
Do you remember?: Recollections of adult attachment patterns

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Abstract

To determine if memory biases influence recall of attachment patterns, we examined retrospective reports of adult attachment patterns in a sample of young established couples. At time 1, participants reported their attachment patterns on a self-report attachment measure (RQ). Eight months later, participants completed the RQ to assess their current attachment patterns, as well as their memory of their attachment patterns 8 months earlier. Seventy-eight percent of participants reported that their past attachment category was consistent with their current category, and 58% of participants accurately recalled their predominant time 1 attachment category. Parallel results were obtained with continuous attachment ratings. We also found strong reconstructive biases: Participants' memories of their past attachment patterns were biased by their current patterns. Secure and insecure individuals did not differ in their perceptions of stability, their accuracy of recall, or the degree to which they demonstrated a consistency bias. Finally, with few exceptions, memories for time 1 attachment ratings were not biased by current relationship satisfaction, current partner attachment ratings, or reported life events. The importance of studying reconstructive biases in the field of adult attachment is discussed.

Relationships are complicated constructions of fact and fantasy. In recent years, psychologists have become increasingly interested in individuals' memories for relationship-related events to determine the extent to which memories reflect fact and fantasy. For example, researchers have studied memory for past attributes of self and romantic partner (McFarland & Ross,

1987), memory of past interactions (Duck, Pond, & Leatham, 1994), and memory biases in the development of romantic scripts (Holmberg & Holmes, 1994; Holmberg & Veroff, 1996). This research indicates that *remembering* appears to be an active process that makes use of currently available information to reconstruct past events (see also Ross, 1989). In this study, we examined memory for attachment representations over a period of 8 months. We believe that it is important to understand potential bias in retrospective recall of attachment patterns due to the increasing dependence on attachment measures that require either short-term or long-term recall. We hypothesized that participants' memories of their past attachment ratings would be biased by their current ratings. We also tested whether current relationship satisfaction, partner's current attachment ratings, and reported life events would influence recall of time 1 (t1) attachment ratings.

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Reconstructive Memory

When people are asked to recall their past standing on a personal attribute, they engage in a process of active construction. They assess their current standing on the attribute, they invoke an implicit theory of the degree to which they have changed over time on that attribute, and, based on these two factors, they infer their past standing on the attribute (Bartlett, 1932; Ross & Conway, 1986; Ross, 1989). This process can result in systematic biases in recall (e.g., Ross & McFarland, 1988; McFarland & Ross, 1992).

When individuals invoke an implicit theory of stability, they are likely to exaggerate the consistency between past and present behaviors and attitudes. This process is expected to occur when individuals perceive that relatively little time has passed between the two assessments, when they have no desire to change, or when they have not directed effort toward change (Ross, 1989; Ross & McFarland, 1988). For example, Goethals and Reckman (1973) persuaded students to change their racial attitudes by exposing them to persuasive arguments concerning desegregation in American schools. Although the students' attitudes changed quite dramatically, they were not aware that the study was designed to influence their attitudes. Without any cues to suggest a change had taken place, the students assumed that their attitudes were consistent over time and, therefore, biased their recall of their past attitudes in the direction of their current attitudes (see also Ross, McFarland, & Fletcher, 1981).

In contrast, individuals are likely to exaggerate change between past and present behaviors and attitudes when they invoke a theory of change. This process is expected to occur when individuals perceive that a relatively long time period has passed between assessments, when they desire to change, or when they have directed effort toward change (Ross, 1989). For example, in a study by Conway and Ross (1984) participants were assigned to either a study-skills training group or a waiting-list control

group. Participants in the experimental group expended considerable effort to improve their skills with the hope of improving their grades. At the end of the study, participants in the study-skills group exaggerated how poor their initial skills had been and, 6 months later, they also exaggerated their reports of grades received in the study semester. Similar memory biases were not found for participants in the waiting-list control group.

Studies have also documented reconstructive memory in naturalistic settings in which actual and perceived change is likely to be more gradual. For example, McFarland and Ross (1987) studied memory of personal attributes of the self and romantic partner over a 2-month period. Participants who rated themselves or their partners differently at time 2 (compared to actual time 1 ratings) reconstructed their memory of the past to be consistent with their current ratings. Owing to the short time period between the assessments (2 months), participants were likely to invoke an implicit theory of stability; therefore, they tended to construct their memory of past personal attributes from their current status on these attributes (see also McFarland, Ross, & DeCourville, 1989; Ross, McFarland, Conway, & Zanna, 1983).

Memory of Attachment Patterns

At least two questions need to be studied concerning retrospective reports of attachment patterns. To what degree are retrospective reports of attachment patterns accurate? And to what degree are retrospective reports of attachment biased by current reports? To answer these questions, it is important to examine both accuracy of recall and perceptions of change of attachment patterns over time. Previous researchers have inferred objective stability on the basis of perceived stability (e.g., Hindy & Schwartz, 1984; Turner & Feldman, 1992). However, before high perceived stability results are used to support consistency of attachment representations over time, accuracy of recall needs to be

examined. If individuals are able to recall their past attachment patterns accurately, many years of longitudinal work are unnecessary.

In a recent study, Kirkpatrick and Hazan (1994) examined objective stability and accuracy of retrospective reports of attachment categories over a period of 4 years. Using a three-category self-report questionnaire, 70% of participants reported the same attachment category over 4 years. This rate of stability is comparable to that found over 8 months for a four-category self-report measure (Scharfe & Bartholomew, 1994). Additionally, participants in Kirkpatrick and Hazan's study were asked to recall the style they had selected on the original survey 4 years earlier. Sixty-five percent of participants accurately reported their original category. Interestingly, 76% of participants who incorrectly remembered their previous category thought their previous category was consistent with their current category. This finding suggests that individuals may reconstruct their memories for attachment representations to be consistent with their current judgments. In addition, the accuracy of participants' memories appeared to be mediated by the stability of their attachment styles. Whereas 82% of those participants who had not changed accurately recalled their previous category, only 21% of those who had changed accurately recalled their previous category (Kirkpatrick & Hazan, 1994).

Kirkpatrick and Hazan (1994) also reported that secure participants were more likely than were insecure participants to maintain their attachment category over a period of 4 years. Correspondingly, secure participants were more accurate in their recall. However, stability and accuracy of categorical ratings may be influenced by the base rates of each category. In a study by Scharfe and Bartholomew (1994), 79% of secure participants and 50% of ambivalent participants were stable over 8 months. Based on time 2 base rates we would expect a chance stability of 51% for secure participants and 22% for ambivalent participants. Thus, the observed greater stability of se-

cure participants may be, at least in part, a function of the overrepresentation of participants in the secure category. When analyzing categorical measures of assessment, it is important to use statistics that control for base rates, such as kappas (Fleiss, 1981). Using continuous measures, which avoid some of the difficulties of interpretation introduced by categorical measures, researchers have found that secure and insecure continuous ratings are equally stable (e.g., Feeney, Noller, & Callan, 1994; Scharfe & Bartholomew, 1994). However, no studies have used continuous ratings to assess accuracy of recall of attachment patterns.

A key challenge for attachment researchers is to identify the conditions under which attachment patterns are likely to change. In their 4-year longitudinal study, Kirkpatrick and Hazan (1994) found that changes in relationship status were associated with changes in attachment categories. In a previous report, however, we did not find any consistent associations between life events and objective measures of change over 8 months (Scharfe & Bartholomew, 1994). Our findings may stem from the shorter time frame studied, the high stability of the sample employed, and the few dramatic life events experienced over the study period. Regardless of the associations between life events and objective change, life events may predict *perceptions* of change. The experience of major life events may lead people to invoke an implicit theory that their attachment patterns have changed. For example, recently married individuals may exaggerate differences between their attachment patterns in the past (when unmarried) and their current attachment patterns (when married). Happy honeymooners may assume that, since they have recently committed themselves to a long-term relationship, they must be more secure.

It is also important to examine differential accuracy of individuals with differing attachment patterns. One characteristic of secure individuals is their ability to present a coherent story of past and current rela-

tionships. Therefore, attachment security may be positively associated with accuracy of recall and, conversely, attachment insecurity may be associated with inaccuracy of recall.

Overview and Hypotheses

We examined 8-month retrospective reports of attachment representations in a sample of young couples using both categorical and continuous attachment ratings. In a previous article, this sample demonstrated moderate to high levels of objective stability of attachment patterns (see Scharfe & Bartholomew, 1994). Consistent with the findings reported by Kirkpatrick and Hazan (1994), we expected a high degree of perceived stability and a moderate degree of accuracy when participants recalled previous attachment patterns. Furthermore, using continuous ratings, we tested whether individual differences in attachment were associated with perceptions of stability and accuracy of recall.

We expected that participants' recall of past attachment ratings would be biased by their current ratings. Most participants in this sample of young established couples had experienced relatively few dramatic life events (Scharfe & Bartholomew, 1994), and they would have no reason to expect a major change in their attachment patterns. Therefore, their experiences are consistent with the conditions under which individuals are likely to employ an implicit theory of stability to guide recall (a short time frame and no cues to change). However, using current ratings to guide recall will lead to accurate ratings to the extent that participants' attachment patterns have been stable over time. High accuracy could result from either accurate recall or from using an implicit, albeit correct, theory of stability. Therefore, a more stringent test of accuracy of recall can be conducted by examining only those participants whose attachment patterns have actually changed over time (cf. Kirkpatrick & Hazan, 1994).

In this sample, no consistent associations were found between life events and objec-

tive change in attachment patterns (see Scharfe & Bartholomew, 1994). However, we hypothesized that intervening life events and changes in relationship satisfaction may predict memory biases in recall of attachment. Using hierarchical regression analyses, we examined whether current relationship satisfaction, partners' current attachment ratings, and reported life events would influence recall of past attachment ratings.

Method

Participants

To participate in the study at time 1 (t1), participants were required to be involved in a romantic relationship. Seventy-seven couples completed the initial session (mean age = 24.5 years). The average length of relationships was 49.5 months; 28% of the couples were dating exclusively, 44% were cohabiting, and 28% were married. Seventy-two women and 71 men completed all questionnaires during the second session (t2). There were no differences between individuals who completed t1 and t2 and those who did not in age, relationship length, or mean attachment ratings. Six couples terminated their relationship before the second session. All 12 individuals participated in the second session. For more information on the sample and procedure, see Scharfe and Bartholomew (1994).

Measures

The *Relationship Questionnaire (RQ)* (Bartholomew & Horowitz, 1991) consists of four short paragraphs describing four attachment patterns (Bartholomew, 1990). Respondents are asked to read descriptions of each pattern and rate the degree to which it corresponds to their general relationship style on a 7-point Likert scale (ranging from 1, *not at all like me*, to 7, *very much like me*). To test the accuracy of recall of t1 ratings, at t2 participants were asked to "remember how you rated your general re-

lationship style eight months ago." At both t1 and t2, attachment paragraphs were presented in the following order: secure, fearful, preoccupied, and dismissing.

Participants were also asked to choose the attachment category that best described their general relationship style. These attachment categories were used to classify individuals as secure or insecure. Individuals who chose the secure category were classified as secure; individuals who chose the fearful, preoccupied, or dismissing category were classified as insecure.

The Life Events Survey (LES) was developed by Sarason, Johnson, and Siegel (1978) to record the number and impact of life events. Twelve items from the Life Events Inventory (Cochrane & Robertson, 1973) and 16 items suggested by a group of psychology faculty and graduate students were added to make the LES more comprehensive. The expanded LES includes 84 possible life events. The inventory requires participants to rate the impact of each event experienced on a 7-point Likert scale (-3 extremely negative, to 0 no impact, to 3 extremely positive). The impact subscales were highly related to the corresponding number of life events, with correlations ranging from .89 to .94. Findings using the impact of events scores were parallel to findings using the number of events. Therefore, only analyses with number of events are presented.

We computed the total number of events experienced, the number of positive interpersonal events, the number of negative interpersonal events, the number of positive noninterpersonal events, the number of negative noninterpersonal events, the number of positive relationships events, and the number of negative relationships events. Relationship events included events such as engagement, marriage, separation from partner, pregnancy, and infidelity. Parallel impact subscales were computed by averaging the impact ratings for those life events experienced within each group of events. For details about the interpersonal and noninterpersonal events scales, see Scharfe and Bartholomew (1994).

The *Relationship Satisfaction Scale* consists of seven items rated on 9-point Likert scales. At both t1 and t2, participants rated the closeness of the relationship, their love for their partner, the importance and likelihood of continuing the relationship, their happiness in the relationship, how often their partner "got on their nerves," and frequency of discussing ending the relationship. For this study, only t2 data will be presented. Coefficient alphas were .86 for women and .89 for men.

Procedure

Two test sessions were conducted over 8 months. During the first session, each participant completed a set of questionnaires that included the RQ. During the second session, participants completed a set of questionnaires including the Relationship Satisfaction Scale, and both the current and retrospective versions of the RQ. In a subsequent 2-hour appointment, participants completed the LES for events that had occurred in the past 8 months.

Results and Discussion

Participants in this study were women and men in romantic relationships. To maintain independence in the data, women's and men's data were analyzed separately.

Perceived stability and accuracy of recall of categorical and continuous attachment data were examined using several approaches. Categorical data were analyzed using three indices of agreement. Continuous data were analyzed by correlating corresponding attachment ratings. Mean differences between corresponding attachment ratings were computed to identify systematic shifts in attachment ratings.

Proportions of agreement for attachment categories were computed three ways. First, we calculated the overall proportion of agreement. In a 2×2 table, the overall proportion of agreement refers to agreement on the presence and absence of the category. However, if the category base rate is relatively small, so that the propor-

tion representing agreement on absence of the category is likely to be large, the overall proportion of agreement is likely to be inflated (Fleiss, 1981). Because base rates of the insecure styles tend to be lower than the base rate of the secure style, proportions of agreement on absence of insecurity are likely to be inflated. Next, we calculated the proportion of specific agreement. This index of agreement estimates proportion agreement within a category—for example, the proportion of secure individuals at t1 who were secure at t2. This method was used by Kirkpatrick and Hazan (1994) to examine objective stability and accuracy, and by Baldwin and Fehr (1995) to examine objective stability of attachment patterns. However, both overall proportion of agreement and specific proportion of agreement are influenced by *chance* agreement, which in turn is a function of the base rates of the categories (Fleiss, 1981). We therefore calculated kappas to estimate the proportion of agreement controlling for the degree of chance agreement. Kappa (κ) values between .40 and .75 indicate fair to good agreement beyond chance agreement (Landis & Koch, 1977a, as cited in Fleiss, 1981).

Perceived stability

To examine perceptions of stability, we compared participants' t2 attachment categories with their memories of their t1 attachment categories (see Table 1). Seventy-eight percent of women ($\kappa = .67$) and 79% of men ($\kappa = .65$) perceived their t1 category to be the same as their current category. Indices of overall agreement for the secure/insecure distinction were comparable: 83% of women and 85% of men perceived themselves to be secure at both testing sessions or insecure at both testing sessions. Overall agreements of each insecure pattern was also high, ranging from .85 to .94 (see Table 2, top section).

A somewhat different results pattern was found using indices of specific agreement. As expected, specific agreement for the secure category was high: 88% of secure women at t2 and 90% of secure men at t2 perceived themselves to be secure at t1. Not surprisingly, specific agreement was similar in magnitude to overall agreement; approximately 50% of the sample was secure at t1, and therefore the agreement on the absence of security will not inflate the overall agreement. With one exception, specific agreements of the three insecure patterns

Table 1. Perceived stability of attachment categories for women and men

Women's Attachment Ratings at t2	sec	fear	pre	dis	Total
Memory of t1 attachment ratings					
sec	28	1	3		32
fear	5	12	2		19
pre	1		13		14
dis	2	2		3	7
Total	36	15	18	3	72
Men's Attachment Ratings at t2	sec	fear	pre	dis	Total
Memory of t1 attachment ratings					
sec	35		1	3	39
fear	1	7	1	1	10
pre	1		3		4
dis	5	2		11	18
Total	42	9	5	15	71

Note: Abbreviations refer to the secure (sec), fearful (fear), preoccupied (pre), and dismissing (dis) attachment categories.

Table 2. Proportions of agreement for perceived stability, objective stability, and accuracy

	Women's Proportion Agreement			Men's Proportion Agreement		
	Overall	Specific	Kappa	Overall	Specific	Kappa
Perceived Stability						
Secure	.83	.88	.67	.85	.90	.69
Fearful	.86	.63	.62	.93	.70	.70
Preoccupied	.92	.93	.76	.96	.75	.94
Dismissing	.94	.42	.76	.85	.61	.57
Overall ^a	.78	.78	.67	.79	.79	.65
Objective Stability						
Secure	.71	.70	.42	.61	.68	.20
Fearful	.86	.67	.58	.83	.38	.36
Preoccupied	.75	.50	.31	.88	.17	.11
Dismissing	.93	.25	.25	.79	.50	.32
Overall ^a	.63	.63	.42	.56	.56	.25
Accuracy						
Secure	.76	.70	.53	.63	.65	.24
Fearful	.81	.67	.46	.79	.31	.23
Preoccupied	.81	.50	.41	.92	.33	.38
Dismissing	.90	.50	.32	.72	.42	.17
Overall ^a	.64	.64	.46	.53	.53	.23

^a The overall kappas are calculated from the 4 × 4 table.

were consistently lower than levels of overall agreement (the one exception being the women's preoccupied category), and consistently lower than the secure specific agreement. These results are to be expected given the low base rates of the insecure patterns. However, neither the index of specific agreement nor the index of overall agreement controls for chance agreement.

To control for chance agreement, kappas were computed. Kappas demonstrated moderate to high agreement for all four categories. Kappas ranged from .62 to .76 for women and .57 to .94 for men. In particular, kappas for the secure category were comparable to kappas for the three insecure categories.

Means for t1 continuous attachment ratings, t2 attachment ratings, and memory of t1 ratings are presented in Table 3. With one exception, no significant differences occurred between the means of corresponding t2 and memory of t1 attachment ratings. Men perceived themselves as more fearful at t1 compared to their t2 ratings ($t(70) = 2.37, p < .05$).

Next, t2 ratings and memory of t1 ratings were correlated. Women's attachment ratings had an average perceived stability of .73. Correlations between pairs of corresponding ratings were .66 for secure, .78 for fearful, .77 for preoccupied, and .69 for dismissing. Men's attachment ratings had an average perceived stability of .74. Correlations between corresponding ratings were .76 for secure, .79 for fearful, .65 for preoccupied, and .76 for dismissing. No significant differences existed among the four correlations for women or men as tested using Fisher's r to z transformations (Hays, 1988). We also computed intraclass correlations to control for slight differences in the mean ratings over time. The intraclass correlations and Pearson correlations were virtually identical (women: .66 for secure; .78 for fearful; .77 for preoccupied; .69 for dismissing; men: .76 for secure; .78 for fearful; .65 for preoccupied; .76 for dismissing).

Perceived stability may be influenced by current relationship satisfaction. For example, individuals who are currently satisfied with their romantic relationship may per-

Table 3. Mean values of t1, memory of t1, and t2 self-report attachment ratings

	Women			Men		
	t1	Memory of t1	t2	t1	Memory of t1	t2
Secure	4.60	4.65	4.69	4.41	4.70	4.68
Fearful	3.42	3.32	3.04	2.82	3.10 ^a	2.82 ^b
Preoccupied	3.32	3.24	3.36	2.80	2.68	2.70
Dismissing	2.69	2.83	2.94	3.59	3.79	3.77

Note: Means with different superscripts differ at $p < .05$.

ceive that their attachment ratings are the same as they were in the past, whereas individuals in poor relationships may perceive more change in attachment ratings. We controlled for t2 relationship satisfaction and found that the partial correlations were virtually identical to the zero-order correlations (women: secure, .65; fearful, .76; preoccupied, .77; dismissing, .68; men: secure, .75; fearful, .79; preoccupied, .62; dismissing, .74).

Finally, we tested whether secure individuals at t2 perceived themselves to be more stable than were insecure individuals when asked to recall their t1 attachment ratings. To obtain a composite measure of perceived stability, we summed the absolute value of differences between corresponding t2 ratings and memory of t1 ratings. Therefore, a score of zero indicates perception of perfect stability, and scores greater than zero indicate degree of perceived change. No significant differences existed between the means of the secure and insecure women (2.81, $SD = 3.30$, and 1.75, $SD = 1.82$, respectively) or the secure and insecure men (1.90, $SD = 2.20$, and 2.10, $SD = 2.02$, respectively). Thus, secure individuals did not perceive themselves to be more stable than did insecure individuals when asked to recall their past attachment ratings.

In summary, participants perceived their attachment patterns to be moderately to highly stable over 8 months. Seventy-eight percent of participants felt that their attachment category had not changed over 8 months. The correlation between t2 ratings

and memory of t1 ratings, averaging across attachment patterns and gender, was .73. In general, individuals did not perceive any systematic changes in their attachment patterns over time. These levels of perceived stability are consistently somewhat higher than the objective stability reported for this sample in Scharfe and Bartholomew (1994): 59% of participants actually reported the same self-report attachment classification over time, and the average correlation between corresponding t1 and t2 attachment ratings was .51. However, in our previous report, we did not assess overall and specific agreement for the four categories (Scharfe & Bartholomew, 1994). To compare the objective and perceived stability results, we have therefore included these additional indices of objective stability in Table 2 (middle section). Objective stability of the four categories was consistently lower than was perceived stability across all indices of agreement.

Accuracy

The perceived stability findings presented above do not reflect on the *accuracy* of participants' memories for their t1 ratings. To test the accuracy of participants' retrospective reports, memory of t1 ratings was compared with original t1 ratings. Women's and men's actual t1 attachment categories by their memory of t1 categories are presented in Table 4, and indices of agreement are presented in Table 2 (bottom section). Sixty-four percent of women ($\kappa = .46$) and 52% of men ($\kappa = .22$) accurately recalled

Table 4. Accuracy of recalled attachment categories for women and men

Women's Attachment Ratings at t1	sec	fear	pre	dis	Total
Memory of t1 attachment ratings					
sec	26	2	4		32
fear	4	10	3	2	19
pre	6		8		14
dis	1	3	1	2	7
Total	37	15	16	4	72
Men's Attachment Ratings at t1	sec	fear	pre	dis	Total
Memory of t1 attachment ratings					
sec	26	5	3	5	39
fear	4	4		2	10
pre	2		2		4
dis	8	4	1	5	18
Total	40	13	6	12	71

Note: Abbreviations refer to the secure (sec), fearful (fear), preoccupied (pre), and dismissing (dis) attachment categories.

their t1 category. Overall agreement for the secure/insecure distinction was comparable: 76% of women and 63% of men accurately recalled their t1 secure/insecure category. Indices of overall agreement for the insecure patterns were similar, ranging from 72% to 92%.

Once again, a somewhat different pattern of results was found, using indices of specific agreement. Seventy percent of secure women at t2 and 65% of secure men at t2 accurately recalled their t1 category; thus, specific agreement was not inflated by a large agreement on the absence of security. However, indices of specific agreement for the three insecure patterns were consistently lower than were corresponding indices of overall agreement, ranging from 31% to 67% (see Table 2, bottom section). Again, these results are to be expected given the low base rates of the insecure styles.

Kappas demonstrated fair to moderate accuracy for all four categories. In particular, kappas for the secure category were comparable to kappas for the three insecure categories.

To determine whether systematic biases existed in the recall of attachment patterns,

we compared t1 ratings with memory of t1 ratings (see Table 3). There were no differences between means of corresponding attachment ratings.

Accuracy was also assessed by examining correlations between t1 ratings and memory of t1 ratings. Women's attachment ratings had an average accuracy of .56. Correlations among pairs of corresponding ratings were .43 for secure, .55 for fearful, .67 for preoccupied, and .59 for dismissing. Men's attachment ratings had an average accuracy of .47. Correlations among corresponding ratings were .40 for secure, .51 for fearful, .45 for preoccupied, and .51 for dismissing. With one exception, no differences existed among the four accuracy correlations as tested using Fischer's r to z transformation (Hays, 1988). Women were more accurate recalling their preoccupied ratings than their secure rating ($p < .05$). Once again, the intraclass correlations were virtually identical to the Pearson correlations (women: .40 for secure; .54 for fearful; .66 for preoccupied; .58 for dismissing; men: .38 for secure; .48 for fearful; .44 for preoccupied; .50 for dismissing).

Next, we tested whether secure individuals at t2 were more accurate than insecure

individuals when asked to recall their t1 attachment ratings. To obtain a measure of accuracy for each attachment rating, we computed the absolute value of the difference between corresponding t1 ratings and memory of t1 ratings. Therefore, a score of zero indicates perfect recall and scores greater than zero indicate the degree of inaccuracy. We then compared the four accuracy scores of secure and insecure participants. No significant differences existed between the means of the secure and insecure women or men.¹ In fact, in no case did the means differ by more than 0.55. Thus, secure individuals were not more accurate than insecure individuals when asked to recall past attachment ratings.

Finally, accuracy can be a function of either accurate recall or use of a theory of stability under conditions of actual stability. Thus, we would expect higher accuracy for individuals who had remained stable than for those individuals who were unstable. To test this hypothesis, we compared participants who reported a change in their attachment patterns and those who did not report a change on accuracy of recall. As expected, the majority of participants whose attachment categories had not changed accurately recalled their t1 category (89% of women and 85% of men). In contrast, only 22% of women and 13% of men whose classification had changed accurately recalled their t1 category.

Accuracy of recall of attachment categories over 8 months was comparable to that reported by Kirkpatrick and Hazan (1994) over 4 years (with three rather than four categories). In both studies, a higher pro-

portion of secure individuals than insecure individuals accurately recalled their t1 category, as indicated by indices of specific agreement. In the present study, however, there was no evidence of greater accuracy of recall for the secure category when we controlled for chance agreement with kappa statistics. In addition, secure participants were no more accurate than insecure participants when recalling their standing on continuous attachment ratings. Unfortunately, we cannot directly compare our findings with those of Kirkpatrick and Hazan (1994) because they did not report kappas for accuracy of each category, and they were not able to compare the secure and insecure groups on accuracy of recall for continuous attachment ratings. However, our findings suggest that secure individuals are no more accurate than insecure individuals when recalling past attachment patterns.

Reconstructive memory of attachment patterns

Consistent with Kirkpatrick and Hazan's (1994) findings, the majority of participants who inaccurately recalled their t1 attachment category thought their previous category was consistent with their current category (59% of women and 72% of men). To test the hypothesis that participants reconstructed their memory of t1 ratings to be consistent with their t2 ratings (e.g., a consistency bias), we conducted a series of hierarchical regression analyses. Separate regressions predicting memory of t1 attachment ratings were conducted for each of the four attachment ratings. In the first step of each regression, we entered t1 attachment ratings to control for accuracy of recall, and in the second step, we entered t2 attachment ratings to assess a consistency bias in recall. Thus, betas obtained in step 2 represents the relation between t2 attachment ratings and the recollection of past attachment ratings, after controlling for the effects of t1 attachment ratings.

For both women and men, we found a strong consistency bias. For women, t1 attachment ratings contributed an average of

1. Secure women's means (standard deviations) were as follows: security, 1.17 (1.16); fearfulness, 1.39 (1.08); preoccupation, 1.22 (1.10); dismissingness, 1.11 (1.41). Insecure women's means (standard deviations) were as follows: security, 1.72 (1.60); fearfulness, 1.47 (1.52); preoccupation, 1.11 (1.17); dismissingness, 0.83 (0.88). Secure men's means (standard deviations) were as follows: security, 1.30 (1.41); fearfulness, 1.12 (1.09); preoccupation, 0.95 (1.10); dismissingness, 1.26 (1.08). Insecure men's means (standard deviations) were as follows: security, 1.38 (1.29); fearfulness, 1.34 (1.14); preoccupation, 1.41 (0.91); dismissingness, 1.17 (1.28).

34% of the variance in recall (secure, 21%; fearful, 29%; preoccupied, 46%; dismissing, 39%), and t2 ratings contributed an average additional 24% of the variance (secure, 24%; fearful, 31%; preoccupied, 23%; dismissing, 18%). In all cases, t2 ratings significantly contributed to the variance in memory of t1 ratings. For men, t1 attachment ratings contributed an average of 23% of the variance (secure, 21%; fearful, 25%; preoccupied, 17%; dismissing, 29%), and t2 ratings contributed an average additional 32% of the variance (secure, 42%; fearful, 35%; preoccupied, 21%; dismissing, 30%). Again, t2 ratings significantly contributed to the variance in memory of t1 ratings.

We also used the above regression approach to explore differences between secure and insecure participants, and between participants whose attachment categories were stable or unstable over time. In all cases, t2 ratings significantly contributed to the variance in memory of t1 ratings.

The previous regression analyses suggest a strong consistency bias in recall of attachment ratings, but they do not indicate whether or not this effect is obtained for individuals whose actual attachment ratings have become both more positive or more negative over time. Perhaps individuals who have become less secure over time show a consistency bias (perceiving that they were also relatively insecure in the past), whereas individuals who have become more secure over time show less of a consistency bias (accurately perceiving that they were insecure in the past).

To address this question, we performed 3-way analyses of covariance (ANCOVA) in accord with the procedure used by McFarland and Ross (1987). Participants were divided into three groups based on their degree of actual change on each attachment scale. This analysis was repeated for each of the four attachment scales. The negative change groups were defined by a decrease in attachment rating from t1 to t2; the no-change groups were defined by no change from t1 to t2, and the positive-change groups were defined by an increase from t1 to t2. The dependent variable was

memory of the attachment rating. The corresponding t1 attachment rating was statistically controlled. Results are presented in Table 5. The *F* statistics for all ANCOVAs were significant. Group means indicate that the consistency bias operated for both negative and positive-change groups.

In contrast to individuals in the no-change group, participants who reported negative change from t1 to t2 recalled lower t1 ratings, and participants who reported positive change from t1 to t2 recalled higher t1 ratings. These results, therefore, indicate that individuals perceiving positive change and individuals perceiving negative change are equally likely to show a consistency bias.

In summary, results support the hypothesis that current attachment ratings influence recall of past attachment ratings, independent of actual past attachment ratings. When individuals were asked to recall their past attachment patterns, they were strongly influenced by their current attachment ratings. This consistency bias operated for individuals whose attachment ratings had changed in positive and negative directions. Moreover, the observed consistency bias was considerably stronger than typically reported in the literature. For example, current drug use accounted for 9% to 14% of the variance when recalling drug use 1 year earlier (Collins, Graham, Hansen, & Johnson, 1985). In contrast, current attachment ratings were at least as important as past ratings in the prediction of recall; they accounted for an average of 28% of the variance. The strength of these findings was surprising given the relatively short length of time between assessments and the moderate degree of objective stability.

Sources of memory bias

In this section we explore various explanations for the observed consistency bias. A consistency bias is expected when individuals assume that they have not changed on an attribute, and therefore use their current standing to guide their *recall* of their past standing (Ross, 1989). In the current study,

Table 5. *Bias in recall of t1 attachment ratings*

	Actual Change			F statistic
	Negative	No change	Positive	
Women				
Secure	3.61 (24)	4.62 (24)	5.72 (24)	8.09***
Fearful	2.07 (28)	3.10 (24)	4.95 (20)	20.05***
Preoccupied	2.07 (21)	3.17 (27)	4.48 (24)	19.88***
Dismissing	1.95 (20)	2.95 (24)	3.55 (28)	7.43***
Men				
Secure	3.57 (20)	4.47 (20)	5.64 (32)	11.77***
Fearful	2.18 (21)	3.10 (28)	4.21 (22)	15.09***
Preoccupied	1.63 (27)	2.89 (24)	3.69 (20)	14.65***
Dismissing	2.49 (21)	3.74 (25)	4.99 (25)	19.71***

Note: Cell means are adjusted for the covariate (t1 ratings). Group *ns* are in parentheses.

*** $p < .001$.

an implicit theory of stability would be understandable given the nature of the sample under study and the relatively short time frame. The high levels of perceived stability observed are consistent with this explanation. We might also expect participants who experienced more intervening life events to show less of a consistency bias. It is also possible that the valence and type of life event may differentially predict memory biases. In particular, relationship-oriented events may be especially salient in the formation of schemas of stability and change in attachment patterns. For example, the experience of many relationship-related events may lead participants to invoke an implicit theory of change and consequently reduce the consistency bias. In separate regression analyses for each attachment rating with each of the life events scales, we tested whether various life events subscales (total events, positive interpersonal events, negative interpersonal events, positive noninterpersonal events, negative noninterpersonal events, positive relationship events, negative relationship events) were predictive of memory of t1 ratings, controlling for actual t1 ratings. We also examined whether or not t2 ratings were predictive of memory biases after controlling for life events.

With just three exceptions, reported life events did not significantly contribute to

the variance. Given the large number of regressions conducted (2 genders \times 4 attachment ratings \times 7 life events scales), we are hesitant to interpret three significant predictions, especially since the variance predicted in these cases was small (4% to 5%) and t2 ratings continued to be strong predictors of memory biases even after life events were controlled (predicting an additional 20% to 22% of the variance in memory). For women, negative noninterpersonal events contributed an additional 4%, positive relationship events contributed an additional 5%, and negative relationship events contributed an additional 4% of the variance in recall of secure ratings. We should note, however, that the restricted range of life events in this sample may have compromised our ability to document any associations that may exist in the general population between experienced life events and memory biases.

The obtained consistency bias may also be due to a third variable that simultaneously influences current t2 attachment ratings and memory of t1 ratings, thus providing a more parsimonious explanation of the observed consistency bias than does Ross's two-stage process. Given the associations between relationship satisfaction and attachment ratings (e.g., Scharfe & Bartholomew, 1995; Senchak & Leonard, 1992), and the correspondence between romantic

partners' attachment ratings (Carnelley, Pietromonaco, & Jaffe, 1996), we speculated that current relationship satisfaction or partner's attachment ratings might influence both current and recalled attachment ratings, accounting for the observed consistency bias. For example, individuals who are currently feeling very happy with their relationship may tend to distort their memories of their past attachment pattern toward greater security and less insecurity.

To test this potential explanation of the findings, we examined whether or not current relationship satisfaction and current partner ratings were predictive of memory of t1 ratings, independent of actual t1 ratings. Regression analyses failed to support this hypothesis. Current satisfaction did not significantly predict memory of t1 ratings for either men or women. With a few exceptions, partners' attachment ratings also did not significantly predict memory of t1 ratings. Moreover, current (t2) ratings continued to predict memory significantly. The exceptions were as follows: For women, their partners' dismissing ratings contributed an additional 5% of the variance in recall of fearfulness, and their partners' security ratings contributed an additional 5% of the variance in recall of dismissingness; for men, their partners' dismissing ratings contributed an additional 5% of the variance in recall of fearful ratings, and their partners' preoccupied ratings contributed an additional 8% of the variance in recall of dismissing ratings. Once again, given the large number of regressions conducted (2 genders \times 4 attachment ratings \times 4 partner attachment ratings), we are hesitant to interpret the four significant predictions, especially because the variance predicted in these cases was small (5% to 8%) and the t2 ratings continued to be strong predictors of memory biases even after current partner attachment ratings were controlled.

We have not addressed all possible explanations for the observed consistency bias. Perhaps participants do not invoke a theory of stability or change, but rather use their present standing as an initial standard

and then fail to make sufficient adjustment in computing their past status (Ross, 1989). However, other studies have shown correspondence between directly assessed theories of stability and degree of memory bias (e.g., McFarland & Ross, 1987). Conversely, participants may exaggerate the consistency between past and present attributes because they feel it is socially undesirable to admit that they have changed, especially for the worse (Ross, 1989). However, participants in this study did not seem to self-present: Participants were just as likely to view themselves as more or less secure in the past. Also, participants were aware that their t1 ratings were recorded and, therefore, would have been motivated to be accurate rather than self-present.

It is possible, of course, that other unmeasured variables, such as mood, may mediate consistency bias. Notably, mood may influence all self-reports given at t2 (including t2 ratings and memory of t1 ratings) and thereby lead to a consistency bias. Although we cannot test for mood effects in this data set, it is difficult to imagine how mood could account for the specific pattern of consistency effects. While t2 ratings are highly predictive of memory biases in corresponding t1 ratings (i.e., t2 fearful ratings predict memory of t1 fearful ratings), non-corresponding t2 ratings do not strongly predict memory biases and, in many cases, are not at all predictive of memory. Finally, neither reported life events nor current relationship satisfaction can explain the participants' strong retrospective bias toward consistency. Although further work is required, the memory bias observed in attachment ratings is consistent with the hypothesis that current ratings guide recall of past ratings in the absence of specific cues indicating that a change is likely to have taken place.

Conclusions

This study examined perceived stability and accuracy of retrospective reports of adult attachment patterns over 8 months. As expected, participants perceived that the sta-

bility of their patterns was consistently higher than the actual or objective stability of their patterns. These results support Kirkpatrick and Hazan's (1994) conclusion that retrospective reports are unlikely to be valid assessments of past attachment patterns. Results suggest a strong consistency bias for individuals, independent of their attachment security or the stability of their attachment categories over time. Furthermore, participants were moderately accurate when asked to remember past attachment patterns using both categorical and continuous ratings.

For example, using categorical judgments, 79% of men perceived themselves to be stable, 56% were actually stable, and 53% accurately reported their t1 category. Consistent with results reported by Kirkpatrick and Hazan (1994), accuracy appears to be largely a function of actual stability. Over 80% of stable participants accurately recalled their t1 attachment category, whereas less than 20% of unstable participants accurately recalled their t1 attachment category.

We also examined whether individual differences in attachment influenced accuracy of recall. We might have expected that secure individuals would be more accurate than insecure individuals when recalling past attachment patterns because of greater coherence of their attachment representations and, conversely, their lower levels of defensiveness, idealization, and confusion when discussing their attachment relationships. Overall proportions of agreement indicated similar levels of accuracy for each attachment pattern. In contrast, the specific levels of agreement (proportions of individuals in each category who accurately recalled their previous attachment category) indicated that a higher proportion of secure than insecure individuals accurately recalled their t1 category. However, accuracy was similar across the four categories after controlling for chance agreement.

As a more powerful test of individual differences in accuracy, we also examined whether secure individuals were more ac-

curate than insecure individuals in recalling their standing on continuous ratings of each attachment pattern. We found no evidence that secure individuals were more accurate than insecure individuals when asked to recall their t1 attachment ratings. We therefore feel confident in concluding that individual differences in attachment were not related to accuracy of recall of attachment patterns.

We caution researchers to consider statistical limitations when interpreting categorical data. We used three indices of categorical agreement—overall agreement, specific agreement, and kappas—and each method yielded a somewhat different pattern of findings. For example, based on indices of overall agreement, we would have concluded that women have similar levels of perceived stability, actual stability, and accuracy. However, using kappas, which control for chance agreement, we concluded that women show high levels of perceived stability, and moderate levels of actual stability and accuracy. Similarly, indices of specific agreement suggested that secure men were more accurate in recalling past attachment categories than insecure men, whereas kappas suggested that these differences stemmed from the higher base rate of security in the sample.

These findings highlight the difficulties of relying on categorical attachment ratings to preselect research participants. Previous research has demonstrated that attachment categories are approximately 70% stable over periods of 1 week to 4 years (e.g., Baldwin & Fehr, 1995; Kirkpatrick & Hazan, 1994; Scharfe & Bartholomew, 1994). If a researcher pretests a large group of participants with the goal of selecting equal numbers of participants who self-identify as one of three or four attachment patterns, approximately 30% of participants will choose another category at follow-up. Because of the differential base rates of the secure and insecure categories in nonclinical samples, this will be a particular problem for the insecure categories.

For example, consider a sample of 100 individuals in which approximately 60%

categorize themselves as being secure and 15% categorize themselves as preoccupied during a preselection session. At follow-up, by chance alone 36 (60%) of the secure participants will still endorse the secure category, but as few as 2 (15%) of the preoccupied participants will still endorse the same category. Actual rates of stability for the two groups are likely to be in the order of 80% for secure participants and 40% for preoccupied participants. Although our findings suggest that the high instability of the individuals in insecure categories is due to low base rates, rather than to greater inherent stability of attachment security, the fact still remains that preselection of participants in low base-rate categories is not a reasonable research strategy.

Unfortunately, we were unable to predict conditions under which the observed consistency bias was more or less likely to operate. For example, memory biases were not generally related to life events experienced in the intervening period. We expect that investigations into individual, relationship, and situational variables that may be associated with memory biases will prove more fruitful in samples of participants whose social environments are more variable and, therefore, whose attachment patterns are more variable over time. Although in this highly stable sample there was no evidence that secure participants were more accurate than insecure individuals when recalling past attachment patterns, perhaps secure individuals are more accurate when recalling patterns that have changed dramatically.

Additionally, more work is needed to study retrospective biases over longer periods of time and when individuals have the desire or motivation to change. For example, individuals in therapy would be highly motivated to believe that they had improved and, therefore, they may exaggerate their past insecurity. Likewise, individuals may tend to assume that they were young and foolish during previous romantic relationships, and that they are more mature and hence more secure in their current relationships. Therefore, when asked to recall their attachment patterns in previous romantic relationships, they may exaggerate their past insecurity (cf. Turner & Feldman, 1992).

More generally, it is not clear how individuals' memory reconstructions of their standing on various relationship variables, such as attachment representations or relationship satisfaction, may impact upon relationship functioning. Perhaps reconstruction promotes longevity of relationships by allowing individuals to believe that they and their relationship are consistent over time. Or in some circumstances, reconstruction may undermine relationship quality by interfering with individuals' abilities to acknowledge the positive (or negative) changes that have taken place over time, and to incorporate these changes into a coherent and constructive understanding of their relationship history. Further work on memory biases in the context of adult romantic relationships offers many intriguing possibilities for future research.

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