

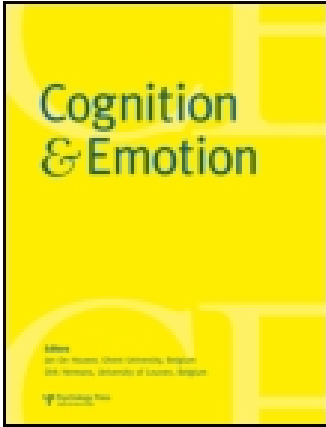
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## Cognition and Emotion

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/pcem20>

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Published online: 03 Feb 2007.

To cite this article: Dorthe Berntsen & David C. Rubin (2006) Emotion and vantage point in autobiographical, *Cognition and Emotion*, 20:8, 1193-1215, DOI: [10.1080/02699930500371190](https://doi.org/10.1080/02699930500371190)

To link to this article: <http://dx.doi.org/10.1080/02699930500371190>

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## Emotion and vantage point in autobiographical memory

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Autobiographical memories may be recalled from two different perspectives: Field memories in which the person seems to remember the scene from his/her original point of view and observer memories in which the rememberer sees him/herself in the memory image. Here, 122 undergraduates participated in an experiment examining the relation between field vs. observer perspective in memory for 10 different emotional states, including both positive and negative emotions and emotions associated with high vs. low intensity. Observer perspective was associated with reduced sensory and emotional reliving across all emotions. This effect was observed for naturally occurring memory perspective and when participants were instructed to change their perspective from field to observer, but not when participants were instructed to change perspective from observer to field.

Memories of personal events are recollected from visual perspectives that do not necessarily correspond to the perspective from which the event was originally experienced (Freud, 1899/1953; Nigro & Neisser, 1983). The vantage point in personal memories may be controlled and changed at will (e.g., Robinson & Swanson, 1993) but more often arises automatically. Consider the following memory from a 21-year-old female undergraduate who participated in a diary study on involuntary autobiographical memories (Berntsen, 1996):

I see myself dancing at a party at the university. I remember my clothes and my legs (the way they moved). Suddenly, I am 'inside my own body' looking out. A guy I know a little walks by me and says as he passes: 'You look good today'.

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The authors thank Heather J. Rice and Jennifer M. Talarico for helpful comments and National Institute of Mental Health (grant number R01 MH 066079) for funding.

In the first part of the memory, she remembers the event from an observer's point of view, that is, she "imagines the scene as an observer might see it" and observes herself dancing (Nigro & Neisser, 1983, p. 470). In the second part of the memory, when the young male enters the scene, she recollects the memory with a field perspective, that is, she seems to remember the scene from her "original point of view, not as an external observer would see it" (Nigro & Neisser, 1983, p. 470). The example illustrates that a field or observer perspective often occurs automatically at recall and usually is not the result of a conscious goal-directed process. In addition, the example shows that a field or observer perspective need not be stable during the same memory, but may change as the remembered event unfolds and changes.

Previous research has shown that field perspective is most common (Nigro & Neisser, 1983) and that the use of observer perspective is positively related to a number of factors, such as age of the remembered event (e.g., Nigro & Neisser, 1983; Rice, Talarico & Rubin, 2005; Robinson & Swanson, 1993), lower levels of emotion (e.g., Mclsaac & Eich, 2002; Nigro & Neisser, 1983), and self-awareness or self-evaluation in relation to the remembered event (Nigro & Neisser, 1983; Frank & Gilovich, 1989; Libby & Eibach, 2002). Here, we examine field vs. observer perspective across autobiographical memories for 10 different emotional events, each characterised by a distinct emotional state, such as fear or happiness. The 10 emotions were chosen to vary systematically on positive vs. negative valence and high vs. low intensity (arousal). The relation between perspective and emotion is examined both in a condition with a naturally occurring memory perspective (i.e., the perspective occurs spontaneously in response to instructions to recall an autobiographical memory) and in conditions where perspective is manipulated (i.e., it occurs in response to instructions to recall an autobiographical memory and relive it from either a field or observer perspective). The following review of the literature addresses three main questions. The first is memory for emotion-relevant information in relation to field vs. observer perspective. The second is whether pleasant vs. unpleasant memories differ regarding field versus observer perspective. The third is whether discrete emotional states show differential effects on field vs. observer perspective.

### **Field vs. observer perspective and memory for emotion-relevant information**

Nigro and Neisser (1983) studied the frequency of naturally occurring field/observer perspective and its relation to other characteristics of autobiographical memories. By varying the situation cues systematically on dimensions of self-awareness and emotion, they found that observer

perspective was most likely to be found for memories associated with both high levels of self-awareness and high levels of emotion. Further, when they asked participants to focus on either emotional or objective aspects of their memories, they found that the instruction to focus on emotion produced more field memories and less observer memories than the instruction to focus on the concrete, objective circumstances. McIsaac and Eich (2002) followed up on this part of Nigro and Neisser (1983) by using a forced perspective procedure. Participants were instructed to verbally describe their memories for a series of physical tasks (that they had carried out in advance) from either an observer or field perspective. The memory reports were tape-recorded and the content of the accounts was scored by independent judges. Reports narrated from a field perspective contained more information on emotional, physical, and psychological states during the tasks, whereas memory reports narrated from an observer vantage point contained more information on the objective circumstances. After describing their memories, participants rated how detailed and emotional their memories had been. Participants who had narrated from a field perspective scored higher on these measures. McIsaac and Eich (2004) replicated these findings for naturally occurring field vs. observer perspective in a study on traumatic memories among patients With posttraumatic stress disorder. Robinson and Swanson (1993) instructed participants to change perspective from either field to observer or from observer to field and found that changing from field to observer was associated with reduced emotional intensity and reduced awareness of feelings, whereas they did not find a complementary increase in affect when changing from observer to field. Examining autobiographical memories for 20 distinct emotional states, Talarico, LaBar, and Rubin (2004, experiment 1) found that ratings of emotional intensity was positively related to degree of field perspective. Similar findings were reported by D'Argembeau, Comblain, and van der Linden (2003). In sum, memories recalled from a field perspective are generally experienced as more emotional and/or contain more information on emotional and other subjective states as compared to observer memories. This pattern has been found both in studies where perspective has been manipulated and in studies in which the relation between memory characteristics and naturally occurring field/observer perspective has been examined.

### Emotional valence and field vs. observer perspective

Although valence has less consistent effects on autobiographical memory characteristics than arousal (Talarico et al., 2004), valence is an important dimension in emotion (e.g., Lang, 1994) that is often overlooked in studies of memory for emotional events (Berntsen & Rubin, 2002). Valence has been

found to interact with some characteristics of autobiographical memory, such as proportion of central vs. peripheral details (Berntsen, 2002), forgetting rate (Walker, Vogl, & Thompson, 1997) and the distribution of memories across the lifespan (Berntsen & Rubin, 2002). Findings on valence in relation to field vs. observer perspective are mixed. Talarico et al. (2004) and D'Argembeau et al. (2003) found no effect of valence on field/observer perspective. Comparing memories for more extreme emotional events among 306 undergraduates, Porter and Birt (2001) found that an observer perspective was more dominant for trauma memories than for memories of highly positive events. Further, participants with mild traumas tended to report less observer perspective than participants with moderate and severe traumas.

Findings from other studies also suggest that individuals with more severe reactions in response to traumatic events tend to have more observer perspective associated with their memories of those events (e.g., Berntsen, Willert, & Rubin, 2003; Cooper, Yuile, & Kennedy, 2002). An association between highly negative emotion and observer perspective is also in accordance with the finding that social phobics more often recall anxiety-provoking social situations from an observer point of view than controls (Coles, Turk, Heimberg, & Fresco, 2001; Well, Clark, & Ahmad, 1998).

Such findings can be seen to suggest that an observer perspective sometimes serves as a defence against reliving stressful and/or traumatic memories since changing perspective from field to observer leads to reduced affect during remembering, according to Robinson and Swanson's (1993) findings (see Berntsen et al., 2003; Freud, 1899/1953; McIsaac & Eich, 2004, for discussions). This possibility is reminiscent of the notion of out-of-the-body experiences in relation to traumatic events, that is, the person feels that he or she is mentally leaving his/her body and observing the stressful event from a distance (e.g., van der Hart, van der Kolk, & Boon, 1998).

### Specific emotions and memory perspective

In addition to intensity and valence, people experience and readily classify emotions as distinct psychological states indexed by specific linguistic labels, such as anger. Each is assumed to be associated with a certain pattern of appraisal of the potential outcome of the event and its relevance to the person's self and current goals (e.g., Lambie & Marcel, 2002; Lazarus, 1991; Levine & Pizzaro, 2004, for reviews). Few studies have examined the effects of discrete emotions on autobiographical memory (e.g., Bluck & Li, 2001; Strongman & Kemp, 1991; Talarico et al., 2004), and so far it has not been analysed systematically for field/observer perspective. Such analysis is relevant for a number of reasons. For example, some specific emotions involve more self-awareness than others. Emotions, such as pride and shame,

are reflexive, that is, the self (not the world) is appraised and the self (not the world) is the object of a certain action attitude, according to Lambie and Marcel (2002). For example, in shame, the self has failed to meet a certain concern and the self, rather than the world, is the object of an action attitude (e.g., hiding oneself). Since reflexive emotions involve more self-awareness and as self-awareness has been associated with observer perspective (e.g., Frank & Gilovich, 1989; Nigro & Neisser, 1983), we should expect memories of reflexive emotional states to involve more observer perspective than memories of nonreflexive emotions. In addition to self-awareness, valence and arousal, specific emotions are observed to differ on a number of dimensions related to motivation and problem solving (e.g., Lambie & Marcel, 2002; Levine & Pizzaro, 2004; Smith & Ellsworth, 1985). Thus, memories for specific emotional states may show different levels of field/observer perspective.

### Outline of the present study

The present study examines the relation between field/observer perspective and memory for emotional events across a number of conditions. We include 10 different emotions, five positive and five negative, spanning widely in terms of intensity and including both reflexive and nonreflexive emotions. We ask for memories of extreme emotional events, because we want to ensure that memories for the 10 discrete emotions would be clearly different from one another. (For example, extreme calm is more likely to be distinct from extreme happiness than is weak or moderate calm from weak or moderate happiness.)

In Part 1 we first examine the relation between naturally occurring memory perspective and memory for emotional events in a neutral condition with no perspective instructions. In most of these analyses, perspective is treated as a dependent variable that is assumed to vary as a function of emotion. We expect level of field/observer perspective to vary among the 10 emotions—we specifically expect memories of reflexive emotions to have more observer perspective than memories of nonreflexive emotions. We also expect emotionally negative memories to have more observer perspective than emotionally positive memories. And we expect memories with higher levels of emotional intensity to have more field perspective than emotionally less intense memories. Finally, in a few analyses, we treat field vs. observer perspective as a dichotomous independent variable. Here, we expect memories with a clear field perspective to have higher ratings on measures of memory qualities than memories with a clear observer perspective.

We next study the effects of instructing participants to recall the emotional events from either a field or observer perspective; thus, we treat field vs. observer perspective an independent variable that is assumed

to affect the phenomenological qualities of the memories. On the basis of McIsaac and Eich (2002) and Robinson and Swanson (1993), we expect forced observer perspective to be associated with reduced reliving of the memories as compared to a forced field perspective and compared to the neutral condition. We expect the reverse pattern for forced field perspective.

In Part 2 of the experiment we study effects of changing perspective. We expect shifts in perspective from field to observer to lead to decreased emotional intensity and reliving of the memories and, following Robinson and Swanson (1993), the reverse shift to have little effect.

## METHOD

### Participants

Participants were 122 psychology students (99 females, mean age 27 years, range 20–51), who took part in the study as part of a teaching course.

### Design

The study had two parts. In Part 1, participants recorded memories of 10 highly emotional events, each associated with a distinct emotional state (i.e., the time when you were: most negatively surprised, most afraid, most sad, most ashamed, most angry, most positively surprised, most calm, most in love, most happy, most proud), which were presented in random order. One third was asked to view and to record their memories from an observer perspective (observer group,  $N=40$ ), one third from a field perspective (field group,  $N=42$ ), and one third from the perspective with which the memory naturally came (neutral group,  $N=40$ ). All answered the same questionnaire on memory qualities (including a question of perspective rated on a 7-point scale).

Part 2 was separated from Part 1 by a 15 minute break. Participants were asked to go through their recorded memories and to choose two memories. The observer group chose their two most extreme observer-memories, the field group chose their two most extreme field-memories, and the neutral group chose their most extreme field-memory and their most extreme observer-memory. They were then asked to reverse the perspective and do the memory ratings again.

### Materials

In both parts of the experiment, participants answered a series of 11 questions on 7-point rating scales for each memory. The questions were modified from Rubin, Schrauf, and Greensberg (2003). For a detailed description of these measures and how they interrelate, see Rubin et al. (2003), Rubin and Siegler (2004), Wenzel, Pinna, and Rubin (2004), and



Talarico et al. (2004). The questions were presented in the following order (the labels in the parentheses indicate the labels used in the tables for the results and in the analyses):

1. (Perspective) When I now recall the episode, I primarily see what happened from a perspective as seen through (1 = my own eyes; 7 = an observer's eyes).

2. (Reliving) When I recollect the episode, it is as if I am reliving it (1 = not at all, 7 = as clearly as if it happened now).

3. (Valence) The emotions I have when I recall the episode are (-3 = extremely negative; 3 = extremely positive)

4. (Intensity) The emotions I have when I recall the episode are intense (1 = not at all intense; 7 = extremely intense).

5. (Belief) I believe that the episode really took place the way I remember it, and that I did not imagine anything or invent anything that did not take place (1 = 100% fantasy; 7 = 100% real).

6. (Visual imagery) When I think of the episode, I can see with my mind's eye what took place (1 = not at all; 7 = as clearly as if it happened now).

7. (Other senses) When I think of the episode, I can hear, feel, smell or taste what took place (1 = not at all; 7 = as clearly as if it happened now).

8. (Bodily reaction) When I recollect the episode, I have a physical/bodily reaction (e.g., palpitations, feeling restless, tense, sweating, tears, laughter) (1 = not at all; 7 = as clearly as if it happened now).

9. (Rehearsal) Since it happened, I have thought and talked a lot about this episode (1 = not at all; 7 = more than any other memory).

10. (Importance) This memory is important to me, because it is instructive, or represents an anchor point, a critical moment or turning point (1 = not at all; 7 = more than any other memory).

11. (Age at event) How old are you in this memory? (age estimated in years).

## Procedure

### Part 1

Participants were initially instructed about viewing their memories from either an observer perspective ("seeing yourself as well as other aspects of the situation in the memory") or field perspective ("seeing the scene from your original point of view, *not* as an external observer would see it") consistent with the definitions offered by Nigra and Neisser (1983). They were asked to retrieve 10 autobiographical memories of specific episodes, each corresponding to one of the 10 emotional events listed above. Each emotional event was exemplified and described consistent with appraisal theory (Lazarus, 1991; see the Appendix). The description of the emotion

cue in question was printed on a separate sheet. Once a memory was brought to mind, the participant recorded a few keynote phrases to allow him/herself to later identify the memory. Then the participant turned to the next page in the booklet. On this next page, the instruction concerning perspective was printed on top of the page followed by the 11 questions concerning memory characteristics. For the observer condition the instructions were: "Your task is now to recollect the chosen episode as seen from a perspective outside of your own body. In your memory, you imagine the scene as an observer might see it. Such an *observer* would see you as well as other aspects of the situation. When you have established this perspective as well as you can, please answer the following questions". For the field condition, the instructions were: "Your task is now to recollect the chosen episode from a perspective within your own body. In your memory, you imagine the scene from your *original point of view*, not as an external observer would see it. When you have established this perspective as well as you can, please answer the following questions". And for the neutral condition, the instructions were: "Your task is now to recollect the chosen episode and answer some questions. When you have brought the memory to your awareness as well as you can, please answer the following questions". Participants then answered the questionnaire on memory characteristics.

### *Part 2*

This part was initiated after a 15 minute break. Participants were asked to select two of their previously recorded memories. For the observer group, it should be the memories rated most observer (i.e., highest) on the 7-point perspective scale. For the field group, it should be the memories rated most field (i.e., lowest) on the 7-point perspective scale. The neutral group chose their most extreme observer-memory and their most extreme field-memory, respectively. Participants were then asked to reverse their perspective to make it as close as possible to the other extreme, and then fill in the memory questionnaire again. Participants were asked not to look at their previous ratings in the booklet, when filling in the second questionnaire for the two memories. In both parts of the study, participants were tested in a group setting and went through the memory tasks in the booklet at their own pace.

## RESULTS

### Part 1: Natural and forced perspective

Participants in the three groups managed to manipulate their memory perspective in accordance with the instructions. Mean ratings of *perspective*

calculated across the 10 emotions were 2.62 ( $SD = 1.19$ ) for the field group, 3.08 ( $SD = 1.06$ ) for the neutral group, and 4.54 ( $SD = 1.24$ ) for the observer group. The ratings differed significantly,  $F(2, 107) = 27.5$ ,  $p < .0001$ .  $t$ -Tests for independent samples showed that the observer group had higher ratings *on perspective* than the field group,  $t(72) = 6.78$ ,  $p < .0001$ , and than the neutral group,  $t(73) = 5.41$ ,  $p < .0001$ , and that the field group tended to have lower ratings than the neutral group,  $t(69) = 1.76$ ,  $p = .08$ . The lack of a significant difference between the field and neutral condition is likely to reflect that the mean score *for perspective* in the neutral group was below the midpoint of the 7-point scale. This agrees with observations in previous studies that autobiographical memories are most frequently recalled from a field perspective (Nigro & Neisser, 1983; Robinson & Swanson, 1993).

We will first present findings in the neutral perspective condition in order to examine the effects of naturally occurring memory perspective. We then examine the effects of forced field vs. observer perspective.

*Naturally occurring perspective and emotion.* Data from the neutral group were examined by itself to investigate the relation between memory perspective and other variables, when no experimental manipulation with perspective had taken place. Also, data from the neutral group allowed us to analyse different aspects of emotion, not influenced by the perspective manipulation conducted in the other two groups. A series of repeated-measures ANOVAs, each with 10 levels, corresponding to the 10 emotion categories, showed a main effect of emotion for all memory characteristics (all  $ps < .01$ ) except for *belief*,  $F(9, 324) = 1.64$ ,  $p > .1$ , *visual imagery*,  $F(9, 324) = 1.59$ ,  $p > .1$ , and *memory perspective*  $F(9, 315) = 1.73$ ,  $p > .08$ . Thus, in contrast to our expectation, *perspective* did not vary reliably as a function of the ten discrete emotions. The rank order of the emotions with respect to degree of observer perspective was as follows (with means and standard deviations in parentheses): fear ( $M = 3.75$ ;  $SD = 2.27$ ), sadness ( $M = 3.35$ ;  $SD = 2.07$ ), negative surprise ( $M = 3.20$ ;  $SD = 2.02$ ), pride ( $M = 3.15$ ;  $SD = 1.87$ ), shame ( $M = 3.05$ ;  $SD = 1.92$ ), anger ( $M = 3.05$ ;  $SD = 2.00$ ), happiness ( $M = 2.88$ ;  $SD = 1.95$ ), love ( $M = 2.84$ ;  $SD = 1.90$ ), positive surprise ( $M = 2.74$ ;  $SD = 1.73$ ), calmness ( $M = 2.50$ ;  $SD = 1.45$ ). As it appears, the two reflexive emotions—pride and shame—were not among the highest ranking. Their combined mean score on *perspective* ( $M = 3.11$ ;  $SD = 1.36$ ) did not deviate from the composite mean score for the remaining emotions ( $M = 3.08$ ;  $SD = 1.12$ ),  $t(35) = 0.13$ ,  $p > .8$ .

The rank order of emotions shows that the three emotions with the highest perspective scores all had negative valence. To examine valence effects more systematically, a mean score for each memory characteristic was calculated within each person for the five positive and the five negative

TABLE 1  
Means (and standard deviations) for ratings for memory characteristics for positive and negative emotions in the neutral group

	<i>Negative</i>		<i>Positive</i>		<i>t</i> (36)
	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	
Perspective	3.34	(1.14)	2.83	(1.29)	2.59*
Valence	-1.92	(0.52)	1.88	(0.54)	24.85****
Intensity	4.82	(0.96)	4.75	(0.88)	0.70
Reliving	4.48	(0.73)	4.54	(0.92)	0.41
Visual imagery	5.13	(0.74)	5.19	(0.83)	0.51
Other senses	4.02	(1.06)	4.08	(1.04)	0.32
Bodily reaction	3.92	(1.37)	3.47	(1.28)	3.53**
Rehearsal	3.96	(0.80)	3.49	(0.78)	3.95***
Importance	4.08	(0.95)	4.14	(1.03)	0.29
Retention interval	6.33	(3.71)	4.87	(2.32)	3.18**
Belief	5.86	(0.83)	5.97	(0.82)	0.87

Note: Degrees of freedom were only 35 for *perspective* and *retention interval* because of missing data; *retention interval* was measured in years. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; \*\*\*\* $p < .0001$ .

emotions, respectively (see Table 1).<sup>1</sup> The mean scores for valence differed markedly in the expected direction, showing that our classification of negative and positive emotions agreed with participants' own ratings of their memories. More interestingly, memories of negative emotions were associated with more observer *perspective*, more *bodily reactions*, more *rehearsal* and longer *retention interval* (i.e., a calculated variable subtracting *age at event* from age of the person) as compared to memories of positive emotions. These effects appeared to be unconfounded by level of intensity/arousal, since no difference was found between positive and negative emotions on *intensity* ratings. The association between negative valence and observer *perspective* might be due to the fact that negative *valence* was associated with older memories according to Table 1 and that *retention interval* was associated with more observer *perspective*,  $r(393) = .16$ ,  $p < .0001$ , based on a correlation in which the individual memories were considered the units of analysis. Except for a weak negative correlation with *valence*,  $r(393) = -.10$ ,  $p < .05$ , none of the remaining variables in Table 1 correlated significantly with *perspective* ratings. To clarify, a multiple regression analysis was conducted with *perspective* as the dependent variable and *retention interval* and *valence* as predictor variables. The analysis was based on the discrete memories. However, because each of the 40 participants had reported 10

<sup>1</sup> We do not correct for multiple comparisons in this and the following tables, because we are looking for patterns of results, and we do not want to increase type II errors by changing the conventional .05 level. The degrees of freedom in Tables 1 and 2 vary because cases with missing data were excluded from the composite scores.

memories, the discrete memory records could not be treated as statistically independent. To control for this problem, 39 dummy coded subject variables were also included in the analysis, identifying the ten memories that each participant had contributed in order to filter out variance due to individual differences. With this method, each memory can be legitimately treated as an independent observation (Cohen & Cohen, 1983). In this regression analysis, *retention interval* entered as a significant predictor,  $\beta = .18$ ,  $t(353) = 3.71$ ,  $p < .001$ . *Valence* was not significant ( $p > .07$ ). Twenty-two of the 39 included dummy variables were also significant predictors in the regression analyses (all  $ps < .05$ ), indicating substantial individual differences associated with field/observer ratings.  $R^2$  for the total analysis with the dummy variables included was .34, whereas  $R^2$  for the same analysis when the dummy variables were excluded was .05.

In order to compare memories associated with higher vs. lower intensity in the neutral group, memory ratings were averaged within each person for the four emotions with the highest means of *intensity*: sadness ( $M = 5.35$ ;  $SD = 1.42$ ), love ( $M = 5.20$ ;  $SD = 1.11$ ), happiness ( $M = 4.85$ ;  $SD = 1.35$ ), anger ( $M = 4.80$ ;  $SD = 1.36$ ), and for the four emotions with the lowest means: calmness ( $M = 4.39$ ;  $SD = 1.52$ ), pride ( $M = 4.30$ ;  $SD = 1.32$ ), shame ( $M = 4.48$ ;  $SD = 1.54$ ), fear ( $M = 4.50$ ;  $SD = 1.54$ ). To ensure a balanced number of positive and negative emotions in each category and a clear difference on *intensity* scores between the two categories, most positive surprise ( $M = 4.69$ ;  $SD = 1.44$ ) and most negative surprise ( $M = 4.58$ ;  $SD = 1.36$ ) were not included in this analysis. The results are shown in Table 2.

TABLE 2  
 Means (and standard deviations) for ratings of memory characteristics for higher vs. lower intensity emotions in the neutral group

	<i>Higher</i>		<i>Lower</i>		<i>t</i> (37)
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	
Perspective	3.08	(1.32)	3.18	(1.17)	0.41
Valence	-0.04	(0.47)	0.00	(0.42)	0.35
Intensity	5.16	(0.91)	4.45	(1.04)	4.30***
Reliving	4.67	(0.75)	4.32	(0.79)	2.84**
Visual imagery	5.30	(0.91)	4.99	(0.77)	2.95*
Other senses	4.23	(1.03)	3.88	(0.99)	1.29*
Bodily reaction	4.03	(1.34)	3.30	(1.36)	4.64****
Rehearsal	3.85	(0.98)	3.46	(0.69)	2.53*
Importance	4.44	(0.95)	3.57	(1.04)	4.68****
Retention interval	5.28	(3.22)	6.51	(4.29)	2.00
Belief	5.89	(0.74)	5.80	(0.85)	1.01

*Note:* Degrees of freedom were only 36 for *perspective* and *retention interval* because of missing data; *retention interval* was measured in years. \* $p < .05$ ; \*\* $p < .001$ ; \*\*\*\* $p < .0001$ .

Memories of high intensity emotions were rated significantly higher on *intensity*, *reliving*, *visual imagery*, *other senses*, *bodily reaction*, *rehearsal*, and *importance*, but, surprisingly, not on *perspective*. Thus, the present study fails to replicate Talarico et al.'s (2004) finding that field perspective increases with increasing emotional intensity. As it appears when Tables 1 and 2 are considered together, higher vs. lower intensity appears to be a better predictor than positive vs. negative valence for how much autobiographical memories are relived, consistent with findings reported by Talarico et al. (2004). However, *bodily reactions* were associated with both high intensity and negative emotional valence. To clarify, a multiple regression analysis was conducted with *bodily reactions* as the dependent variable and *valence* and *intensity* ratings as the predictor variables together with 39 dummy coded subject variables that were included to control for subject variance. Both ratings of *intensity* and *valence* entered as significant predictors in the regression analysis, but *intensity* was more strongly associated with the dependent variable,  $\beta = .55$ ,  $t(355) = 14.66$ ,  $p < .0001$ , compared to *valence*,  $\beta = -.13$ ,  $t(355) = 4.41$ ,  $p < .0001$ .  $R^2$  for the total analysis was .69. When the 39 dummy variables were excluded from the analysis,  $R^2$  was .42.

So far we have examined the degree of field vs. observer perspective as a function of valence and intensity. In order to treat field vs. observer perspective as a dichotomous variable (as has been done in several previous studies, e.g., Nigro & Neisser, 1983; Robinson & Swanson, 1993), we contrasted participants' most extreme field-memories and observer-memories using a series of within-subjects comparisons. As shown in Table 3, in

TABLE 3  
Means (and standard deviations) for memory characteristics of most extreme field-memories vs. most extreme observer-memories in the neutral group

	<i>Field</i>		<i>Observer</i>		<i>t</i> (38)
	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	
Perspective	1.36	(0.58)	5.59	(1.48)	17.47***
Valence	-0.03	(2.39)	-0.77	(1.98)	1.59
Intensity	5.05	(0.97)	4.56	(1.68)	1.84
Reliving	4.79	(1.38)	4.03	(1.46)	2.76**
Visual imagery	5.69	(1.03)	4.95	(1.30)	2.81**
Other senses	4.51	(1.49)	3.51	(1.71)	3.25**
Bodily reaction	3.85	(1.81)	3.54	(1.89)	0.92
Rehearsal	3.87	(1.54)	3.46	(1.54)	1.02
Importance	4.59	(1.60)	3.51	(1.55)	2.67*
Age at event	23.85	(7.11)	18.79	(8.68)	3.37**
Belief	6.28	(0.86)	5.72	(1.23)	3.08**

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .0001$ .

addition to the expected difference on *perspective*, observer-memories were rated lower on six of the remaining 10 measures of memory characteristics included in the analyses. Some of the effects on measures of memory qualities could be due to the fact that extreme observer memories referred to more remote events. However, *age at event* did not correlate significantly with the five measures of memory characteristics (*reliving*, *visual imagery*, *other senses*, *importance*, and *belief*) that showed a significant difference between the field-memories and observer-memories (cf. Table 3). A series of multiple regression analyses with *reliving*, *visual imagery*, *other senses*, *importance*, and *belief* as dependent variables and *age at event* and *perspective* as predictor variables in all the analyses showed no effect of *age at the event* but a significant effect for *perspective* on *visual imagery*, *importance*, and *belief* (all  $ps < .05$ ).

*Forced perspective.* Surprisingly, forced perspective did not affect the ratings of memory characteristics. As shown in Table 4, the three groups did not differ reliably on any of the measured characteristics of memory. A trend was seen for valence,  $F(2, 108) = 2.84, p > .06$ , reflecting that participants in the observer condition rated their memories slightly more positive than the field group and the neutral group. One possible explanation for the lack of differences between the three groups might be that participants in the field and observer condition did not fully succeed in experiencing all their memories from a field and observer vantage point, respectively. One way to examine this possibility is to compare memory qualities for the most extreme field memory from each participant in the field group with memory qualities

TABLE 4  
Means (and standard deviations) for ratings of memory characteristics in the field, observer, and neutral groups

	<i>Field</i>		<i>Observer</i>		<i>Neutral</i>	
	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )
Valence	0.00	(0.38)	0.14	(0.32)	0.02	(0.25)
Intensity	4.75	(0.93)	4.79	(1.09)	4.78	(0.86)
Reliving	4.51	(0.87)	4.65	(0.94)	4.51	(0.70)
Visual imagery	5.19	(0.68)	5.31	(0.77)	5.16	(0.73)
Other senses	3.99	(1.00)	4.09	(1.29)	4.05	(0.91)
Bodily reaction	3.77	(1.18)	3.82	(1.14)	3.69	(1.27)
Rehearsal	3.50	(0.89)	3.73	(0.74)	3.73	(0.70)
Importance	4.20	(0.86)	3.98	(0.78)	4.11	(0.77)
Retention interval	5.14	(3.07)	5.87	(3.15)	5.60	(2.78)
Belief	5.98	(0.63)	6.15	(0.63)	5.91	(0.73)

Note: *Retention interval* was measured in years.

for the most extreme observer-memory from each participant in the observer group. In this analysis, however, only perspective ratings differed significantly between the field and observer group [ $M = 1.38$  ( $SD = 0.70$ ) vs.  $M = 6.25$  ( $SD = 0.90$ ),  $t(80) = 27.49$ ,  $p < .0001$ ]. No differences were found between the two groups on the remaining variables (all  $ps > .1$ ).

To examine possible main effects of the 10 distinct emotions as well as possible interactions between perspective condition and the ten emotions, a series of two-way ANOVAs were conducted—one for each memory characteristic (e.g., *reliving*). The analyses were based on all recorded memories in all three groups. Each had perspective condition as a between-subjects variable and the 10 levels corresponding to the 10 emotions as a within-subjects variable. A main effect for emotion was found for all memory characteristics (all  $ps < .001$ ), except for ratings of *perspective*, *belief*, and *visual imagery*. No interaction with perspective condition (field/observer/neutral) was found in any of these analyses (all  $ps > .06$ ). No main effect for perspective condition was found in any of these analyses (all  $ps > .06$ ) except for ratings of *perspective* (cf. above).

In sum, naturally occurring field-memories and observer-memories differed consistently with our hypotheses regarding measures of reliving, sensory imagery, and belief, whereas no similar effects were found when perspective was instigated by instructions.

## Part 2: Changing perspective

All participants were asked to change perspective for two memories. Consistent with instructions, the field group chose their two most extreme field-memories ( $M_s = 1.38$  and  $1.67$ ;  $SD_s = 0.70$  and  $1.05$ ) the observer group their most extreme observer-memories ( $M_s = 6.25$  and  $6.10$ ;  $SD_s = 0.90$  and  $0.90$ ) and the neutral group chose their most extreme field-memory ( $M = 1.36$ ;  $SD = 0.58$ ) for the first change and their most extreme observer memory ( $M = 5.59$ ;  $SD = 1.48$ ) for the second change. We refer to the two changes as trial 1 and trial 2 in the following. Table 5 shows that most participants in all three conditions succeeded in changing their memory perspective for both trials by at least 3 points on the 7-point rating scale. Six participants in the first trial and four participants in the second trial showed no change in perspective from the original to the second memory recall. These participants were omitted from the subsequent analyses.

Table 6 shows that changing perspective from field to observer was consistently associated with reduced reliving qualities, whereas changing from observer to field did not lead to the reverse increase in memory qualities (with the exception of *other senses* in the first trial for the observer group). This pattern was found both as a difference between the field and observer group on both trials and as a difference between trial 1 and trial 2



TABLE 5  
 Frequencies of number of scale steps increased or decreased on the rating scale for perspective for each shift in perspective within the field observer and neutral conditions

No. steps in creased/decreased	Field		Observer		Neutral	
	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2
	F-O	F-O	O-F	O-F	F-O	O-F
0	3	2	2	0	1	2
1	1	2	1	2	1	6
2	1	6	1	2	1	1
3	10	6	16	10	11	9
4	9	13	5	12	11	11
5	9	6	8	8	8	7
6	8	6	7	6	6	3

within the neutral group. Of the 18 analyses in which perspective was changed from field to observer (not taking into account the changes in ratings of perspective), measures of reliving and memory characteristics were reduced significantly in all but two cases—for which a trend was found in the expected direction. For the 18 analyses in which perspective was changed from observer to field, significant effects were obtained only in three cases. These effects were contradictory. In one case (Observer, Trial 1) an increase was seen and in two cases (Neutral, Trial 2) decreases were found. Thus, the pattern of results showed consistent effects when perspective was changed

TABLE 6  
 Mean differences on ratings of memory characteristics with shifts in perspective within the field, observer, and neutral groups

Characteristics	Field (N = 37–39)		Observer (N = 38–40)		Neutral (N = 36–38)	
	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2
	F-O	F-O	O-F	O-F	F-O	O-F
Perspective	4.26****	3.85****	-4.03****	-4.00****	4.11****	-3.58****
Reliving	-1.00***	-0.59*	0.11	0.05	-0.76*	0.11
Intensity	-1.16****	-0.72**	0.00	0.35	-1.11****	-0.14
Belief	-0.37*	-0.46**	-0.08	-0.20	-0.79***	-0.41*
Visual imagery	-0.58**	-0.44(*)	-0.29	-0.38	-1.13****	-0.51*
Other senses	-1.08****	-0.45(*)	0.58*	-0.23	-1.16****	-0.08
Bodily reaction	-1.21****	-0.69**	0.21	-0.20	-1.26****	-0.41

(\*) $p = .06$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; \*\*\*\* $p < .0001$ , by single sample  $t$ -tests.

from field to observer, but not when changing from observer to field. The results thus replicate Robinson and Swanson's (1993) findings and extend this pattern of results to other memory qualities.

## SUMMARY AND DISCUSSION

### Part 1

*Naturally occurring perspective.* No effect of discrete emotions was found on perspective ratings in the neutral condition. Reflexive emotions (pride and shame) were not associated with more observer perspective than nonreflexive emotions, contrary to our expectations. Memories for negative emotional events were rated higher than memories for positive events on *bodily reaction*, *rehearsal*, *retention interval*, and on *observer perspective*. The latter, however, was reduced to a trend when controlling for *retention interval*. Thus, when controlling for age of the memories, our findings did not support the assumption (derived from the literature on trauma) that an observer perspective is more pronounced for emotionally negative memories and may serve as a defence against reliving painful emotion. The lack of a significant effect may reflect that the emotionally negative memories in the present study were relatively mild compared to memories of truly traumatic events.

Compared to memories for low intensity emotions, memories for high intensity emotions were rated higher on all measures of reliving and imagery, but—surprisingly—not on perspective. When most extreme field-memories were compared to most extreme observer-memories in the neutral condition, field-memories scored higher on most measures of memory qualities, consistent with our predictions.

*Forced perspective.* In contrast, forced field and observer perspective in Part 1 had no effect on the recollective qualities of the memories. No effects of forced perspective were found when recollective qualities were averaged across the 10 emotions and no interactions were found between forced perspective and the 10 emotion conditions. Likewise, when most extreme forced field-memories in the field condition were compared to most extreme forced observer-memories in the observer condition, recollective qualities did not differ between the two groups. Thus, naturally occurring field vs. observer perspective followed our predictions with regard to reliving and imagery whereas forced field vs. observer perspective did not.

The only study to date that shows considerable effects of instructing participants to report memories from either a field or observer perspective is McIsaac and Eich (2002). In the forced field condition in McIsaac and Eich's (2002) study, the reported memories contained more information on affective reactions and other subjective states, whereas in the forced observer

condition, more information was reported about observable aspects of the events, such as personal appearance, physical action, and spatial relations. Why did we not find similar differences between the forced field and observer condition? There are several important differences between the present study and McIsaac and Eich (2002). First, in the present study, participants recalled highly emotional personal events that often dated several years back in time, whereas McIsaac and Eich's (2002) participants recalled memories for physically involving, but emotionally neutral, tasks (e.g., folding paper with gloved hands) that the participants had performed few minutes before the recall task. Thus, the participants had many details to choose among and more labile, personally unimportant memories to manipulate. Second, in the present study, participants were instructed to recollect and rate their memories on a number of measures of subjective qualities after they had adopted either a field or observer perspective on the remembered events. In McIsaac and Eich's study, participants were instructed to verbally describe ("recall aloud", p. 147) their memories from either a field or observer perspective. The content of the verbal descriptions was afterwards coded by independent judges. Thus, McIsaac and Eich's findings are mainly concerned with differences in the content of verbal reports narrated from either a field or observer perspective, whereas the present study deals exclusively with subjective ratings of memory qualities while adopting either an observer or field perspective. While the two studies are roughly similar with respect to the instructions on field versus observer perspective, the findings obtained through verbal reports in McIsaac and Eich's (2002) study need not generalise to findings on emotional and sensory qualities, measured by subjective rating scales as in the present study. For example, a person who verbally narrates from an observer's perspective may have feelings about the event that he/she cannot verbally report without violating the perspective from which he/she was instructed to describe the memory, whereas such feelings can legitimately be reported on a subjective rating scale while maintaining an observer perspective on the memory image. The perspective from which a story is narrated greatly constrains which type of information can be expressed. In analyses of literary texts, a crucial step therefore is to identify the narrator perspective, because this identification is a key to an understanding of which information is included and excluded and why (Hansen, Jørgensen, Michelsen, Sørensen, & Tonnesen, 1993). Notably, a third-person "objective" narrator (using a so-called behaviourist narrative style) only reports what is visible from the point of view of an external observer: "that is, the narrator becomes an uninvolved and neutral camera that only registers without interpreting" (Hansen et al., 1993, p. 534, our translation). In contrast, a first-person participant narrator tells the story as experienced through his/her own eyes and can thus report his/her internal states (Hansen et al., 1993). Knowing literature, the college students in

McIsaac and Eich's (2002) study may have understood the instruction to verbally describe their memories from either a field or observer perspective as an instruction to use a first-person participant narrator and a third-person objective narrator position, respectively. This interpretation is supported by the finding that none of the participants in the field condition used third-person referents while talking about their memories while several of the participants in the observer condition used third-person pronouns "he" or "she" when describing the events. As summarised by McIsaac and Eich (2002): "The subjects assigned to the field condition were more likely to talk about their memories in first-rather than third-person terms, whereas the opposite was true for subjects in the observer condition" (p. 148).

McIsaac and Eich's (2002) findings are consistent with well-established knowledge of narrator perspective in the field of literature (e.g., Hansen et al., 1993) and open an interesting area of research related to autobiographical memory (e.g., Gillihan & Farah, 2005). However, it is not clear to what extent their findings generalise to visual field/observer perspective in recollection and associated subjective qualities of reliving. Even though McIsaac and Eich found that participants in the field condition rated their memories as more emotional and detailed than participants in the observer condition, these ratings were obtained after the recall aloud task was completed and may reflect which aspects of the memories were rehearsed during this task in the two conditions and/or verbal overshadowing (Fallshore & Schooler, 1995; Tversky & Marsh, 2000). The relation between narrator perspective, field/observer perspective and reliving qualities in autobiographical memory is a topic for future research.

## Part 2

In Part 2, changing from field to observer perspective led to reduced emotional and sensory reliving of the memories, whereas changing from observer to field was not accompanied by increased reliving. This pattern of results was found in the observer, field, and neutral groups. These findings replicate Robinson and Swanson (1993) and extend their findings to other measures of memory qualities. Parts of the effects shown in Table 6 are likely to be repetition effects, that is, ratings of reliving qualities tended to drop at the second recall trial relative to the first recall trial across all conditions (cf. Robinson & Swanson, 1993). However, more than repetition is needed to account for the findings, because the reduction was considerably larger (and only statistically reliable) when participants shifted from field to observer. Robinson and Swanson (1993) suggested that the asymmetrical effects of shifting from observer to field and field to observer, respectively, is due to characteristics associated with the original memory. They speculated that naturally occurring observer memories arise when the rememberer has no or

little access to emotion and other subjective states associated with the remembered event, whereas field memories arise when such information is accessible. Therefore, changing perspective from field to observer may cause a reduction in the experience of emotion, according to Robinson and Swanson (1993). Changing from observer to field, on the other hand, would not cause the reverse effect because simply changing visual perspective in observer memories would not increase the accessibility of associated emotional states.

Although this explanation may account for the asymmetrical effect in the neutral group in the present study, it cannot explain why a similar asymmetry was seen in the two conditions in which the original field/observer memory perspective was instigated by instructions and therefore could not reflect the relative accessibility of emotional information. This point is especially relevant, since the instructions to adopt a field or observer perspective were given after the memory had been retrieved. A simpler explanation as to the asymmetrical effects of changing perspective may be that it is easier to reduce than to increase subjective reliving of autobiographical memories. Presumably, remembering a past event in such a way that sensory details and emotional states are relived and re-experienced requires the activation and processing of more information than remembering personal memories in a pale and emotionally detached way. Therefore it is easier to induce the natural effect of observer memories (i.e., reduced reliving) than it is to induce to the natural effect of field memories (i.e., increased reliving).

If so, why did forced observer perspective in Part 1 of the present study not lead to reduced sensory and emotional reliving of the memories relative to forced field perspective and the neutral condition? These null findings in Part 1 seem especially contradictory since changing perspective from field to observer in Part 2 consistently led to reduced levels of reliving. Although we have no full explanation, some of the reason for this discrepancy may be that a different design was used in Part 2. The use of a within-subjects comparison and the shift from one extreme perspective to another extreme perspective for the same memory is likely to be more sensitive to differences between the conditions than the design used in Part 1 in that participants may have used their earlier ratings as anchor points.

Taken together, the present findings show that observer perspective is associated with a reduction of emotional and sensory reliving of autobiographical memories and that this effect is most easily observed for naturally occurring observer memories or when shifting perspective from an extreme field perspective to an extreme observer perspective.

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## APPENDIX

### Descriptions of the emotional events

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#### *Most negative surprise*

At some point in their life, most people have had an event that they experienced as extremely negative and surprising. Such events can deal with many different things, such as health news, achieving a poor grade on a test, to not receiving something that was expected. Negative and surprising events occur unexpectedly, or maybe even contrary to your expectations, and fill you with unpleasant emotion.

#### *Most calm*

At some point in their life, most people have had an event in which they experienced extreme calmness. Such events can deal with many different things, such as meditation, reading, vacation, experiencing nature, and exercising. When you are calm, you feel relaxed, in control and balanced.

*Most afraid*

At some point in their life, most people have had an event that they experienced as extremely fearful. Such events can deal with many different things, such as crimes, scary noises, heights, being alone, movies, and dangerous animals. When you are afraid, you typically feel something is threatening your personal safety and/or bodily integrity or that of someone you care for.

*Most in love*

At some point in their life, most people have had an episode where they felt extremely in love. Such events can deal with many different things, such as romantic walks, first kiss, visits from longdistance significant others, vacations, and giving or receiving gifts. When you are in love, you are physically attracted by another person whom you admire and like and whose love and affection you want.

*Saddest*

At some point in their life, most people have had an event that they experienced as extremely sad. Such events can deal with many different things, such as death and funerals, divorce, friends or family moving away, and break-ups. Sadness typically arises if we have experienced a loss of something valuable that we know is impossible to restore.

*Most positive surprise*

At some point in their life, most people have had an event that they experienced as extremely positive and surprising. Such events can deal with many different things, such as parties, gifts, achieving a good grade on an exam, getting into college and meeting somebody. Positive and surprising events come unexpected, or maybe even contrary to your expectations, and fill you with pleasant emotion.

*Most shame*

At some point in their life, most people have had an event in which they felt extremely ashamed. Such events can deal with many different things, such as forgetting an appointment, saying something wrong, embarrassing episodes, letting somebody down, making a fool out of yourself, showing parts you didn't want to show. Shame typically arises when you experience that you do not live up to your own ideals and self-image.

*Happiest*

At some point in their life, most people have had an event that they experienced as extremely happy. Such events can deal with many different things, such as holidays or celebrations, birthdays or other parties, academic or athletic accomplishments. When you are happy, you have good expectations towards your future. Things are coming through the way you want. It is as if you can say: Things are really fine today. Tomorrow they may be even better.

*Angriest*

At some point in their life, most people have had an event that they experienced as extremely angering. Such events can deal with many different things—from being treated poorly, arguing with a loved one, being insulted, to having property stolen/broken, etc. When you are angry, you typically see another person's stupidity, lack of attention or maybe ruthlessness as being responsible for some bad thing that has happened to you or somebody you care for.



*Most proud*

At some point in their life, most people have had an episode where they felt extremely proud. Such events can deal with many different things, such as finding the solution to a problem, creating something beautiful, rescuing or helping somebody, seeing your own team win, taking an important initiative. Pride typically arises when you experience that your value as a person has increased because of something you have done or something done by others with whom you identify.

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