

Stuck in the Past:

Negative Bias, Explanatory Style, Temporal Order, and Evaluative Perspectives in Life Narratives of Clinically Depressed Individuals

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Abstract

This study attempted to replicate negative bias and depressive explanatory style in depression using life narratives. The two central aspects of narrative, temporal succession and evaluation, were also explored. These aspects were tested for the first time using entire life narratives of 17 depressed in-patients and non-depressed controls matched for sex and educational level. Negative bias and depressive explanatory style were replicated as typical for the depressed group. Life narratives of depressed patients also deviated more from a linear temporal order and compared less frequently the past with the present. Contrary to expectations, the depressed did not differ in the overall frequency of evaluations. However, they used more past than present evaluations and more experience-near evaluations than cognitive evaluations, suggesting that they are more immersed in past experiences. It is concluded that negative bias and depressive explanatory style can be found also in a naturalistic narrative measure, and that depression affects the two major aspects of narrative. It is argued that life narratives, as measures close to everyday clinical practice and as the most encompassing form of self representation, should complement more experimental procedures in the study of cognitive and communicative processes in psychopathology.

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Stuck in the Past

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Depression is communicated both nonverbally and verbally. Prosody is impaired in depression, showing decreased variability of tone, intensity, and duration of speech. This is complemented by other paralinguistic features such as a slowing of speech production as indicated by longer reaction times and longer speech pauses (e.g., Alpert, Pouget and Silva, 2001; Garcia-Toro, Talavera, Saiz-Ruiz and Gonzalez, 2000).

The present study regards verbal aspects of speech in depression. More specifically, we are not interested in single words or phrases, but in entire life narratives, both because they have high external validity, resembling the autobiographical accounts we ask patients to give during intake interviews, and because we believe that life narratives reflect and stabilize psychopathology. Arguments for the role of the life story in psychopathology are based on the intricate intertwining of personal history and self or identity in the life story. It is the most extensive and integrated form of representing oneself (McAdams, 1985). Therefore, a first, weaker argument for the role of life narratives in psychopathology points to the potential of life narratives to evoke biographical material which is 'close to the heart' or central to the self. This is one rationale for asking for life narratives in psychodynamic clinical interviewing aimed at activating central defense mechanisms (Kernberg, 1984) and for asking for autobiographical narratives in attachment research interviews aimed at activating working models of attachment relationships (Main, Kaplan and Cassidy, 1985).

A second, stronger argument for the role of life narratives in psychopathology posits that these not only evoke and reflect central psychopathological mechanisms, but that the life story reflects and perpetuates essential characteristics of the self. Erikson (1968) argued that a healthy sense of self or feeling of identity depends on a well-integrated identity which creates self-continuity across biographical transitions. Identity diffusion, or a lack of integration, may be indicated by, among other things, a lack of feelings of personal continuity and of personal development, a lack of a sense of self-effectiveness, and by a sense of worthlessness. As suggested by Erikson (1968) and spelled out by McAdams, (1985), with adolescence the life story becomes the most encompassing form of identity precisely for its capacity to integrate diverse aspects of the self across time (cf. Habermas and Bluck 2000). Schafer (1983) conceptualizes psychopathology as essentially reflected and perpetuated by a life story which is not complete, does not cohere, is not flexible and describes an essentially non-agentive, non-responsible self.

Thus both the content and the form of the life story define central aspects of the self and ways of integrating experiences into the self. A relatively stable cognitive schema representing the core life story, including major events and major links between them, is assumed to secure a stable sense of self (Bluck and Habermas, 2000; Conway, Singer and Tagini, 2004; Lejeune, 1975). Consequently, characteristics of the life story perpetuate pathognomic ways of processing experiences and self-defining convictions. This may be especially true for depression, in which the experience of and cognitions about the self are altered. The basic thesis of this paper is that central psychological characteristics of depression are reflected and anchored in the life story.

To formulate specific hypotheses, characteristics of depression need to be translated into characteristics of life narratives. The most prominent psychological symptoms of depression are a depressed mood, feelings of worthlessness, self-blame and suicidal ideation, and hopelessness. The two basic elements of narrative are the narrative representation of time and evaluation

(Labov and Waletzky, 1967). Past events are recreated by reproducing the temporal succession of events in narrative phrases which prototypically are introduced by 'and then ... , and then ...'. This sequencing recreates the dramatic tension of past events and facilitates a reliving of events and of the passing of time. Also, the sequencing of events and actions lends a sense of direction and change to narratives. Evaluation, on the other hand, is what the narrator adds to the sequence of events, by interpreting and judging them. Evaluation encompasses all subjective perspectives onto events, from perceptions to emotions to judgments and volitions, from a variety of personal and temporal perspectives (Bruner, 1990).

We hypothesize that life narratives of depressed individuals differ from those of non-depressed individuals in four respects. The first two are derived from major psychological symptoms of depression, the latter two regard variations in the main aspects of narratives, narrative sequence and evaluation. First, the kinds of events that are included in the life story define the self, reflecting typical experiences and therefore continuities of the self or transitions in which the self has changed (Pillemer, 1998). The negative or positive valence of the events included in a life narrative colors its overall affective tone. Thus life narratives of depressed persons might contribute to a depressed affect by containing more negative life events. Furthermore, a tendency for self blame shows in a depressive explanatory style, that is the blame for negative events is put on the self, while positive events are attributed externally. Third, the feeling of hopelessness suggests a weaker sense of time, which in narrative might be indicated by deviation from a linear order. Fourth, there may not only be a negative bias in evaluations, but also an overall reduction in evaluative activity given the overall de-intensification of emotionality in depression. We briefly discuss arguments and evidence for each of the four hypotheses.

Negative Bias

In depression negative mood prevails, and there is a pervasive negative bias in thinking and speaking. A negative bias in remembering past events has been explained by the mood congruent memory effect, which describes a biasing of the selection of memories in the direction of the present mood. Evidence gathered with clinically depressed patients and word learning tasks for explicit memory, however, has provided mixed results (e.g., Bradley, Mogg and Williams, 1995, for positive, and Moritz, Gläscher and Brassen, 2005; Ellwart, Rinck and Becker, 2003, for negative findings). A possible explanation may be the use of isolated words which may less consistently lead to emotional involvement than, for example, stories, which did produce a mood congruent memory bias even in a non-clinical sample of children with depressed mood (Bishop, Dalgeish and Yule, 2004). Similarly, in a non-clinical sample of freshmen students who wrote about leaving home and starting college for around 20 minutes, those with a BDI score of above 13 used significantly more negative and somewhat less positive words than those with BDI scores of less than seven (Rude, Gortner and Pennebaker, 2004). Fromholt, Larsen and Larsen (1995) compared life narratives of 15 depressed elderly patients with those of 30 demented and 30 controls, and again depressed patients narrated many more negative events.

Depressive Explanatory Style

In depression thoughts are focussed on the negative evaluation of oneself, which is frequently reinforced by self-blame. Abramson, Seligman and Teasdale (1978) introduced an influential formulation of an explanatory style which maximizes self-blame and minimizes self-worth and hope, explaining negative events by blaming oneself and positive events by attributing them to external agents or circumstances. The effects are increased if the negative events are explained by global aspects which are not under one's control and therefore stable in time. A

great many studies using questionnaires have confirmed that clinically depressed individuals use this explanatory style more than any other group they have been compared to. However, in absolute the depressive explanatory style is used less frequently than the complementary, normative self-enhancing explanatory style even by people who are depressed (cf. Mezulis, Abramson, Hyde and Hankin, 2004).

The questionnaires used to measure explanatory style typically ask for the reasons why positive or negative outcomes of vignettes occur. Their use has been criticized on the grounds that they neither measure whether causal explanations are offered spontaneously (Peterson, Bettes and Seligman, 1985), nor whether real life problems elicit the same explanatory style as hypothetical vignettes do (Riskind, Castellon and Beck, 1989). In order to analyze explanatory style in a more clinically relevant way, Peterson, Luborsky and Seligman (1983) developed a coding scheme for assessing explanatory style in therapy transcripts of a depressed patient, the Content Analysis of Verbatim Explanations (CAVE). The scheme was later applied to students' written answers to six vignettes with negative and six with positive outcomes from the Attributional Style Questionnaire (ASQ; Schulman, Castellon and Seligman, 1989). The resulting score of depressive minus self-enhancing explanations in the students' open-ended answers to the vignettes correlated with the BDI with $r = -.36$. The CAVE-technique has been successfully used to code explanatory style in clinical interviews with HIV-positive men, predicting decline in the immune system (Segerstrom, Taylor, Kemeny, Reed and Visscher, 1996), and with men who had lost a partner due to AIDS, predicting later depressiveness (Satterfield, Folkman and Acree, 2002). In all these studies internality was coded much more reliably than globality and stability.

Experience of Time and Narrative Sequencing

The experience of time is altered in depression, so that time is experienced as empty and standing still, without future, but filled with a past which is merged with the present (Kuhs, 1991; Straus, 1963). Using visual analogue scales, two studies confirmed this experience of the slowing of time for the 'present' (Blewett, 1992), for the 'past hour', and most clearly for the 'coming hour' (Mundt, Richter, van Hees and Stumpf, 1998). The breakdown of a sense of linear time in depression may also be reflected by the finding that a group of suicidal youths, when compared to non-suicidal youths, provided almost no answer to questions regarding the logic of personal continuity (Chandler et al., 2003). Thus time, and thereby also change, seems to have come to a halt in depression. Depressed people are therefore sometimes described as living in the past.

In narrative, time is represented by the linear order of events. Therefore a slowing of subjective time should correspond to a lessening of the linear narrative order of events. Luborsky (1993) elicited life narratives from eight elderly men with a depressed mood and eight controls. Depressed narrators tended to construct narratives not in a linear temporal fashion following the cultural concept of the life course as did the controls, but organized it by themes, which led to a recurrent structure. At a more local level, the narrations of the depressed men lacked both essential components of narratives, narrative clauses ("and then ... , and then ...") and evaluations. When asked to summarize their lives in terms either of a series of book chapters or in terms of separate murals depicting single themes, respondents with a depressed mood preferred the static images, while controls preferred the linear structure of book chapters. In the study of life narratives by Fromholt, Larsen, and Larsen (1995), the depressed group gave less detail, were able to date less events, and deviated more from a linear order of events, recounting as many events in the correct sequence as in the reverse sequence. These differences appear to

confirm that depressed people put less temporal structure into their life narratives.

Another indicator of a temporal structuring of autobiographical narratives is comparisons between how things were then and how they are today (Habermas and Paha, 2001). Furthermore, the cultural concept of biography provides a standard set of life events which are part of biographies, many of which have age norms attached to them (Berntsen and Rubin, 2004). Adherence to this normative temporal succession of events also helps to linearly structure life narratives (Habermas, 2007).

Evaluation and Evaluative Perspectives

The final aspect of depression studied here is narrative evaluation and the perspectives from which events are evaluated. Given the reduction in emotional modulation and responsiveness in depression, we expected an overall reduction in explicit evaluations in narratives (Luborsky, 1993). Labov and Waletzky (1967) differentiate between more external evaluations made from a perspective outside the action sequence and more internal evaluations which are embedded in the narrated sequence of events. Reasoning about one's development can be considered a complex external evaluation (Habermas and Paha, 2001; Pasupathi and Mansour, 2006). Evaluations are expressed at a more basic level by mental expressions like the mental verbs 'see', 'think', and 'find', the naming of emotions like in 'he was afraid', and global evaluations like 'that was no good'. Mental expressions range from terms describing abstract cognitions and volition to concrete emotions and perceptions. There appears to be no research on the use of mental expressions by depressed patients, but being able to name emotions and to use cognitive mental terms seems to be helpful when coping with traumatic experiences (e.g., Pennebaker and Francis, 1997; cf. Fivush and Baker-Ward, 2005).

Finally the most internal form of evaluation is the use of dramatic speech (historical present, direct speech, shifting the reference point of deictic expressions to the past protagonist; cf. Chafe, 1994), which lets protagonists speak for themselves and situates speaker and listener in the past situation. Although dramatic speech is not always a sign of psychopathology such as in trauma narratives (e.g., Laub & Auerhahn, 1993), but is also a sign of high-quality narratives (Ulatowska, Streit Olness, Samson and Keebler, 2004), what is important here is that it is the most internal form of evaluation. Thus our general expectation is that all forms of evaluations are used less frequently by depressed individuals.

This hypothesis might seem to contradict the symptom of ruminative thinking in depression. Rumination, however, is a repetitive thinking about the same negative aspects of oneself and does not necessarily imply the use of mental expressions. A second hypothesis regarding the use of evaluations regards a reduction in the use of evaluative perspectives. Speaking of psychopathology in general, Habermas (2006) hypothesized that the more primitive defense mechanisms are, the more they affect narratives by reducing the richness of evaluative perspectives. Restrictions in evaluative perspectives may, for example, take the form of limiting them to others' and to present perspectives, as is typical for intellectualising. Although when PTSD-patients compared ruminative thinking to intrusive memories, it tended to be judged as resembling less a feeling and more a thought, but half of the respondents still likened it to a sensation and 2 out of 3 to a feeling (Speckens, Ehlers, Hackman, Ruths and Clark, 2007). Therefore rumination does not contradict findings that in depression thoughts and evaluations focus more on the past (e.g., Eysenck, Payne, & Santos, 2006) and the self (Pyszczynski & Greenberg, 1987; Nolen-Hoeksema, 1991). This suggests a second hypothesis that in depression the evaluative perspectives are more restricted to the past self to the detriment of present and others' perspectives, in other words that internal evaluations prevail relative to external

evaluations. Accordingly, in a study of narratives of an interesting personal experience of five depressed and five non-depressed elderly (Bucci and Freedman, 1981) the depressed group used the first person pronoun 'I' more frequently, spoke less about the present and more about the past, and used more dramatic speech. In written narratives by students with a high BDI score the pronoun 'I' was also used more frequently (Rude, Gortner and Pennebaker, 2004).

Previous research regarding all four aspects of narrative is scarce and exploratory in nature. Therefore the following study was undertaken as the first larger study of entire life narratives of depressed patients in which language was analyzed in a systematic fashion to test four broad hypotheses: The hypotheses are that the depressed (1) name and explain more negative events, (2) use more depressive explanations, (3) show more deviations from a linear narrative structure, and (4) use less evaluations, or, alternatively, use more internal relative to external evaluations. Each hypothesis will be tested using multiple indicators. Participants' seven most important memories and ratings served as additional measures for the first three hypotheses.

Method

Participants

Twenty clinically depressed in-patients, eleven women and nine men, were matched on sex, age (maximum difference of 5 years) and education with control participants. Patients were recruited through five psychiatric clinics in Berlin, Germany, and selected by the treating psychiatrists on the basis of a current diagnosis of depression or dysthymia, fluency in German, and relative mental stability to be able to withstand a life narrative interview. Therefore patients were interviewed not at intake to the clinic, but generally three to six weeks later. A comorbidity of drug addiction was excluded. In addition to ethical considerations, patients were interviewed at a later point in their treatment because the task of recounting one's life requires participants to be able to keep up an organized monologue for 20 minutes. While this late testing may have reduced group differences due to clinical improvement, the differences which were still found can therefore be interpreted as strong differences. To compare formal aspects of narratives these needed to be of roughly comparable length. The majority were treated with anti-depressants, some with anxiolytics. Control participants were recruited via ads in local newspapers and posters. In a telephone screening matching partners were selected and those with drug abuse and psychotherapeutic treatment were excluded. Participants received the equivalent of \$10.

To be sure that the individuals in the control group were less depressed than their clinically depressed partner and did not have clinically significant depression scores, we measured the severity of depression with the BDI and the Beck Hopelessness Scale (BHS; Beck, Weissmann, Lester and Trexler, 1974). Three pairs were excluded from further analyses because the control participants had higher or identical depression scores on the BDI as the matched depressed participants. The excluded controls also had the highest scores on both the BDI and the BHS in the control group, leaving nine female and eight male pairs. Of the remaining participants, no control and 11 depressed participants scored over 18 on the BDI, one versus five scored between 11 and 18, and 16 versus one scored below 11 points. No control had T-scores on the BHS of over 60, while 11 depressed scored over 60. In all pairs, the depressed participant had higher values than their respective control on both measures of depression. Means differed significantly on the BDI, $t(16) = 6.78$, $p < .001$, and the BHS, $t(16) = 6.67$, $p < .001$ (all group means and standard deviations are listed in Table 1). Clinical diagnoses comprised four recurrent depressive episodes (ICD-10 diagnosis F33), 12 depressive episodes (F32), and one dysthymia (F34.1).

Age ranged from 30 to 75, with a mean age of 49.64 ($SD = 14.28$) in the depressed and of 46.04 ($SD = 13.43$) in the control group. Against initial intentions, the small age difference was

significant when tested with a *t*-test for dependent samples, $t(16) = 2.81$, $p = .013$. Men and women did not differ significantly in age. Match in level of education was perfect, seven pairs having less than 10 years of schooling, four having 10 years of schooling ('Realschulabschluss'), and six at least 'Abitur' (baccalaureate after 13 years of school).

Procedure

The second and third authors each interviewed half of both groups. Patients gave their informed consent and were interviewed alone in the afternoon in a private hospital room. Control participants were interviewed individually in the laboratory of the Free University Berlin. The interview took about an hour. The seven memories were asked for first, followed by the life narratives, ratings for memories, BDI and BHS. Only measures reported in the result section are listed.

Material

Beck Depression Inventory (BDI). The German version of the BDI which asks for 21 symptoms (Beck, Ward, Mendelson, Mock and Erbaugh, 1961) was administered (Hautzinger, Bailer, Worall and Keller, 1994). Sum scores of 11 to 17 are interpreted as signs of mild depressiveness, whereas scores of over 18 may indicate clinical depression.

Beck Hopelessness Scale (BHS). A 10 item short form of the revised German version (Krampen, 1993) of the Beck Hopelessness Scale (BHS, Beck, Weissmann, Lester and Trexler, 1974) was administered. T-values of over 60 are interpreted as possible signs of depression, and T-values of over 65 are interpreted as probable signs of clinical depression.

Seven most important memories. Prior to recounting their life, participants wrote their seven most important specific memories on cards, dated them, and ordered them in chronological order on the table in front of them. This served to facilitate the task by reducing memory load. Each of the seven memories was dated on a separate sheet and its positive or negative valence indicated. Events were later categorized as either normative or non-normative. Normative life events are expected to happen within a specific age-range. They form a normative temporal skeleton for the normative concept of the life course (Habermas, 2007). In addition, life events were categorized as conventional if they were among the 25 most frequently named events for a typical normal life in a study by Berntsen and Rubin (2004).

Life narratives. Participants were asked to recount their life, including the seven most important memories: "I am interested in understanding who you are and how you have become the person you are today. Please tell me how your life has been to date. Please take about 15 to 20 minutes time and tell me a coherent story of your life, so that I can get a picture of you and your life." Interviewers did not interrupt and gave nonverbal encouragements to continue. When necessary, participants were also explicitly encouraged to continue or to finish speaking. The narrative was tape recorded.

Narratives were transcribed and divided into propositions. Two pairs of transcripts were divided into propositions independently by two raters, achieving a mean of 97.6% agreement. Remaining transcripts were divided into propositions by one of the two raters.

Most indicators for hypotheses 1 to 3 were taken from developmental research on life narratives in adolescence (Habermas and Paha, 1999; cf. Habermas and Paha, 2001; Habermas and de Silveira, 2007) and from research on explanatory style (Schulman, Castellon and Seligman, 1989), whereas the codes for dramatic speech and mental expressions were developed specifically for this study (Habermas, Herr and Gözen, 2004). Manuals defined criteria for identifying specified elements in propositions. Coding of each element was trained as long as necessary for achieving satisfactory interrater reliability. Again two pairs of interviews were

coded independently by two raters for each code, and the remaining 36 transcripts were coded by one of the two raters. Only reliability for the codes for dramatic speech and mental expressions were based on ten pairs of narratives.

The first and second hypotheses were tested with related indicators. Explanations were identified by following the definition of causal relations by Sanders, Sporeen and Noordman (1992, 1993), counting the number of explicit causal connections which could have been expressed by 'because' or 'so that' divided by the number of propositions ($\kappa = .90$). Following Schulman, Castellon and Seligman (1989), valence and locus of cause were coded, while globality and stability of cause could not be coded reliably. The propositions with the *explanandum* (what is to be explained) were coded as either negative, ambivalent or positive in valence ($\kappa = .98$), while the propositions with the *explanans* (reason or cause) were coded as expressing an internal, external, both internal and external cause or a question ($\kappa = .94$). An indicator of depressive explanatory style was constructed by adding the percentage of negative events which were explained internally and the percentage of positive events which were explained externally (depressive explanations) and subtracting from it the percentage of negative events which were explained externally and the percentage of positive events which were explained internally (self-enhancing explanations). This indicator is logically independent from the percentage of negative events among the explained events.

To test the third hypothesis that depressed deviate more from a linear temporal order in life narratives, three kinds of these anachronies (Genette, 1980) were coded, namely deviations which did not come back to the point of departure from a linear order, deviations which did come back and therefore are temporal excursions, and deviations which are not marked as such and therefore may be confusing to the listener. Single measure intraclass correlations based on 20 life narratives, eight from this study and 12 from a developmental study of older children to adolescents (Habermas and de Silveira, 2007), were .95, .89, and .96. The remaining 26 life narratives were coded by one coder alone. Also, comparisons between historical story time and present narrative time were coded as contrasting ('I just hated my father, nowadays I can also see some good in him'), as marking biographical change related to a specific event ('since my parents split up, I am a very cautious person'), or as indicating continuity ('I still think of her'; $\kappa = .87$). Furthermore the seven most important memories were coded as normative or non-normative events following Habermas (2007), and as conventional or non-conventional following Berntsen and Rubin (2004), to create an indicator for how much the inclusion of normative or conventional events helped create a linear structure in the life narrative.

To test the fourth hypothesis, complex external evaluations, mental expressions with specifications of temporal and personal perspective, and devices of dramatic speech as the most internal evaluations were coded. External evaluations were a set of complex biographical arguments including explanations of an individual's reaction in terms of his or her specific prior biographical experiences, explanations of an individual's reaction with his or her developmental immaturity or age, and expressing insight into a general rule of life ($\kappa = .85$). Mental expressions were coded as expressing a subjective point of view, including expressions of thinking, understanding, remembering, knowing, doubting, intending, hoping, perceiving, emotion and global evaluations ($\kappa = .93$). All mental expressions contained mental verbs, except for global evaluations such as 'that was just terrible', and except for emotion statements such as 'I am still afraid of him'. We also coded whether mental expressions regarded the past or the present, future or atemporal time ($\kappa = .92$), whose perspective was reported (personal perspective; $\kappa = .93$) and their positive, negative, ambivalent or neutral valence ($\kappa = .91$). Finally indicators of dramatic

narration were coded and added to form one overall indicator: direct speech ($\kappa = .81$), historical present (relating past events in the present tense; $\kappa = .96$), and the shifting of the center of spatial or temporal deictic expressions from the present narrator to the past protagonist (e.g., using 'now' to describe a past action; $\kappa = .94$).

Overall intensity of evaluation was measured with all three kinds of evaluations, while a reduction of external evaluations was tested with the difference in frequency between lower and higher mental activities (defined following Halliday and Matthiesen, 2004, p. 209). We therefore constructed an indicator of the use of more external to more internal evaluations by subtracting the percentage of all mental expressions denoting lower processes of perception ('perceive', 'emotion') from the percentage of all mental expressions denoting higher, cognitive processing ('understand', 'think', 'global evaluation'). In addition, a focussing of perspectives on the self was tested by the percentage of mental expressions using the first person perspective, a focussing on the past by the percentage of mental expressions with a past temporal perspective.

Results

Throughout analyses, continuous variables were first tested for deviation from a normal distribution and for outliers. Outliers and variables were transformed using square roots or logarithms to approach normal distribution whenever necessary. The only dependent variable which significantly correlated with age was the proportion of explanations in the narrative ($r = -.46$, $p = .006$). We therefore included age as a covariate in the test of group differences in this variable. For all other variables, group differences were tested for matched pairs, using procedures for related samples. As a testing strategy, we first tested the frequency of the most general category relative to the length of the text, then the frequency of the next specific category relative to the more general category, to avoid testing variables which statistically depend on one another. Tests were two-sided and used a significance level of $p < .05$. Differences between gender and educational levels were explored.

Group differences

Length of narratives. Narratives varied considerably in length between 104 and 577 propositions, but did not differ between groups, $F(1, 16) = .026$, $p = .87$, partial $\eta^2 = .00$. Means and standard deviations for all tested variables are listed in Table 1.

Negative bias and explanatory style. Differences in negativity and explanatory activity were tested in three steps, first comparing relative frequency of overall explanatory activity, then proportion of negative events among all explained events, and finally proportion of depressive minus proportion of self-enhancing explanations. In a univariate analysis of variance (ANOVA) for related samples, age was entered as a covariate and group as a factor for the relative frequency of explanations in life narratives. While age was negatively correlated with the proportion of explanations among all propositions, $F(1, 31) = 9.85$, $p = .004$, partial $\eta^2 = .24$, the proportion of explanations did not differ between groups, $F(1, 31) = 2.04$, $p = .16$, partial $\eta^2 = .06$. The hypothesis that the depressed group would name a higher percentage of negative events among the explained events than the controls was confirmed in an ANOVA for related samples $F(1, 16) = 29.56$, $p = .000$, partial $\eta^2 = .65$. In a final step, the indicator of depressive explanatory style proved to be higher for the depressed, $F(1, 16) = 13.67$, $p = .002$, partial $\eta^2 = .46$. We then explored whether depressive explanations were used more or less frequently than self-enhancing explanations. While 13 participants in the control group versus 7 depressed patients used preponderantly self-enhancing explanations, three controls and seven depressed used more depressive explanations, and both explanations were used equally by one control and three depressed patients. That even half of the depressed patients used self-enhancing explanations is

in accordance with the literature (cf. Mezulis, Abramson, Hyde and Hankin, 2004).

Parallel to the narrative measures, we also used the ratings of the seven most important memories to test the negative bias. The percentage of negative events among these seven memories was also significantly higher in the depressed, $F(1, 16) = 12.42$, $p = .003$, partial $\eta^2 = .45$, and correlated with the percentage of negative among the explained events in the narrative by $r = .46$, $p = .008$.

Linearity of narrative structure. The hypothesis that life narratives by depressed individuals deviate more from a linear order was confirmed when tested with the sum of all three indicators, $F(1, 16) = 4.72$, $p = .045$, $\eta^2 = .23$. All three kinds of deviations from linearity were more frequent in the depressed group. The additional indicators of the representation of temporal succession, comparisons between story time (past) and narration time (present), were used significantly less by depressed than by controls, $F(1, 16) = 4.63$, $p = .047$, $\eta^2 = .22$. This difference is exclusively due to the less frequent use of contrastive comparisons, in which the narrator states that something is different today than it had been in the past. To explore the deviations from linearity further, the seven most important memories were coded for the kinds of events chosen. Contrary to expectations, depressed patients selected neither less normative events $F(1, 16) = .00$, $p = 1.00$, partial $\eta^2 = .00$, nor less conventional events, $F(1, 16) = 1.8$, $p = .68$, partial $\eta^2 = .01$, than the control group. The deviation from linear narrative order did have low, nonsignificant correlations with both the comparison between then and today by $r = .25$ and the proportion of normative events by $r = -.25$ and a moderate, significant correlation with proportion of conventional events $r = -.40$, $p = .019$.

Evaluations. First we tested the global hypothesis of a general reduction in the representation of evaluative perspectives in depression by subjecting biographical arguments, mental expressions and indices of dramatic speech to a multivariate analysis of variance (MANOVA), and the hypothesis was not confirmed, Pillai's Trace $.10$, $F(3, 14) = .67$, $p = .67$, $\eta^2 = .10$. We then tested the second hypothesis, that in depression external evaluations are reduced relative to internal evaluations, by testing the difference between the frequency of cognitive minus the frequency of perceptual mental expressions relative to all mental expressions, there was a significant difference between groups, $F(1, 16) = 16.30$, $p = .001$, $\eta^2 = .51$, resulting both from the use of proportionally less cognitive and the use of proportionally more perceptual mental expressions by the depressed patients. When using a more comprehensive indicator of proportion of biographical arguments and cognitive mental expressions minus proportion of dramatic speech and perceptual mental expressions, the difference between groups was still significant at the 5% level.

To test the more specific hypothesis that the protagonist's past perspective was favoured in the depressed, we first compared the percentage of mental expressions made from the narrators' perspective, which did not differ between groups, $F(1, 16) = 2.07$, $p = .17$, $\eta^2 = .12$. However, mental expressions regarding mental actions of the past were more frequent in the depressed group relative to those denoting present, future, or atemporal mental actions, $F(1, 16) = 4.84$, $p = .043$, $\eta^2 = .23$.

Biographical arguments and mental expressions did not correlate significantly ($r = .28$), and dramatic speech did not correlate at all with either. The relative weight of cognitive versus perceptual mental expressions correlated with $r = -.72$, $p = .000$, with proportion of mental expressions used from a past perspective, but not at all with a use of mental expressions from a first person perspective. Also, biographical arguments correlated positively with use of cognitive versus perceptual mental expressions ($r = .40$, $p = .019$), and negatively with the use of mental

expressions from the past ($r = -.34, p = .046$) and from a first person perspective ($r = -.31, ns$). Thus the use of external evaluations correlates with the use of mental expressions of more cognitive than perceptual nature, from other temporal perspectives than the past perspective and than the first person perspective, therefore possibly measuring the evaluation not from the immediate protagonist, but from a more external perspective.

In Table 2, the beginnings of life narratives of two matched male participants are presented. Their BDI values are at the extremes. Although atypically their narratives differ in length and in the relative frequency of mental expressions, a typical difference is that the non-depressed narrator refers to more mental expression in the present (23 vs. 0%), less of the mental expressions were perceptual (62 vs 67%) and more were cognitive (23 vs 0%).

Exploration of educational level and gender

All dependent variables tested above were explored for differences between genders (18 females, 16 males) with *t*-tests and with Kendall's Tau b rank correlations for education. We used a significance level of $p < .05$ for exploratory purposes, not to test significance. Women used more biographical arguments ($M = 3.39\%$, $SD = 1.51\%$ versus $M = 1.99\%$, $SD = 2.35\%$ for men, $t(32) = 2.84, p = .008$, partial $\eta^2 = .20$) and overall more mental expressions than men ($M = 22.73\%$, $SD = 5.51\%$ versus $M = 18.37\%$, $SD = 5.92\%$ for men, $t(32) = 2.23, p = .033$, partial $\eta^2 = .13$). Women also produced longer life narratives in terms of number of propositions, ($M = 318.4$, $SD = 119.8$ versus $M = 208.6$, $SD = 69.3$ for men, $t(32) = 3.22, p = .003$, partial $\eta^2 = .24$). Regarding educational level, only the proportion of mental expressions with the self as subject correlated positively with education ($r = .31, p = .022$), while a positive correlation with dramatic narration did not reach significance ($r = -.25, p = .069$). Taken together, there were surprisingly few differences between the sexes and educational levels, the strongest being that women narrate more extensively and use more biographical arguments.

Discussion

Well-established findings on the negative bias and depressive explanatory style were tested for the first time with highly self-relevant and freely produced life narratives. Even though only one of three dimensions of the explanans coded by the CAVE technique could be coded reliably, the controls clearly used a more self-enhancing explanatory style than did depressed. This is one of the few studies to identify explanatory style in narrative data, and it is the first study to apply the CAVE technique to life narratives.

Two more specifically narrative aspects of life narratives were also tested. As expected, life narratives by depressed patients deviated more from a linear temporal order, which in turn was related to the selection of less conventional life events for inclusion in the life narratives. This finding was supported by the less frequent comparisons between then and now in the depressed group. Although the groups did not differ in the overall frequency of evaluations, depressed patients more frequently used internal evaluations embedded in the past experience, as reflected in higher proportions of evaluations regarding lower, perceptual and emotional mental processes used from a past perspective. No differences, however, emerged for mental expressions using the first person perspective or for dramatic speech.

Both the deviations from a linear temporal order and the less frequent comparisons between then and now as well as the more frequent evaluation from a past and experience-near perspective demonstrate a mode of depressed narrating one's life which attenuates the difference between the past and the present. This finding is in accordance both with patients' subjective experience of a slowing or stopping of time as well as with the depressive tendency to repetitiously brood over past events without further mental processing.

The finding that depressed patients were more immersed in their past experiences might seem surprising because it could be interpreted as contradictory to the finding that depressed patients generate less specific memories of datable events to cue words in the Autobiographical Memory Test (Williams and Broadbent, 1986; cf. Van Vreeswijk and de Wilde, 2004). One hypothesis to explain the overgeneral memory effect is that specific memories are avoided because of their negative emotional quality (Williams, 1996; Moore and Zoellner, 2007). Possibly the two task conditions have different effects on the avoidance of negative memories. Single cue words activate the avoidance of negative memories in depressed patients, but narrating one's whole life engages the individual much more and therefore undermines the avoidance of negative memories. The use of very brief memory descriptions in reply to emotion word cues needs to be directly compared to the elicitation of entire life narratives to study similarities and differences between these two tasks on memory narratives. The specific task of narrating one's life might also explain the very high percentage of evaluations made from a first person perspective in both groups. The task requirements may have induced a strong self-focus in the control group, thereby generating a ceiling effect.

The finding of a decreased distance from the past in the depressed group was not supported by an increased use of the strong narrative device of dramatic speech. Dramatic speech transports speaker and listener into the shoes of the historical protagonist. Thus the group of depressed patients, although more tied to past experiences than the control group, did not immerse extremely in past experiences, as would have been indicated by an increased use of dramatic speech. This kind of immersing in past experiences is more characteristic of patients re-experiencing a traumatic situation.

These findings call for differentiating more clearly not only between autobiographical memories and autobiographical narratives, but also between depressed patients with and without traumatic memories. In recent years, several studies have analyzed the generality of autobiographical memories with the cue word paradigm in depressed individuals with and without intrusive traumatic memories. Several studies found that depressed patients with traumatic memories produced fewer specific memories in response to cue words (Brewin, Reynolds and Tata, 1999; Herman et al., 2004) than depressed individuals without traumatic memories (for a contrasting finding, however, see Kuyken, Howell and Dalgleish, 2006). Following the speculation developed earlier that life narrative instructions induce a stronger pull towards remembering than cue words, we may speculate that in traumatized depressed patients the evocative power of life narratives is even stronger, activating the other side of the avoidance-intrusion cycle, leading to an even less distanced narration.

This is one of the very few studies to use entire life narratives for the study of mental and communicative characteristics of psychopathology. We have demonstrated how formal aspects of life narratives may be reliably identified, and that depression may be related to characteristic variations in both narrative and evaluative aspects of life narratives. The disadvantage of life narratives as a research method is that they are not very economic. This is counterbalanced by their ecological validity, reflecting everyday processes of autobiographical reasoning and processes of meaning making. In addition, the use of formal linguistic indicators avoids the pitfalls of self-reports, because they bypass speakers' conscious intentions in expressing specific contents (cf. Fivush and Baker-Ward, 2005).

Of course, linguistic expressions are not free of ambiguity. Mental expressions may, for instance, be used to distance oneself from the propositional content, such as in 'I perceived it as a threat' or 'I thought he was threatening me'. In this specific case, for example, the use of a verb

of perception is no less distancing than the use of a more cognitive mental expression (cf. Vandelandotte, 2004). Such ambiguities could be resolved with even more refined ways of coding. However, we believe that in most cases expressions of perception reflect less distance to past events than the use of cognitive expressions. This contention is open to empirical tests.¹

This study could not be more than exploratory in nature, given the small sample size, the relatively large size of formal aspects of narratives studied, and the absence of a clinical control group. Therefore any therapeutic implications remain highly provisional. On the background of research on the beneficial effects of distraction when compared with rumination (Lyubomirski, Caldwell and Nolen-Hoeksema, 1998), the present study points to a possible aim in the psychotherapy of depression which could be to engage depressed individuals in a way of thinking and talking about their past which supplements remembering specific episodes with a cognitive present perspective that allows a distancing and maybe even reevaluation of past events.

Future studies should compare life narratives to cued autobiographical memories to test for possible interactions between effects of instructions and of psychopathology. Furthermore, when doing research on autobiographical memory and autobiographical narrative with clinical groups, the effects of depression and of trauma need to be differentiated more clearly than was possible in this study.

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Table 1 Group differences

Variable	Depressed		Control		Significance
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
BDI	24.00	10.69	3.96	3.13	***
Hopelessness Scale T-values	63.97	10.36	43.24	9.18	***
Number of propositions	273.6	125.1	266.3	119.0	
Explanations (% of propositions)	7.26	3.76	6.24	2.77	
<i>Negative bias and explanatory style</i>					
Negative events (% of all explained events)	64.8	16.1	39.5	16.5	***
Difference of depressed vs. self enhancing explanations (% of propositions)	-0.118	0.681	-0.716	0.579	**
Negative events among seven most important memories (%)	51.5	19.4	30.3	21.9	**
<i>Temporal order of life narrative</i>					
Deviations from linear order (% of propositions)	1.32	.65	.91	.70	*
Comparisons then-today (% of propositions)	2.31	1.96	3.77	2.51	*
Normative events among seven most important memories (%)	31.09	15.35	31.09	17.67	
Conventional events among seven most important memories (%)	45.38	20.35	48.51	23.22	
<i>Evaluative Perspectives</i>					
Biographical arguments (% of propositions) ^a	2.76	1.72	2.70	1.49	
Mental expressions (% of propositions) ^a	19.60	5.07	21.76	6.86	
Dramatic speech (% of propositions) ^a	8.02	7.14	7.62	6.21	
Mental expressions with 1 st person subject (% of mental expressions)	86.52	6.78	89.00	6.05	
Mental expressions made in the past (% of mental expressions)	60.89	8.90	54.16	6.63	*
Difference between percentage of mental expressions with cognitive minus with perceptual content (% of mental expressions) ^b	-16.23	19.87	3.74	24.72	***

Note: a – The three kinds of evaluations (biographical arguments, mental expressions, and dramatic speech) were tested simultaneously in a MANOVA, resulting in no significant group difference. b – Perceptual expressions were verbs of perception and expressions naming emotional reactions, cognitive expressions were mental verbs of thinking and understanding and global evaluations.

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

Table 2 Mental Expressions in Beginnings of Two Life Narratives

Man aged 69 years, control, total 187 propositions, BDI of 0
 “Well, the first event that I STILL REMEMBER, very strongly in my memory, is that when I was four, one night I woke up and **FOUND OUT** that my parents were gone. Then **I GOT SCARED, I FELT ABANDONED**. Fortunately my sister, who was 1 year old, she was with me in my room. She was still lying in her crib. She also woke up, because **I WAS CRYING**, and she comforted me. And I took her out of her crib, and that **HELPED ME FEEL BETTER**. Unfortunately she died when she was 3 ½ years old, I was 7 ½ years old then. That **WAS ALSO A GREAT LOSS FOR ME**, because we played together nicely, **LIKED EACH OTHER**. And – eh, **I DIDN'T REALIZE THEN**, but later **I DID**, that this was a really strong cut. **I STILL SEE MYSELF** sitting on the barn roof, all by myself, because I also wasn't allowed to go to the funeral. I was supposed to be protected from it, or whatever. But today **I FIND** something should have been done. **I WOULD HAVE LIKED** to say good-bye to her. [...]

Man aged 71 years, major depression, total of 104 propositions, BDI of 40
 “I was born May 17 1936 in Leipzig. Visited the Goethe School, elementary school and middle school in Halle. With that school we were then moved to a small village in southern Saxonia. The first lengthy separation from the parents, together with other pupils, **WAS ALSO PARTIALLY NOT THAT PLEASANT**. When the Russians came to Leipzig, I was back in Leipzig, had applied for an apprenticeship with Mercedes, and worked there for two weeks until the breakdown came. In those days drunken Russian soldiers raped women, and a Serb, who lived in the house, I had asked him to convince the Russians, that we are no hostile people. He then said “Spy!”, got the Serb out, and **I WANTED** to say “No, is not, is no ...”. Then we were both put under the clothesline, and the Russian wanted to shoot us at the wall. Fortunately young Russian soldiers arrived, who stopped him. Well and then our house was on fire because of the fighting. That **WAS ALSO A SHOCK** of course, when I saw the flames coming out of our living room window. [...]

Note.

CAPITAL LETTERS – mental expressions; *italics* – regarding the past; **bold** - perceptual mental expressions; underlined – cognitive mental expressions