Romantic relationship status biases the processing of an attractive alternative's behavior

Visserman, M.L.; Karremans, J.C.T.M.

2014, Article / Letter to editor (Personal Relationships, 21, 2, (2014), pp. 324-334)

Doi link to publisher: https://doi.org/10.1111/pere.12035

Personal RELATIONSHIPS
JOURNAL OF THE INTERNATIONAL ASSOCIATION FOR RELATIONSHIP RESEARCH

Personal Relationships, **21** (2014), 324–334. Printed in the United States of America.
 DOI: 10.1111/pere.12035

Romantic relationship status biases the processing of an attractive alternative's behavior

MARIKO L. VISSERMAN[a] AND JOHAN C. KARREMANS[b]
[a]*VU University, Amsterdam and* [b]*Radboud University Nijmegen*

Abstract
The present research examines whether romantically involved individuals process *behavioral* information of attractive alternatives in a biased manner. When presented with behavioral information of an attractive mate, in Study 1 involved (vs. uninvolved) participants tended to recall fewer positive behaviors of an attractive alternative. Study 2 demonstrated that involved participants recalled more negative behaviors, and also evaluated these behaviors more negatively, compared to uninvolved participants. Study 3 demonstrated that romantically involved participants recalled more negative (but also neutral) behaviors when it concerned behaviors displayed by an attractive alternative as compared to a same-sex other. These findings provide initial evidence for biased processing of behavioral information of an alternative mate, which may serve an important relationship protection function.

Attractive alternative dating partners pose an important potential threat for the maintenance of romantic relationships (e.g., Buss & Greiling, 1999). For instance, romantic involvement with someone else is the number one reported reason for divorce (Centraal Bureau voor de Statistiek, 2009), and extramarital affairs are the leading reason for divorce across a variety of cultures (Betzig, 1989). Provided that relationship instability and relationship dissolution can have detrimental effects on an individual's health and psychological well-being (e.g., Kamp Dush & Amato, 2005; Kim & McKenry, 2002; Rhoades, Kamp Dush, Atkins, Stanly, & Markman, 2011), a theoretically and practically important issue is how romantically involved individuals deal with the lure of attractive alternatives.

Mariko L. Visserman, Department of Social and Organizational Psychology, VU University Amsterdam, the Netherlands; Johan C. Karremans, Behavioural Science Institute, Radboud University Nijmegen, the Netherlands.

Correspondence should be addressed to Mariko L. Visserman, Department of Social and Organizational Psychology, VU University Amsterdam, Van der Boechorststraat 1, 1081 BT Amsterdam, the Netherlands, e-mail: m.l.visserman@vu.nl.

Prior research suggests that there are several strategies that people may use—consciously or unconsciously—to protect their current relationship from other potential mates (Lydon, 2010). For example, when being confronted with an attractive alternative (i.e., presented in a picture), people involved in a heterosexual romantic relationship tend to devaluate the physical attractiveness of the opposite-sex other (i.e., the derogation effect; e.g., Johnson & Rusbult, 1989; Karremans, Dotsch, & Corneille, 2011; Lydon, Fitzsimons, & Naidoo, 2003; Simpson, Gangestad, & Lerma, 1990). Moreover, research by Maner and colleagues (Maner, Gailliot, & Miller, 2009; Maner, Rouby, & Gonzaga, 2008) demonstrated that people in a romantic relationship (as compared to singles) are relatively inattentive to attractive opposite-sex others, even at early automatic stages of attention. Finally, people in a committed romantic relationship tend to automatically increase their level of trust toward their partner when confronted with an attractive alternative mate (Koranyi & Rothermund, 2012). Together, such findings suggest that the goal of protecting and maintaining the current romantic relationship can

importantly affect how attractive alternatives (and one's current partner) are being processed (e.g., Maner et al., 2008; Maner et al., 2009).

However, previous studies have focused almost exclusively on responses to attractive alternatives based on their physical appearance. Physical attractiveness indeed may serve as a first cue to perceive relationship threat, and devaluating attractiveness may be effective in dealing with this potential threat. However, in real life, people generally have more information about an attractive alternative mate than only his or her physical appearance: they also *interact* with attractive opposite-sex others, and as such also acquire information about the kind of behaviors the attractive alternative displays. Surely, interactions with attractive alternatives often are inevitable, for example, when working together with an attractive colleague. In such situations, inattentiveness is not feasible, and devaluating physical attractiveness no longer may be sufficient to deal with the lure of an attractive alternative, especially if the alternative indeed behaves in certain ways that are very appealing. Hence, an important question is how romantically involved individuals deal with behavioral information about an attractive alternative.

From a relationship maintenance perspective, it seems functional if relationship status would bias the processing of an attractive alternative's behavior. For example, as a way to protect the current relationship, relationship status may negatively bias the storage of behavioral information about an attractive alternative in memory. Specifically, romantically involved (as compared to uninvolved) individuals may recall fewer positive behaviors, may recall more negative behaviors, or both. In addition, an individual involved in a committed romantic relationship may evaluate an attractive alternative's behavior more negatively as compared to individuals not involved in a relationship (e.g., evaluate positive behaviors less positively and/or negative behaviors more negatively). On the basis of the general notion that relationship protection goals can functionally bias information processing about attractive alternatives as described above (e.g., Koranyi & Rothermund, 2012; Maner et al., 2009; Simpson et al., 1990), the present research set out to examine these predictions.

To do so, in three studies, we presented participants with positive and negative (and neutral, in Studies 2 and 3) behavioral information about an attractive potential mate, after which we measured how this behavioral information is evaluated and recalled (i.e., stored in memory). In Studies 1 and 2, we examined whether romantically involved participants, as compared to uninvolved participants, processed the behavioral information about an attractive opposite-sex other in a negatively biased manner (i.e., in terms of recall and evaluation of the behaviors). In Study 3, we examined whether romantically involved participants processed behavioral information more negatively when it concerned information about an attractive alternative mate as compared to a same-sex other. In addition to the effect of relationship status on biased evaluations and recall, we also explored whether the quality of the current relationship would modulate the effects.

Study 1

Study 1 was designed to test the basic hypothesis that romantically involved participants, as compared to uninvolved participants, would show a biased recall (i.e., recalling either less positive information, more negative information, or both) and negatively biased evaluation of an attractive opposite-sex other's behavior.

Method

Participants

Sixty-seven female undergraduate students participated in this study (mean age = 21.0 years; all heterosexual). Thirty-eight participants were romantically involved and 29 were uninvolved.[1] They received 5 euro in return for their participation.

1. To avoid suspicion about the goal of the study, we did not recruit participants based on their relationship status. This resulted in an unequal sample size (38 involved vs. 29 uninvolved). However, homogeneity of variance was not violated, $p > .50$.

Procedure and material

Participants were welcomed and seated in individual cubicles to complete the experiment. First, participants were asked about demographical information, including relationship status. Involved participants were asked about the quality of their relationship, by measuring relationship commitment (Rusbult, Martz, & Agnew, 1998) and relationship closeness (Aron, Aron, & Smollan, 1992), and how much they love their partner. These different relationship quality measures were used in the analyses as a composite score indicating relationship quality, with acceptable scale reliability ($\alpha = .67$). In all three studies, we also measured relationship length. However, this variable was not associated with any of the dependent variables, and hence will not be discussed further.

Next, participants were led to believe that they would interact with another participant later on in the experiment. They were told that the experiment was about "asymmetric information and impression formation." Therefore, the computer would randomly couple the participants with an "other participant," and it would be randomly decided which of the two would be provided with a picture and a description of the other participant (when participants arrived at the lab, a picture of them was taken to make the cover story convincing). The computer then allegedly connected to the other participant's computer, and participants were presented with the picture of the "other participant," displayed for 20 s. This picture displayed a young man, who in a pilot study had the highest attractiveness ratings from a range of pictures.

Participants were then asked to wait, while the "other participant" was allegedly writing down five positive and five negative behaviors that he or she often engages in. In reality, these behaviors were constructed beforehand, and were pilot tested on being clearly positive or negative. For example "I often do groceries for my grandmother" (a positive behavior), and "I am often too late when I have an appointment" (a negative behavior; see the Appendix for a list of all the positive and negative behaviors). These behaviors were presented on the screen each in turn. Participants were instructed to carefully read these behaviors, and to click to the next behavior one by one. Since it is conceivable that romantically involved participants would pay less attention to the behaviors (e.g., Maner et al., 2008), it is important to note that romantically involved participants and uninvolved participants did not differ in their reading times of both positive and negative behaviors ($ps > .70$).

After an unrelated filler task that lasted for approximately 5 min, participants were asked to write down all the behaviors they could recall of the "other participant." Finally, they were again presented with all behaviors and were asked to evaluate them on a scale ranging from $-5 =$ *extremely negative*, to $+5 =$ *extremely positive*. The scale reliabilities for the evaluation of positive ($\alpha = .71$) and negative ($\alpha = .68$) behaviors were acceptable.

Results and discussion

We present our analyses based on the order in which the dependent variables were measured: first the analyses concerning the recall of the behaviors, and then the analyses regarding the evaluation of the behaviors are presented.

Recall of behaviors

To examine whether relationship status biases memory of behavioral information of the attractive alternative,[2] recall of the positive and negative behaviors were compared between involved and uninvolved participants (see Table 1). In line with our general hypothesis, an analysis of variance (ANOVA) revealed that involved participants recalled fewer positive behaviors ($M = 3.57$, $SD = 0.93$) as compared to uninvolved participants ($M = 3.97$, $SD = 0.91$), $F(1, 65) = 3.05$, $p = .09$, $\eta^2 = .05$. However, this effect is marginally significant. No significant effect of relationship status was found for the recall of negative behaviors ($p > .70$).

2. One participant did not perform the recall task correctly (i.e., not specifying the behaviors) and therefore could not be included in the analyses regarding the recall of the behaviors.

Table 1. *Mean and standard deviations for the recall of the positive and negative behaviors of the attractive alternative*

	Positive behavior		Negative behavior	
Relationship status	*M*	*SD*	*M*	*SD*
Involved	3.57_a	0.93	3.38	0.86
Uninvolved	4.04_b	0.84	3.46	0.92

Note. Means within a behavior category (i.e., positive/negative) with different subscripts differ marginally significant.

Table 2. *Means and standard deviations for the evaluation of the positive and negative behaviors of the attractive alternative*

	Positive behavior		Negative behavior	
Relationship status	*M*	*SD*	*M*	*SD*
Involved	3.80	0.78	−3.12	0.76
Uninvolved	3.84	0.64	−3.02	1.10

Among romantically involved participants, no significant associations with relationship quality were found for the recall of positive and negative behaviors (*p*s > .50).

Evaluation of behaviors

In line with the pilot results, the behaviors were indeed evaluated as positive ($M = 3.82$, $SD = 0.71$) and negative ($M = -3.08$, $SD = 0.91$; see Table 2). We examined the positive and negative behaviors separately to examine the effect of relationship status on devaluation of the behaviors of the attractive alternative.[3] However, an ANOVA did not reveal significant effects of relationship status on the evaluation of positive and negative behaviors (*p*s > .50).

We did not find a significant association between relationship quality and the evaluation of positive behaviors ($p > .50$). However, although nonsignificant, higher relationship quality tended to be related to a more negative evaluation of the negative behaviors, $r(36) = -.25$, $p = .13$.

In summary, Study 1 provides some preliminary support for our hypothesis that relationship status biases the processing of an attractive alternative's behavior. That is, involved participants tended to recall fewer positive behaviors as compared to uninvolved participants. However, the results of Study 1 are relatively weak, and we therefore subjected our hypothesis to an additional similar study.

Study 2

A second study, with only some slight adjustments (see below), was conducted to replicate

3. In all three studies, at the end of the experiment participants were also asked about their overall impression of the attractive alternative (or the same-sex other in Study 3), which included items about physical attractiveness, social competence, and agreeableness. In Study 1 there was a nonsignificant trend such that involved as compared to uninvolved participants tended to devaluate the attractive alternative on physical attractiveness ($p = .17$), but this trend was absent in Study 2 ($p = .90$; in Study 3, we could not compare involved and uninvolved participants). In Studies 1 and 2, in line with the derogation hypothesis, relationship quality was marginally negatively related to attractiveness ratings (*p*s = .09 and .10, respectively), but we did not find this trend in Study 3 ($p > .30$). It is difficult to speculate on why we found only weak support for the derogation effect. Perhaps a biased recall of negative behavior makes the devaluation of physical attractiveness less required (i.e., "He's very good looking, but he doesn't act so nicely"). In all three studies, relationship status or the attractive alternative condition (vs. same-sex other) did not affect ratings of social competence and agreeableness (*p*s > .17).

Table 3. *The means and standard deviations for the evaluation of the positive, neutral, and negative behaviors of the attractive alternative*

	Positive behavior		Neutral behavior		Negative behavior	
Relationship status	*M*	*SD*	*M*	*SD*	*M*	*SD*
Involved	3.46	0.98	1.41	1.06	-3.17_a	0.88
Uninvolved	3.28	0.90	1.18	0.96	-2.74_b	0.98

Note. Means within a behavior category with different subscripts are significantly different.

and provide further support for our hypothesis that relationship status biases the processing of an attractive alternative's behavior.

Method

Participants

Eighty-one female undergraduate students participated in this study (mean age = 21.5 years; all heterosexual). Forty-seven participants were romantically involved and 34 were uninvolved.[4] They received 5 euro in return for their participation.

Procedure and material

The procedure was similar to Study 1, with some small changes. Relationship quality (closeness, commitment, love) now also included a measure of relationship satisfaction. The composite score showed good scale reliability ($\alpha = .76$). In contrast to Study 1, instead of an anticipated interaction with the attractive alternative, participants simply received a brief description accompanying the picture of the attractive opposite-sex other, stating that he is single and looking for a date.

Participants were then presented with the same behavioral information as in Study 1, with also four neutral behaviors added. These behaviors were pilot tested on being clearly neutral. For example, "I usually do my shopping every few days" (see the Appendix). Note that involved and uninvolved participants did not differ in their reading times of the positive, neutral, and negative behaviors ($ps > .60$). Unlike Study 1, all behaviors were evaluated when participants read through them, instead of after the recall task. Note that the scale reliabilities for the evaluation of the positive ($\alpha = .69$), neutral ($\alpha = .23$), and negative ($\alpha = .57$) behaviors varied from unacceptable to moderately reliable. Results on evaluation of the positive and negative behaviors should therefore be interpreted with caution. Given the unreliable evaluation measure for the neutral behaviors, apart from reporting the means, we do not further analyze evaluation of these behaviors as a function of relationship status or relationship quality. As in Study 1, participants were asked to write down all the behaviors they could recall of the person they were presented with.

Results and discussion

Again, we present our analyses based on the order in which the dependent variables were measured: first the analyses concerning the evaluation of the behaviors, and then the analyses regarding the recall of the behaviors are presented.

Evaluation of behaviors

The behaviors of the attractive alternative were indeed evaluated as positive ($M = 3.39$, $SD = 0.95$), neutral ($M = 1.31$, $SD = 1.02$), and negative ($M = -2.99$, $SD = 0.95$), in line with results from the pilot studies (see Table 3). In line with our general hypothesis, an ANOVA

4. Similar to Study 1, there was an unequal sample size of involved ($n = 47$) versus uninvolved ($n = 34$) participants. Importantly, the assumption of homogeneity of variance was not violated for the evaluation of the negative behaviors ($p > .83$), but was violated for the recall of negative behaviors ($F = 5.37$, $p = .023$). When the data were (square root) transformed, the effect of relationship status on the recall of negative behaviors became even stronger, $F(1, 78) = 8.46$, $p = .005$, $\eta^2 = .10$.

Table 4. *Means and standard deviations for the recall of positive, neutral, and negative behaviors of the attractive alternative*

	Positive behaviors		Neutral behaviors		Negative behaviors	
Relationship status	*M*	*SD*	*M*	*SD*	*M*	*SD*
Involved	3.35	0.95	1.39	1.00	3.30_a	0.96
Uninvolved	3.06	1.03	1.09	0.81	2.64_b	1.30

Note. Means within a behavior category with different subscripts are significantly different.

revealed that negative behaviors were evaluated more negatively by involved participants ($M = -3.17$, $SD = 0.88$) as compared to uninvolved participants ($M = -2.74$, $SD = 0.98$), $F(1, 80) = 4.05$, $p = .05$, $\eta^2 = .05$. Recall that the scale reliability for this measure was less than ideal ($\alpha = .57$), putting a constraint on the interpretation of this result. No significant effect was found for the evaluation of positive behaviors ($ps > .40$).

Among romantically involved participants, no significant associations with relationship quality were found for the evaluation of positive and negative behaviors ($ps > .48$).

Recall of behaviors

An ANOVA revealed that, in line with our general hypothesis, involved participants recalled more negative behaviors ($M = 3.30$, $SD = 0.96$) as compared to uninvolved participants ($M = 2.64$, $SD = 1.30$), $F(1, 78) = 6.92$, $p = .01$, $\eta^2 = .08$ (see Table 4).[5] However, no significant effects of relationship status were found for the recall of positive and neutral behaviors ($ps > .20$).

Among romantically involved participants, no significant associations with relationship quality were found for the recall of positive and negative behaviors ($ps > .28$).

In summary, Study 2 provides further support for the hypothesis that relationship status biases the processing of an attractive alternative's behavior. However, unlike Study 1, instead of relationship status affecting recall of positive behaviors, in Study 2 negative behaviors were evaluated more negatively and were also better recalled by romantically involved versus uninvolved participants. Both results (involved participants' worse recall of positive behavioral information in Study 1, and better recall of negative behavioral information in Study 2) are in line with our general hypothesis that relationship status can bias the processing of behavioral information. In the General Discussion, we will further address this discrepancy between Studies 1 and 2.

Study 3

Study 3 was designed to address several issues. First, although Studies 1 and 2 both provide some support for our general hypothesis, the apparent discrepancy concerning the nature of the bias (i.e., less recall of positive behavior in Study 1, and better recall of negative behaviors in Study 2) indicates the need for further examination of this issue. Second, the results found in Studies 1 and 2 may have been due to more positive, and less negative, processing of the attractive opposite-sex other's behavior in singles. Therefore, instead of testing our hypothesis against uninvolved participants, among a group of romantically involved participants, we compared the evaluation and recall of behaviors of an attractive alternative with the evaluation and recall of the same behaviors regarding a nonpotential mate target (i.e., a same-sex other). Also, we extended the time between exposure to the behaviors and recall.

Method

Participants

Seventy-eight female undergraduate students, all involved in a heterosexual relationship,

5. Two participants did not perform the recall task correctly, and therefore they could not be included in the analyses regarding the recall of the behaviors.

Table 5. *The means and standard deviations for the evaluation of the positive, neutral, and negative behaviors*

	Positive behavior		Neutral behavior		Negative behavior	
Condition	*M*	*SD*	*M*	*SD*	*M*	*SD*
Attractive alternative	3.68	0.85	1.38	1.04	−2.99	0.92
Control	3.90	0.75	1.44	0.94	−3.16	0.92

participated (mean age = 21.7 years).[6] Thirty-nine participants were in the attractive alternative condition, compared to 39 participants in the control condition. They received 5 euro in return for their participation.

Procedure and materials

The procedure was similar to Studies 1 and 2, with some adjustments. Again, relationship quality was assessed with the same measures of satisfaction, commitment, closeness, and love; the reliability was acceptable, $\alpha = .63$. Participants were randomly assigned to either the attractive alternative condition (receiving a picture of an attractive opposite-sex other; as was used in Studies 1 and 2), or the control condition (receiving a picture of a same-sex other). Participants were led to believe that they would interact with the "other participant" later on in the experiment, with the same procedure and cover story used as in Study 1.

Participants were presented with the same positive, negative, and neutral behaviors as were used in Studies 1 and 2 (see the Appendix). Again, the reading times for the positive, neutral, and negative behaviors did not differ between conditions ($ps > .70$).

Similar to Study 2, participants evaluated the behaviors while reading through them. The scale reliabilities for the evaluation of the positive ($\alpha = .63$), neutral ($\alpha = .35$), and negative behaviors ($\alpha = .60$) varied from unacceptable to moderately reliable. Again, results on evaluation of the positive and negative behaviors should therefore be interpreted with caution. Given the unreliable evaluation measure for the neutral behaviors, apart from reporting the means, we do not further analyze evaluation of these behaviors as a function of relationship status or relationship quality.

Other than in Studies 1 and 2, the filler task lasted for approximately 10 min, after which participants were asked to write down all the behaviors they could recall.

Results and discussion

Again, we present our analyses based on the order in which the dependent variables were measured: first the analyses concerning the evaluation of the behaviors, and then the analyses regarding the recall of the behaviors are presented.

Evaluation of behaviors

In general, the behaviors of the attractive alternative were indeed evaluated as positive ($M = 3.79$, $SD = 0.80$), neutral ($M = 1.41$, $SD = 0.98$), and negative ($M = -3.08$, $SD = 0.92$; see Table 5). ANOVAs did not reveal effects of condition on how the positive and negative behaviors were evaluated ($ps > .24$). Also, within the attractive alternative condition, no associations were found between relationship quality and the ratings of positive and negative behaviors ($p > .60$ and $p > .23$, respectively). Thus, we did not replicate the evaluation bias as found in Study 2.

Recall of behaviors

In line with our general hypothesis and consistent with the results of Study 2, an ANOVA

6. One participant was a statistical outlier on relationship quality, scoring very low (3.32 on a 7-point scale). As we are examining a relationship protection mechanism, this participant was omitted from the analysis. Including this participant made the recall effect for negative behaviors somewhat weaker, $p = .06$, which actually is consistent with the notion that a biased recall is a relationship protection mechanism.

Table 6. *The means and standard deviations for the recall of the positive, neutral, and negative behaviors*

	Positive behavior		Neutral behavior		Negative behavior	
Condition	*M*	*SD*	*M*	*SD*	*M*	*SD*
Attractive alternative	2.97	0.81	1.44_a	1.11	3.08_a	1.11
Control	2.89	1.25	0.89_b	0.86	2.55_b	1.18

Note. Means within a behavior category with different subscripts are significantly different.

revealed that participants in the attractive alternative condition recalled more negative behaviors ($M = 3.08$, $SD = 1.11$) as compared to the control condition ($M = 2.55$, $SD = 1.18$), $F(1, 73) = 3.98$, $p = .05$, $\eta^2 = .05$.[7] Unexpectedly, participants in the attractive alternative condition also recalled more neutral behaviors ($M = 1.44$, $SD = 1.11$), as compared to the control condition ($M = .89$, $SD = 0.86$), $F(1, 73) = 5.71$, $p = .02$, $\eta^2 = .07$. The recall of positive behaviors did not differ between conditions ($p > .70$; see Table 6).

Relationship quality did not significantly affect the recall of positive and neutral behaviors ($ps > .28$). Relationship quality tended to be associated with a better recall of the negative behavior, $r(34) = .26$, although this effect did not reach significance, $p = .13$.

In summary, Study 3 provides some further support for the hypothesis that relationship status biases how an attractive alternative's behavior is processed. Negative (but also neutral) behaviors were better recalled when it concerned behaviors displayed by an attractive alternative as compared to a same-sex other. No difference was found for the recall of positive behaviors. Study 3 found no support for the prediction that evaluations of the behaviors would differ depending on whether they are enacted either by a potential mate or nonpotential mate.

General Discussion

Not only may attractive alternatives pose a threat to a current relationship just by *looking* pretty, relationship protection seems even more required if the attractive mate *behaves* nicely in addition. The present research provides initial evidence that relationship status biases processing of behavioral information of an attractive mate. As compared to uninvolved participants, romantically involved participants tended to recall fewer positive behaviors (Study 1) and recalled more negative behaviors (Study 2) that were displayed by an attractive opposite-sex other. Additionally, Study 3 demonstrated that romantically involved participants recalled more negative (but also neutral) behaviors of an attractive alternative than negative behaviors of a nonpotential mate (i.e., a same-sex other). To conclude, albeit with some inconsistencies regarding the nature of the recall bias (i.e., recalling fewer positive behaviors in Study 1, and recalling more negative behaviors in Studies 2 and 3), together these findings suggest that romantically involved people tend to recall behaviors of an attractive mate in a negatively biased manner.

The findings with regard to the evaluations of the behaviors were less clear. In Study 2, romantically involved participants evaluated negative behaviors even more negatively as compared to singles, but note that this measure did not have optimal scale reliability. Also, this finding was not supported in Studies 1 and 3. Why did we find support for a recall bias, but found less evidence for an evaluation bias? One possible explanation could be that the evaluations were measured explicitly, and the response therefore can be largely controlled (e.g., resulting in social desirable responding). In contrast, the recall of the behaviors may be a better indicator of participants' impression about the attractive alternative, as it reflects

7. Three participants did not perform the recall task correctly, and therefore they could not be included in the analyses regarding the recall of the behaviors.

what information participants actually stored in memory. Moreover, it was fairly clear that the behaviors of the target persons were positive, negative, or neutral; hence, the latitude of interpretation was relatively small. Possibly, if a behavior enacted by an attractive alternative is more ambiguously positive or negative (i.e., ambivalent), relationship status may more strongly bias the interpretation and evaluation of the behavior. A potential biased evaluation and interpretation of behaviors of an attractive mate remains an interesting issue to further explore in future studies.

Across the three studies, although with some inconsistencies, we found the strongest support for biased processing of an attractive alternative's *negative* behavior (Studies 2 and 3; rather than positive behavior; Study 1). Given that the research designs of Studies 1 and 2 were highly similar, we merged the data of these studies to increase power, allowing us to further explore which of the two biases—worse recall of positive behaviors or better recall of negative behaviors—is more robust. Analyses of the merged data revealed that the recall effect for positive behaviors was not significant ($p > .80$), while the effect of relationship status on the recall of negative behaviors remained marginally significant ($p = .07$). Also, across the two studies, involved participants evaluated negative behaviors more negatively as compared to uninvolved participants ($p = .05$). These findings strengthen the above conclusion that the biased processing may be directed especially at negative behavioral information. Interestingly, this finding seems in line with the general notion that negative information is more diagnostic than positive information (e.g., Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Rozin & Royzman, 2001). Rather than disregarding the positive features of an attractive mate, focusing on the negative aspects of an attractive alternative may more strongly influence the overall impression of an attractive potential mate and may thus be a more efficient relationship protection strategy.

The current findings are in line with previous research demonstrating that long-term relationship goals can lead to "motivated" processing of information relevant to these goals, even though people may not be aware of this. For example, research by Maner and colleagues has demonstrated that romantically involved individuals, particularly when primed with mate-guarding goals, automatically avert their attention away from attractive potential mates (Maner et al., 2009) and automatically direct their attention to potential rivals (Maner, Gailliot, Rouby, & Miller, 2007). Moreover, using a reverse correlation method (a technique designed to visualize mental representations of groups or individuals; Mangini & Biederman, 2004), recent findings strongly suggest that relationship status does not only affect explicit ratings of attractive mates, but mental images of attractive alternatives are actually negatively distorted in memory (Karremans et al., 2011). Together with the present results—most clearly the biased recall findings—such findings suggest that romantically involved participants process information about potential mates in a relationship-protective manner, and they seem to do this fairly unintentionally or without awareness (see also Meyer, Berkman, Karremans, & Lieberman, 2011).

There are some limitations that we should acknowledge. For example, the behavioral information was not obtained during an actual interaction; hence, an important future direction is to examine whether the present findings would be found following an actual interaction with an attractive alternative. Moreover, participants were reminded of their relationship status before processing the information about the attractive mate; it would be interesting to see whether the same results would be obtained when the relationship is not salient. Furthermore, future research could also address the content of the positive and negative behaviors, by making them more—or less—"relationship relevant" (e.g., is the attractive alternative being attentive to others vs. is he or she good at chess). More relationship-relevant behavioral information provides better diagnostic information about his or her potential as an attractive partner and may therefore more strongly evoke a threat to the maintenance of the current relationship.

Also, recall that no relationship status information about the "other participants" was provided in Studies 1 and 3, so participants may have assumed the other to be single. If so, research suggests that singles may be evaluated more negatively (DePaulo & Morris, 2006), and perhaps this is especially the case among romantically involved individuals. However, in Study 3 involved participants recalled more negative behaviors of an attractive alternative than negative behaviors of a same-sex other, and it seems unlikely that participants assumed that the opposite-sex other, but not the same-sex other, was single. However, an interesting issue for future research is to examine more closely whether the relationship status of an attractive alternative would affect the recall bias of behavioral information.

Relationship quality did not affect a bias in evaluations and recall of behavioral information of an attractive mate. Although in theory relationship quality can affect relationship-protective responses (e.g., Johnson & Rusbult, 1989), the lack of an association may be due to a restriction of range in our relatively small samples (i.e., most people were highly committed and satisfied with their partner; in all studies relationship quality was high, Ms > 5.80). Future research should examine this with larger samples.

Finally, it is important to recall that in the present studies only female participants were included. Although research related to the present topic, such as derogation of physical attractiveness (e.g., Simpson et al., 1990) and inattentiveness to attractive alternatives (e.g., Maner et al., 2009), did not demonstrate sex differences in dealing with the presence of an attractive alternative, it is important for future research to determine whether biased processing of an attractive alternative's behavior is also present in males.

To conclude, the present set of studies provides some initial evidence that relationship status negatively biases the processing of behavioral information displayed by an attractive mate. Although future research should provide further evidence, and should test additional issues that were raised based on the current findings, biased processing of a potential mate's behavior may be a potentially powerful way of protecting the current relationship against the lure of attractive alternatives.

References

Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of other in the self scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, *63*, 596–612.

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, *5*, 323–370.

Betzig, L. (1989). Causes of conjugal dissolution: A cross-cultural study. *Current Anthropology*, *30*, 654–676.

Buss, D. M., & Greiling, H. (1999). Adaptive individual differences. *Journal of Personality*, *67*, 209–243.

Centraal Bureau voor de Statistiek. (2009, 4th quarter). Scheiden en weer samenwonen [Separate and living together again]. *Bevolkingstrends*, 14–21. Retrieved from http://www.cbs.nl/NR/rdonlyres/69C3FF3A-D853-46CE-A2D5BA37A0D19DD4/0/2009k4b15p14art.pdf

DePaulo, B. M., & Morris, W. L. (2006). The unrecognized stereotyping and discrimination against people who are single. *Current Directions in Psychological Science*, *15*, 251–254.

Johnson, D. J., & Rusbult, C. E. (1989). Resisting temptation: Devaluation of alternative partners as a means of maintaining commitment in close relationships. *Journal of Personality and Social Psychology*, *57*, 967–980.

Kamp Dush, C. M., & Amato, P. R. (2005). Consequences of relationship status and quality for subjective well-being. *Journal of Social and Personal Relationships*, *22*, 607–627.

Karremans, J. C., Dotsch, R., & Corneille, O. (2011). Romantic relationship status biases memory of faces of attractive opposite-sex others: Evidence from a reverse-correlation paradigm. *Cognition*, *121*, 422–426.

Kim, H. K., & McKenry, P. C. (2002). The relationship between marriage and psychological well-being. A longitudinal analysis. *Journal of Family Issues*, *23*, 885–911.

Koranyi, N., & Rothermund, K. (2012). Automatic coping mechanisms in committed relationships: Increased interpersonal trust as a response to threat. *Journal of Experimental Social Psychology*, *48*, 180–185.

Lydon, J. E. (2010). How to forego forbidden fruit: The regulation of attractive alternatives as a commitment mechanism. *Social and Personality Psychology Compass*, *4*, 635–644.

Lydon, J., Fitzsimons, G., & Naidoo, L. (2003). Devaluation versus enhancement of attractive alternatives: A critical test. *Personality and Social Psychology Bulletin*, *29*, 349–359.

Maner, J. K., Gailliot, M. T., & Miller, S. L. (2009). The implicit cognition of relationship maintenance: Inattention to attractive alternatives. *Journal of Experimental Social Psychology*, *45*, 174–179.

Maner, J. K., Gailliot, M. T., Rouby, D. A., & Miller, S. L. (2007). Can't take my eyes off you: Attentional adhesion to mates and rivals. *Journal of Personality and Social Psychology*, *93*, 389–401.

Maner, J. K., Rouby, D. A., & Gonzaga, G. C. (2008). Automatic inattention to attractive alternatives: The evolved psychology of relationship maintenance. *Evolution and Human Behavior*, *29*, 343–349.

Mangini, M. C., & Biederman, I. (2004). Making the ineffable explicit: Estimating the information employed for face classifications. *Cognitive Science*, *28*, 209–226.

Meyer, M. L., Berkman, E. T., Karremans, J. C., & Lieberman, M. D. (2011). Incidental regulation of attraction: The neural basis of the derogation of attractive alternatives in romantic relationships. *Cognition & Emotion*, *25*, 490–505.

Rhoades, G. K., Kamp Dush, C. M., Atkins, D. C., Stanly, S. M., & Markman, H. J. (2011). Breaking up is hard to do: The impact of unmarried relationship dissolution on mental health and life satisfaction. *Journal of Family Psychology*, *25*, 366–374.

Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychological Review*, *5*, 296–320.

Rusbult, C. E., Martz, J. M., & Agnew, C. R. (1998). The investment model scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size. *Personal Relationships*, *5*, 357–391.

Simpson, J. A., Gangestad, S. W., & Lerma, M. (1990). Perception of physical attractiveness: Mechanisms involved in the maintenance of romantic relationships. *Journal of Personality and Social Psychology*, *59*, 1192–1201.

Appendix

Positive Behaviors

I recently treated a good friend on a concert ticket.
I often do groceries for my grandmother.
I have recently surprised my mother with flowers.
I recently comforted a good friend when he was upset.
I once gave away my lunch to a homeless person.

Negative Behaviors

I am often too late when I have an appointment.
I travel by train regularly without buying a ticket.
I often leave the cleaning to my roommates.
I far from always stick to agreements.
I once stole something from my part-time job.

Neutral Behaviors

I passed my driver's license test at the second time.
I usually clean my room every day.
I usually do my shopping every few days.
I almost never see a doctor.