ou à vous aider durant votre présentation. Je vous ferai un signe 15 secondes avant la fin des 3 minutes pour que vous puissiez conclure.*

[L'expérimentateur allume la caméra, puis speech de 3 minutes.]

[A la fin des 3 minutes, l'expérimentateur éteint la caméra]

(A l'oral) Je vais vous demander de répondre encore à une question sur l'ordinateur.

[Mesure de l'anxiété-état] *En cet instant, dans quelle mesure vous sentez-vous anxieux ?*

0 _____ 100
Pas du tout Extrêmement

<Saut de page>

[Mesure de difficulté] *Dans quelle mesure avez-vous trouvé le sujet de votre présentation orale*

0 _____ 100
Pas du tout difficile ? Extrêmement difficile

Merci d'appeler l'expérimentateur pour passer à la suite de l'étude.

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(A l'oral) Vous venez de finir la première partie de l'expérience. La seconde partie consiste à répondre à quelques questions d'ici 24 à 36h, ce qui prend 10 minutes environ. La réponse à ces questions demain est comptée dans les 1h d'expérience, donc le point d'expérience que je vais vous donner comprend votre participation à cette partie également.

Je vous propose de vous envoyer un mail de rappel demain pour vous envoyer un lien vers le site internet sur lequel vous devez répondre aux questions. Si vous ne voulez pas nous communiquer votre e-mail, je peux vous donner un papier avec les coordonnées du site internet où il faut que vous alliez demain pour répondre aux questions.

[Noter l'adresse mail du participant ou lui donner le papier. Lui rendre la feuille récapitulative de participation aux expériences et sa carte d'étudiant].

(A l'oral) Comme l'étude est toujours en cours jusqu'à demain lorsque vous répondrez aux questions, il est important que vous ne parliez pas de cette étude à d'autres personnes. Est-ce vous pourriez vous engager à ne pas parler de cette étude jusqu'à ce qu'elle soit finie ?

[Attendre son accord].

(A l'oral) Je vous remercie pour votre participation. Je compte sur vous pour répondre aux questions demain. Vous aurez également un retour sur l'expérience à laquelle vous venez de participer.

[Fin de l'expérimentation pour le jour-là. 24 à 36h plus tard, les sujets reçoivent par e-mail (s'ils en ont donné l'autorisation) une nouvelle série de mesures des ruminations post-mortem et de la perspective adoptée dans le rappel de la situation de speech. Cette fois-ci, les questions portent sur le souvenir de l'événement].

PARTIE 2

[Consignes générales]

Suite de l'étude sur la communication

Dans cette seconde partie, nous vous demanderons de répondre à de brèves questions concernant la tâche que vous avez effectuée lors de la première partie de l'étude.

Votre participation à cette deuxième partie de l'étude prendra environ 10 minutes.

Votre participation est volontaire. Vous pouvez à tout moment et en toute liberté décider

d'interrompre votre participation à cette étude, sans justification et sans conséquence ultérieure. Votre participation sera d'emblée interrompue dès la fermeture de la page de l'étude. Les données déjà enregistrées seront conservées de manière anonyme et confidentielle dans un endroit sécurisé auquel seuls les responsables du projet ont accès. Si vous le souhaitez, vous pouvez rectifier ou supprimer ces informations après votre participation, grâce au code anonyme que vous allez générer au début de cette étude.

A court terme, votre participation à cette recherche permettra d'obtenir une meilleure compréhension des mécanismes fondamentaux en jeu dans la communication. A moyen et à long terme, cette compréhension pourra éclairer la manière dont ces mécanismes opèrent chez des personnes sujettes à ressentir de l'anxiété ou de la dépression à des niveaux intenses.

À notre connaissance, cette seconde partie de la recherche n'implique aucun risque ou inconfort plus important que ceux associés aux situations de communications de la vie quotidienne.

Cette recherche sera diffusée dans des colloques et elle sera publiée dans des actes de colloque et des articles de revue académique. Pour toutes les personnes qui le souhaiteraient, nous pouvons vous envoyer plus d'informations sur les objectifs de cette étude.

Si vous souhaitez plus de renseignements, envoyez- nous un message avec le titre « Etude sur la communication » à l'adresse suivante : Perrine.Douce@univ-grenoble-alpes.fr

[Rappel du code d'anonymat] *Nous allons vous demander de rappeler votre code anonyme, afin que nous puissions associer vos réponses à la première partie de l'étude (hier, en laboratoire), à celles de la deuxième partie de l'étude (ici, en ligne).*

Celui-ci sera composé de la première lettre du prénom de votre père, suivie de la première lettre du prénom de votre mère, suivie de votre âge, suivie de la première lettre de votre prénom.

Ex :

Père : Jean

Mère : Aurélie

Âge : 20 ans

Moi : Alban

CODE : JA20A

<Saut de page>

[Mesure de la fréquence des ruminations] *Lors des 24 à 36 dernières heures, dans quelle mesure avez-vous pensé à votre présentation d'hier ?*

0
Jamais

100
Très
fréquemment

[Mesure de l'anxiété-état] *Lors des 24 à 36 dernières heures, lorsque vous pensiez à votre présentation, dans quelle mesure vous sentiez-vous anxieux ?*

0
Pas du tout

100
Extrêmement

<Saut de page>

[Mesure des ruminations] *Lors des 24 à 36 dernières heures, lorsque vous pensiez à votre présentation, dans quelle mesure étiez-vous centré sur vos sentiments ?*

0 _____ 100
Pas du tout *Extrêmement*

Lors des 24 à 36 dernières heures, lorsque vous pensiez à votre présentation, dans quelle mesure étiez-vous centré sur vos problèmes ?

0 _____ 100
Pas du tout *Extrêmement*

<Saut de page>

[Mesure des ruminations concrètes-état] *Lors des 24 à 36 dernières heures, lorsque vous pensiez à votre présentation, dans quelle mesure étiez-vous centré sur la manière dont la présentation orale s'est déroulée, étape après étape ?*

0 _____ 100
Pas du tout *Extrêmement*

[Mesure des ruminations abstraites-état] *Lors des 24 à 36 dernières heures, lorsque vous pensiez à votre présentation, dans quelle mesure étiez-vous centré sur l'analyse des causes, des conséquences et de la signification de cette présentation orale ?*

0 _____ 100
Pas du tout *Extrêmement*

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Les images visuelles peuvent être perçues selon une perspective d'acteur ou d'observateur.

Dans une perspective d'acteur, nous voyons la situation comme nous l'avons initialement vécue. En d'autres termes, nous voyons ce qui nous entoure au travers de nos propres yeux. Voici une illustration de la perspective d'acteur :



Cette perspective est différente de la perspective d'observateur, dans laquelle nous voyons la situation de « l'extérieur ». En d'autres termes, dans notre souvenir, nous nous voyons ainsi que ce qui nous entoure. Voici une illustration de la perspective d'observateur :



[Mesure de la perspective d'acteur] *Lors des 24 à 36 dernières heures, lorsque vous pensez à votre présentation, dans quelle mesure aviez-vous une perspective d'acteur dans votre image ?*

0
Pas du tout

100
Extrêmement

[Mesure de la perspective d'observateur] *Lors des 24 à 36 dernières heures, lorsque vous pensez à votre présentation, dans quelle mesure aviez-vous une perspective d'observateur dans votre image ?*

0
Pas du tout

100
Extrêmement

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Nous vous remercions pour votre participation à cette dernière partie de l'étude.

[Commentaires] *Avez-vous des remarques ou des commentaires sur l'étude, sur les objectifs de l'étude, ou d'autres choses que vous souhaitez aborder ?*

[Induction d'imagerie positive]

Nous arrivons à la fin de cette étude.

Etant donné le temps passé à vous rappeler un souvenir désagréable, nous vous offrons maintenant la possibilité de penser à un souvenir agréable.

Pour cela, nous allons vous demander de vous centrer sur le souvenir d'une situation positive.

Cet événement doit avoir eu lieu il y a moins de 5 ans et cela doit être une situation unique, c'est-à-dire qui a duré moins d'une journée, qui s'est produite à un moment et dans un lieu particulier. Ce souvenir peut être lié à des domaines divers, comme par exemple le domaine scolaire/professionnel, social, sentimental, les activités de loisirs.

Prenez le temps que vous souhaitez pour repenser à cette situation positive.

Si vous le souhaitez, vous pouvez vous aider des indices suivants. Vous pouvez également fermer les yeux et penser à cette situation de vous-même.

Indices :

- *Quand est-ce que cet événement positif s'est déroulé ?*
- *A quel endroit étiez-vous ?*
- *Que voyiez-vous autour de vous ?*
- *Que ressentiez-vous ?*
- *Comment vous sentez-vous maintenant ?*

Lorsque vous vous sentez prêt, vous pouvez cliquer sur suivant.

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Nous allons vous faire un retour sur l'expérience à laquelle vous venez de participer. Merci de ne pas décrire ces informations à d'autres personnes susceptibles de passer cette étude.

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[Débriefing] *Vous avez participé à une expérience sur la communication dans laquelle nous nous intéressons à l'influence de la manière dont on pense à un but général (par ex. communiquer de façon efficace), en se centrant sur le « pourquoi » ou sur le « comment », sur nos pensées et nos images mentales à propos d'autres événements (p. ex., une présentation).*

Pour cela, nous avons répartis les personnes dans deux groupes qui ont reçu des consignes différentes. Certains parmi vous se sont centrés sur « comment faire pour bien communiquer », tandis que d'autres ont dû penser à « pourquoi est-il important de bien communiquer ».

Nous pensons que ces deux façons de penser peuvent jouer un rôle sur la manière dont on imagine ou dont on se rappelle une situation émotionnelle (par ex., une présentation).

Pour tester cela, vous avez tous réalisé une présentation orale sur un sujet imposé, qui pouvait vous amener à avoir certaines pensées et certaines images par anticipation de la présentation (avant la présentation), mais aussi en vous rappelant de cette présentation (le lendemain).

Notre objectif est d'explorer si la manière dont on pense à un but général influence ensuite nos pensées (si l'on rumine et si ces ruminations portent sur le déroulement de la situation ou sur l'analyse des causes, des conséquences et des significations de la situation) et nos images mentales (si l'on voit l'événement à travers nos propres yeux, en perspective d'acteur, ou à travers les yeux d'un spectateur, en perspective d'observateur) à propos d'événements émotionnels comme une présentation. Nous faisons l'hypothèse que se centrer sur la manière dont on peut communiquer engendre moins de ruminations et est plus associé à une perspective d'acteur que de se centrer sur les raisons pour lesquelles il est important de bien communiquer.

Enfin, en tout début d'étude, vous avez répondu en ligne à des questionnaires plus généraux (p.ex., sur la tendance habituelle à ruminer -c'est-à-dire à penser de manière répétitive sur différentes choses-, sur l'état d'humeur au cours des dernières semaines) afin de comprendre la manière dont ces facteurs les influencent.

Pour résumer, cette recherche porte sur l'influence d'un mode de pensée particulier sur le vécu subjectif d'une situation émotionnelle de présentation orale. Cela signifie que le vécu objectif de la présentation, c'est-à-dire votre prestation lors de la présentation orale, ne sera en réalité pas évaluée par des juges extérieurs. Les fichiers vidéo enregistrés seront détruits immédiatement et définitivement après votre participation.

A court terme, cette étude permettra de mieux comprendre les mécanismes en jeu dans divers pathologies mentales telles que l'anxiété sociale. A long terme, elle permettra de pouvoir développer de nouvelles méthodes thérapeutiques plus efficaces ciblées sur ces mécanismes.

Nous espérons que ces explications répondent à vos questions. Vous pouvez nous contacter à l'adresse suivante : Perrine.Douce@univ-grenoble-alpes.fr avec pour objet du message "Etude sur la communication".

Enfin, nous vous demandons de ne pas parler de cette étude à d'autres personnes afin de ne pas biaiser les résultats de cette étude.

En cliquant sur suivant, vous vous engagez à ne pas divulguer d'informations sur cette étude tant que celle-ci est menée au sein de l'université Grenoble Alpes.

APPENDICES

Table G3

Hierarchical Multiple Regressions Predicting Observer Perspective in Anticipatory Images from Maladaptive Rumination, Condition, and their Interaction.

Variable	Observer perspective in anticipatory images											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	49.80	2.60		[44.90, 54.83]	49.83	3.29		[43.16, 56.22]	50.10	3.23		[43.83, 56.22]
Maladaptive rumination	5.62	3.01	.18	[-0.36, 11.45]	5.62	3.01	.18	[-0.44, 11.54]	9.67	3.68	.32*	[2.65, 17.47]
Condition					-0.06	5.29	-.00	[-10.23, 10.12]	-0.12	5.27	-.00	[-10.24, 9.98]
Maladaptive rumination * Condition									-7.23	6.06	-.18	[-19.41, 3.19]
<i>R</i> ²	.03				.03				.05			
<i>F</i>	3.82				1.89				1.78			
ΔR^2	.03				.00				.01			
ΔF	3.82				.00				1.54			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 111.

* $p < .05$. ** $p < .01$. *** $p < .001$.

APPENDICES

Table G4

Hierarchical Multiple Regressions Predicting Observer Perspective in Post-Event Images from Psychopathology, Condition and their Interaction.

Variable	Observer perspective in post-event image											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	41.38	3.42		[34.95, 48.09]	40.57	5.18		[30.95, 50.99]	40.57	5.23		[30.61, 51.41]
Psychopathology	-1.30	3.98	-.04	[-9.43, 6.40]	-1.35	4.02	-.04	[-9.58, 6.55]	-1.40	5.97	-.04	[-13.06, 11.53]
Condition					1.64	6.82	.03	[-12.85, 15.16]	1.64	6.87	.03	[-12.88, 15.17]
Psychopathology * Condition									0.11	8.64	.00	[-17.25, 15.16]
<i>R</i> ²	.00				.00				.00			
<i>F</i>	.10				.08				.05			
ΔR^2	.00				.00				.00			
ΔF	.10				.06				.00			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 77.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table G5

Hierarchical Multiple Regressions Predicting Observer Perspective in Post-Event Images from Maladaptive Rumination, Condition and their Interaction.

Variable	Observer perspective in post-event images											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	41.46	3.55		[34.60, 48.70]	40.77	5.08		[31.09, 51.26]	41.02	5.07		[31.25, 51.52]
Maladaptive rumination	2.12	3.78	.06	[-5.84, 9.84]	2.09	3.85	.06	[-6.01, 9.88]	6.93	5.94	.21	[-5.36, 19.89]
Condition					1.39	6.78	.02	[-11.74, 14.60]	1.19	6.75	.02	[-11.43, 13.70]
Maladaptive Rumination * Condition									-9.77	7.72	-.21	[-23.90, 3.60]
<i>R</i> ²	.00				.01				.03			
<i>F</i>	.31				.17				.66			
ΔR^2	.00				.00				.02			
ΔF	.31				.04				1.64			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 77.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table G6

Hierarchical Multiple Regressions Predicting Post-Event Abstract Rumination from Psychopathology, Condition and their Interaction.

Variable	Post-event abstract rumination											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	41.28	3.26		[34.74, 47.84]	40.22	4.77		[30.45, 49.88]	40.18	4.82		[30.42, 50.57]
Psychopathology	6.27	4.05	.18	[-2.28, 14.70]	6.20	4.06	.18	[-2.06, 14.77]	5.57	5.83	.16	[-6.41, 17.55]
Condition					2.14	6.24	.04	[-10.08, 13.96]	2.17	6.29	.04	[-9.91, 13.44]
Psychopathology * Condition									1.39	8.16	.03	[-14.61, 17.39]
<i>R</i> ²	.03				.04				.04			
<i>F</i>	2.62				1.35				.90			
ΔR^2	.03				.00				.00			
ΔF	2.62				.11				.03			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 77.

* $p < .05$. ** $p < .01$. *** $p < .001$.

APPENDICES

Table G7

Hierarchical Multiple Regressions Predicting Post-Event Abstract Rumination from Maladaptive Rumination, Condition and their Interaction.

Variable	Post-event abstract rumination											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	41.24	3.21		[34.80, 47.72]	40.12	4.71		[30.86, 49.68]	40.04	4.74		[30.83, 49.75]
Maladaptive rumination	6.77	3.54	.22	[-0.52, 14.43]	6.73	3.53	.22	[-0.71, 14.39]	5.33	5.16	.17	[-5.77, 15.52]
Condition					2.27	6.18	.04	[-9.93, 14.41]	2.32	6.22	.04	[-10.08, 14.55]
Maladaptive rumination * Condition									2.81	7.52	.06	[-11.55, 18.40]
<i>R</i> ²	.05				.05				.05			
<i>F</i>	3.71				1.90				1.30			
ΔR^2	.05				.00				.00			
ΔF	3.71				.13				.16			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 77.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDICES

Table G8

Hierarchical Multiple Regressions Predicting Post-Event Anxiety from Maladaptive Rumination, Condition and their Interaction.

Variable	Post-event anxiety											
	Model 1				Model 2				Model 3			
	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI	<i>B</i>	<i>SE_B</i>	β	BCa 95% CI
Constant	23.79	2.73		[18.50, 29.43]	22.28	4.00		[15.48, 29.86]	22.06	3.98		[15.22, 29.60]
Maladaptive rumination	6.04	2.86	.23*	[0.24, 11.54]	5.98	2.86	.23*	[0.19, 11.54]	1.64	3.99	.06	[-6.41, 9.54]
Condition					3.05	5.20	.06	[-8.00, 13.71]	3.23	5.14	.07	[-7.66, 13.75]
Maladaptive rumination * Condition									8.76	5.52	.23	[-2.26, 19.64]
<i>R</i> ²	.05				.06				.09			
<i>F</i>	4.18*				2.23				2.25			
ΔR^2	.05				.00				.03			
ΔF	4.18*				.33				2.21			

Note. CI = confidence intervals. 95% bias corrected and accelerated confidence intervals reported in brackets. CIs and standard errors based on 2000 bootstrap samples. *N* = 77.

* $p < .05$. ** $p < .01$. *** $p < .001$.

RESUME

Un nombre croissant de recherches en psychologie clinique s'inscrit dans une approche *processuelle, fonctionnelle et transdiagnostique*. En opposition à l'approche diagnostique et catégorielle, cette approche est centrée sur l'étude des processus psychologiques impliqués dans le développement et le maintien de différents troubles psychopathologiques. Ce travail de thèse porte ainsi sur deux processus transdiagnostiques abondamment étudiés : les pensées répétitives négatives et la perspective visuelle en imagerie mentale. Dans les deux premières parties de ce résumé, nous aborderons les définitions et les cadres théoriques des pensées répétitives négatives ainsi que de la perspective visuelle en imagerie mentale. La troisième partie de ce résumé sera consacrée aux travaux empiriques que nous avons menés, suivie d'une discussion générale.

1. Les pensées répétitives négatives

1.1. Définition des pensées répétitives négatives

Les pensées répétitives sont généralement définies comme « le processus de penser attentivement, de façon répétitive ou fréquente à soi et au monde »⁷¹ (Segerstrom et al., 2003, p. 909). Lorsqu'elles portent sur un contenu négatif, on parle alors de pensées répétitives négatives (PRN) (Ehring & Watkins, 2008; Harvey et al., 2004). Ces PRN comprennent, entre autres, les phénomènes de *rumination* et d'*inquiétude*.

Initialement étudiée dans le cadre de la dépression, la rumination a été définie par Nolen-Hoeksema (1991, 2004) comme les pensées focalisant l'attention de l'individu sur ses symptômes dépressifs et sur leurs causes, conséquences et implications. L'inquiétude, quant à

⁷¹ Cette définition a été traduite à partir de la définition anglaise : "The process of thinking attentively, repetitively, or frequently about oneself and one's world".

elle, a largement été étudiée dans le trouble de l'anxiété généralisée (TAG). Elle est définie comme « une chaîne de pensées et d'images, négativement chargée d'affects et relativement incontrôlable »⁷² (Borkovec et al., 1983, p. 10). La rumination et l'inquiétude ne se limitent pas à la dépression et au TAG mais se retrouvent dans d'autres troubles psychologiques, tels que l'état de stress post-traumatique (ESPT) ou la phobie sociale.

On a longtemps tenté de déterminer les caractéristiques distinctives de la rumination et de l'inquiétude. En effet, celles-ci diffèrent en termes de contenu et d'orientation temporelle : La rumination est centrée sur les symptômes dépressifs et orientée vers le passé tandis que l'inquiétude est focalisée sur les événements futurs négatifs. Malgré ces différences, elles partagent de nombreuses caractéristiques : Elles sont répétitives, passives et/ou incontrôlables, et focalisées sur un contenu négatif (Ehring & Watkins, 2008). Ces nombreuses similitudes ont conduit les chercheurs à évoquer l'existence d'un construit sous-jacent commun (i.e., la rumination et l'inquiétude feraient partie des PRN). De nombreuses études soutiennent empiriquement ce construit unique. Des études de modélisation par équations structurelles ont ainsi montré que la rumination et l'inquiétude étaient mieux expliquées par un construit latent unique que par deux construits distincts, et que ce construit unique prédisait les troubles anxieux et dépressifs (Arditte et al., 2016; Spinhoven et al., 2015; Topper et al., 2014). Plus qu'un épiphénomène des manifestations anxio-dépressives, les PRN sont conceptualisées comme un processus transdiagnostique, ce que nous allons maintenant développer.

1.2. Les pensées répétitives négatives comme un processus transdiagnostique

Les PRN sont impliquées dans le développement et le maintien de nombreux troubles psychiatriques de l'Axe I, comme la dépression, les troubles anxieux tels que la phobie sociale, le TAG, l'ESTP, ou les troubles du comportement alimentaire (Baeyens et al., 2012;

⁷² Cette définition a été traduite de l'anglais : "a chain of thoughts and images, negatively affect-laden and relatively uncontrollable".

Ehring & Watkins, 2008; Harvey et al., 2004; Lyubomirsky et al., 2015; Segerstrom et al., 2003). Néanmoins, toutes les PRN n'ont pas des conséquences délétères. En effet, les PRN sont un processus courant. Certaines formes seraient fonctionnelles et aideraient par exemple à la résolution de problèmes, tandis que d'autres seraient dysfonctionnelles et conduiraient aux troubles psychologiques (Nolen-Hoeksema et al., 2008). Ainsi, les PRN dysfonctionnelles entraîneraient chez les individus dysphoriques une augmentation de l'humeur négative et des pensées négatives (e.g., rappel de souvenirs négatifs, interprétations négatives de situations). Elles interfèreraient aussi avec la résolution de problèmes, diminueraient la motivation à réaliser des activités susceptibles d'améliorer l'humeur, et seraient associées à un soutien social moindre (Nolen-Hoeksema et al., 2008). Nous allons maintenant détailler les caractéristiques permettant de distinguer les PRN fonctionnelles et dysfonctionnelles.

1.3. Fonction d'évitement des pensées répétitives négatives

Une caractéristique majeure des PRN dysfonctionnelles est leur nature verbale. En effet, les PRN sont majoritairement verbales (i.e., des mots et des phrases que l'on se dit dans sa tête) plutôt qu'imaginées (i.e., des images que l'on visualise), surtout dans des populations cliniques (e.g., Borkovec & Inz, 1990). Cette nature verbale a été mise en évidence par des études utilisant une procédure de *sondage des pensées* dans laquelle, lors d'une période de rumination ou d'inquiétude, les pensées des participants sont sondées à différents moments et examinées selon leur contenu et leur nature verbale ou imaginée. Cette méthode a initialement été utilisée par Borkovec et Inz (1990) pour étudier l'inquiétude et a permis de montrer que, comparativement aux pensées survenant lors d'une période de relaxation, celles survenant lors d'une période d'inquiétude sont davantage verbales, et ce d'autant plus chez des personnes souffrant d'un TAG comparativement à des individus non-cliniques. D'autres études ont également démontré la nature majoritairement verbale tant de l'inquiétude (Behar et al., 2012,

2005; Hirsch et al., 2012) que de la rumination (Goldwin & Behar, 2012; Goldwin et al., 2013; McLaughlin et al., 2007; Watkins et al., 2005).

Cette nature verbale a été conceptualisée dans la théorie de l'évitement cognitif de l'inquiétude (Sibrava & Borkovec, 2006). Selon cette théorie, la nature verbale des pensées lors de l'inquiétude au sujet d'une ou plusieurs situations est une tentative pour éviter les images mentales non plaisantes associées à ces situations. Cette théorie de la nature verbale des pensées comme une stratégie d'évitement serait aussi pertinente pour comprendre la rumination (e.g., Martell et al., 2013; Watkins & Moulds, 2005b). Néanmoins, cet évitement empêcherait le traitement émotionnel de l'information (Foa & Kozak, 1986) et mènerait à des conséquences négatives à moyen et long terme, telles qu'un effet d'incubation des pensées intrusives pouvant générer de nouveaux épisodes d'inquiétude ou de rumination (Hirsch et al., 2015; Stokes & Hirsch, 2010).

1.4. Processus d'abstraction dans les pensées répétitives négatives

Les PRN seraient également davantage abstraites que concrètes. Cette caractéristique a initialement été mise en évidence par Stöber et Borkovec (2002). Ces chercheurs ont différencié les pensées concrètes, définies comme « distinctes, spécifiques à une situation, sans équivoque, claires, et singulières », des pensées abstraites « non distinctes, transversales à plusieurs situations, avec équivoque, non claires, et agrégées »⁷³. Selon leur théorie de la réduction de la concrétude de l'inquiétude (Stöber & Borkovec, 2002), la faible proportion de pensées imagées lors de l'inquiétude serait associée à la nature abstraite de l'inquiétude. Cette réduction de la concrétude serait une tentative d'évitement cognitif de l'imagerie mentale, qui entraînerait des conséquences négatives pour le traitement émotionnel de l'événement. Cette

⁷³ Ces définitions ont été traduites de l'anglais. Une pensée abstraite est définie comme « indistinct, cross-sectional, equivocal, unclear, aggregated » tandis qu'une pensée concrète est définie comme « distinct, situationally specific, unequivocal, clear, singular ».

nature abstraite a également été mise en évidence pour la rumination (Goldwin & Behar, 2012; Watkins & Moulds, 2007). L'abstraction (i.e., la nature abstraite des PRN) a ainsi été avancée comme un processus à la base des PRN (e.g., Watkins, 2008).

Dans une importante revue de la littérature, Watkins (2008) a identifié deux aspects majeurs des PRN: leur aspect *processuel* et leur aspect *structurel*. L'aspect processuel renverrait au niveau d'abstraction des PRN. Les PRN seraient dysfonctionnelles uniquement lorsqu'elles seraient sur un mode abstrait: Un mode abstrait de PRN renvoie aux pensées centrées sur l'analyse des causes, conséquences, et implications d'un événement ou d'une action (e.g., « *Pourquoi* cela est-il arrivé ? »). Ce mode de pensée abstrait, analytique, et évaluatif est principalement focalisé sur le passé et le futur. À l'inverse, un mode concret de PRN correspond aux pensées à propos des moyens ou des étapes d'un événement ou d'une action (e.g., « *Comment* cela est-il arrivé ? »). Ce mode de pensée concret et expérientiel est centré sur le présent et l'expérience immédiate. De nombreuses études ont montré que les PRN abstraites auraient des conséquences affectives, cognitives, motivationnelles et sociales négatives, comparativement aux PRN concrètes (pour une revue, voir Baeyens et al., 2012; Watkins, 2008).

Cette distinction entre des modes abstrait et concret de PRN a été mise en relation avec la différenciation entre des niveaux de traitement abstrait et concret (Théorie du contrôle, Carver & Scheier, 1982; Théorie du niveau de traitement, Trope & Liberman, 2003; Théorie du niveau d'identification des buts, Vallacher & Wegner, 1987). L'idée fondamentale est que tout but, action, ou événement peut être représenté à différents niveaux de traitements, d'un niveau abstrait à un niveau concret. De hauts niveaux de traitement renvoient à des représentations abstraites, générales, et décontextualisées qui donnent le sens des buts ou événements (i.e., le « pourquoi »). Au contraire, de bas niveaux de traitement correspondent

aux représentations concrètes, spécifiques, et contextualisées qui spécifient les moyens et les étapes des buts ou événements (i.e., le « comment »).⁷⁴

En parallèle de cet aspect processuel, certains aspects structurels des PRN, tels que le contexte intrapersonnel (e.g., état d'humeur, niveau de psychopathologie) ou interpersonnel (e.g., événements traumatiques ou stressants), participeraient aux conséquences des PRN (Watkins, 2008). Ainsi, les PRN seraient associées à des conséquences négatives uniquement dans des populations vulnérables par rapport à des populations non-cliniques ou lorsque les individus seraient dans une humeur négative (Nolen-Hoeksema, 2004; Watkins, 2008). Récemment, Watkins (2011) a étendu sa théorie du mode de traitement en combinant les aspects structurels et processuels des PRN. Les personnes vulnérables, telles que celles souffrant de symptômes anxieux ou dépressifs, auraient une dérégulation de leur mode de traitement qui se manifesterait par l'adoption d'un mode de traitement abstrait par défaut et une difficulté à adopter de façon flexible un mode concret lorsque les circonstances le nécessitent (e.g., lorsqu'une humeur négative est engendrée face à une situation complexe ou difficile). Ce manque de flexibilité psychologique dans l'adoption d'un mode de traitement en fonction des circonstances serait responsable des conséquences non adaptatives. Ce biais, que nous pourrions définir comme un biais d'abstraction, peut être considéré comme un processus transdiagnostique de par son implication dans le développement et le maintien de différents troubles, tels que la dépression, le TAG, l'anxiété sociale, ou l'ESPT (Watkins, 2011).

Selon Watkins (2008), une des explications possibles aux conséquences non adaptatives du mode de traitement abstrait serait la *généralisation*. La généralisation consiste à tirer une conclusion générale à partir d'incidents isolés, tels qu'un échec, et à appliquer cette conclusion à tous les événements, qu'ils soient reliés ou non, ce qui affecte le sentiment

⁷⁴ Tout au long de la présente thèse, nous nous référons à ces niveaux de traitement en utilisant de façon indifférenciée le terme *mode de traitement* abstrait ou concret, *niveau de traitement* abstrait ou concret, ou bien encore *mode* abstrait ou concret, *niveau* abstrait ou concret.

global de soi (Carver, 1998; Carver & Ganellen, 1983). Différentes études ont montré que la généralisation, et plus spécifiquement la généralisation *négative*, était associée à différents troubles émotionnels, tels que la dépression et l'anxiété (Carver, 1998; Carver & Ganellen, 1983; Fulford et al., 2012). Ainsi, l'adoption d'un mode de traitement abstrait conduirait à plus de généralisation, amenant ainsi des conséquences non adaptatives. Différentes études expérimentales supportent l'hypothèse qu'un mode abstrait promeut la généralisation, particulièrement dans des populations vulnérables (Van Lier, Moulds, et al., 2015; Van Lier, Vervliet, et al., 2015; Van Lier et al., 2014).

En résumé, les PRN, dont font partie la rumination et l'inquiétude, sont conceptualisées comme un processus transdiagnostique. Elles seraient caractérisées par une nature verbale et serviraient une fonction d'évitement. Plus précisément, elles seraient sous-tendues par un processus d'abstraction participant à leurs conséquences non adaptatives dans les populations vulnérables. À l'opposé de ces pensées verbales, les images mentales sont également considérées comme un processus transdiagnostique, que nous allons maintenant détailler.

2. La perspective visuelle en imagerie mentale

2.1. L'imagerie mentale

L'imagerie mentale permet la simulation ou la recréation d'objets, d'actions, ou d'événements à travers les modalités sensorielles (Kosslyn et al., 2001). Cette capacité permet de transcender le présent pour voyager mentalement dans le passé et le futur (Schacter et al., 2007). Bien que l'imagerie mentale puisse inclure toutes les modalités sensorielles, la modalité visuelle de l'imagerie est certainement la plus importante. L'imagerie visuelle

renvoie au fait de « voir à travers les yeux de l'esprit »⁷⁵ (Kosslyn et al., 2001, p. 635). Ces images mentales peuvent par exemple représenter des événements autobiographiques, des événements futurs anticipés, ainsi que des événements contre-factuels (i.e., des événements ayant une issue différente, alternative). De la même façon, elles peuvent être positives ou négatives, générées volontairement ou non.

2.2. L'imagerie mentale comme un processus transdiagnostique

L'imagerie mentale aurait une capacité d'« amplificateur émotionnel » (Holmes & Mathews, 2010). Nous avons tous par exemple fait l'expérience que de s'imaginer manger une glace provoque plus de réactions émotionnelles que de se le représenter en mots. Le rôle des images mentales a été exploré dans différents troubles et l'imagerie mentale est actuellement considérée comme un processus transdiagnostique impliqué dans le développement et le maintien de nombreux troubles, tels que la dépression, la phobie sociale, ou encore l'ESPT (Brewin et al., 2010; Hagedaars & Holmes, 2012).

2.3. La perspective visuelle : Acteur versus observateur

Une caractéristique fondamentale de l'imagerie mentale est la perspective visuelle (Nigro & Neisser, 1983). Cette caractéristique renvoie au point de vue adopté dans les images : un point de vue d'acteur ou d'observateur. Depuis une *perspective d'acteur*, également appelée perspective en première personne, la personne visualise l'événement depuis son point de vue original : Elle peut voir ce qui l'entoure au travers de ses propres yeux. Depuis une *perspective d'observateur*, également appelée perspective en troisième personne, la personne visualise l'événement depuis un point de vue extérieur : Elle peut voir ce qui l'entoure, ainsi que se voir elle-même. En général, les images mentales impliquent

⁷⁵ Cette citation a été traduite à partir de l'anglais : « seeing with the mind eyes ».

plusieurs perspectives, les individus passant de l'une à l'autre ou ayant les deux simultanément (Rice & Rubin, 2009).

De nombreuses études ont montré que les images en perspective d'acteur sont plus fréquentes que celles en perspective d'observateur, qu'elles sont plus vivaces, associées à plus d'informations concernant les sensations corporelles et affectives, et concernent des événements plus récents (e.g., McIsaac & Eich, 2002; Nigro & Neisser, 1983; Robinson & Swanson, 1993). Contrairement aux populations non cliniques, les populations cliniques ou subcliniques auraient plus tendance à adopter une perspective d'observateur. Cela a été démontré chez les personnes souffrant de dépression (e.g., Kuyken & Howell, 2006; Lemogne et al., 2006), d'anxiété sociale (e.g., Coles et al., 2002), d'ESPT (e.g., Kenny et al., 2009), ou de schizophrénie (e.g., Wang et al., 2017). Ainsi, la perspective visuelle adoptée en imagerie mentale serait considérée comme une caractéristique transdiagnostique.

2.4. Fonction d'évitement de la perspective d'observateur

Adopter une perspective d'observateur peut modifier l'expérience émotionnelle que nous avons. En effet, cette perspective réactive moins d'informations émotionnelles (McIsaac & Eich, 2002, 2004). Par ailleurs, passer d'une perspective d'acteur à une perspective d'observateur diminue l'intensité émotionnelle (Berntsen & Rubin, 2006a; Robinson & Swanson, 1993; Vella & Moulds, 2014; Williams & Moulds, 2008). En d'autres termes, il se pourrait que l'adoption d'une perspective d'observateur constitue une stratégie d'évitement de l'information émotionnelle associée à l'événement qui est visualisé (e.g., Kenny & Bryant, 2007; Williams & Moulds, 2007). Cet évitement peut se révéler adaptatif à court terme mais la persistance de l'évitement est envisagée comme un facteur de maintien des difficultés émotionnelles à long terme (Foa & Kozak, 1986; Kenny et al., 2009; Williams & Moulds, 2007).

2.5. Processus d'abstraction dans la perspective d'observateur

Les images mentales sont par nature relativement concrètes (Libby & Eibach, 2013). Cependant, la perspective visuelle de ces images pourrait dépendre du niveau de traitement adopté. Ainsi, sur base de la Théorie du niveau de traitement (Trope & Liberman, 2003, 2010) et de la Théorie du niveau d'identification de l'action (Vallacher & Wegner, 1987, 1989), une série d'études a montré un lien de causalité bidirectionnelle entre la perspective visuelle adoptée, i.e., acteur versus observateur, et le niveau de traitement, i.e., concret versus abstrait (Agerström et al., 2013; Libby et al., 2009; Shaeffer et al., 2015; Vasquez & Buehler, 2007). Ainsi, comme les PRN, les différentes perspectives visuelles seraient déterminées par un processus d'abstraction : La perspective d'acteur serait sous-tendue par un mode concret et la perspective d'observateur par un mode abstrait.

Libby et Eibach (2011) ont ainsi développé une théorie selon laquelle chaque perspective visuelle permettrait un mode spécifique de compréhension des événements. La perspective d'acteur impliquerait un traitement ascendant de l'information : L'individu tenterait de donner un sens à l'événement en s'appuyant sur les caractéristiques concrètes de l'événement (e.g., les différentes étapes de l'événement, les informations sensorielles). À l'inverse, la perspective d'observateur impliquerait un traitement descendant de l'information : L'individu tenterait de donner un sens à l'événement en l'intégrant dans le contexte plus large de sa vie, en s'appuyant sur les connaissances qu'il a à propos de lui-même, sur ses croyances et théories à propos de ses propres traits, préférences, ou valeurs, e.g., ses croyances à propos des causes, conséquences, et implications de l'événement, son sens général (Hines, 2014; Libby, Valenti, Hines, & Eibach, 2014).

Ainsi, l'impact émotionnel de la perspective visuelle dépendrait du sens donné à l'événement. Dans le cas de la perspective d'observateur, ce sens pourrait mettre en relief une

certaine continuité ou distance entre l'événement et le soi actuel. De cette perception de continuité ou de distance dépendraient les conséquences émotionnelles de la perspective d'observateur. Ainsi, dans des populations vulnérables, l'adoption d'une perspective d'observateur pour visualiser un événement négatif –qui est en continuité avec le soi– aurait tendance à augmenter les émotions négatives. À l'inverse, dans des populations non-cliniques, l'adoption d'une perspective d'observateur pour visualiser un événement négatif –qui est en discontinuité avec le soi– tendrait à diminuer les émotions négatives. En effet, les populations vulnérables diffèrent des populations non-cliniques selon leur tendance à généraliser à partir d'un événement négatif isolé (Carver, 1998; Carver & Ganellen, 1983; Fulford et al., 2012).

Différentes études menées par Libby et ses collaborateurs soutiennent cette théorie. Ainsi, chez des individus ayant une basse estime de soi, visualiser un échec passé depuis une perspective d'observateur est associé à plus de généralisation négative de l'événement et plus de honte qu'une perspective d'acteur (Libby, Valenti, et al., 2011). De façon similaire, les individus avec une haute anxiété d'attachement évaluent moins positivement leur relation sentimentale lorsqu'ils visualisent des transgressions passées de leur partenaire (i.e., généralisation négative à leur relation) en perspective d'observateur plutôt qu'acteur (Libby et al., 2005). En résumé, le sens donné à l'événement via la perspective visuelle adoptée peut avoir des conséquences cognitives (e.g., perception de continuité ou de distance avec soi, généralisation négative) ou émotionnelles (e.g., honte) adaptatives ou non.

Si l'on résume les hypothèses et données concernant la perspective visuelle adoptée dans les images mentales, il apparaît que, dans des populations vulnérables, la perspective d'observateur, caractérisée par un mode abstrait, aurait une fonction d'évitement menant à des conséquences non-adaptatives.

3. Existence d'un lien entre les pensées répétitives négatives et la perspective visuelle ?

Des éléments que nous venons de développer découlent la conclusion que les PRN et la perspective visuelle adoptée en imagerie mentale peuvent être considérées comme deux processus transdiagnostiques importants (Holmes & Mathews, 2010; Watkins, 2008). Nous avons développé l'idée que les PRN et la perspective visuelle pourraient être déterminées selon leur niveau de traitement. L'adoption d'un mode de traitement abstrait –focalisé sur l'analyse des causes, conséquences, et implications de l'événement– entraînerait des PRN abstraites et une perspective d'observateur, prédominantes dans les populations vulnérables, i.e., cliniques et subcliniques (Kuyken & Howell, 2006; Lemogne et al., 2006; Watkins, 2008, 2011). Néanmoins, ce niveau de traitement abstrait conduirait à des conséquences négatives dans ces populations, par le biais possible de la généralisation.

Bien que les PRN et la perspective visuelle aient généralement été étudiées indépendamment l'une de l'autre, cette thèse est basée sur l'hypothèse qu'elles peuvent être toutes deux être considérées comme le produit d'un processus commun. Ici, le processus central serait *l'abstraction*, i.e., l'adoption d'un niveau de traitement abstrait. Par ailleurs, les PRN et la perspective d'observateur serviraient une fonction d'évitement : Eviter de se focaliser sur les caractéristiques concrètes permettrait de ne pas ressentir d'émotion, bien que cela soit associé à des conséquences négatives (Kenny & Bryant, 2007; Sibrava & Borkovec, 2006; Williams & Moulds, 2007).

Ces similarités processuelles et fonctionnelles entre les PRN –plus précisément les PRN abstraites– et la perspective d'observateur amènent à se questionner sur leur possible association. En effet, les modèles cognitifs et comportementaux en psychopathologie postulent l'existence de plusieurs processus psychologiques qui opèrent en interaction et contribuent au développement et au maintien des troubles (e.g., hypothèse des biais cognitifs

combinés, Hirsch et al., 2006). Il serait alors nécessaire d'étudier le rôle des PRN et de la perspective visuelle dans les troubles psychologiques de manière plus intégrative. Malgré l'intérêt fondamental et clinique de cette proposition, peu d'études se sont intéressées au lien entre les PRN et la perspective visuelle adoptée.

Des études portant sur la fréquence des pensées verbales et imagées lors des PRN ont montré que les PRN contenaient moins d'images (e.g., Behar et al., 2012; Borkovec & Inz, 1990). Toutefois, peu d'études se sont intéressées aux liens entre les PRN et la perspective visuelle adoptée dans ces images, dans un cadre théorique suggérant que ces deux phénomènes seraient déterminés par le même processus et rempliraient la même fonction. Il s'agit de l'objectif principal de cette thèse.

Certaines des études passées ont mis en évidence un lien entre l'adoption d'une perspective d'observateur et la tendance *trait* à avoir des PRN dans une population générale (Finnbogadóttir & Berntsen, 2014, Etude 2) ou subclinique (Finnbogadóttir & Berntsen, 2014, Etude 1; Williams & Moulds, 2007), ainsi qu'un lien entre l'adoption d'une perspective d'observateur pour visualiser un événement et des PRN *état*⁷⁶ sur ce même événement dans une population clinique (Kuyken & Moulds, 2009). Néanmoins, d'autres études n'ont pas trouvé de lien entre la perspective d'observateur et les PRN *trait* (Finnbogadóttir & Berntsen, 2011; Kuyken & Moulds, 2009) ou *état* (Williams & Moulds, 2007), quel que soit le niveau de psychopathologie.

⁷⁶ La notion d'état réfère ici aux mesures (e.g., rumination) portant sur un événement spécifique, par opposition à des tendances générales.

4. Aperçu de la section empirique

Les PRN et la perspective d'observateur semblent partager des similarités processuelles et fonctionnelles, qui amènent à s'interroger sur leur possible association⁷⁷. Toutefois, au vu des résultats inconsistants des études passées, le premier objectif de cette thèse était d'explorer (1) les liens entre les PRN et la perspective visuelle en imagerie mentale. Les deuxième et troisième objectifs de cette thèse étaient d'élargir ces études en explorant (2) la fonction d'évitement et (3) le processus d'abstraction. Enfin, le quatrième objectif de cette thèse était (4) d'explorer les corrélats cognitifs et émotionnels de la perspective visuelle en fonction du niveau de psychopathologie (e.g., sens donné à l'événement, réponse émotionnelle). Tout au long de ce résumé, nous nous référerons à ces quatre objectifs principaux en utilisant ce système de numérotation, i.e., (1), (2), (3), et (4).

Afin de répondre à ces différents objectifs, 4 études corrélationnelles, 2 études expérimentales et 1 méta-analyse ont été menées. Plus spécifiquement, dans le 3^e chapitre de cette thèse, nous avons mené quatre études avec un design corrélational (Etudes 1a, 1b, 1c, et 1d) sur (1) l'association entre les PRN et la perspective d'observateur, ainsi que leurs liens avec (2) des stratégies d'évitement et (3) un processus d'abstraction. Nous nous sommes aussi intéressés (4) aux corrélats de la perspective d'observateur en fonction du niveau des symptômes anxio-dépressifs. Dans le 4^e chapitre de cette thèse, deux études expérimentales (Etudes 2a et 2b) se sont intéressées (3) aux effets de l'induction d'un mode abstrait versus concret lors d'une période de rumination mentale sur la nature verbale ou imagée des pensées, la perspective visuelle adoptée dans les images mentales, ainsi que la réactivité émotionnelle, en tenant compte du niveau de symptômes anxio-dépressifs et de rumination trait des participants. Dans le 5^e chapitre de cette thèse, nous avons mené une étude expérimentale (Etude 3) afin d'évaluer (3) les effets de l'induction d'un mode abstrait versus concret sur les

⁷⁷ Ces aspects théoriques, qui ont été présentés dans les deux premières parties de ce résumé, sont développés dans les deux premiers chapitres de cette thèse.

PRN, la perspective visuelle, et la réponse émotionnelle, lors de l'anticipation et du rappel d'une situation émotionnelle. Finalement, dans le 6^e chapitre de cette thèse, nous avons réalisé une méta-analyse des études portant (1) sur le lien entre les PRN et la perspective visuelle. Nous allons maintenant détailler ces différentes études une à une.

Chapitre 3

La revue de la littérature suggère que les PRN et la perspective visuelle présentent des similarités fonctionnelles (Sibrava & Borkovec, 2006; Williams & Moulds, 2007) et processuelles (Libby & Eibach, 2011; Watkins, 2011) qui amènent à se questionner sur l'existence d'une association entre elles. Néanmoins, les précédentes études ont trouvé des résultats contradictoires (Finnbogadóttir & Berntsen, 2011, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007). Par conséquent, le troisième chapitre de cette thèse a été consacré à des études corrélationnelles explorant l'association entre (1) les PRN et la perspective visuelle, (2) l'évitement, et (3) le niveau de traitement. Nous faisons l'hypothèse d'une association positive entre les PRN, la perspective d'observateur, l'utilisation de stratégies d'évitement chez des individus ayant de hauts niveaux de symptômes anxio-dépressifs, et l'adoption d'une mode de traitement abstrait. Par ailleurs, les PRN et la perspective d'observateur conduiraient à des conséquences non adaptatives dans des populations vulnérables, telles que des populations anxio-dépressives (Libby & Eibach, 2011; Watkins, 2008). Lors de l'adoption d'une perspective d'observateur, ces conséquences dépendraient du sens donné à l'événement lors de sa mise en lien avec les connaissances générales sur le soi (Libby & Eibach, 2011). Ce sens pourrait se refléter dans ce que nous avons appelé le *sens intégratif* (i.e., le degré de sens et de continuité de l'événement avec le soi). Il pourrait également se refléter dans la *distance temporelle subjective* de l'événement, ainsi que le degré de *généralisation* de l'événement. Par conséquent, ce chapitre portait également sur (4)

différentes mesures reflétant le sens donné à l'événement selon la perspective visuelle adoptée, en fonction du niveau de symptômes anxio-dépressifs. Nous faisons l'hypothèse que lors de l'adoption d'une perspective d'observateur, de hauts niveaux de symptômes anxio-dépressifs seraient associés à l'attribution d'un sens particulier à l'événement, comparativement à l'adoption d'une perspective d'acteur, et que ce sens serait associé à une plus forte réponse émotionnelle.

Etude 1a. Cette première étude visait à explorer les associations entre la tendance aux PRN (i.e., ce que nous appellerons PRN trait), plus particulièrement à la rumination, et la perspective visuelle adoptée pour se rappeler une situation d'échec passé, ainsi que l'évitement expérientiel. Nous nous sommes également intéressés à leur lien avec la flexibilité psychologique, qui peut être définie comme « l'habileté à être complètement en contact avec le moment présent, et les pensées et sentiments qui lui sont associés, sans défense inutile, et, selon ce que la situation offre, à persister ou à changer le comportement dans la poursuite des buts et des valeurs »⁷⁸ (Bond et al., 2011, p. 678). Certains auteurs ayant suggéré que les populations vulnérables ont un biais envers l'adoption d'un mode abstrait par défaut, quel que soit le contexte (Watkins, 2011), le concept de flexibilité psychologique semblait pertinent pour l'étude de ce biais.

303 étudiants ont ainsi complété des mesures de psychopathologie (i.e., dépression et anxiété), de flexibilité psychologique, de rumination trait, et d'évitement expérientiel. Ils devaient également se rappeler une situation d'échec passé et indiquer la détresse émotionnelle associée à ce rappel, la perspective adoptée pour visualiser cet échec, ainsi qu'évaluer le sens intégratif associé à l'échec.

⁷⁸ Cette définition a été traduite à partir de la définition anglaise : “the ability to fully contact the present moment and the thoughts and feelings it contains without needless defense, and, depending upon what the situation affords, persisting in or changing behavior in the pursuit of goals and values”.

De manière générale, nos résultats montrent qu'au plus les personnes présentaient des symptômes anxio-dépressifs, au plus elles avaient tendance à ruminer. Par contre, elles ne rapportaient pas plus d'images en perspective d'observateur. Contrairement à nos hypothèses, (1) la perspective visuelle ne corrélait pas avec la tendance à ruminer, ce qui est congruent avec certaines études ne montrant pas de lien entre les PRN trait et la perspective visuelle (Finnbogadóttir & Berntsen, 2011; Kuyken & Moulds, 2009). Notons cependant que la tendance à s'engager dans des PRN n'était pas évaluée par rapport à un contenu particulier, contrairement à la perspective visuelle, qui portait sur un événement spécifique. Il est ainsi possible que les PRN et la perspective soient associées si elles portent toutes deux sur un événement clairement identifié.

Au niveau fonctionnel, (2) la tendance à la rumination était associée à plus d'évitement expérientiel mais pas la perspective visuelle. Au niveau processuel, (3) seule la rumination était associée à moins de flexibilité psychologique. Ces résultats sont en accord avec la fonction d'évitement et le rôle du mode de traitement abstrait dans la rumination mais pas dans la perspective visuelle. Comme pour la rumination, il est possible que la perspective et un mode de traitement abstrait soient associés lorsqu'ils portent tous deux sur un événement spécifique.

Enfin, contrairement à la théorie de Libby et Eibach (2011), c'est le niveau de symptômes anxio-dépressifs qui déterminait le sens intégratif associé à l'échec, indépendamment de la perspective visuelle. Ce sens était associé à une réponse émotionnelle plus importante.

Etude 1b. Cette étude visait à répliquer et élargir les résultats de l'étude précédente. Comparativement à l'étude précédente, nous avons introduit des mesures *trait* et *état* de la rumination et du mode de traitement. En effet, dans l'étude précédente, alors que la perspective était évaluée par rapport à un événement spécifique négatif, la mesure de

rumination portait sur la tendance générale à ruminer et non pas la tendance à ruminer sur l'événement visualisé. Par ailleurs, nous avons mesuré la flexibilité psychologique au lieu du mode de traitement. Dans cette nouvelle étude, nous avons également inclus de nouvelles mesures des corrélats cognitifs de la perspective visuelle : la distance temporelle subjective de l'événement et la généralisation négative à partir de l'événement. Compte tenu de ces modifications, nos hypothèses étaient semblables à celles de l'étude précédente.

224 participants devaient se rappeler une situation d'échec passé et évaluer leur perspective visuelle, la distance temporelle subjective de l'échec, et son sens intégratif. Ils évaluaient ensuite l'intensité de leurs émotions négatives, la tendance à la généralisation et à la rumination sur l'échec (ce que nous appellerons rumination et généralisation *états*), et le mode de traitement *état* (i.e., pour cet échec). Finalement, ils remplissaient des questionnaires sur la tendance générale à la rumination et à l'adoption d'un mode abstrait ou concret de rumination, le mode de traitement *trait* face à des situations de la vie quotidienne, l'intensité des symptômes anxio-dépressifs, et la tendance à adopter des stratégies d'évitement cognitif.

Malgré l'utilisation d'une mesure état de la rumination, (1) nous n'avons pas mis en évidence d'association entre la rumination, trait ou état, et la perspective visuelle adoptée en imagerie. Cette étude est donc la seconde -à l'instar d'autres études- qui suggère l'absence de lien entre la perspective visuelle et différentes formes de PRN, que celles-ci soient évaluées dans leur version *état* (Williams & Moulds, 2007) ou *trait* (Finnbogadóttir & Berntsen, 2011; Kuyken & Moulds, 2009). Nos résultats ne permettent pas non plus de répliquer l'association entre le niveau de psychopathologie et l'adoption d'une perspective d'acteur.

Au niveau fonctionnel, (2) comme dans notre première étude, seule la rumination était associée à la mesure d'évitement cognitif. Au niveau processuel, (3) nos résultats se sont révélés inconsistants. En effet, si l'on considère la tendance à ruminer sur la situation spécifique d'échec, la rumination était associée à un mode de traitement *abstrait*. Par contre,

lorsque la rumination était évaluée indépendamment de l'événement rappelé, la rumination, même sur un mode abstrait, et la psychopathologie étaient associées à un mode de traitement *concret*. Ce dernier résultat contredisait l'ensemble des théories et données relatives à la rumination. Avant de l'interpréter, nous avons décidé de soumettre ce résultat à réplication en utilisant différentes mesures de l'abstraction (voir Etude 1c).

En ce qui concerne la signification perçue de l'événement, (4) comparativement à l'adoption d'une perspective d'acteur, l'adoption d'une perspective d'observateur chez des participants ayant de hauts niveaux de symptômes anxio-dépressifs était associée à (i) plus de sens intégratif. Toutefois, seul le niveau de symptômes anxio-dépressifs était associé à (iii) plus de généralisation négative, et aucune de nos variables n'était associée à (ii) la distance temporelle subjective. Toutefois, certains de nos résultats soutiennent la théorie de Libby et Eibach (2011) concernant les conséquences cognitives et émotionnelles de la perspective d'observateur : Une forte perception de sens intégratif, une forte généralisation négative et une faible distance temporelle étaient associées à une réponse émotionnelle plus négative.

Etude 1c. Comme évoqué précédemment, cette étude visait à répliquer les résultats surprenants de l'Etude 1b concernant l'association entre la rumination trait et un mode de traitement *concret*. Or, selon la théorie du mode de traitement de la rumination (Watkins, 2008, 2011), la rumination, et particulièrement la rumination non-adaptative, serait sous-tendue par un mode de traitement abstrait lorsque les individus pensent à des situations *négatives*. Toutefois, davantage de recherches sont nécessaires sur le lien entre la rumination et le mode de traitement lors de situations *positives* ou *neutres* (Watkins, 2011). Ainsi, dans une troisième étude, nous avons distingué deux mesures du mode de traitement : la mesure du mode adopté pour penser à des actions *neutres* de la vie quotidienne (celle utilisée dans l'Etude 1b) et une mesure du mode de traitement adopté lors de la confrontation à des situations *négatives*, opérationnalisé comme la tendance à la généralisation négative. Nous

avons également décidé de distinguer deux types de rumination trait : la rumination trait *non-adaptative* (i.e., tendance à la rumination et tendance à un mode abstrait de rumination) et *adaptative* (i.e., tendance à un mode concret de rumination). Nous faisons l'hypothèse que nos deux mesures du mode de traitement seraient associées et qu'un mode de traitement abstrait lors de situations *neutres* ou *négatives* corrèlerait positivement avec la rumination *non adaptative* et négativement avec la rumination *adaptative*.

125 participants ont ainsi rempli en ligne différents questionnaires portant sur nos différentes variables. Nos résultats ont montré que les deux mesures d'abstractions n'étaient pas corrélées. Comme prédit, la tendance à la généralisation lors de situations *négatives* était associée à plus de rumination non-adaptative et moins de rumination adaptative. Toutefois, comme dans l'étude précédente, nos résultats soutenaient à nouveau l'idée que la rumination adaptative était associée à un mode de traitement *concret* lors de situations *neutres*. Associées à d'autres études ayant mis en évidence un lien positif entre la psychopathologie et la tendance à adopter un mode de traitement concret lors de situations neutres (Jamnadass et al., 2014; Moldovan, 2011), cette étude ainsi que la précédente semblent indiquer que les populations cliniques ou subcliniques (i.e., ayant de hauts de niveaux de symptômes anxio-dépressifs ou de rumination non adaptative) adopteraient davantage un mode de traitement concret lors de situations *neutres* comparativement à des populations non cliniques (i.e., ayant de hauts niveaux de rumination adaptative). À l'inverse, lors de situations *négatives*, les populations cliniques ou subcliniques généraliseraient davantage (Watkins, 2008, 2011). Compte tenu des résultats de cette étude, nous avons décidé de garder la mesure de la tendance à la généralisation négative comme mesure d'un mode de traitement abstrait.

Etude 1d. Cette étude avait pour objectif de répliquer et d'élargir les résultats des deux premières études corrélationnelles, en utilisant des mesures *trait* et *état* pour chacune des variables d'intérêt, en différenciant les mesures de rumination abstraite et concrète. Nous

faisons l'hypothèse d'une association positive (1) entre la rumination –et plus particulièrement la rumination abstraite– et la perspective d'observateur, qu'elles soient considérées comme un trait ou un état, et (3) la tendance à généraliser (trait ou état) chez des individus ayant de hauts niveaux de symptômes anxio-dépressifs.

133 participants ont complété différentes mesures en ligne. Ils devaient se rappeler une situation d'échec passée et évaluer la perspective adoptée pour visualiser cet échec. Ils évaluaient ensuite leur rumination *état* (i.e., fréquence globale, rumination concrète et rumination abstraite) et leur généralisation *état* de cet échec. Ils remplissaient enfin différents questionnaires sur leur tendance à adopter une perspective d'acteur, d'observateur, à ruminer sur un mode concret et sur un mode abstrait, et à généraliser.

Les résultats de cette étude indiquaient un lien entre les PRN, plus précisément les PRN abstraites, et la perspective d'observateur lorsqu'elles étaient mesurées comme des *états* mais pas comme des *traits*. Toutefois, ces résultats diffèrent de ceux de nos études précédentes (Études 1a et 1b) et des études passées sur le sujet (Finnbogadóttir & Berntsen, 2011, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007). Au niveau processuel, les études, y compris les nôtres, soutiennent l'idée que la rumination, *état* ou *trait*, est sous-tendue par un processus d'abstraction lors de situations négatives, *état* ou *trait* (Watkins, 2008, 2011). Néanmoins, la perspective d'observateur ne semble pas être sous-tendue par un processus d'abstraction lors de situations négatives chez des individus ayant de hauts niveaux de symptômes anxio-dépressifs, contrairement à ce que suggèrent Libby et Eibach (2011).

Les études de ce chapitre présentent différentes limites, dont celle d'être de nature corrélationnelle et de souffrir du manque de mesures réellement fiables du processus (i.e., l'abstraction). Dans un second temps, nous avons donc envisagé la question des PRN et de l'imagerie par le biais d'études expérimentales dans lesquelles nous avons manipulé

l'abstraction afin d'en mesurer les effets sur les PRN et la perspective visuelle adoptée en imagerie. Ces études font l'objet des chapitres 4 et 5.

Chapitre 4

Etude 2a. Les études utilisant la procédure de *sondage des pensées* ont montré que les PRN sont caractérisées par une prédominance de pensées verbales plutôt qu'imaginées, et ce, d'autant plus dans des populations cliniques ou subcliniques (Borkovec & Inz, 1990; Hirsch et al., 2012). Ces pensées seraient sous-tendues par un processus d'abstraction qui serait responsable de leurs conséquences non adaptatives dans les populations cliniques ou subcliniques (Stöber & Borkovec, 2002; Watkins, 2008, 2011), par exemple pour la régulation émotionnelle (Moberly & Watkins, 2006). Bien que les images mentales soient en quantité moindre lors de PRN, une caractéristique importante de ces images, la perspective visuelle, serait, elle aussi, sous-tendue par un processus d'abstraction responsable de conséquences négatives dans les populations cliniques ou subcliniques (Libby & Eibach, 2011; Williams & Moulds, 2007). A notre connaissance, aucune étude ne s'est intéressée à la perspective visuelle adoptée dans les images mentales lors de PRN abstraites versus concrètes. Cette étude visait donc à (3) induire un mode de traitement abstrait versus concret lors d'une période de rumination et à en évaluer les effets sur (a) la nature verbale ou imagée des pensées, sur (b) la perspective visuelle adoptée dans les images, et (c) sur la réactivité émotionnelle. Nous faisons l'hypothèse que de hauts niveaux de psychopathologie ou de tendance à la rumination non adaptative (i.e., considérés comme des indicateurs d'une problématique subclinique) seraient associés à plus de pensées verbales et moins d'images, que ces images seraient plus en perspective d'observateur, et conduiraient à plus de réactivité émotionnelle, et ce, d'autant plus dans la condition d'induction d'un mode abstrait de rumination plutôt que concret.

Dans la première partie de l'étude, 68 étudiants ont complété en ligne différentes mesures de tendance générale à la rumination, de tendance à la rumination sur un mode abstrait et concret, ainsi que de dépression et d'anxiété. Dans une deuxième partie en laboratoire, après avoir initialement évalué l'intensité de leurs émotions négatives, tous les participants devaient se rappeler une situation d'échec passé. Ensuite, ils étaient aléatoirement répartis dans une condition de rumination abstraite ou concrète. Pour cela, une série de 12 consignes apparaissaient sur un écran pour induire une rumination abstraite (i.e., « Pensez aux causes, conséquences et implications de... ») ou concrète (i.e., « Pensez à... »). Après un temps variable après chaque consigne, les participants devaient décrire brièvement les pensées qu'ils avaient à cet instant, et évaluer leur nature et la perspective visuelle adoptée dans leurs images. À la fin de la procédure, les participants évaluaient à nouveau l'intensité de leurs émotions négatives. Le degré d'abstraction des descriptions des pensées était évalué par deux juges indépendants selon la procédure de Stöber et Borkovec (2002). Cette mesure constituait notre mesure de vérification de l'induction.

De manière générale, nos résultats corroboraient ceux des études précédentes : Les PRN étaient majoritairement verbales et les images mentales davantage visualisées en perspective d'acteur. Contrairement à nos hypothèses, de hauts niveaux de symptômes anxio-dépressifs étaient associés à (a) moins de pensées verbales et plus d'images, quel que soit le mode adopté lors de la rumination. En ce qui concerne le niveau de rumination non adaptative, aucun effet principal ni d'effet d'interaction avec le mode de rumination n'a été mis en évidence sur la nature des pensées. Enfin, le niveau de symptômes anxio-dépressifs ou de rumination non adaptative n'influçait (b) ni la perspective visuelle, (c) ni l'évolution des émotions négatives, quelle que soit la condition expérimentale. Contrairement à la théorie de la réduction de la concrétude (Stöber & Borkovec, 2002) et la théorie de Libby et Eibach (Libby & Eibach, 2011), il semblerait que le mode de traitement adopté lors de la rumination

n'ait pas d'influence sur la nature des pensées, la perspective visuelle ou encore la réactivité émotionnelle. Toutefois, deux limites essentielles sont associées à cette étude : (i) il semble que notre induction de rumination abstraite versus concrète n'ait pas fonctionné (i.e., les participants ayant ruminé sur un mode abstrait ne décrivaient pas des pensées plus abstraites que ceux ayant ruminé sur un mode concret) et (ii) l'étude souffre d'un nombre limité de participants, restreignant ainsi la portée des conclusions. Par conséquent, une seconde étude a été conduite afin de pallier à ces limites.

Etude 2b. Outre un souci de réplication de l'étude précédente en tenant compte des limites énoncées, différentes modifications ont été apportées. Ainsi, nous avons modifié la méthode de sondage des pensées de sorte que les participants devaient évaluer après chaque consigne de rumination la nature verbale ou imagée et la perspective visuelle de leurs images *depuis la consigne précédente* (versus *à un moment particulier* dans l'étude 2a). Nous avons également utilisé une mesure différenciant la perspective d'acteur et d'observateur (voir Rice & Rubin, 2009) et avons ajouté une seconde mesure de vérification de l'induction.

115 étudiants ont participé à cette étude. La procédure de l'étude était similaire à celle de l'Etude 2a, à quelques exceptions près. Premièrement, l'étude a été réalisée en une seule session comprenant la passation de questionnaires et la partie expérimentale. Deuxièmement, les participants étaient amenés à évaluer la nature des pensées qu'ils avaient eues entre deux consignes de rumination (i.e., sur une période de 30 s). Enfin, afin de vérifier l'efficacité de l'induction expérimentale, les participants devaient non seulement décrire leurs pensées au fur et à mesure (comme dans l'Etude 2a) mais également décrire deux situations problématiques actuelles et leurs conséquences. Ces descriptions étaient ensuite codées selon leur degré d'abstraction par des juges indépendants (Stöber & Borkovec, 2002).

À nouveau, les pensées ruminatives étaient sous forme verbale et les images majoritairement en perspective d'acteur, quelle que soit la condition expérimentale.

Contrairement à nos hypothèses, ni le niveau de psychopathologie ou de rumination non adaptative, ni l'induction d'un mode abstrait ou concret de rumination n'influençait (a) la nature des pensées, (b) la perspective visuelle adoptée, ou (c) l'évolution des émotions négatives. Par contre, les participants ayant ruminé sur un mode abstrait décrivaient effectivement des pensées ruminatives plus abstraites que ceux ayant ruminé sur un mode concret mais ne décrivaient pas des situations problématiques ou des conséquences plus abstraites. Ces résultats questionnent sur l'efficacité de l'induction : Seule une de nos deux vérifications de l'induction semble indiquer un effet différentiel de la rumination abstraite versus concrète.

Dans l'ensemble des études de ce chapitre, nous avons envisagé la manipulation du mode de traitement à travers la manipulation du mode abstrait ou concret *de rumination*. Cependant, afin de tester plus directement l'hypothèse d'un processus commun à la rumination –ou aux PRN– et à la perspective visuelle des images mentales, nous avons mis en place une étude dans laquelle nous induisons un mode de traitement spécifique afin d'évaluer les conséquences tant sur la rumination –ou les PRN– que sur les images mentales et plus particulièrement la perspective visuelle adoptée. C'est l'objet du chapitre 5 de cette thèse.

Chapitre 5

Etude 3. Selon notre cadre théorique, le processus d'abstraction serait impliqué à la fois dans les PRN (Watkins, 2008, 2011) et la perspective visuelle adoptée en imagerie mentale (Libby & Eibach, 2011). Ainsi, comparativement à un mode concret, un mode abstrait entraînerait plus de PRN, et plus précisément des PRN abstraites, plus d'images mentales en perspective d'observateur, et serait responsable de conséquences émotionnelles négatives (Moberly & Watkins, 2006). Cette nouvelle étude visait donc à induire un mode traitement abstrait versus concret et à en évaluer les effets sur les PRN, la perspective visuelle,

et la réponse émotionnelle. L'induction d'un mode de pensée concret versus abstrait était inspirée d'une induction classique utilisée en psychologie sociale (Freitas et al., 2004) dans laquelle les participants sont invités à penser à un but soit de manière abstraite, soit de manière concrète. De plus, plutôt que de demander aux participants de se rappeler une situation passée, nous avons choisi de nous centrer sur une situation sociale émotionnelle « in vivo » faisant intervenir une dimension d'évaluation (i.e., une présentation orale filmée et évaluée). L'adoption de cette situation nous permettait d'évaluer les PRN en phase d'anticipation de la situation ainsi qu'en phase souvent appelée "post-mortem", c'est-à-dire en phase de rappel de la situation. En effet, différents modèles théoriques développés dans le cadre de l'anxiété sociale ont souligné l'importance des ruminations et des images mentales, en phase d'anticipation et de rappel, dans le maintien de l'anxiété sociale. Nous faisons l'hypothèse que de hauts niveaux de symptômes anxio-dépressifs ou de rumination trait non adaptative seraient associés à plus de rumination, notamment abstraite, d'images en perspective d'observateur, et d'anxiété, lors de l'anticipation et du rappel de la tâche émotionnelle.

77 étudiants ont complété des mesures de tendance à la rumination et de tendance à la rumination (générale, abstraite, et concrète), de dépression, et d'anxiété, avant d'être aléatoirement répartis dans l'une des conditions expérimentales. Ils devaient ainsi écrire à propos d'un but général (« communiquer de façon efficace ») dans un mode abstrait ou concret (i.e., en se posant répétitivement la question « pourquoi ? » ou « comment ? »). Ils étaient ensuite informés qu'ils allaient devoir réaliser une présentation orale filmée qui serait évaluée par des juges sur différents critères portant sur la communication. La procédure a été développée de sorte que les participants passaient par une phase d'anticipation de 5 min. Juste avant leur présentation, les participants devaient évaluer leur anxiété, la fréquence de leur rumination à propos de la présentation, la proportion de rumination abstraite et concrète, et

d'images en perspective d'acteur et d'observateur. Les participants étaient invités à répondre à un questionnaire en ligne 24h plus tard. Ils devaient évaluer à nouveau leur anxiété, la fréquence de leur rumination, la proportion de rumination abstraite et concrète, et d'images en perspective d'acteur et d'observateur lors de leurs pensées à propos de la situation de présentation orale. Les descriptions des buts étaient évaluées selon leur degré d'abstraction (Stöber & Borkovec, 2002) et servaient de vérification de l'induction.

Lors de l'anticipation de la situation, de hauts niveaux de symptômes anxio-dépressifs ou de rumination trait non adaptative étaient associés à plus de rumination, notamment abstraite, et d'anxiété. Par ailleurs, en accord avec d'autres études (e.g., Kuyken & Howell, 2006), le niveau des symptômes anxio-dépressifs prédisait l'adoption d'une perspective d'observateur. Lors du rappel de la situation, de hauts niveaux de symptômes anxio-dépressifs ou de rumination non adaptative prédisaient la fréquence des ruminations mais seul le niveau des symptômes anxio-dépressifs prédisait l'intensité de l'anxiété.

Bien que l'abstraction soit conceptualisée comme impliquée dans les PRN (Watkins, 2008, 2011) et la perspective visuelle (Libby & Eibach, 2011), le mode de traitement induit n'a pas eu d'effet principal ou d'interaction, que ce soit au niveau de l'anticipation ou du rappel et quelle que soit la variable dépendante considérée. Néanmoins, l'induction semble avoir été efficace puisque les participants ayant adopté un mode abstrait avaient des descriptions plus abstraites que ceux ayant adopté un mode concret.

Chapitre 6

Méta-analyse. Pris dans leur ensemble, les résultats de nos études corrélationnelles et expérimentales sont loin de nous permettre de conclure sur l'existence d'un lien, par le biais d'un processus d'abstraction, entre la rumination abstraite et la perspective d'observateur dans les images mentales. Par ailleurs, les résultats des études corrélationnelles publiées sont

également loin d'être consistants (Finnbogadóttir & Berntsen, 2011, 2014; Kuyken & Moulds, 2009; Williams & Moulds, 2007). Dans la dernière partie de cette thèse, nous avons fait le choix d'utiliser des procédures méta-analytiques afin de déterminer si le lien entre la rumination et la perspective d'observateur existe et si oui, quelle est la taille moyenne de cet effet. Les procédures méta-analytiques permettent en effet une revue de la littérature quantitative et l'analyse de modérateurs de l'effet étudié.

Pour cela, nous avons mené une recherche systématique afin d'obtenir les études publiées ou non sur ce sujet, via différentes bases de données informatiques et par contact avec les auteurs de ce champ de recherche. Nous avons ainsi identifié 6 études corrélationnelles publiées portant sur le lien entre la perspective d'observateur et les PRN *traits*, en plus de 2 études corrélationnelles que nous avons réalisées dans le cadre de cette thèse. Concernant le lien entre la perspective d'observateur et les PRN *états*, nous avons identifié 2 études corrélationnelles publiées et 1 étude corrélacionnelle que nous avons menée lors de cette thèse. Les résultats de cette méta-analyse ont montré que, aussi bien au niveau *état* que *trait*, les PRN et la perspective d'observateur ne sont pas associées et aucun modérateur de l'effet n'a pu être mis en évidence.

5. Discussion générale

Cette thèse repose sur deux idées générales. La première est que la compréhension des difficultés psychologiques peut bénéficier d'une étude centrée sur les processus psychologiques étiopathogéniques (Monestès & Baeyens, 2016). La seconde est que ces processus n'opèrent pas de façon indépendante (e.g., hypothèse des biais cognitifs combinés, Hirsch et al., 2006). Dans cette thèse, nous nous sommes centrés sur les PRN et l'imagerie mentale, plus spécifiquement la perspective visuelle adoptée en imagerie mentale. Nous avons 4 objectifs principaux: Explorer (1) le lien entre les PRN et la perspective visuelle, (2)

leur fonction d'évitement et (3) le rôle du processus d'abstraction dans les PRN et la perspective visuelle, et enfin (4) les conséquences de la perspective visuelle en fonction du niveau de symptômes psychopathologiques. Les résultats de nos 4 études corrélationnelles, 3 études expérimentales et notre méta-analyse sont discutés objectif par objectif dans les paragraphes suivants, avant d'évoquer les implications cliniques et les directions futures.

(1) Lien entre PRN et perspective d'observateur

Les résultats de nos études corrélationnelles (Etudes 1a, 1b, et 1d) n'ont généralement pas permis de mettre en évidence un lien entre PRN *état* ou *trait* et la perspective d'observateur *état* ou *trait*, à l'exception d'une seule étude identifiant un lien entre la tendance à visualiser un événement depuis une perspective d'observateur et la tendance à ruminer sur cet événement, notamment sur un mode abstrait (Etude 1d). La méta-analyse que nous avons réalisée semble confirmer que l'association entre les PRN, qu'elles soient *état* ou *trait*, et l'adoption d'une perspective d'observateur est soit faible, soit inexistante (dans le cas de l'inclusion de nos propres études).

Une explication possible de ces résultats serait qu'il n'y a en réalité pas de lien entre les PRN et la perspective visuelle, malgré des similarités processuelles et fonctionnelles apparentes. Toutefois, plutôt que de postuler cette association ou de la tester à travers quelques études, il est nécessaire d'obtenir de fortes preuves empiriques de cela, grâce à davantage d'études et, sur base de celles-ci, des méta-analyses.

Une autre explication possible serait que l'association existe mais que des limites méthodologiques et/ou théoriques nous empêchent de la mettre en évidence. Parmi les limites, il est nécessaire de souligner le manque d'une conceptualisation claire et d'une opérationnalisation appropriée des différents processus. Ce travail démontre un souci de spécification des conceptualisations et mesures, notamment par la distinction de mesures de

PRN abstraites versus concrètes, ainsi que de perspective d'acteur versus d'observateur, la distinction entre une tendance générale à la rumination ou à l'adoption d'une certaine perspective et les tendances liées à la rumination et l'imagerie concernant un événement particulier. Il nous semble que les futures recherches pourront bénéficier de ces distinctions. Elles devront également explorer les associations entre les PRN et les images en prenant en compte les différences potentiellement existantes entre des populations non-cliniques, subcliniques, et cliniques. Davantage de recherches sont également nécessaires sur la perspective d'observateur et sa prévalence dans les populations vulnérables, ainsi que de possibles différences selon la localisation de la perspective d'observateur (Rice & Rubin, 2011).

(2) Fonction d'évitement et (3) processus d'abstraction dans les PRN et la perspective visuelle

Les résultats de nos études corrélationnelles (Etudes 1a, 1b, 1c, et 1d) indiquent que seules les PRN, mais non la perspective d'observateur, sont associées à différentes stratégies d'évitement, quel que soit le niveau de psychopathologie. Ils indiquent également que les PRN sont associées à un mode de traitement abstrait lors de situations *négatives* et un mode concret lors de situations *neutres*. Dans une série d'études expérimentales (Etudes 2a, 2b, et 3), nous avons induit un mode de traitement pendant ou avant une période de PRN. Les résultats montrent que le mode de traitement n'influence pas la perspective ou les PRN.

Différentes raisons méthodologiques peuvent expliquer ces résultats (e.g., utilisation de mesures trait de l'évitement, échec de l'induction d'un mode de traitement). Ces études soulèvent également la question de l'importance du processus d'abstraction comparativement au rôle de la psychopathologie dans les PRN et la perspective visuelle. Plus globalement, ces études soulignent les problèmes liés à la conceptualisation, ainsi qu'aux mesures et aux

manipulations de l'abstraction (Burgoon et al., 2013). Les recherches futures devraient tenter de mieux définir le concept d'abstraction et d'en déterminer des mesures fiables, notamment en distinguant un processus général et des processus liés plus spécifiquement aux situations négatives, neutres, et positives.

(4) Conséquences de la perspective visuelle dans les populations subcliniques

Nous avons également exploré les corrélats cognitifs et émotionnels de la perspective visuelle chez des individus, en fonction du niveau de psychopathologie (Chapitre 3, Etudes 1a, 1b, et 1c). Différentes études corrélationnelles ont mis en évidence le rôle de la psychopathologie sur le sens donné à l'événement, ainsi que le lien entre ce sens et la réponse émotionnelle. Toutefois, cet effet n'était généralement pas modéré par la perspective visuelle adoptée pour visualiser ce souvenir (Etudes 1a, 1b, et 1d), à l'exception d'une étude (Etude 1b).

Davantage de recherches sont nécessaires pour déterminer des indicateurs des connaissances générales de l'individu sur lui-même (e.g., utiliser l'estime de soi comme indicateur, Libby, Valenti, et al., 2011; ou l'anxiété d'attachement, Marigold et al., 2015) et du sens qu'il donne à l'événement (e.g., continuité, généralisation, centralité de l'événement).

Implications cliniques et directions futures

En résumé, cette thèse souligne différentes difficultés méthodologiques et/ou théoriques auxquelles les recherches futures devront tenter de répondre afin d'explorer plus finement le lien entre les PRN et la perspective visuelle. Plus globalement, cette thèse s'inscrit dans une approche processuelle et transdiagnostique centrée sur l'exploration des processus psychologiques et de leur interaction.

Cette thèse défend aussi l'idée que davantage de recherches sont nécessaires sur *l'interaction* entre les processus psychologiques. Comme souligné par Cowdrey, Lomax, Gregory, et Barnard (2017), « malgré des bases communes, une hétérogénéité théorique significative a émergé en psychologie clinique. Cela n'est pas dû à des processus fondamentalement différents sous-tendant les troubles psychologiques, c'est plutôt le résultat de théoriciens mettant l'accent sur des construits particuliers parmi d'autres, utilisant un langage différent pour décrire des processus apparemment similaires ou dans certains cas, attribuant un sens différent au même mot »⁷⁹ (p. 2). Concernant les PRN et la perspective visuelle, il est nécessaire de combiner deux larges champs théoriques sur les processus verbaux versus imagés, qui présentent différentes similitudes. Jusqu'à présent, ces processus ont été étudiés de façon indépendante, malgré le potentiel pour une meilleure compréhension des troubles psychologiques et de nouvelles perspectives de prise en charge. Il existe actuellement des interventions centrées sur la rumination (e.g., Rumination-focused cognitive behavioral therapy, Jacobs et al., 2016), ainsi que d'autres centrées sur l'imagerie (e.g., imagery rescripting, Smucker, 2005). Dans une perspective processuelle, si les PRN et la perspective visuelle étaient associées et toutes deux sous-tendues par un processus d'abstraction, les thérapies pourraient se centrer sur ce processus d'abstraction, indépendamment du contenu, i.e., pensées verbales ou images.

En conclusion, cette thèse a exploré les relations entre deux processus transdiagnostiques généralement étudiés de façon indépendante malgré des similitudes fonctionnelles et processuelles : les PRN, incluant la rumination et l'inquiétude, ainsi que la perspective visuelle adoptée en imagerie mentale. À travers différentes études corrélationnelles,

⁷⁹ Cette citation a été traduite de l'anglais : “despite some common ground, significant theoretical heterogeneity has emerged within clinical psychology. This is not due to fundamentally different processes underpinning psychological disorders; rather it is a result of theorists highlighting particular constructs over others, using different language to describe seemingly similar processes or in some cases, attributing a different meaning to the same word”.

RESUME

expérimentales, ainsi qu'une méta-analyse, nous n'avons pas trouvé d'association entre ces processus. Leur fonction d'évitement et leur processus d'abstraction restent également ambigus. Cette thèse souligne le besoin d'une conceptualisation claire et de mesures fiables des PRN, de la perspective visuelle, du sens donné à l'événement, et du processus d'abstraction en lien avec des situations neutres, positives, et négatives. Plus globalement, malgré l'absence de preuves d'une association entre les PRN et la perspective visuelle, cette thèse a le mérite d'avoir tenté de répondre à une question pertinente aussi bien pour les chercheurs que les cliniciens, à travers différentes études et une méta-analyse.

RESUME

Les recherches actuelles en psychologie clinique sont centrées sur l'étude des processus psychologiques impliqués dans le développement et le maintien de nombreux troubles psychologiques. Deux de ces processus ont fait l'objet de nombreuses études : les pensées répétitives négatives (PRN), qui sont majoritairement verbales, et la perspective visuelle adoptée dans les images mentales (i.e., acteur vs. observateur). Bien que représentant des phénomènes distincts, les PRN et la perspective d'observateur semblent toutes deux avoir une fonction d'évitement et dépendre d'un processus d'abstraction centré sur l'analyse du « pourquoi » des événements (i.e., l'adoption d'un mode abstrait de traitement de l'information). Ces similarités fonctionnelles et processuelles amènent à se questionner sur les liens possibles entre les PRN et la perspective d'observateur. Pourtant, très peu d'études se sont intéressées à cette association. Par conséquent, cette thèse portait sur les liens entre les PRN et la perspective d'observateur en imagerie mentale, ainsi qu'à leur processus sous-jacent (i.e., l'abstraction) et leur fonction (i.e., l'évitement). Les résultats de quatre études corrélationnelles indiquent que les PRN et la perspective d'observateur ne sont pas associées. Ils répliquent aussi des résultats d'études passées sur le rôle de l'évitement et de l'abstraction dans les PRN mais pas dans la perspective d'observateur. Les résultats de trois études expérimentales montrent également que l'induction de PRN sur un mode abstrait n'a pas d'effet sur la perspective visuelle adoptée ou la réactivité émotionnelle et, plus globalement, que l'induction d'un mode abstrait de traitement de l'information n'a pas d'effet sur la perspective visuelle adoptée, les PRN, ou la réponse émotionnelle lors de l'anticipation ou le rappel d'une tâche émotionnelle. Finalement, une méta-analyse conduite sur les études publiées et les études menées dans le cadre de cette thèse semble confirmer l'absence de lien entre les PRN et la perspective d'observateur. Dans l'ensemble, il semblerait que les PRN et la perspective d'observateur en imagerie mentale ne soient pas associées. Ces résultats sont discutés au regard des modèles théoriques et des implications méthodologiques.

Mots-clés : pensée répétitive, perspective visuelle, abstraction, évitement, régulation émotionnelle

ABSTRACT

Current research in clinical psychology is focused on the study of psychological processes implicated on the onset and maintenance of many psychological disorders. Two of these processes have been extensively explored: repetitive negative thinking (RNT), which is predominantly verbal, and the visual perspective adopted in mental images (i.e., actor vs. observer). Even if they represent two distinct phenomena, RNT and the observer perspective both seem to serve an avoidance function and be underpinned by a process of abstraction focused on the analysis of the “why” of events (i.e., the adoption of an abstract level of construal). These functional and processual similarities suggest a potential association between RNT and the observer perspective. However, few studies have examined this association. Therefore, this dissertation explored the association between RNT and the visual perspective in mental imagery as well as their underlying process (i.e., abstraction) and function (i.e., avoidance). Results of four correlational studies showed that RNT and the observer perspective were not associated. They also replicated results from previous studies on the role of avoidance and abstraction in RNT but not in visual perspective. Results from three experimental studies also showed that the induction of RNT at an abstract level had no effect on visual perspective or emotional reactivity, and more generally, that the induction of an abstract level of construal did not influence visual perspective, RNT, and emotional response during the anticipation or the post-event processing of an emotional task. Finally, a meta-analysis conducted on published studies as well as on our studies confirmed the absence of association between RNT and the observer perspective. Overall, it seems that RNT and the observer perspective adopted in mental imagery are not associated. These results are discussed in light of theoretical models and methodological implications.

Key-words : repetitive thinking, visual perspective, abstraction, avoidance, emotional regulation