Defocused Attention in Depressed Mood: Evidence From Source Monitoring

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The authors suggest that depressed mood is associated with a defocused mode of attention, allowing irrelevant information to be noticed and processed more than in nondepressed states. Working on a source monitoring task, subclinically depressed college students selected with the Beck Depression Inventory (A. T. Beck, 1967; D. Kammer, 1983) had better memory for irrelevant stimulus aspects than nondepressed control students. However, depressed students’ performance on the relevant stimulus aspects was unimpaired. These results are in conflict with a capacity reduction view of depressed mood and support the hypothesized altered, defocused mode, in which attentional resources are more evenly allocated across various aspects of the materials. The results are discussed within the framework of adaptive functions of emotional states.

Keywords: depression, depressed mood, source monitoring

Depressed mood, as seen in subclinical states as well as in clinical depressive disorder, interferes with cognition in a number of ways (for recent reviews, see Ellis, Ottaway, Varner, Becker, & Moore, 1997; Gotlib, Roberts, & Gilboa, 1996; von Hecker, Sedek, & McIntosh, 2000). Depressed individuals often experience problems with handling social situations, complex thinking, problem solving, memory, and a loss of creativity (Channon, Baker, & Robertson, 1993; Ellis & Ashbrook, 1988; Marx, Williams, & Claridge, 1992). Major impairments under depressed mood have been reported in the construction of social mental models (von Hecker & Sedek, 1999) and transitive reasoning (Sedek & von Hecker, 2004). In explaining these problems, researchers have concentrated on attentional control as a cognitive mechanism that is likely to be affected by sad mood (Gotlib, Roberts, & Gilboa, 1996; Hertel, 1994; Linville, 1996; A. M. Shapiro & Roberts, 2003). Depressed mood has been shown to interfere with attentional strategies of efficient task solution (Hertel, 1997, 1998; Hertel & Rude, 1991a). That is, attentional control, including both focusing on task-relevant information as well as not attending to intruding irrelevant information, appears to be difficult for depressed individuals.

We propose that it may be fruitful to reframe this discussion in terms of the possible adaptive functions of emotional states in general and depressed mood in particular. The theoretical discussion so far mainly emphasizes cognitive deficits in terms of impairments in higher order functions, as listed above. However, classical approaches to emotion in its ecological context warrant a perspective that does not exclusively associate the cognitive correlates of depressed mood with notions of deficit or impairment. In particular, the reported underperformance of depressed individuals in those complex tasks that require highly focused attention may be the consequence of an alternative mode of attention: a “defocused” mode, that may have a distinct adaptive value. In their functional theory of emotions, Oatley and Johnson-Laird (1987) see the adaptive value of emotional states in general as providing transitions within the behavioral stream, particularly at “junctures” in action plans. For depressed mood, the typical juncture may classify as “failure of major plan or loss of active goal,” and the transition to occur via the emotion of sadness is toward “do nothing and/or search for new plan” (p. 36). In such circumstances, a more open, unfocused, unselective, low-effort mode of attention would presumably prove not deficient but, on the contrary, beneficial. The objective would be to disengage from a terminally blocked goal, and to become receptive to different, alternative goals and stimuli, including stimuli that might have appeared irrelevant under the earlier more focused and goal-oriented mode (see Klinger, 1975).

These considerations lead to a simple hypothesis that is addressed in this study. If it is the case that depressed mood is associated with a defocused mode of attention, which does not necessarily mean an impairment, then it should be possible to observe a superior memory performance for irrelevant aspects of a stimulus in depressed, as compared with nondepressed individuals. Furthermore, if the attentional mode is defocused and, thus, resources are not reduced, then the overall memory performance in the depressed individuals should not show an impairment as compared with the nondepressed group. To examine these ideas, we used a source monitoring paradigm. Recent advances in this methodology allowed us to create an experimental situation in which relevant versus irrelevant aspects of a to-be-learned stimulus could be separated and the components of memory performance that are related to relevant versus irrelevant stimulus aspects could be later disentangled.
The Source Monitoring Paradigm

The term *source memory* is used to denote memory for context information that characterizes the origin of a given item or fact. In contrast to recognition memory, source memory does not only concern the question of whether an event is recognized from the past. Instead, source memory concerns the question of whether the context in which the event was originally experienced can be remembered. Source memory tests have been used in various domains of experimental psychology (see Johnson, Hashtrudi, & Lindsay, 1993, for an overview), and statistical models have been designed to measure the cognitive processes that are involved in memory tasks that require recognition judgments and source memory decisions (Batchelder & Riefer, 1990; Bayen, Murnane, & Erdfelder, 1996). These statistical models are based on multinomial processing tree methodology (Batchelder & Riefer, 1999; Riefer & Batchelder, 1988) and yield separate measures of recognition memory, source memory, and guessing processes in old/new judgments and source decisions.

Recently, the source memory paradigm has been extended to the assessment of memory for multiple aspects of the encoding context, and a multinomial model was introduced and validated that allows one to simultaneously measure source memory for two dimensions of context information (Meiser, 2005; Meiser & Bröder, 2002). We used the extended source memory paradigm for the present research, because this approach affords a joint analysis of source memory for information declared as relevant for a subsequent test, as opposed to source memory for an irrelevant context dimension. We expected that the encoding and retention of source information is influenced by processing goals and, as a consequence, relevant context information is attended to and memorized, whereas irrelevant context information is less focused on and therefore less memorized. In agreement with findings from other experimental procedures (Yonelinas & Jacoby, 1996), we therefore predicted substantial source memory for relevant context information, but poor source memory for irrelevant context information.

The main goal of the experiment, however, was to test the hypothesis that depressed participants show a memory advantage for irrelevant context information as compared with nondepressed participants. As delineated earlier, this prediction follows from the assumption that depressed mood is associated with a defocused mode of attention in which attentional resources during encoding are more evenly distributed across all aspects of a stimulus. In contrast, for nondepressed participants, we assume that an effective ignoring of the irrelevant dimension becomes a part of the encoding performance via instruction, because only the relevant context dimension is announced as criterial for the later memory test.

**Method**

**Participants**

One hundred nineteen students enrolled in psychology, history, and education sciences courses at the University of Potsdam volunteered for the experiment. On the first appointment, the German version of the Beck Depression Inventory (BDI; Beck, 1967; Kammer, 1983) was administered. In line with previous studies (Bargh & Tota, 1988; Edwards & Weary, 1993), participants with BDI scores ranging from 0 to 5 were reassigned to the nondepressed (ND) group; participants with scores of 10 and above were reassigned to the mildly depressed (D) group. Participants whose scores fell between 5 and 10 were debriefed and dismissed from the study (there were 29 dismissed participants). The remaining subgroups of preassigned participants were called in for a second appointment approximately 1 week later, at which time the BDI was administered a second time as verification of the stability of the depression score. In case of a major deviation from the first value (i.e., when the second value implied a group assignment different from the preassignment), participants were likewise debriefed and dismissed. This was the case for 11 individuals. Five participants did not return for the second appointment. The remaining 74 participants (58 female, 16 male) formed the final sample of the source memory experiment, 44 (33 female, 11 male) in the ND group and 30 (25 female, 5 male) in the D group. There was no statistical relation between the quasi-experimental group assignment and participant gender, $\chi^2(1, N = 74) = 0.73, p = .393$. The mean BDI scores at the second administration for the ND and D participants were 1.50 ($SD = 1.50$) and 17.40 ($SD = 6.13$), respectively, $t(72) = 23.15, p < .001$.

Participants could choose between course credits as partial fulfillment of study requirements or, alternatively, a monetary payment of DM 10 (approximately U.S.$4.60) per hour.

**Procedure**

The instructions and all experimental materials of the source memory task were presented on the screen of a personal computer. Participants were seated in front of the computer screen with a visual distance of approximately 50 cm.

**Learning phase.** For each participant, 64 target words were randomly drawn from a pool of 173 German nouns of four to seven letters. The pool was created on the basis of a word-norm study (Baschek, Bredenkamp, Oehrle, & Wippich, 1994), and all nouns had mean concreteness scores of 10 and above on a rating scale ranging from −20 to 20. During the learning phase, the screen was divided into a left-hand field and a right-hand field by a vertical line. Of the 64 target items, 32 items were presented to the left of the vertical line, and 32 items were presented to the right of the vertical line. Character height was about 1 cm on the computer screen. Each word appeared for 3 s, followed by an interstimulus interval of 1 s. At both locations, half of the items were displayed in a faint green frame, and the other half were displayed in a faint red frame, with a frame height of 4.5 cm and a frame width of 9.0 cm on the computer screen. The green color was taken from the standard RGB color palette of the graphical mode of the programming software Turbo Pascal 7.0 (Klawun, 1993). For the red color, the red value of the RGB coordinates was set to 51 to equate perceived luminance between the green and red frames according to a pretest. The assignment of the 64 target words to location (left vs. right) and frame color (green vs. red) was randomized anew for each participant. Moreover, a new random order of the 64 target words with their location and frame color was determined for each participant.

Before the sequence of target words was presented, participants were instructed to memorize the words and their location for a later memory test. The instruction announced that the memory test would include recognition of the words from the learning phase as well as memory for their location. In contrast, nothing was mentioned about frame color. By means of this instruction, the context dimension of location was made relevant, whereas frame color formed an irrelevant dimension of context information.

Before the experiment was conducted, we tested the materials and instructions in a pilot study with 21 students who were not selected with respect to mood. The procedure and instructions in the pilot study were identical to those in the experiment. The results of the pilot study revealed substantial source memory for the location of target items but poor source memory for frame color. Thereby, the pilot study confirmed that location formed a relevant context dimension, whereas frame color appeared irrelevant and was largely ignored.

**Filler task.** Following the presentation phase, a filler task was administered for 3 min to prevent participants from selectively rehearsing the
most recently presented stimuli. In the filler task, participants were asked to type as many names of capital cities in current Europe as possible.

**Source memory test.** During the memory test, the 64 target words from the learning phase were presented together with 64 new distractors in random sequence. The distractors were drawn from the same word pool as the target items. The random selection of distractors and the random ordering of target and distractor items in the test sequence were performed anew for each participant. The test words were displayed one at a time, centered on the horizontal axis of the screen and without a frame. Thereby, item presentation at test was neutral with respect to the context features of location and frame color.

In each test trial, participants decided whether the word had been displayed during the learning phase (“old”) or not (“new”). If the decision was new, the program proceeded to the next test trial. If the decision was old, participants also had to decide whether the word had been presented on the left-hand side or the right-hand side of the screen and, subsequently, whether the word had been displayed in a green or in a red frame. They were instructed to make their best guess whenever they felt unsure about the location or frame color of old words. The memory test was self-paced, and the test item remained on the screen until all responses were entered (i.e., either new or old with both source decisions).

### Results

The observed assignment frequencies of target and distractor items to the response categories old or new, with subsequent source decisions for location and frame color, were analyzed with the multinomial measurement model of source memory for two dimensions of source information (Meiser, 2005; Meiser & Bröder, 2002). Figure 1 illustrates the model that was used in the present analysis. Each pathway in the figure symbolizes a combination of cognitive processes that are elicited by a test item (left side of Figure 1) and that jointly lead to an observed response (right side of Figure 1). The cognitive processes that are specified in the model include recognition of an item as old or new, source memory for the location and for the frame color of target items, as well as guessing tendencies in recognition judgments and source assignments.

The parameters of the model represent the probabilities of various cognitive processes that are involved in the generation of a response to a given test item. Table 1 provides a brief definition for each parameter. Of crucial importance for the present purposes are the parameters \(d_{\text{location}}\) and \(d_{\text{color}}\), which represent source memory for the context dimensions of location and frame color. The source memory parameters specify the probabilities of remembering the location (left vs. right) and the frame color (green vs. red) of those target items that are recognized as old. The source memory parameters thereby allowed us to test whether source memory for location was better than source memory for frame color, reflecting the different relevance of the context dimensions at encoding, and whether source memory for frame color was better in the group of depressed participants than in the group of nondepressed participants, reflecting our hypothesis of a defocused mode of attention.

The model-based analysis affords measures of source memory for location and frame color that are disentangled from recognition memory for the items and from guessing tendencies in old–new judgments and source attributions. For this purpose, the model also includes parameters for item recognition, \(D\), for guessing that an item is old, \(b\), for guessing that an item appeared on the left-hand rather than right-hand side, \(g_{\text{left}}\), and for guessing that an item was displayed in a green rather than red frame \(g_{\text{green}}\) and \(g_{\text{green}}\) (see Table 1 for details).

The measurement model was applied to the observed frequency data with separate sets of parameters for depressed and nondepressed participants. In a first step, we tested the model fit by means of the likelihood ratio statistic \(G^2\). The likelihood ratio statistic compares the expected frequencies under a given model with the empirical response frequencies (i.e., under a saturated model with no restrictions) and reflects the degree to which a statistical model deviates from the observed frequency data. The likelihood ratio statistic is asymptotically chi-square distributed and provides an overall test of whether a model has to be rejected because of a significant misfit or whether a model can be accepted (Hu & Batchelder, 1994; Riefer & Batchelder, 1988). The joint model for depressed and nondepressed participants showed an excellent fit of \(G^2(26) = 22.81, p = .644\), with a critical value for model rejection of \(G^2_{\text{crit}}(26) = 38.89\). Also, separate tests for the depressed and nondepressed participants indicated an excellent model fit in both groups, \(G^2(13) = 13.57\) and \(G^2(13) = 9.24\), both \(p > .05\), with a critical value for the significance level \(.05\) of \(G^2_{\text{crit}}(13) = 22.36\). Thus, the empirical values of the likelihood ratio were much smaller than the critical values for model rejection, and the model can be accepted. Aside from the overall model fit, earlier research has demonstrated the construct validity of the model parameters by showing selective effects of experimental manipulations on single parameters (Meiser & Bröder, 2002; Meiser & Hewstone, 2004). The empirical fit to the present data, together with the previous demonstrations of construct validity, indicate that the model in Figure 1 can be considered a valid measurement tool of the cognitive processes in the source memory task of the present study. Table 2 shows the estimates of the model parameters, their 95% confidence intervals, and parameter comparisons between the two quasi-experimental groups.

As can be seen in Table 2, source memory for the relevant context attribute of location, \(d_{\text{location}}\), clearly exceeded source memory for the irrelevant context attribute of frame color, \(d_{\text{color}}\), confirming our relevance manipulation. Moreover, source memory performance for frame color, \(d_{\text{color}}\), was better in the group of depressed participants than in the group of nondepressed partici-
pants, corroborating our main hypothesis of a defocused mode of attention. To test our predictions statistically, we compared the source memory parameters by means of the conditional likelihood ratio statistic $\Delta G^2(1)$. The conditional likelihood ratio statistic allows one to test specific hypotheses within a multinomial model (Hu & Batchelder, 1994; Riefer & Batchelder, 1988). Matching the relevance of location and the irrelevance of frame color, $d_{location}$ was larger than $d_{color}$ for depressed participants, $\Delta G^2(1) = 87.35, p < .001$. More specifically, $d_{color}$ did not significantly differ from 0 for nondepressed participants, $\Delta G^2(1) = 0.68, p = .408$, indicating that nondepressed participants had very poor source memory for the irrelevant context feature of frame color. Depressed participants, in contrast, showed substantial source memory performance for frame color, as was revealed by a parameter of $d_{color}$ that was sensitive to the relevance manipulation. However, source memory for the irrelevant context dimension of frame color, $d_{color}$, was better in the group of depressed participants than in the group of nondepressed participants, $\Delta G^2(1) = 11.37, p < .001$. More specifically, $d_{color}$ did not significantly differ from 0 for nondepressed participants, $\Delta G^2(1) = 0.68, p = .408$, indicating that nondepressed participants had very poor source memory for the irrelevant context feature of frame color. Depressed participants, in contrast, showed substantial source memory performance for frame color, as was revealed by a parameter of $d_{color}$ that was

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**Figure 1.** Processing-tree representation of the multinomial source memory model for location and frame color. Test items are target items from location $i, i \in \{\text{left, right}\}$, with frame color $j, j \in \{\text{green, red}\}$, and new distractor items. The model parameters are defined in Table 1. Adapted from Figure 2 of “Memory for Multidimensional Source Information” by T. Meiser and A. Bröder, 2002, Journal of Experimental Psychology: Learning, Memory, and Cognition, 28, p. 121.
Discussion

Depressed participants were better able than nondepressed participants to remember a context attribute that was irrelevant to the task at hand, as defined in the initial instructions. In particular, nondepressed participants showed basically no source memory for frame color, indicating an effective disengagement from the irrelevant, and potentially distracting, context attribute. Depressed participants, in contrast, exhibited source memory for frame color, indicating an effective disengagement from the irrelevant context information. Together, these results lend strong support to our hypothesis that the irrelevant frame color, which was ignored, and potentially inhibited, in the group of nondepressed participants, whereas depressed participants pay more attention to the irrelevant information.

In contrast to the difference in source memory for the irrelevant context dimension of frame color, depressed and nondepressed participants did not differ with respect to old–new recognition performance, $D$, or source memory for the relevant context dimension of location, $d_{location}$ (see Table 2). However, the guessing parameter in old–new judgments, $b$, and one of the guessing parameters of assigning items to the green frame color, $g_{green\_left}$, differed between the groups. The difference in $b$ shows that depressed participants were more likely to guess that an unrecognized target item was old than were nondepressed participants. The difference in $g_{green\_left}$ indicates that nondepressed participants had a bias to guess that the frame was green given that an item was assigned to the right-hand side. Although the guessing parameters are of minor importance for the present purposes, they may reflect inferential response strategies, which are discussed below.

Table 1
Model Parameters in the Multinomial Source Memory Model for Location and Frame Color

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D$</td>
<td>Probability of recognizing target items as old and identifying distractor items as new</td>
</tr>
<tr>
<td>$d_{location}$</td>
<td>Probability of remembering the location of recognized target items</td>
</tr>
<tr>
<td>$d_{color}$</td>
<td>Probability of remembering the frame color of recognized target items</td>
</tr>
<tr>
<td>$b$</td>
<td>Probability of guessing that an unrecognized item is old</td>
</tr>
<tr>
<td>$g_{left}$</td>
<td>Probability of guessing that an item appeared on the left-hand side of the screen given that the original location cannot be remembered</td>
</tr>
<tr>
<td>$g_{green_left}$</td>
<td>Probability of guessing that an item appeared in a green frame provided that the item was assigned to the left location and given that the original frame color cannot be remembered</td>
</tr>
<tr>
<td>$g_{green_right}$</td>
<td>Probability of guessing that an item appeared in a green frame provided that the item was assigned to the right location and given that the original frame color cannot be remembered</td>
</tr>
</tbody>
</table>

significantly larger than 0, $\Delta G^2(1) = 24.84, p < .001$. These results lend strong support to our hypothesis that the irrelevant context attribute is ignored, and potentially inhibited, in the group of nondepressed participants, whereas depressed participants pay more attention to the irrelevant information.

Although the main objective of the experiment concerned source memory performance, the observed differences in two of the guessing parameters warrant some interpretive remarks. First, the probability of guessing that an unrecognized target item is old, $b$, was significantly larger for depressed participants than for nondepressed participants (see Table 2). Building on previous work on metacognitive decision strategies in old-new judgments (e.g., Förster & Strack, 1998; Strack & Bless, 1994), this effect may be taken as evidence that depressed participants consider their failure to recognize an item as less diagnostic for the item’s nonoccurrence than do nondepressed participants. Thus, the increase in the guessing parameter $b$ may simply reflect a lack of confidence in one’s ability to recognize target items and, therefore,
be a side effect of the emotional state of sadness. Alternatively, the lower probability of nondepressed participants to guess that an item is old may be due to a motivational tendency to avoid effortful source decisions on location and frame color in a state of memory uncertainty (see Footnote 2). Irrespective of whether the observed difference in the guessing rate of recognition decisions reflects an inferential or a motivational strategy, the important outcome is that depressed and nondepressed participants did not differ in recognition performance $D$.

Second, a significant difference emerged between depressed and nondepressed participants in the probability of guessing the frame color of old items from the right-hand side of the screen, $g_{\text{green}}$. This difference is due to the fact that the guessing proportion for nondepressed participants substantially deviates from the actual proportion of 50% of items in a green or red frame, whereas depressed participants come quite close to the true proportion in their guessing (see Table 2). Hence, the difference in $g_{\text{green}}$ may reflect more accurate learning of the relative frequencies of green and red frames under mild depression and, thus, reveal better knowledge about the irrelevant context attribute even when frame color cannot be remembered for a particular item. Most important, however, the core finding of enhanced source memory for irrelevant context information in depressed participants is not jeopardized by the observed differences in guessing parameters, because the multinomial modeling approach adopted here disentangles memory performance from guessing processes.

### General Implications

Sad mood has often been reported to interfere with cognition at various levels (Conway, Howell, & Giannopoulous, 1991; Ellis & Ashbrook, 1988; Gotlib et al., 1996; Hartlage, Alloy, Vazquez, & Dykman, 1993; Hertel & Rude, 1991a; A. M. Shapiro & Roberts, 2003). Some researchers have stressed a possible failure of inhibitory functions as an explanation for such interference (Hertel, 1997, 1998; Joormann, 2004; Linville, 1996). However, the experimental evidence speaking to the attentional mechanisms underlying the interference remains sparse, to date. The present research contributes to this literature by proposing that some of the findings in depressed people that have been reported using a deficit framework can potentially be understood as showing an altered, potentially adaptive, defocused mode of attention rather than a genuine deficit.

For example, studies have reported less selective decision making and an insufficient narrowing down of hypotheses in depressed mood, as compared with normative standards as well as with control groups (Sedek, Kofta, & Tyszka, 1993; Silberman, Weingartner, & Post, 1983). In light of our present perspective, such results can possibly be explained by a more even distribution of attentional resources across all stimuli, and less focus on the most diagnostic stimuli, in the depressed individuals. This defocused attentional mode may translate into a bias toward irrelevant or redundant information.

Generally, we argue against a capacity reduction model of sad mood (e.g., Ellis & Ashbrook, 1988) for two reasons. First, the assumption of capacity reduction itself relies on logically prior processes that are assumed to be contingent on depressed mood, such as allocating attention elsewhere, becoming distracted by mood-related concerns, self-related issues, or extratask processing (Ellis & Ashbrook, 1988). Thus it appears that a comprehensive explanation of cognitive impairments in sad mood should primarily focus on processes of attentional control rather than on capacity, which itself could be seen as an outcome subsequent to the execution of control processes. Second, there is evidence that memory capacity, as measured by the amount of material individuals can memorize during task execution, is not impaired in depressed mood (Hertel & Rude, 1991a; Sedek & von Hecker, 2004). Further compelling evidence against the capacity reduction view is provided by the results of the present study, which show not only equal recognition performance but enhanced source memory performance in a depressed state. We argue instead that sad mood is associated with a defocused mode of attention.

In light of our findings, some broader implications about the function of depressed mood may be considered. Depressed mood, with its shallower and defocused attentional control, would seem to be a state that is to be avoided. However, as Klinger (1975) argued early on, there are functional aspects to sadness and reduced selectivity of attentional control. Sadness and depression are often preceded by experience of failure or loss, such that previously held goals or action priorities now become inaccessible or no longer possible to pursue. This state of affairs could require a cognitive and behavioral restructuring of the goal hierarchy. In such a situation, maintaining the focus on a definitely unattainable goal would be dysfunctional. Sadness however, since it involves a withdrawal from the environment (see also Frijda, 1986), may

### Table 2

**Parameter Estimates and 95% Asymptotic Confidence Intervals (CIs) in the Multinomial Source Memory Model for Location and Frame Color**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Depressed participants</th>
<th>Nondepressed participants</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>CI</td>
</tr>
<tr>
<td>$D$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$d_{\text{location}}$</td>
<td>0.57a</td>
<td>0.54, 0.59</td>
</tr>
<tr>
<td>$d_{\text{color}}$</td>
<td>0.59a</td>
<td>0.53, 0.65</td>
</tr>
<tr>
<td>$b_{\text{green}}$</td>
<td>0.17a</td>
<td>0.10, 0.23</td>
</tr>
<tr>
<td>$b_{\text{left}}$</td>
<td>0.35a</td>
<td>0.33, 0.38</td>
</tr>
<tr>
<td>$g_{\text{green}}$</td>
<td>0.47a</td>
<td>0.44, 0.51</td>
</tr>
<tr>
<td>$g_{\text{left}}$</td>
<td>0.47a</td>
<td>0.43, 0.51</td>
</tr>
<tr>
<td>$g_{\text{right}}$</td>
<td>0.52a</td>
<td>0.48, 0.55</td>
</tr>
</tbody>
</table>

Note. Different subscripts within a row indicate that the model parameter differs significantly between depressed and nondepressed participants according to the conditional likelihood ratio test, $\Delta G^2(1), p < .05$. 


facilitate a reevaluation of one’s priorities, commitments, and actions (Riskind, 1984). Defocused attentional control may help a sad or depressed person to abandon an ultimately unsuccessful goal and to consider issues or aspects that had been put aside or ignored. Such reconsiderations may be particularly adaptive when one has experienced failure or loss, which are types of situational events that often lead to sadness. Similar points have been raised in consideration of possible benefits of intrusive thoughts under depressed mood. Intrusive thoughts may be adaptive in that they may allow the person to better come to terms with a problematic or distressing situation (Horowitz, 1975, 1983; Taylor & Schneider, 1989) or may allow the person to discover alternative ways of reaching important goals that have proven difficult to attain (Martin & Tesser, 1989).

**Conclusion**

In sum, depressed people appear more likely to display an unselective, more diffuse and widespread style of attentional control. As a result, they may direct their attention more impartially to various aspects of the environment, including noncentral or apparently irrelevant aspects. Depressed mood may have a functional value in allowing an individual to withdraw from unsuccessful or distressing situations to prepare the search for alternative cognitive goals or courses of action.

It is acknowledged that this research is only a beginning to explore these basic ideas, and that a number of limitations have to be dealt with in future work. First, the present study is limited in terms of the emphasis of the paradigm on memory performance. The argument of defocused attention, however, calls for attempts to generalize these findings to more perception-oriented paradigms to see, for example, whether depression is associated with greater vigilance or sensitivity toward more peripheral areas of the perceptual field than is found in neutral mood. A second potential problem concerns the selection of participants by use of the BDI. Besides potential limitations in generalizing results generated with this method to clinical depression (see Coyne, 1994), there is a lack of experimental control and randomization. That is, the grouping variable may be confounded to some unknown degree with other variables than mood that might be impactful in the experimental setting. Therefore, the applicability of the present ideas to situations of random sampling and experimental mood inductions should be explored in the future. However, it has to be cautioned that processing in naturally depressed episodes might be qualitatively different from the processing characteristics of a temporary mood state (cf. Hertel & Rude, 1991b). Furthermore, additional research is warranted to distinguish between depressed mood versus anxiety as being associated with effects such as the ones reported in the present study. Not only are there moderate to high correlations between the BDI and standard measures of anxiety (Watson et al., 1995), but K. L. Shapiro and Lim (1989) also showed that anxious individuals were more sensitive to peripheral than central stimuli, which could have relevance to the relevant/irrelevant distinction made in the present study. Thus, future studies have to further explore the range and specificity of the present results.

**References**


DEFOCUSED ATTENTION AND DEPRESSED MOOD


Accepted April 25, 2005

Revision received April 25, 2005

Received April 17, 2003