



Field perspective deficit for positive memories characterizes autobiographical memory in euthymic depressed patients

Loretxu Bergouignan^{a,*}, Cédric Lemogne^a, Aurélie Foucher^a, Estelle Longin^a,
Damien Vistoli^a, Jean-François Allilaire^{a,b}, Philippe Fossati^{a,b}

^a*CNRS UMR 7593, IFR Neurosciences, Pavillon Clérambault, Groupe Hospitalier Pitié-Salpêtrière,
47-83 Boulevard de l'Hôpital, Paris 75013, France*

^b*Department of Psychiatry, Groupe Hospitalier Pitié-Salpêtrière, 47-83 Boulevard de l'Hôpital, Assistance Publique-Hôpitaux de Paris,
Paris 75 013, France*

Received 7 August 2007; received in revised form 7 December 2007; accepted 14 December 2007

Abstract

Research on autobiographical memory (AM) and the ability to retrieve specific autobiographical events in euthymic depressed patients yielded divergent results. The main goal of the present study was to further explore episodic specificity of AM among fully remitted depressed patients.

Twenty euthymic depressed patients and 20 matched healthy controls were given a semi-structured interview, which assesses episodic specificity of positive and negative autobiographical memories regarding event and details' specificity, autooetic consciousness (remember/know procedure) and visual perspective (field/observer procedure).

Results showed an impairment of episodic specificity of AM in euthymic depressed patients. This impairment was explained by a field perspective deficit for positive memories only. These results suggest that euthymic patients continue to exhibit discrepancy between their current self and their self for positive past behaviors, which maintains an unfavorable view of their current self. Specific cognitive interventions may improve the self-relevance of their positive memories.

© 2007 Elsevier Ltd. All rights reserved.

Keywords: Remitted depression; Autobiographical memory; Episodic specificity; Visual perspective; Field perspective

Introduction

Laboratory studies have shown strong evidence for episodic memory impairment in unipolar depression (Banos, Medina, & Pascual, 2001; Burt, Zembler, & Niederehe, 1995; Fossati et al., 2004; Jermann, Van der Linden, Adam, Ceschi, & Perroud, 2005). There is also evidence for autobiographical memory (AM) events' specificity deficit in depression (Hermans et al., 2004; Van Vreeswijk & De Wilde, 2004; Williams et al., 2007; Williams et al., 1996).

*Corresponding author. Tel.: +33 142161744; fax: +33 153790770.

E-mail address: loretxu@alternatiba.org (L. Bergouignan).

Conway and Pleydell-Pearce (2000) proposed a hierarchical model of AM—the Self Memory System. Their model includes three levels of representation in AM retrieval—the level of *lifetime periods* consists in representation of prolonged periods of time the *general event* level consists in representation of repeated events or single events; the level of *event-specific knowledge* (ESK) consists in representation of specific details of specific events.

AM retrieval in acute depression is characterized by a tendency to recall less specific personal events (Van Vreeswijk & De Wilde, 2004; Williams et al., 2007; Williams et al., 1996; Williams & Scott, 1988). When asked to remember a specific autobiographical event, depressed patients often fail to retrieve a specific memory and respond with generic events that occurred more than once (e.g. “When I eat in a restaurant”). According to Williams et al. (2007), acute depressed patients display an impaired retrieval of specific events because they are confined in the *general event* level of the Self Memory System.

The events’ specificity was the only element of AM assessed in these studies. However, the events’ specificity does not by itself represent all the episodic aspects of AM. We propose here to define episodic specificity of AM as closely related to the current definition of episodic memory (Wheeler & McMillan, 2001; Wheeler, Stuss, & Tulving, 1997) that involves a distinction between content and context. Episodic specificity of AM also considers self-reference and phenomenological aspects of memory retrieval (e.g. state of consciousness). It is characterized by auto-noetic consciousness, which enables a conscious recollection of personal event in its original context, and implies a mental travel in time (Tulving, 1987; Wheeler et al., 1997). The ability for someone to “travel back in time” involves to remember specific events and to visualize them as they have originally been visualized (Crowley & French, 2005). Although the investigation of vivid visual memory has received little attention in literature about AM in depression, visual perspective is also crucial in the definition of episodic specificity of AM (Greenberg & Rubin, 2003; Rubin, Schrauf, & Greenberg, 2003). Most of the time, the sense of remembering involves some sort of visual re-experiencing of a personal event (Conway, 2001). This visual perspective during AM retrieval is characterized as field or observer perspective (Nigro & Neisser, 1983; Robinson & Swanson, 1993). In a field perspective, the participant keeps the same visual perspective as in the original event, whereas in an observer perspective, the participant sees himself or herself in the event from a perspective of an external observer. Nigro and Neisser (1983) showed that recalling recent memories tends to involve the original perspective (field perspective), whereas recalling old memories requires seeing oneself as a spectator (observer perspective) (Nigro & Neisser, 1983). Moreover, field perspective memories contain more information on affective, physical and physiological states, while observer memories contain more descriptive and less affect-laden information (Nigro & Neisser, 1983).

AM and the self are closely linked, as the former grounds the latter (Baddeley, 1992; Wilson & Ross, 2003). Visual-perspective in memory depends upon the spotlight of current self (Storms, 1973). People who are undergoing profound changes in their lives often report that their old self seems like the self of a ‘different person’. Libby and Eibach showed with experimental studies that individuals tend to use an observer perspective when the current remembering self is different from the past-remembered self (Libby & Eibach, 2002; Libby, Eibach, & Gilovich, 2005). Conversely, field perspective enhances the feeling of coherence between the current remembering self and the past-remembered self, whereas observer perspective enhances a feeling of discrepancy between the two selves. Furthermore, when people are focusing on their self, rather than on the situation, during AM retrieval they tend to adopt an observer rather than a field perspective (Frank & Gilovich, 1989; Wells, Clark, & Ahmad, 1998). Therefore, visual perspective is strongly related to the self and is a major component of episodic specificity in AM.

Overall, this suggests that numerous components—details’ specificity, auto-noetic consciousness and field perspective—define the episodic specificity of AM (Piolino et al., 2007). A recent study tested episodic specificity of AM in acute depressed patients and showed a global retrieval impairment including less event and details’ specificity, less auto-noetic consciousness and less field perspective (Lemogne et al., 2006). It was noted that the episodic specificity of AM impairment was more pronounced for positive emotional events than negative emotional events.

AM retrieval among euthymic depressed patients has been evaluated by a couple of studies, which used the William’s AMT method (Williams & Broadbent, 1986). However, the ability to access specific autobiographical events in euthymic depressed patients is not clear, due to divergent findings. These discrepancies may occur from clinical issues. Some studies included bipolar patients and patients with anxiety

Table 1
Previous studies' methodology

Researchers	Year	Participants	Remission definition	Methodology
Mackinger et al.	2000	<i>d</i> (21), <i>C</i> (20)	HDRS < 11 Remission period: UD	AMT
Scott et al.	2000	bp (40), <i>C</i> (20)	HDRS < 7 Remission period: UD	AMT
Wessel et al.	2001	<i>A</i> , AD, ad, <i>D</i> , <i>d</i> , <i>C</i>	HDRS < 7 Remission period: UD	AMT
Park et al.	2002	<i>D</i> (49), <i>d'</i> (38), <i>d</i> (9), Psc (26), <i>C</i> (33)	"Remission defined as the DSM IV" Depression scale baseline, Remission period: UD	AMT
Mansell et al.	2004	bp (19), <i>d</i> (16)	"Currently in remission" Depression scale baseline, Remission period: UD	AMT
Burnside et al.	2004	<i>d</i> (22), <i>C</i> (19)	HDRS < 12 Remission period: UD	AMT
Spinhoven et al.	2006	<i>d</i> (122), <i>C</i> (37)	HDRS < 7 Remission period: from 2 month at 2 years	AMT
Barnhofer et al.	2007	<i>d</i> (16), <i>C</i> (19)	BDI < 14 Remission period: at least 8 weeks of remission	AMT

D = currently depressed patients; *d'* = depressed patients in partial remission; *d* = depressed patients in remission; *C* = control subjects; bp = bipolar patients in remission; *A* = currently anxious patients; AD = currently anxious and depressed patients; ad = anxious and depressed patients in remission; Psc = non-depressed psychiatric patients.

HDRS: Hamilton Depression Rating Scale; BDI: Beck Depression Inventory; AMT: William's AM Test; UD: undetermined.

disorder (Brittlebank, Scott, Williams, & Ferrier, 1993; Mansell & Lam, 2004; Peeters, Wessel, Merckelbach, & Boon-Vermeeren, 2002) and some studies did not assess remitted depressed patients in comparison with healthy controls (e.g. Brittlebank et al., 1993; Mansell & Lam, 2004). Additionally, the criteria for depression remission are not clearly defined (see Table 1). In most of these studies, the authors did not control for the full remission of depressive symptoms (Hamilton's or Montgomery's depression rating scale ≤ 7) and they did not assess the minimal period of time (>2 months) without any symptoms (Brittlebank et al., 1993; Burnside, Startup, Byatt, Rollinson, & Hill, 2004; Mackinger, Pachinger, Leibetseder, & Fartacek, 2000; Mackinger et al., 2004; Nandrino, Pezard, Poste, Reveillere, & Beaune, 2002; Peeters et al., 2002). This methodological issue was challenged in two recent studies (Barnhofer, Crane, Spinhoven, & Williams, 2007; Spinhoven et al., 2006). In the first study, Spinhoven et al (2006) observed a clear difference in a large population of patients, whereas, in the second study, Barnhofer (2007) observed no difference between the populations of patients and controls. Those two studies yielded opposite results regarding events' specificity, which suggest the need for further exploration on the episodic specificity of AM among euthymic depressed patients.

The main goal of the present study was to explore episodic specificity of AM among this population.

The AM task we used assesses all the lifespan. We chose this method for two main reasons: (1) it explores the episodic aspects (details' specificity, auto-noetic consciousness, and field perspective) of AM that are not assessed with the AMT and (2) it controls for the encoding age and lifetime period.

We first hypothesized that euthymic depressed patients would display less episodic specificity of AM than controls. Secondly, according to Lemogne's results on acute depressed patients (Lemogne et al., 2006), we also hypothesized that the impairment would be more pronounced for positive events than negative events in euthymic depressed patients.

Methods

Participants

Twenty euthymic patients in remission from unipolar depression (17 women, 3 men) and 20 matched healthy controls (17 women, 3 men) were recruited. All controls had no history of psychiatric disorder. All participants were fluent in French and gave informed consent after the study was described to them. Clinical

Table 2
Clinical and demographic characteristics of participants

	Controls				Patients			
	Mean	s.d.	Min	Max	Mean	s.d.	Min	Max
Age	40.50	12.98	22	63	40.80	10.85	23	63
Verbal IQ	107.60	14.02	87	138	107.80	9.44	90	138
Number of MDE	0	0	0	0	2.95	1.57	1	6
Duration of the sickness (year)	0	0	0	0	13.80	11.27	1	35
Age on the first MDE (year)	0	0	0	0	27.45	10.78	14	51
Duration of the last MDE (month)	0	0	0	0	13.80	26.55	0.5	120
Duration of remission (month)	0	0	0	0	9.61	8.82	2	36
No of hospitalization	0	0	0	0	0.60	1.39	0	6
MADRS	1.22	1.90	0	6	3.28	2.14	0	7
BDI	2.73	2.87	0	8	2.47	2.85	0	8

and demographic characteristics of the participants are displayed in Table 2. Participants were screened for DSM-IV Axis I disorders with the Mini-International Neuropsychiatric Interview (Sheehan et al., 1998) and for borderline and schizotypal personality disorder with the structured clinical interview (Spitzer, Williams, Gibbon, & First, 1992). Information on the duration of the last major depressive episode, length of remission, treatment and number of previous episodes were recorded for each patient. The inclusion criteria for the patients were a diagnosis of major depressive disorder in full remission according to the DSM-IV criteria. Each patient was considered remitted if they no more fulfilled the criteria for a current major depression, nor had a score inferior or equal to 7 on the Montgomery and Asberg Depression Rating Scale—MADRS (Montgomery, Smeyatsky, De Ruiter, & Montgomery, 1985). They also had to experience a clinical remission of at least 2 months and up to 3 years. Diagnoses and full remission were certified by psychiatrists (C.L. or P.F.).

Participants' verbal IQ was assessed (verbal WAIS-R).

The patients were contacted by psychiatrists in the consultation unit of adult psychiatric service of the Pitié-Salpêtrière's Hospital (Paris).

Initially, 35 remitted depressed outpatients were selected. Two refused to participate. Thirteen were excluded because of a history of bipolar disorder (3), post-traumatic stress disorder (1), substance-related disorder (1), borderline personality disorder (1), head injury (2), anxiety disorder (1), and history of treatment with electroconvulsive therapy (1). Three patients were excluded because of a MADRS score higher than 7.

In control population, 28 healthy subjects were initially approached. Eight were excluded because of history of substance-related disorder (5) or depression (3).

None of the participants took part in the Lemogne et al.'s (2006) study.

AM inquiry

We used a semi-structured interview called the TEMPau task, which was developed by Piolino et al. (Lemogne et al., 2006; Piolino et al., 2003, 2007). The TEMPau, just like the Williams' AM Task (AMT), consists in asking the participants to retrieve specific events located in time and space, which occurred once and lasted less than 1 day. While the AMT uses a time limit, there is no time limit with the TEMPau. The task was adapted to evaluate episodic specificity of AM retrieval for positive and negative events in depression (Lemogne et al., 2006) and generally lasts 2 h.

The TEMPau assesses the ability to retrieve details of specific autobiographical events situated in space and time, the subjective state of consciousness, and the field/observer perspective. It encompasses 5 life-periods: (i) 0 ± 17 years old; (ii) 18 ± 30 years old (iii) >30 years old except for the last 5 years; (iv) the last 5 years except for the last 12 months and (v) the last 12 months. Each life-period was assessed regarding a positive and a negative event. For the last 12 months, 2 negative events and 2 positive events were assessed. Life-periods were randomly presented. The emotional valence (positive or negative) and the

life-period of the event were the only cues provided to the participants. No word-cues were given to ensure that the participants began the retrieval from the most general level of the Conway's Self Memory System (*lifetime periods*) (Conway & Pleydell-Pearce, 2000). Immediately after each retrieval, the visual perspective was assessed by the field/observer procedure (Libby & Eibach, 2002; Libby et al., 2005). The participants gave either a field response if they kept in their memories the same visual perspective as in the original event or an observer response if they saw themselves in the event from the same perspective as an external observer. Finally, the subjective state of consciousness was assessed with the remember/know paradigm (Gardiner, 2001). The participants were told to give a remember, know, or guess response according to whether the event they recalled was associated with conscious recollection, simply knowing, or guessing, respectively. Conscious recollection (i.e. remember response) was described as the ability to relive mentally specific aspects such as perceptions, thoughts or feelings that were experienced at the time of the event. The participants were asked to provide contextual details to ensure that they used the remember responses appropriately. A know response was described as simply knowing what they retrieved but without any conscious recollection. A guess response was described as a retrieved event, which was neither consciously recollected nor simply known, but only guessed.

AM scores

All the retrieved memories were taped and then transcribed. The scores were all proportional because the participants did not retrieve the same number of events.

The event and details' specificity score (D) defines the proportion of detailed specific memories (number of specific memories divided by the total number of memories). It was scored by two independent raters (A.F., E.M.) blind to both hypotheses and participants. For each memory, the raters have to answer four questions: (1) Did the event happen only once? (2) Did it last less than 1 day? (3) Is it situated in time, even roughly? (4) Are there at least two specific details? A specific detail was defined as a detail that was neither spatial, nor temporal, and enables one to clearly distinguish that event from a similar one. If the four questions have a positive answer, the memory is considered specific. The inter-rater reliability was highly significant for our test ($\kappa = 0.83$, $p < 0.001$). A consensus rating was agreed for cases of disagreement between raters.

The remember score (R) defined the number of remember responses divided by the remember or know responses; the field score (F) was equal to the proportion of field responses. We calculated the episodic specificity score (ES) of the retrieved memories that included the sum of the event and details' specificity score (D), the field perspective score (F) and the remember score (R) divided by three [$ES = (D + R + F)/3$].

Statistical analyses

To test the hypothesis that episodic specificity would be lower in euthymic depressed patients than in controls, we used a repeated measure ANOVA, with groups (patients versus controls) as a two-level-between-subject factor and valence (positive or negative) as a within-subject factor and ES as the dependant variable.

Results

The results are summed up in Fig. 1.

ES score

The ANOVA with the ES as the dependant variable revealed no group effect ($F = 3.101$, $df = 38$, $p = 0.086$) but a significant valence effect ($F = 16.083$, $df = 38$, $p < 0.001$). The results were qualified by a significant group \times valence interaction ($F = 6.809$, $df = 38$, $p = 0.013$). This interaction remained significant even after covarying out baseline verbal IQ scores ($F = 2.936$, $df = 38$, $p = 0.027$).

We broke this result down using post-hoc two-tailed t tests probabilities. The t tests revealed a group effect for the positive events with lower ES score among patients compared with controls ($t = 2.588$, $p = 0.01$), but no group effect for negative events ($t = -0.19$, $p = 0.851$). There was also a valence effect among patients in

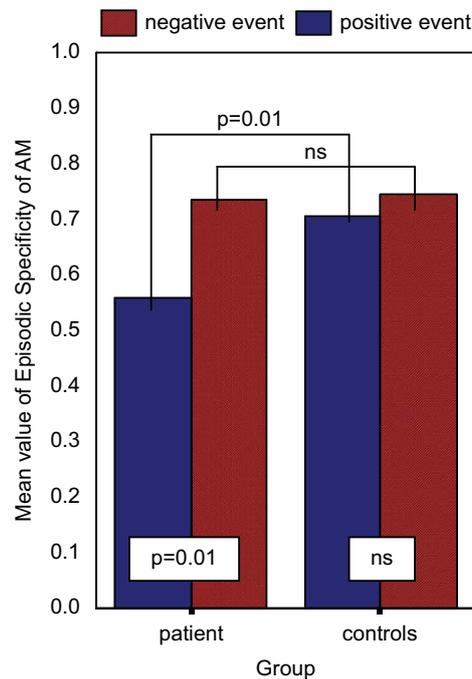


Fig. 1. Scores of episodic specificity of AM. The episodic specificity of AM includes event and details' specificity (D), auto-noetic consciousness (R), field perspective (F): episodic specificity = $(D + R + F)/3$.

favor of negative events ($t = -4.096$; $p = 0.001$), but no valence effect among controls ($t = -1.189$; $p = 0.249$).

To further deconstruct the episodic specificity effect, we conducted 3 ANOVAs examining D , R , and F scores with groups (patients versus controls) as a two-level between-subject factor and valence as a two-level within-subject factor: For the D and R score, there was no group effect, nor was there any group \times valence interaction. However, for the F score, there was a significant group \times valence interaction (Fig. 2).

More precisely:

Details' specificity score

The ANOVA revealed no group effect ($F < 0.001$, $df = 38$, $p = 0.987$), no valence effect ($F = 0.107$, $df = 38$, $p = 0.745$), and no group \times valence interaction ($F = 1.303$, $df = 38$, $p = 0.261$). More than 70% of the retrieved memories in both groups were detailed specific memories.

Remember score

The ANOVA revealed no group effect ($F = 0.358$, $df = 38$, $p = 0.553$), no valence effect ($F = 1.866$, $df = 38$, $p = 0.18$), and no group \times valence interaction ($F = 0.191$, $df = 38$, $p = 0.665$). Over 70% of the retrieved memories in both groups were associated with an R response.

Field score

The ANOVA revealed no group effect ($F = 0.226$, $df = 38$, $p = 0.153$) and no valence effect ($F = 0.238$, $df = 38$, $p = 0.629$). However, there was a significant group \times valence interaction ($F = 5.463$, $df = 38$, $p = 0.025$). This interaction remained significant even after covarying out baseline verbal IQ scores ($F = 5.329$, $df = 38$, $p = 0.027$).

We further broke this result down using separate paired-sample t tests for both negative and positive events. This interaction was explained by a group effect for the positive events with less "field" responses in patients

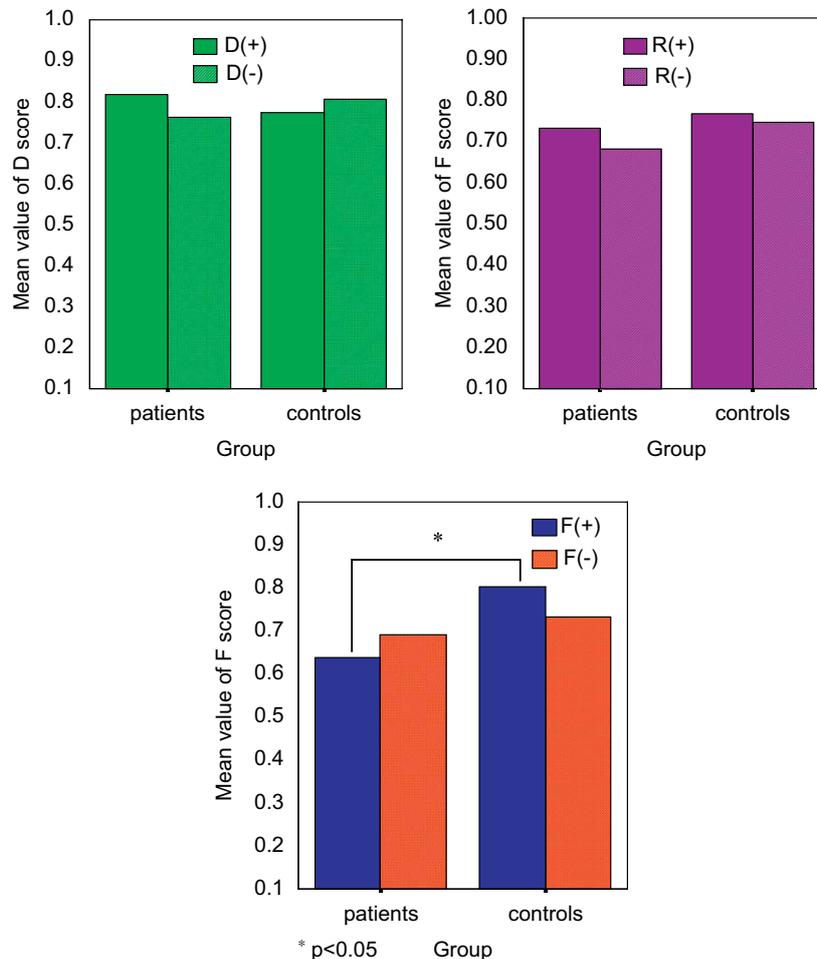


Fig. 2. Scores of each component included in episodic specificity of AM.

versus controls ($t = -2.588$, $p = 0.014$), while there was no group effect for negative events ($t = -0.321$, $p = 0.750$). Seventy-nine percent of positive events were visualized with a field perspective for the controls, while only 58% of remitted depressed patients' positive events were visualized with a field perspective.

Discussion

Episodic specificity of autobiographical memories can be characterized as enabling someone to “travel back in time” to relive specific events and to visualize these events as they have originally been seen through his or her own eyes (Crawley & French, 2005).

The main goal of our study was to assess the episodic specificity of AM among fully remitted patients. Consistent with our hypothesis, euthymic patients with unipolar depression displayed less episodic specificity of AM than controls. Surprisingly, the difference between groups was explained by a single component of episodic specificity—the field perspective. Compared with controls, euthymic patients showed no difference for event and details' specificity, and no difference for auto-noetic consciousness. Their episodic specificity impairment was only due to a field perspective impairment of positive memories. Euthymic depressed patients reported less field perspective for positive memories than normal controls.

AM in remitted depression

To our knowledge, this is the first study assessing details' specificity, auto-noetic consciousness and field perspective in euthymic patients in remission from unipolar depression.

Because we did not use any time limit, we are confident that our results are not influenced by cognitive slowing. It is noteworthy that patients and controls were not only matched for sex, age, and educational level, but also for verbal IQ. Only the emotional valence (positive or negative) and the life-period of the event were given to cue retrieval. We avoided imaged word-cues to ensure that participants began retrieval from the most general level of the Conway's Self Memory System, namely the lifetime period (Conway & Pleydell-Pearce, 2000). As imageability of the cues was low, the retrieval of specific memories was likely to be more difficult in the present study than in studies using the AMT. However, even with this effortful AM task, patients were able to retrieve memories in a relative specific way and the proportion of specific memories was high in both groups.

Our results are at odds with several studies that found low level of events' specificity in euthymic depressed patients (Brittlebank et al., 1993; Kuyken & Dalgleish, 1995; Mackinger et al., 2000; Nandrino et al., 2002; Park, Goodyer, & Teasdale, 2002; Spinhoven et al., 2006). On the one hand, since we did not use the same AM test as the other studies, methodological differences (i.e. no time limit, no retrieval cue, etc.) could explain the divergence in the results. On the other hand, the mean length of remission of patients included in the present study was over 9 months and their mean score on the MADRS scale was 3.28. Previous studies included depressed patients with residual symptoms and undefined period of remission, which could explain persistent AM impairment in event specificity.

Nevertheless, our results are in line with some other studies that used the AMT. Kuyken and Dalgleish (1995) found an impairment of events' specificity in a sample of 33 acute depressed patients versus 33 matched controls. Yet, 42% of their controls experienced one or more episodes of depression in the past. In a post-hoc analysis, they found no difference in event specificity when they compared the previously depressed controls ($n = 14$) with the never depressed controls ($n = 19$). Similarly, Wessel, Meeren, Peeters, Arntz, and Merckelbach (2001) and Gallassi, Di Sarro, Morreale, and Amore (2006) failed to find an association between low events' specificity and remission in patients with comorbid anxiety and late onset depression, respectively (Gallassi et al., 2006; Wessel et al., 2001). Barnhofer et al. (2007) also observed no difference on events' specificity between euthymic depressed patients and controls (Barnhofer et al., 2007).

In this study, we assessed AM with a task that controls age at encoding and the period of retrieval. It has been suggested that with the AMT acute depressed patients tend to recall more recent memories than controls (see Kuyken & Howell, 2006). Our euthymic depressed patients may have been less specific for recent memories than for older memories. To test this hypothesis, in a post-hoc analysis we evaluated the effect of the Lifetime period on the event and details' specificity score as a dependent variable. We found neither a main effect of the Lifetime period, nor a significant interaction group \times lifetime period.

In a recent study, Spinhoven et al. (2006) tested 122 euthymic depressed patients and 37 controls with the AMT. Criteria of clinical remission (levels of residual symptoms and period of recovery) were close to ours. Euthymic patients who previously experienced depression reported significantly fewer event-specific memories than controls, regardless of the emotional valence of retrieval cues. Since our sample size was smaller, a lack of statistical power may account for negative results regarding event and details' specificity (type II error). Further studies using our AM task are clearly needed with a larger sample of euthymic depressed patients to replicate our findings.

The present study refines the understanding of AM impairment among euthymic depressed patients, showing an impairment of episodic specificity of AM, independently from the events' specificity. A recent study tested episodic specificity of AM in acute depressed patients. The results of this study showed a global impairment in episodic specificity of AM for positive events, encompassing details' specificity, auto-noetic consciousness, and field perspective (Lemogne et al., 2006). Strikingly, the impairment of episodic specificity of AM in our patients was explained only by a difficulty to adopt a field perspective for positive memories. Everything happens as if euthymic depressed patients got access to the event-specific knowledge within the Self Memory System and were able to retrieve specific events with phenomenological details and auto-noetic consciousness, but without being able to adopt a field perspective.

Limitations of the study

Because we did not interview relatives, we do not know whether AM was more accurate among patients or controls. Furthermore, we included patients receiving treatment (13 with treatment, 7 drug-free). A selective impairment of the field perspective for positive memories is unlikely to be explained by a drug effect. However, we need to replicate the experiment in a drug-free sample of euthymic depressed patients. Finally, a longitudinal study is needed to know whether the field perspective impairment we found can be considered as a ‘scar’ of depression or as a trait marker present before the onset of depression (Table 3).

Field perspective and remitted depression

Although the episodic specificity of AM was not explained by a significant difference for event and details’ specificity and autooetic consciousness between euthymic depressed patients and controls, we observed a significant difference for the field perspective between the two groups. Euthymic depressed patients reported less positive memories with Field perspective than normal controls. This pattern of visual perspective memory is consistent with the pattern displayed by currently depressed adults (Lemogne et al., 2006) or adolescents (Kuyken & Howell, 2006).

The predicted valence effect observed among currently depressed patients remains for euthymic patients in field perspective.

AM plays an important role in the construction of personal identity and self. Central to the Self Memory System of Conway and Pleydell-Pearce (2000) is the *working self*. The working self operates a number of coordinated control processes that initiate and monitor goal-directed activity during retrieval to ensure self-coherence. Likewise, *how* people recall matters as much as *what* they recall (Conway & Pleydell-Pearce, 2000; Wilson & Ross, 2003). In healthy subjects, field perspective memories are more frequent during AM retrieval. The field perspective is associated with a memory image focusing on the surrounding context, whereas the observer perspective focuses on the remembered self (Frank & Gilovich, 1989). Usually, healthy subjects tend to retrieve positive memories in field perspective in order to maintain a positive view of the current self (Ross & Wilson, 2002; Wilson & Ross, 2003). Kuyken et al. (2006) have suggested that depressed patients tend toward objectifying the self and away from accepting the self as an active agent. This is likely to facilitate the retrieval of observer memories in which self-evaluation is increased (Libby & Eibach, 2002; Libby et al., 2005). Euthymic depressed patients may have retrieved positive memories in observer perspective because they focused on the self rather the context when reliving their past positive experiences. They may have maintained a negative working self after remission, which primed them to consider the discrepancy between their current self and their remembered self during positive events and to retrieve these events in an observer mode.

Our findings suggest that manipulating visual perspective through specific intervention could be used in cognitive therapy of depression to reduce the discrepancy between the current self and the positive past self. A crucial point is that, while closely linked with self-focus and self-evaluation, the field and observer perspective remain experimentally flexible (Libby et al., 2005; Wilson & Ross, 2003). It seems that Euthymic patients “de-centered” (observer perspective) for positive events but not for negative ones. “de-centering” from events is one of the objectives of the mindfulness-based cognitive therapy (MBCT) (Teasdale, Segal, &

Table 3
Drugs taken by recruited patients

	Number of patients
Mirtazapin	4
Venlafaxil	6
Tri-cyclic	4
SSRI	5
Nothing	7

Williams, 1995), and is known to facilitate clinical remission of patients. However, the MBCT is focusing on negative events. In this study, we observe a de-centering on positive events that may be maladaptive. Rather than a “de-centering” on negative memories, remitted patients could need a “re-centering” on positive memories.

Conclusion

To summarize, our findings provide evidence of impairment of episodic specificity of AM among euthymic depressed patients, only explained by a field perspective deficit for positive memories. There was no event and details’ specificity nor auto-nocentric consciousness impairment in our sample, which had been carefully screened for full clinical remission.

Field perspective impairment for positive events suggests that the retrieval of event-specific knowledge may be compromised in different ways in depression. Euthymic patients with unipolar depression continue to create discrepancy with their self for positive past behaviors, which maintains an unfavorable view of their current self. Specific cognitive interventions may address this impairment to improve the self-relevance of positive memories in patients with unipolar depression.

Acknowledgments

We are particularly grateful to Drs. Radtchenko, Boulet, Marchand, Choucha and Vergnaud and thank them for their help in recruiting participants. We also thank M. Fraty, N. Aouka, colleagues and reviewers for helpful suggestions and comments.

L.B. is supported by funding from the Institut National du Cancer (*The Cancer National Institute*). C.L. is supported by funding from the Fonds d’Etudes et de Recherche du Corps Médical des hôpitaux de Paris and the Lilly Institute.

References

- Baddeley, A. (1992). Working memory. *Science*, 255, 556–559.
- Banos, R. M., Medina, P. M., & Pascual, J. (2001). Explicit and implicit memory biases in depression and panic disorder. *Behaviour Research and Therapy*, 39, 61–74.
- Barnhofer, T., Crane, C., Spinhoven, P., & Williams, J. M. (2007). Failures to retrieve specific memories in previously depressed individuals: Random errors or content-related? *Behaviour Research and Therapy*, 45, 1859–1869.
- Brittlebank, A. D., Scott, J., Williams, J. M., & Ferrier, I. N. (1993). Autobiographical memory in depression: State or trait marker? *The British Journal of Psychiatry*, 162, 118–121.
- Burnside, E., Startup, M., Byatt, M., Rollinson, L., & Hill, J. (2004). The role of overgeneral autobiographical memory in the development of adult depression following childhood trauma. *British Journal of Clinical Psychology*, 43, 365–376.
- Burt, D. B., Zembard, M. J., & Niederehe, G. (1995). Depression and memory impairment: A meta-analysis of the association, its pattern, and specificity. *Psychological Bulletin*, 117, 285–305.
- Conway, M. A. (2001). Sensory-perceptual episodic memory and its context: Autobiographical memory. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 356, 1375–1384.
- Conway, M. A., & Pleydell-Pearce, C. W. (2000). The construction of autobiographical memories in the self-memory system. *Psychological Review*, 107, 261–288.
- Crawley, S. E., & French, C. C. (2005). Field and observer viewpoint in remember-know memories of personal childhood events. *Memory*, 13, 673–681.
- Fossati, P., Harvey, P. O., Le Bastard, G., Ergis, A. M., Jouvent, R., & Allilaire, J. F. (2004). Verbal memory performance of patients with a first depressive episode and patients with unipolar and bipolar recurrent depression. *Journal of Psychiatric Research*, 38, 137–144.
- Frank, M. G., & Gilovich, T. (1989). Effect of memory perspective on retrospective causal attributions. *Journal of Personality and Social Psychology*, 57, 399–403.
- Gallassi, R., Di Sarro, R., Morreale, A., & Amore, M. (2006). Memory impairment in patients with late-onset major depression: The effect of antidepressant therapy. *Journal of Affective Disorders*, 91, 243–250.
- Gardiner, J. M. (2001). Episodic memory and auto-nocentric consciousness: A first-person approach. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 356, 1351–1361.
- Greenberg, D. L., & Rubin, D. C. (2003). The neuropsychology of autobiographical memory. *Cortex*, 39, 687–728.

- Hermans, D., Van den Broeck, K., Belis, G., Raes, F., Pieters, G., & Eelen, P. (2004). Trauma and autobiographical memory specificity in depressed inpatients. *Behaviour Research and Therapy*, 42, 775–789.
- Jermann, F., Van der Linden, M., Adam, S., Ceschi, G., & Perroud, A. (2005). Controlled and automatic uses of memory in depressed patients: Effect of retention interval lengths. *Behaviour Research and Therapy*, 43, 681–690.
- Kuyken, W., & Dalgleish, T. (1995). Autobiographical memory and depression. *British Journal of Clinical Psychology*, 34, 89–92.
- Kuyken, W., & Howell, R. (2006). Facets of autobiographical memory in adolescents with major depressive disorder and never-depressed controls. *Cognition and Emotion*, 20, 466–487.
- Lemogne, C., Piolino, P., Friszer, S., Claret, A., Girault, N., Jouvent, R., et al. (2006). Episodic autobiographical memory in depression: Specificity, auto-noetic consciousness, and self-perspective. *Consciousness and Cognition*, 15, 258–268.
- Libby, L. K., & Eibach, R. P. (2002). Looking back in time: Self-concept change affects visual perspective in autobiographical memory. *Journal of Personality and Social Psychology*, 82, 167–179.
- Libby, L. K., Eibach, R. P., & Gilovich, T. (2005). Here's looking at me: The effect of memory perspective on assessments of personal change. *Journal of Personality and Social Psychology*, 88, 50–62.
- Mackinger, H. F., Leibetseder, M. F., Kunz-Dorfer, A. A., Fartacek, R. R., Whitworth, A. B., & Feldinger, F. F. (2004). Autobiographical memory predicts the course of depression during detoxification therapy in alcohol dependent men. *Journal of Affective Disorders*, 78, 61–65.
- Mackinger, H. F., Pachinger, M. M., Leibetseder, M. M., & Fartacek, R. R. (2000). Autobiographical memories in women remitted from major depression. *Journal of Abnormal Psychology*, 109, 331–334.
- Mansell, W., & Lam, D. (2004). A preliminary study of autobiographical memory in remitted bipolar and unipolar depression and the role of imagery in the specificity of memory. *Memory*, 12, 437–446.
- Montgomery, S. A., Smeyatsky, N., De Ruiter, M., & Montgomery, D. B. (1985). Profiles of antidepressant activity with the Montgomery-Asberg Depression Rating Scale. *Acta Psychiatrica Scandinavica Supplementum*, 320, 38–42.
- Nandrino, J. L., Pezard, L., Poste, A., Reveillere, C., & Beaune, D. (2002). Autobiographical memory in major depression: A comparison between first-episode and recurrent patients. *Psychopathology*, 35, 335–340.
- Nigro, G., & Neisser, U. (1983). Point of view in personal memories. *Cognitive Psychology*, 15, 467–482.
- Park, R. J., Goodyer, I. M., & Teasdale, J. D. (2002). Categorical overgeneral autobiographical memory in adolescents with major depressive disorder. *Psychological Medicine*, 32, 267–276.
- Peeters, F., Wessel, I., Merckelbach, H., & Boon-Vermeeren, M. (2002). Autobiographical memory specificity and the course of major depressive disorder. *Comprehensive Psychiatry*, 43, 344–350.
- Piolino, P., Desgranges, B., Belliard, S., Matuszewski, V., Lalevee, C., De la Sayette, V., et al. (2003). Autobiographical memory and auto-noetic consciousness: Triple dissociation in neurodegenerative diseases. *Brain*, 126, 2203–2219.
- Piolino, P., Desgranges, B., Manning, L., North, P., Jokic, C., & Eustache, F. (2007). Autobiographical memory, the sense of recollection and executive functions after severe traumatic brain injury. *Cortex*, 43, 176–195.
- Robinson, J. A., & Swanson, K. L. (1993). Field and observer modes of remembering. *Memory*, 1, 169–184.
- Ross, M., & Wilson, A. E. (2002). It feels like yesterday: Self-esteem, valence of personal past experiences, and judgments of subjective distance. *Journal of Personality and Social Psychology*, 82, 792–803.
- Rubin, D. C., Schrauf, R. W., & Greenberg, D. L. (2003). Belief and recollection of autobiographical memories. *Memory and Cognition*, 31, 887–901.
- Sheehan, D. V., Lecrubier, Y., Sheehan, K. H., Amorim, P., Janavs, J., Weiller, E., et al. (1998). The Mini-International Neuropsychiatric Interview (M.I.N.I.): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *The Journal of Clinical Psychiatry*, 59(Suppl. 20), 22–33 (quiz 4–57).
- Spinhoven, P., Bockting, C. L., Schene, A. H., Koeter, M. W., Wekking, E. M., & Williams, J. M. (2006). Autobiographical memory in the euthymic phase of recurrent depression. *Journal of Abnormal Psychology*, 115, 590–600.
- Spitzer, R. L., Williams, J. B., Gibbon, M., & First, M. B. (1992). The structured clinical interview for DSM-III-R (SCID). I: History, rationale, and description. *Archives of General Psychiatry*, 49, 624–629.
- Storms, M. D. (1973). Videotape and the attribution process: Reversing actors' and observers' points of view. *Journal of Personality and Social Psychology*, 27, 165–175.
- Teasdale, J. D., Segal, Z., & Williams, J. M. (1995). How does cognitive therapy prevent depressive relapse and why should attentional control (mindfulness) training help? *Behaviour Research and Therapy*, 33(1), 25–39.
- Tulving, E. (1987). Multiple memory systems and consciousness. *Human Neurobiology*, 6, 67–80.
- Van Vreeswijk, M. F., & De Wilde, E. J. (2004). Autobiographical memory specificity, psychopathology, depressed mood and the use of the autobiographical memory test: A meta-analysis. *Behaviour Research and Therapy*, 42, 731–743.
- Wells, A., Clark, D. M., & Ahmad, S. (1998). How do I look with my minds eye: Perspective taking in social phobic imagery. *Behaviour Research and Therapy*, 36, 631–634.
- Wessel, I., Meeren, M., Peeters, F., Arntz, A., & Merckelbach, H. (2001). Correlates of autobiographical memory specificity: The role of depression, anxiety and childhood trauma. *Behaviour Research and Therapy*, 39, 409–421.
- Wheeler, M. A., & McMillan, C. T. (2001). Focal retrograde amnesia and the episodic-semantic distinction. *Social Cognitive & Affective Neuroscience*, 1, 22–36.
- Wheeler, M. A., Stuss, D. T., & Tulving, E. (1997). Toward a theory of episodic memory: The frontal lobes and auto-noetic consciousness. *Psychological Bulletin*, 121, 331–354.
- Williams, J. M., Barnhofer, T., Crane, C., Herman, D., Raes, F., Watkins, E., et al. (2007). Autobiographical memory specificity and emotional disorder. *Psychological Bulletin*, 133, 122–148.

- Williams, J. M., & Broadbent, K. (1986). Autobiographical memory in suicide attempters. *Journal of Abnormal Psychology, 95*(2), 144–149.
- Williams, J. M., Ellis, N. C., Tyers, C., Healy, H., Rose, G., & MacLeod, A. K. (1996). The specificity of autobiographical memory and imageability of the future. *Memory and Cognition, 24*, 116–125.
- Williams, J. M., & Scott, J. (1988). Autobiographical memory in depression. *Psychological Medicine, 18*, 689–695.
- Wilson, A. E., & Ross, M. (2003). The identity function of autobiographical memory: Time is on our side. *Memory, 11*, 137–149.