RESEARCH ARTICLE

All's well that ends well? A test of the peak-end rule in couples' conflict discussions

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Abstract

Despite its importance for well-being, surprisingly little is known about what determines how couples feel after a conflict. Using the peak-end rule, we examined whether partners' post-conflict affect was mainly predicted by their most aversive or pleasant emotional experience (peaks) during the conflict, or by the emotional tone at the end of the interaction. One hundred and one couples engaged in a conflict interaction and afterwards evaluated their momentary affect during the interaction. Post-conflict affect (in terms of positive and negative feelings, and perceived partner responsiveness) was assessed immediately after the conflict, after a subsequent positive discussion, and upon returning to daily life (here, rumination about the relationship was assessed as well). Our results showed that the negative and positive peaks, but not the end emotion, predicted immediate and partly extended post-conflict affect in individuals. This finding has clinical implications for the mediation of couple conflict.

Keywords: peak-end rule, emotion, close relationships, conflict, conflict recovery, post-conflict affect

Conflicts between adults occur most often within romantic relationships (Berscheid & Ammazzalorso, 2001; Guerrero, Andersen, & Afifi, 2017). Besides the ways in which couples experience, handle, and resolve such conflicts, how both partners feel after such conflicts is equally crucial in maintaining a satisfying relationship (Gottman, 1998; Gottman & Levenson, 1999a). In the past, partners' post-conflict levels of positive and negative emotions and intimacy have often been referred to as conflict recovery, being seen as indicators of the ability to disengage from the conflict and a negative emotional state to a more positive state and a re-established intimate bond (Gottman & Levenson, 1999a; Ha, Overbeek, Lichtwark-Aschoff, & Engels, 2013; Prager et al., 2015).[1] However, strictly speaking, this operationalization does not capture recovery *per se*, as we do not know how much participants' scores on these measures declined during the

conflict. To avoid confusion with other work on conflict recovery that does explicitly assess it as the trajectory of change in affect (e.g., Gunlicks-Stoessel & Powers, 2009; Powers, Pietromonaco, Gunlicks, & Sayer, 2006), we refer to it as post-conflict affect.

Recently, the topic of post-conflict affect has been gaining attention, and it has now been shown that people who show fewer negative feelings after a conflict, or have a partner that does, demonstrate greater relationship satisfaction and stability on the long term (Gottman & Levenson, 1999a; Haydon, Jonestrak, Guhn-Knight, & Salvatore, 2016; Salvatore et al., 2011). Specifically, distressed couples show greater drops in mood upon a conflict interaction than satisfied counterparts (Sayers, Kohn, Fresco, Bellack, & Sarwer, 2001; Whisman, Weinstock, & Uebelacker, 2002), and express less positive and more negative affect during a rebound conversation (Gottman & Levenson, 1999a). Having a partner that displays more positive behavior during a cool-down task also goes together with greater relationship satisfaction, and predicts relationship satisfaction longitudinally in interaction with attachment security (Haydon et al., 2016; Salvatore et al., 2011).

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[1]For the sake of completeness, we want to note that conflict recovery has thus not only been assessed by self-reported affect but also by expressed affect and behavior (e.g., see Salvatore, Kuo, Steele, Simpson, & Collins, 2011).

With regard to its facilitators or obstructers, research up to now has focused on individual differences in partners' attachment style and intimacy (Prager et al., 2015; Salvatore et al., 2011) and on partners' behaviors during the conflict. Specifically, related research on conflict interactions has shown that partners' negative behaviors and expressions during a conflict predict more negative behaviors in a next conversation (Haydon et al., 2016), more immunological downregulation over the next 24 hours (Kiecolt-Glaser et al., 1993), and less relationship satisfaction on the long term (for overviews, see Bradbury, Fincham, & Beach, 2000; Fincham & Beach, 1999). Further, partners' specific repair attempts during a conflict predict less experienced negative and more positive affect in the last 3 minutes of the conflict discussion (Gottman, Driver, & Tabares, 2015).

An overlooked potential determinant of post-conflict affect is individuals' affective experiences during the conflict. This is surprising given longstanding research showing that distressed couples differ from happy couples in their experienced emotions during a conflict, such as in the amount and sequences of negative and positive emotions (e.g., Gaelick, Bodenhausen, & Wyer, 1985; Geist & Gilbert, 1996; Gottman & Levenson, 1986). For instance, satisfied partners experience less negative and more positive affect during conflict interactions than dissatisfied partners (Geist & Gilbert, 1996; Levenson, Carstensen, & Gottman, 1994; Levenson & Gottman, 1983) and they demonstrate less escalation of negative affect, meaning that a negative emotional experience by one partner is followed less by a negative emotional experience in the other partner (Levenson & Gottman, 1983, 1985; Levenson et al., 1994). Additionally, greater downregulation of women's negative emotions during the conflict predicts greater marital satisfaction for both partners concurrently, and increases in wives' relationship satisfaction longitudinally (Bloch, Haase, & Levenson, 2014). Together, these findings strongly suggest that people's emotional experience during a conflict might also impact how they feel after the conflict.

The Peak-End Rule

A conflict between romantic partners is an aversive, emotional experience for both parties involved, and how partners afterwards evaluate this experience determines by definition how they will feel after the conflict. To elucidate potential affective determinants of post-conflict affect, we can therefore rely on broader literature on the affective aspects that people consider when evaluating experiences. Two affective aspects that particularly influence judgments of past emotional experiences are the most extreme moments (peaks) and the end of an emotional episode, referred to as the peak-end rule (Fredrickson, 2000; Kahneman, 2000). Evidence for the peak-end effect has been found in as diverse domains as memories of aversive sounds (Schreiber & Kahneman, 2000), daily pain (Stone, Broderick, Kaell, DelesPaul, & Porter, 2000), and gifts (Do, Rupert, & Wolford, 2008). A first question we want to address is whether this peak-end rule also applies to conflict interactions in couples. A second, related, question is whether one (peak or end) may be more important than the other. Indeed, in several studies only one aspect predicted people's evaluations of affective experiences (e.g., Hui, Meyvis, & Assael, 2014; Robinson, Blissett, & Higgs, 2011). Mainly the end effect has been questioned, but it does seem to be important for people's evaluations when it can be considered as particularly meaningful (Miron-Shatz, 2009; Tully & Meyvis, 2016). This certainly applies to conflict interactions, where a positive emotional tone at the end of the interaction could be suggestive for how well the discussion is resolved up to that point, and the relationship repaired.

If couples get stuck in a negative spiral through the negative behaviors and emotions that they express and experience throughout the conflict interaction, resulting in an escalation of negative emotions, it is difficult to turn this interaction around (e.g., Fincham & Beach, 1999; Gottman et al., 2015; Weiss & Heyman, 1997). Extreme negative emotions during conflict interactions could therefore be defining moments from which persons cannot detach, whereas strong positive feelings and expressions could provide relief and an escape of negativity. This would suggest that specifically negative and positive peaks (PPs) could be important predictors of post-conflict affect. This is supported by existing research showing that the ratio, the frequency, and the intensity of positivity versus negativity that couples express and experience during conflict predicts distress and divorce (Geist & Gilbert, 1996; Gottman, 1993; Gottman & Levenson, 1999b; Levenson & Gottman, 1983; Levenson et al., 1994).

Another possibility is that, if couples are able to escape and turn a negative atmosphere around towards the end of the interaction, the impact of negative and positive emotions experienced during the conflict might be undone. Other existing research on post-conflict affect exactly demonstrates the importance of the ability to shift out of a conflict and the downregulation of negative emotions for couples' well-being (Bloch et al., 2014; Gottman, Coan, Carrere, & Swanson, 1998). If there are no negative emotions that are experienced at the end of the interaction, this might signal to couples that everything is all right ("all's well that ends well"), and that the threat to the relationship disappeared.

Whether the affective peaks and the end of conflict interactions are equally influential in how people feel after a conflict, or if one is more relevant than others, has immediate practical and clinical implications. The answer to this question can provide directions for therapists, for instance suggesting if it is more important to manage couples' negativity and or positivity during conflicts, or just to make sure that all ends well at the end of the session. It also empirically addresses a

popular conviction about the importance of ending conflicts on a good note. People often say that how one makes up after a conflict matters much more for the relationship than what happened while the actual conflict was taking place (e.g., "all's well that ends well"). Although the end of a specific conflict interaction might not necessarily mean that the conflict is resolved, there are many instances in daily life in which conflict interactions are interrupted or people try, but do not reach a solution. Further, two-thirds of conflict topics between couples are about unresolvable issues (Gottman, 1994; Gottman & Levenson, 1999a), meaning that these discussions consistently have to stop while being unresolved. If, at the end of these interactions, partners manage to de-escalate negative emotions or amplify positive emotions, can this decrease the negative impact of the conflict?

Present Study

To examine the extent to which positive and negative emotional peaks or the emotional end of a conflict interaction predict how people feel after it, we adopted a well-known interaction paradigm (Gottman & Notarius, 2002; Roberts, Tsai, & Coan, 2007). Specifically, couples discussed each partner's most annoying characteristic for 10 minutes, and provided their momentary affect during the interaction (Gottman & Levenson, 1985; Ruef & Levenson, 2007). They were explicitly asked to try to end the conversation on a good note. This allowed us to extract their most extreme affective experiences, and their final affective experience during the interaction. Post-conflict affect was assessed at three different times: right after the conflict discussion, after participants had engaged in a subsequent positive discussion (discussing each partner's most valuable characteristic), and when participants returned to daily life, which was meant to capture spillover effects of the lab to couples' daily life. Post-conflict affect was measured by participants' positive and negative feelings (including feelings towards their partner and satisfaction with the conversation), by how understood, cared for, and valued they felt by their partner (perceived partner responsiveness; Reis, Clark, & Holmes, 2004), and by the extent of their rumination about the relationship (in daily life).

Method

Participants

Participants were recruited through social media, and flyers and posters that were distributed in public places. The final sample consisted of 101 heterosexual couples, of which the majority cohabited (*n* = 96). Seven of the participating couples were married and five had children together. On average, participants were 26 years old (*SD* = 5 years), ranging from 18 to

53 years, and had been together for 4.5 years (*SD* = 2.80), ranging from 7 months to 21 years. Couples that had completed all parts of the study received 100 euros as compensation.

Procedure

Before coming to the lab, couples completed several background questionnaires online. During the lab session, couples were asked to have three conversations on different topics: a neutral topic, a conflict topic, and a positive topic (in this order). The neutral topic, with which the couples started, was on the events they had experienced the previous day and lasted for only 2 minutes. This conversation was meant to make the couples accustomed to the lab session. The conflict topic was about what each partner regarded as the other partner's most annoying characteristic and lasted for 10 minutes. This topic was meant to elicit a conflictual context. The positive topic was about what each partner regarded as the other's most valuable characteristic and lasted for 10 minutes as well. This topic was meant to elicit a positive, intimate context. Before having the conversations about the most annoying and valuable characteristics of their partner, participants filled in online questions about these characteristics in separate rooms, which allowed them to think about them. Specifically, they had to give a description of these characteristics, and answer questions about how they appraised them (e.g., "how annoying/valuable do you find it", "is it likely to change", etc.). When they returned to the common room, the facilitator asked the couples to discuss the specific characteristics with each other. Couples could choose whose characteristic they would start with and when they would switch to the other partner's characteristic to keep the conversation natural. Furthermore, the couples were told that they would be notified when they should wrap up and settle the conversation, and that, at that point; they would have a couple of minutes left to end the conversation on a good note. After providing instructions, the facilitator left the room, and asked the couples through a microphone to start. After 8 minutes of conversation, the facilitator instructed the couples to start wrapping up the conversation through the microphone.

Following every conversation, both partners retreated to separate rooms to fill in online questionnaires. These questionnaires allowed us to assess each partner's (i) baseline positive and negative feelings and perceived partner responsiveness, (ii) their positive and negative feelings and perceived partner responsiveness immediately after the conflict, and (iii) their positive and negative feelings and perceived partner responsiveness after a subsequent, positive interaction.

Afterwards, the couples engaged in video-mediating recall, in which they watched the conflict interaction and provided their momentary emotional experience during the interaction, allowing us to extract each participant's peak and end affective experiences

during the interaction. Finally, each partner received a smartphone and instructions on how to use it. The smartphones were programmed to beep multiple times a day for one week, after which the couples returned the smartphones. The beeps occurred simultaneously for both partners, following a stratified random interval scheme (six times a day during weekdays, from 17 PM until 22 PM and 14 times a day during weekends, from 10 AM until 22 PM). On average, couples received 62 beeps. At each sampling moment, participants responded to several items that measured their feelings, perceptions, and experiences. The first beep on average occurred 2 hours and 49 minutes after the start of the lab session, or an estimated 1.5 hours after the end of each couple's lab session ($SD = 189$ minutes).[2] Participants' responses on this first beep were used to assess post-conflict affect on a longer time-span.

Materials

After each conversation, partners were asked several questions. All questions were answered on a 1 (*not at all*) to 7 (*very much*) scale. First, they indicated how they were currently feeling, in terms of feeling happy, relaxed, angry, anxious, and sad. Second, they indicated how they were feeling towards their partner specifically, in terms of feeling loving, close, lonely or ignored, hurt, irritated and annoyed. Third, they indicated how responsive they perceived their partner to be in terms of feeling understood, cared for, and valued by one's partner. Finally, they indicated how satisfied they were with the conversation. Originally, these items were meant to assess separate but related constructs: general feelings (five items), feelings specific to the partner (six items), perceived partner responsiveness (three items), and satisfaction with the conversation (one item). However, all items turned out to correlate highly with each other, as they were all assessed after and thus elicited by a relational event. For this reason, and for reasons of parsimony, we decided to let the data speak for themselves, and to conduct an exploratory factor analysis on all items. Afterwards, we created scale scores for each factor.

We focused on the item scores obtained immediately after the conflict, to avoid additional complexities due to the data being clustered (all items were assessed three times), and because this was the most crucial post-conflict assessment. Based on the eigenvalues (>1) and interpretation of the scree plot, a three-factor solution was selected (specific details such as the scree plot and the pattern matrix after a direct oblimin rotation can be found in Table A1 and A2 and Fig. A1 in

the Appendix). The three factors are labeled: negative feelings, positive feelings, and perceived partner responsiveness (following Reis et al., 2004).

Negative feelings. The first factor consisted of how angry participants felt after the conversation, and how lonely or ignored, hurt, annoyed, and irritated they felt by their partner. These five items were aggregated to measure participants' negative feelings by calculating each participant's mean for each conversation.

Positive feelings. The second factor consisted of how (i) happy participants felt after the conversation, how (ii) satisfied they were with the conversation, and how (iii) loving and (iv) close they felt towards their partner. These four items were aggregated to measure participants' positive feelings by calculating each participant's mean for each conversation.

Perceived partner responsiveness. The third factor indicated (i) to what extent participants felt understood by their partner, (ii) to what extent they felt cared for by their partner, and (iii) to what extent they felt their opinion was valued by their partner. These three items were aggregated to obtain a measure of perceived partner responsiveness by calculating each participant's mean for each conversation. It must be noted that these items were also originally included to assess perceived partner responsiveness (Gadassi et al., 2015; Maisel & Gable, 2009).

The items that assessed feelings of anxiety and sadness had a loading of .50 on both negative feelings and perceived partner responsiveness, and were therefore omitted.

Pre-conflict levels of feelings and perceived partner responsiveness. Participants' pre-conflict levels of positive feelings, negative feelings, and perceived partner responsiveness were computed based on their answers on the items after the neutral conversation.

Post-conflict affect immediately after the conflict. Participants' self-reported negative feelings, positive feelings, and perceived partner responsiveness immediately after the conflict were constructed by their answers on the items after the conflict conversation.

Post-conflict affect after a subsequent, positive conversation. Participants' self-reported negative feelings, positive feelings, and perceived partner responsiveness after a subsequent, positive conversation were composed by their answers on the items after the positive conversation.

Conflict recovery in daily life. Participants answered several items by sliding over a continuous scale from 0 to 100, on a smartphone.

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[2]The exact timing of the first beep depended on the specific couple, with one couple already receiving a beep at the end of their lab session, and two couples only receiving their first beep after an overnight delay and work day, 20 hours after the end of their lab session.

Table 1. Means and standard deviations for aspects of affective experience and conflict recovery, separately for men and women

	Women				Men			
	M	*SD*	Min	Max	*M*	*SD*	Min	Max
Lab-Affective experience during conflict interaction								
Mean affective experience	0.12	0.23	−0.41	0.94	0.15	0.23	−0.62	0.81
Positive peak (PP)	0.64	0.23	0.03	1.00	0.72	0.21	0.31	1.00
Negative peak (NP)	0.42	0.28	−0.09	1.00	0.43	0.34	−0.42	1.00
End affective experience (end)	0.16	0.28	−0.41	1.00	0.21	0.33	−0.44	1.00
Lab- pre-conflict levels								
Positive feelings	5.73	0.62	3.75	6.75	5.76	0.53	4.50	7.00
Negative feelings	1.47	0.59	1.00	3.40	1.43	0.53	1.00	4.00
Perceived partner responsiveness	5.90	0.66	4.33	7.00	5.97	0.65	3.33	7.00
Lab-conflict recovery after conflict interaction								
Positive feelings	5.87	0.58	3.75	7.00	5.76	0.65	3.25	7.00
Negative feelings	1.65	0.75	1.00	5.00	1.68	0.73	1.00	4.80
Perceived partner responsiveness	5.84	0.79	2.67	7.00	5.72	0.84	3.00	7.00
Lab-conflict recovery after subsequent, positive interaction								
Positive feelings	6.14	0.58	4.00	7.00	6.05	0.62	4.00	7.00
Negative feelings	1.33	0.50	1.00	3.80	1.41	0.56	1.00	4.00
Perceived partner responsiveness	6.29	0.56	4.67	7.00	6.18	0.60	4.00	7.00
Daily life-conflict recovery								
Positive feelings	69.78	15.92	7.50	99.50	71.92	16.19	19.50	100.00
Negative feelings	9.59	13.84	0.00	79.00	7.76	6.70	0.00	33.50
Perceived responsiveness	79.74	13.41	50.00	100.00	77.82	17.72	5.00	100.00
Rumination about relationship	10.18	14.98	0.00	96.00	10.55	14.71	0.00	84.00

Positive feelings. Participants indicated how happy and how relaxed they felt, going from *not at all* to *very much*. The mean of these two items was calculated to construct an assessment of positive feelings ($\alpha = .71$ for items on this first beep).

Negative feelings. Participants indicated how angry, sad, anxious, and lonely they felt, on a scale from *not at all* to *very much*. The mean of these four items was calculated to construct an assessment of negative feelings ($\alpha = .85$).

Perceived partner responsiveness. Participants indicated on one item to what extent they felt understood and valued by their partner, ranging from *not at all* to *completely*.

Rumination about the relationship. Participants indicated what extent they had worried about their relationship, going from *not at all* to *the whole time*.

Affective experience during the interactions. Participants viewed recordings of their conversations on the computer and rated them on how they had been feeling on a moment-to-moment basis. To this end, they continuously adjusted a joystick to the left (*very negative*) and the right (*very positive*), so that it closely matched their feelings (resulting in scores on a continuous scale from −1 to 1).[3] From this rating, we extracted each participant's minimum valence and

reverse scored it, in this way capturing the negative peak (NP) or the most intense self-reported negative affective experience during the conflict interaction. Additionally, we extracted each participant's maximum valence, representing their highest self-reported intensity of positive emotion or PP. For participants' affective end, we calculated the average of the ratings of the last 10 seconds to avoid potential confounds with measurement error.

Results

Some data were missing due to practical and technical issues. Specifically, we have complete data regarding the interaction session for 197 participants (from 99 different couples). For 182 of them we also have experience sampling data. The descriptive statistics and correlations for all key variables can be found in Tables 1 and 2. It is noteworthy that the positive peak or PP and negative peak or NP did not correlate with each other ($r_{men} = .10$, $p_{men} = .32$; $r_{women} = −.10$, $p_{women} = .33$), whereas both affective peaks did show a moderate correlation with the affective end. Partners who experienced a higher PP during the conflict thus also experienced a better affective end ($r_{men} = .39$, $p_{men} < .001$; $r_{women} = .34$, $p_{women} = .001$), and partners who experienced a higher NP had a worse affective end ($r_{men} = −.27$, $p_{men} = .008$; $r_{women} = −.31$, $p_{women} = .002$). We also calculated if participants showed similar cross-partner correlations in their negative and positive peak, and affective end. We found that partners intercorrelated positively in their NP

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[3] Participants exercised before watching the conversations to get used to the specific movements.

($r = .34$, $p = .001$), but not in their PP ($r = .06$, $p = .54$) or in their affective end ($r = .08$, $p = .41$).

Immediate Post-Conflict Affect in the Lab

We modeled the PP, NP, and affective ending simultaneously as predictors for participants' positive feelings, negative feelings, and perceived partner responsiveness immediately after the conflict. This enabled us to determine the best predictor for these post-conflict variables and to test the peak-end theory in a conflict interaction in couples. Every time, we also included the corresponding pre-conflict level of the variable. In this way, we explicitly investigated if for participants with similar pre-conflict levels, the PP, NP and affective ending predicted participants' post-conflict feelings and perceived partner responsiveness. For instance, we predicted participants' amount of positive feelings after the conflict interaction by the PP, NP, and affective end, controlling for participants' pre-conflict levels of positive feelings. We conducted similar analyses for participants' negative feelings and perceived partner responsiveness. We used the between-person standardized versions of all variables and applied multilevel actor-partner interdependence models to account for dependencies between partners, making the couple the unit of the analysis (Kenny, Kashy, & Cook, 2006). Because each partner was distinguishable based on gender, gender was consistently included as a main and interaction effect, and we allowed for different variances for men and women (following the suggestions of Kenny et al., 2006). For instance, when we used participants' positive feelings immediately after the conflict as the outcome, the model was:

$$
\begin{aligned}
\text{Positive feelings after conflict}_{jg} =\ & \beta_{0j} + \beta_{1j}\text{PP} + \beta_{2j}\text{NP} + \beta_{3j}\text{affective end} \\
& + \beta_{4j}\text{pre-conflict positive feelings} \\
& + \beta_{0j}\text{gender} + \beta_{1j}\text{PP} * \text{gender} + \beta_{2j}\text{NP} \\
& * \text{gender} + \beta_{3j}\ \text{affective end} * \text{gender} \\
& + \beta_{4j}\text{pre-conflict positive feelings} * \text{gender}
\end{aligned}
$$

Results of all analyses can be found in Table 3. These analyses revealed that a higher PP, or a more extreme positive emotional experience during the conflict interaction, predicted more positive feelings, fewer negative feelings, and more perceived partner responsiveness immediately after the interaction. The NP, or the lowest self-reported affective point reached during the interaction, predicted fewer positive feelings, more negative feelings, and less perceived partner responsiveness. None of these associations differed by gender, as is evident in non-significant interaction effects.

Finally, on top of the PP and the NP, the affective ending did not meaningfully predict any post-conflict variable, with no significant gender differences.[4]

To explicitly test if the PP and NP more strongly predicted post-conflict affect than the affective end, we compared the fit of models in which two of the predictors were constrained to be equal to a basic model without restrictions.[5] To this end, we conducted deviance (likelihood ratio) tests (with $df = 1$). These tests showed that the NP predicted post-conflict affect better than the affective end, in terms of positive ($p < .01$) and negative feelings ($p < .01$) and perceived partner responsiveness ($p = .01$). The NP also predicted all three outcomes better than the PP (all $p < .01$). The PP and the affective end did not differ substantially from each other (all $p > .05$).

Post-Conflict Affect in the Lab after a Subsequent, Positive Interaction

We again included the PP, NP, and affective ending simultaneously as predictors, but now for participants' positive feelings, negative feelings, and perceived partner responsiveness as reported after a subsequent, positive interaction. As in the previous analyses, we controlled for the pre-conflict levels of the corresponding outcome variable. Further, all variables were standardized, and multilevel models were used in which we accounted

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[4]In secondary analyses, we investigated whether the significant effects of the PP and NP remained when we controlled for average affective experience. Specifically, we modeled each outcome on participants' PP, NP, and mean affective experience (with all variables standardized), controlling for the pre-conflict outcome. It must be noted that correlations between the peaks and the mean affective experience were high, with the mean affective experience correlating .50 with PP, and −.69 with NP. From these analyses it became clear that the average affective experience was an important predictor of post-conflict affect, with a better mean affective experience predicting more positive feelings, and more perceived partner responsiveness (all $p < .01$). It did not predict the amount of negative feelings, however ($p = .19$). When controlling for mean affective experience, a higher PP did not predict post-conflict affect immediately after the conflict. The NP still predicted more negative feelings ($p = .009$), but failed to hold for the remaining aspects (with p values .21 for positive feelings and .79 for perceived partner responsiveness). We decided to only report these results in a footnote because peak-end effects were our main interest from the beginning, and the models with mean affective experience sometimes resulted in strange findings, probably due to the high correlations between predictors.

[5]These analyses were conducted in HLM while the main analyses were conducted in SPSS. When re-analyzing the models for the main analyses in HLM, results were very similar, giving rise to similar conclusions. To compare the fit of models in which two coefficients were constrained to be equal versus unconstrained models, we reverse scored the standardized NP scores. Otherwise, the direction of the effects would be different, which would confound the analyses.

Table 2. Correlations for aspects of affective experience and conflict recovery, separately for men and women

	Lab												Daily life			
	Affective experience			Pre-conflict			CR after conflict			CR after a positive interaction						
	PP	NP	End	PF	NF	PPR	PF	NF	PPR	PF	NF	PPR	PF	NF	PPR	RR
Lab: Affective experience																
PP	—	.10	.39**	.38**	−.21*	.20*	.41**	−.14	.17	.39**	−.20*	.22*	.25*	−.18	.28**	−.02
NP	−.10	—	−.27**	−.25*	.27**	−.34**	−.43**	.50**	−.40**	−.22*	.26**	−.17	−.27*	.11	−.18	.31**
End	.34**	−.31	—	.23*	−.07	.16	.33**	−.21*	.16	.30**	−.13	.13	.26*	−.09	.13	−.26*
Lab: Pre-conflict																
PF	.36**	−.16	.11	—	−.38**	.46**	.61**	−.27**	.30**	.56**	−.34**	.36**	.34**	−.14	.40**	−.22*
NF	−.14	.34**	−.14	−.39**	—	−.47**	−.30**	.48**	−.27**	−.37**	.51**	−.29**	−.30**	.37**	−.38**	.26*
PPR	.36**	−.09	.07	.53**	−.37**	—	.41**	−.50**	.53**	.41**	−.52**	.43**	.39**	−.14	.43**	−.55**
Lab: CR after conflict																
PF	.45**	−.42**	.33**	.60**	−.50**	.30**	—	−.59**	.68**	.73**	−.49**	.39**	.24*	−.20	.42**	−.23*
NF	−.36	.46**	−.30**	−.26**	.65**	−.28**	−.57**	—	−.63**	−.49**	.68**	−.34**	−.12	.28**	−.32**	.45**
PPR	.39	−.20	.28**	.17	−.21*	.21*	.49**	−.46**	—	.55**	−.47**	.45**	.15	−.20	.31**	−.38**
Lab: CR after positive interaction																
PF	.12	−.20*	.14	.42**	−.44**	.27**	.56**	−.34**	.32**	—	−.67**	.66**	.36**	−.22*	.39**	−.25*
NF	−.09	.29**	−.14	−.25*	.66**	−.17	−.51**	.64**	−.30**	−.66**	—	−.53**	−.22*	.28**	−.39**	.39**
PPR	.11	.00	.08	.25*	−.26**	.31**	.29**	−.21*	.43**	.68**	−.50**	—	.39**	−.12	.40**	−.26*
Daily life: CR																
PF	.03	−.07	.19	.19	−0.20	.08	.27*	−.15	.07	.34**	−.28**	.19	—	−.34**	.54**	−.21*
NF	−.06	.10	−.14	−.12	.28**	−.03	−.20	.17	−.19	−.33**	.37**	−.24*	−.45**	—	−.19	.22*
PPR	.26*	−.13	.11	.34**	−.26*	.37*	.40**	−.26*	.27**	.46**	−.33**	.45**	.40**	−.08	—	−.23*
RR	−.08	.21	−.02	−.21*	.38**	−.17	−.35**	.27**	−.22*	−.55**	.61**	−.50**	−.29**	.68**	−.36**	—

Note: CR, conflict recovery; PP, positive peak; NP, negative peak; End, affective end; PF, positive feelings; NF, negative feelings; PPR, perceived partner responsiveness; RR, rumination about the relationship. Pearson correlations for women are reported below the diagonal and Pearson correlations for men are reported above the diagonal. **Correlation is significant at the .01 level. *Correlation is significant at the .05 level.

Table 3. Immediate conflict recovery, regressed on the positive peak, negative peak, and affective ending controlled for pre-conflict levels

	Main effects					Interactions with gender				
	B	*SE*	*T*	*p*	95% CI	*B*	*SE*	*T*	*p*	95% CI
Positive feelings										
Intercept	−0.01	.06	−0.10	.92	−0.12, 0.11	−0.12	.04	−2.75	.01	−0.21, −0.03
PP	0.24	.06	3.97	<.01	0.12, 0.35	0.07	.06	1.15	.25	−0.05, 0.18
NP	−0.29	.06	−5.30	<.01	−0.40, −0.18	−0.02	.05	−0.45	.65	−0.13, 0.08
End	0.06	.06	1.04	.30	−0.05, 0.17	−0.06	.05	−1.01	.31	−0.16, 0.05
Pre-conflict level	0.45	.06	7.99	<.01	0.34, 0.56	0.03	.05	0.52	.60	−0.08, 0.14
Negative feelings										
Intercept	−0.02	.06	−0.44	.66	−0.13, 0.09	0.06	.05	1.21	.23	−0.04, 0.17
PP	−0.17	.06	−2.70	.01	−0.29, −0.05	0.07	.06	1.07	.29	−0.06, 0.19
NP	0.32	.06	5.31	<.01	0.20, 0.44	0.06	.06	0.96	.34	−0.06, 0.17
End	−0.06	.06	−0.98	.33	−0.18, 0.06	0.02	.06	0.41	.68	−0.09, 0.14
Pre-conflict level	0.44	.06	7.65	<.01	0.33, 0.55	−0.07	.06	−1.23	.22	−0.18, 0.04
Perceived partner responsiveness										
Intercept	0.03	.07	0.45	.66	−0.10, 0.16	−0.12	.06	−2.19	.03	−0.24, −0.01
PP	0.19	.07	2.69	.01	0.05, 0.33	−0.05	.07	−0.66	.51	−0.18, 0.09
NP	−0.18	.07	−2.56	.01	−0.31, −0.04	−0.07	.07	−1.12	.26	−0.20, 0.06
End	0.06	.07	0.85	.40	−0.08, 0.20	−0.10	.07	−1.50	.13	−0.24, 0.03
Pre-conflict level	0.28	.07	4.19	<.01	0.15, 0.41	0.17	.06	2.55	.01	0.04, 0.29

Note: PP, positive peak; NP, negative peak; End, affective ending.

Table 4. Conflict recovery after a subsequent positive interaction, regressed on the positive peak, negative peak, and affective ending, controlled for pre-conflict levels

	Main effects					Interactions with gender				
	B	*SE*	*T*	*p*	95% CI	*B*	*SE*	*T*	*p*	95% CI
Positive feelings										
Intercept	−0.02	.07	−0.26	.79	−0.15, 0.11	−0.10	.06	−1.64	.10	−0.21, 0.02
PP	0.09	.07	1.18	.24	−0.06, 0.23	0.14	.07	1.98	.05	0.00, 0.29
NP	−0.11	.07	−1.58	.12	−0.24, 0.03	0.01	.07	0.18	.86	−0.12, 0.14
End	0.07	.07	1.02	.31	−0.07, 0.21	0.00	.07	0.01	.99	−0.14, 0.14
Pre-conflict level	0.42	.07	6.19	<.001	0.29, 0.55	0.06	.07	0.91	.36	−0.07, 0.19
Negative feelings										
Intercept	0.01	.07	0.15	.88	−0.12, 0.14	0.12	.05	2.25	.03	0.01, 0.22
PP	−0.07	.07	−1.04	.30	−0.20, 0.06	−0.11	.07	−1.70	.09	−0.24, 0.02
NP	0.10	.07	1.61	.11	−0.02, 0.23	0.06	.06	0.97	.34	−0.06, 0.18
End	−0.01	.07	−0.16	.87	−0.14, 0.12	0.04	.06	0.60	.55	−0.09, 0.16
Pre-conflict level	0.52	.06	8.25	<.001	0.39, 0.64	−0.05	.06	−0.90	.37	−0.17, 0.07
Perceived partner responsiveness										
Intercept	0.00	.07	0.04	.97	−0.14, 0.14	−0.13	.06	−2.07	.04	−0.26, −0.01
PP	0.07	.08	0.92	.36	−0.08, 0.23	0.09	.08	1.19	.24	−0.06, 0.25
NP	0.00	.07	0.03	.97	−0.14, 0.15	−0.05	.07	−0.74	.46	−0.20, 0.09
End	0.04	.08	0.47	.64	−0.11, 0.19	−0.05	.08	−0.71	.48	−0.20, 0.10
Pre-conflict level	0.36	.07	4.96	<.001	0.22, 0.50	0.03	.07	0.47	.64	−0.11, 0.17

Note: PP, positive peak; NP, negative peak; End, affective ending.

for potential gender differences. Results can be found in Table 4.

Neither the PP, nor the NP nor the affective end predicted participants' positive feelings, negative feelings, or perceived partner responsiveness after the positive conversation. There was a significant effect of gender for the relation between participants' PP and how many positive feelings these participants reported after the interaction. To uncover the nature of this interaction, we conducted a follow-up analysis in which we used a two-intercept model to simultaneously model men and women. A higher PP predicted more positive feelings after the positive conversation in men ($\beta_{men} = .23$,

$SE_{men} = .11$, $p_{men} < .05$, 95% $CI_{men}[0.01,0.45]$), but not in women ($\beta_{women} = −.06$, $SE_{women} = .10$, $p_{women} = .55$, 95% $CI_{women}[−0.25,0.13]$).[6] Deviance

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[6]We again replaced the end affective experience by the mean affective experience in follow-up analyses. The mean affective experience predicted more positive feelings after this conversation ($p = .049$), but did not predict the amount of negative feelings ($p = .46$) or perceived partner responsiveness ($p = .13$). The PP did not predict fewer negative or more positive feelings after the positive conversation, but both revealed a significant interaction with gender (both p's = .04). There were no effects of the PP on perceived partner responsiveness ($p = .50$). The NP did not predict any outcome (all $p > .05$).

Table 5. Conflict recovery in daily life, regressed on the positive peak, negative peak, and affective ending, controlled for pre-conflict levels

	Main effects					Interactions with gender				
	B	*SE*	*T*	*p*	95% CI	*B*	*SE*	*T*	*p*	95% CI
Positive feelings										
Intercept	−0.04	.08	−0.51	.61	−0.19, 0.11	0.02	.07	0.34	.74	−0.11, 0.16
PP	0.04	.08	0.50	.62	−0.12, 0.21	0.13	.08	1.50	.14	−0.04, 0.29
NP	−0.08	.08	−1.07	.29	−0.24, 0.07	−0.08	.08	−0.98	.33	−0.23, 0.08
End	0.16	.08	1.99	.05	0.00, 0.32	−0.04	.08	−0.54	.59	−0.20, 0.12
Pre-conflict level	0.21	.08	2.66	.01	0.06, 0.37	0.04	.08	0.53	.59	−0.11, 0.20
Negative feelings										
Intercept	0.01	.08	0.18	.86	−0.14, 0.17	−0.07	.07	−1.10	.28	−0.20, 0.06
PP	−0.02	.07	−0.27	.79	−0.17, 0.13	−0.05	.07	−0.64	.52	−0.19, 0.10
NP	0.02	.08	0.24	.81	−0.15, 0.19	−0.02	.08	−0.23	.82	−0.18, 0.14
End	−0.07	.09	−0.77	.44	−0.23, 0.10	0.06	.08	0.73	.47	−0.10, 0.23
Pre-conflict level	0.26	.07	3.45	<.001	0.11, 0.41	−0.05	.07	−0.69	.49	−0.19, 0.09
Perceived partner responsiveness										
Intercept	−0.00	.07	−0.04	.97	−0.15, 0.15	−0.11	.06	−1.69	.10	−0.23, 0.02
PP	0.20	.08	2.48	.01	0.04, 0.37	0.08	.08	0.96	.34	−0.08, 0.24
NP	−0.08	.08	−1.04	.30	−0.23, 0.07	0.01	.07	0.12	.91	−0.14, 0.15
End	−0.02	.08	−0.21	.83	−0.17, 0.14	−0.04	.08	−0.54	.59	−0.19, 0.11
Pre-conflict level	0.33	.08	4.37	<.001	0.18, 0.48	0.06	.07	0.85	.39	−0.08, 0.21
Rumination about relationship										
Intercept	0.00	.08	0.04	.97	−0.15, 0.16	0.02	.06	0.29	.77	−0.11, 0.14
PP	0.03	.08	0.34	.73	−0.13, 0.18	0.11	.08	1.38	.17	−0.05, 0.26
NP	0.14	.08	1.78	.08	−0.02, 0.30	0.01	.08	0.18	.86	−0.14, 0.16
End	−0.05	.08	−0.64	.53	−0.21, 0.11	−0.15	.08	−1.92	.06	−0.30, 0.00
Pre-conflict level (NA)	0.27	.07	3.63	<.001	0.12, 0.42	−0.05	.07	−0.74	.46	−0.19, 0.09

Note: PP, positive peak, NP; negative peak; End, affective ending.

tests, explicitly comparing the sizes of the effects, revealed no substantial differences in the sizes of the coefficients (all *p* > .05).

Post-Conflict Affect in Daily Life

To investigate whether the PP, NP, and affective ending of the conflict interaction in the lab predicted how participants felt upon return to daily life, we examined whether they predicted participants' amount of experienced positive and negative feelings, how responsive they perceived their partner to be, and how much they had been ruminating about their relationship during the first beep they received. Although we did not find many predictive effects of the PP, NP, or affective end on conflict recovery measures after a positive conversation, it is very possible that these were pushed into the background after the positive interaction, but became more salient again when participants returned to normal life and had time to think about it. Again, we aimed to control for participants' corresponding pre-conflict levels of the outcome variable, but it must be noted that these measures were similar, but not identical to the measures assessed in daily life. Further, we used negative feelings as a control for the analysis in which we investigated rumination about the relationship because we did not have pre-conflict levels for rumination.

In these analyses, a higher PP during the conflict interaction predicted more perceived partner responsiveness in daily life, but it did not predict negative feelings, positive feelings, or rumination about the relationship (Table 5). A higher NP did not predict any

of the outcome variables. There were no gender differences in these associations. A better affective end predicted more positive feelings in daily life, but did not predict negative feelings, perceived partner responsiveness, or rumination about the relationship.[7] Deviance tests exposed no substantial differences in the sizes of PP, NP or affective end.

Discussion

Whether or not people are able to rebound from conflicts with their partner has long-term consequences for their relationship, making it an important goal to uncover what exactly facilitates or hampers partners'

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[7]Replacing the end affective experience by the mean affective experience revealed that a better mean affective experience predicted significantly more positive feelings during the first beep (*p* = .003), and a significant gender difference (*p* = .007) revealed that this was mainly driven by women (*p* = .009 for women and .52 for men). A better affective experience did not predict rumination about the relationship, negative feelings or perceived partner responsiveness (all *p* > .05). A higher PP now suddenly predicted fewer positive feelings in men (*p* = .23), but not in women (*p* = .009), resulting in a significant gender difference (*p* = .007). It did not predict negative feelings, perceived partner responsiveness, or rumination about the relationship. The effect of the NP on positive feelings in daily life also suddenly differed by gender (*p* = .02), predicting more positive feelings in women (*p* = .02; while having no effect in men, with *p* = .48). These results were probably due to the high intercorrelations between the predictors. A higher NP did not predict any other outcome variable in daily life.

post-conflict feelings. Here, we focused on the affective aspects of the conflict interaction itself, by examining whether the most intense positive and negative emotional experience and the emotional end of the interaction predicted post-conflict affect immediately after the conflict, after couples had engaged in a new, positive interaction with their partner, and after they returned to their daily lives. The findings showed that participants' peak emotions predicted post-conflict affect immediately after the conflict. After a subsequent positive interaction and upon return to daily life, only the PP still predicted some aspects of post-conflict affect (positive feelings after the positive interaction in men and perceived partner responsiveness in daily life). How participants felt at the end of the conflict interaction did not predict any of the conflict recovery aspects at any time point except for participants' positive feelings in daily life. Because of the consistent null results for the affective end for other aspects of conflict recovery, we are hesitant to make too much of this effect.

We controlled for participants' baseline affect and perceived partner responsiveness, hereby ruling out that the effects that we observed could be explained by distressed couples reporting higher negative peaks and lower positive peaks during the conflict. Previous research has already established that distressed couples convey more negative and fewer positive behaviors and expressions, and experience more negative sentiment during a conflict (for an overview, see e.g., Fincham, 2003); our study adds to this by showing that, at least to some extent, the intensity of emotions experienced during a conflict in turn predicts how well couples feel after a conflict. This complements research showing that negative expressions and behaviors during a conflict predict more negative behaviors, more physiological changes, and less relationship satisfaction later on (Fincham & Beach, 1999; Haydon et al., 2016; Kiecolt-Glaser et al., 1993). It is remarkable that the effects of the positive peak held up better than the effects of the negative peak. This might mean that for happy couples (as baseline levels of affect were controlled for), the experience of positive emotions during a conflict affects partners longer than the experience of negative emotions.

One potential explanation for the lack of effects of the affective end on post-conflict affect might be that the endpoint of the interaction was artificially imposed upon participants. The affective end thus did not imply that the discussion or the conflict had ended as well, which would be more likely in a natural conflict interaction. However, as was also noted in the introduction, there are many instances in daily life in which couples start discussing a conflict, but have to end the discussion due to external forces, for instance, because they have to go to an appointment or to work, because their children require attention, etc. Additionally, in clinical settings, couples are also given an artificial timespan; this is the duration of the therapy session, to discuss their issues. Thus, in daily life there are plenty of cases in which the end of a conflict interaction is imposed upon the couple.

Another, related, explanation for the lack of the impact of the affective end on post-conflict affect is that our conflict topic (most annoying partner characteristics) involved relatively stable features, and was most likely considered to be irresolvable and to return in the future. Endings of affective experiences often do not have a disproportionate impact on people's judgments when these experiences are expected to continue in the future (Frederickson, 1991). Results thus might have been different if participants had discussed a conflict that they actually expected to resolve. However, because the majority of the conflicts that occur between couples involve unresolvable, ongoing, perpetual issues (Gottman, 1994; Gottman & Levenson, 1999a), this finding still has wide-ranging practical implications. For instance, they suggest that relationship therapists should focus on managing their clients' emotions during conflict discussions, and teaching couples conflict-management and emotion regulation skills instead of focusing on conflict-resolution and a positive emotional tone when closing the interaction. Additionally, it is important that therapists take into account that couples might take important emotional residue home after having a negative interaction in therapy. The finding that both the positive and negative peak mattered in the rise or fall of people's feelings after a conflict implies that the destructive effects of negative emotions on post-conflict affect can be diminished by positive moments; this extends the balance theory and research that emphasize the importance of counteracting negative emotions and behaviors by positive emotions and behaviors during conflicts (Gottman, 1993; Gottman & Levenson, 1999b).

One final alternative explanation could be that differences in peak and end effects might have been due to differences in validity or reliability of the selected measures. This possibility is supported by the finding that partners only showed substantial correlations in their negative peak but not in their positive peak or affective end. Because affective endings occurred at the same time for partners, one would more easily expect a significant correlation between partners' affective endings (although this is of course not necessarily true). However, past research on the peak-end effect has clearly demonstrated the validity of continuous self-reports to assess peaks and ends (e.g., Ariely, 1998; Schreiber & Kahneman, 2000). Our study extends this research by examining its occurrence and boundary conditions in a whole new field (e.g., Fredrickson, 2000; Tully & Meyvis, 2016).

Being among the first studies on this topic, the study of conflict recovery and its affective predictors awaits further examination. For instance, in our decision to focus on the well-known peak-end effect because of its extensive and compelling roots, we ignored other dynamic affective aspects of the interaction that might impact post-conflict affect. Other important future avenues are: investigating if these findings generalize to clinically distressed couples, other emotional couple events, and within-person designs. Additionally,

future studies could meet some of the limitations of our study, such as the use of self-report and the correlational nature of our data.

In sum, we found that (predominantly immediate) post-conflict affect in couples was primarily predicted by the extremity of the emotions, both positive and negative, partners had experienced during the conflict, and not by how they felt at the end. This has important implications for understanding the factors driving post-conflict affect and for applied practice in which post-conflict affect is often an end or intermediate goal of interventions.

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Appendix

Table A1. Pattern matrix for exploratory principal component analysis with oblimin rotation

	Negative affect	Perceived partner responsiveness	Positive affect
Feeling hurt	.88	.03	.04
Feeling irritated	.87	−.23	.05
Feeling lonely or ignored	.83	−.07	.10
Feeling annoyed	.83	−.18	−.02
Feeling angry	.72	.23	−.17
Feeling anxious	.57	.55	−.23
Feeling sad	.51	.48	−.35
Feeling validated	−.17	.64	.19
Feeling cared for	−.25	.57	.37
Feeling understood	−.29	.50	.36
Feeling happy	.15	−.17	.93
Feeling satisfied with the conversation	−.01	.11	.71
Feeling close	−.13	.22	.66
Feeling loving	−.17	.36	.55

Table A2. Pattern matrix for confirmatory three-factor principal component analysis with oblimin rotation

	Negative affect	Perceived partner responsiveness	Positive affect
Feeling hurt	−.89	.05	.02
Feeling irritated	−.84	−.19	.05
Feeling annoyed	−.82	−.12	−.03
Feeling lonely or ignored	−.81	−.06	.10
Feeling angry	−.78	.22	−.21
Feeling validated	−.05	.90	−.07
Feeling cared for	.09	.74	.17
Feeling understood	.15	.65	.19
Feeling happy	−.07	−.11	.90
Feeling satisfied with the conversation	.04	.12	.68
Feeling close	.14	.18	.64
Feeling loving	.14	.34	.49

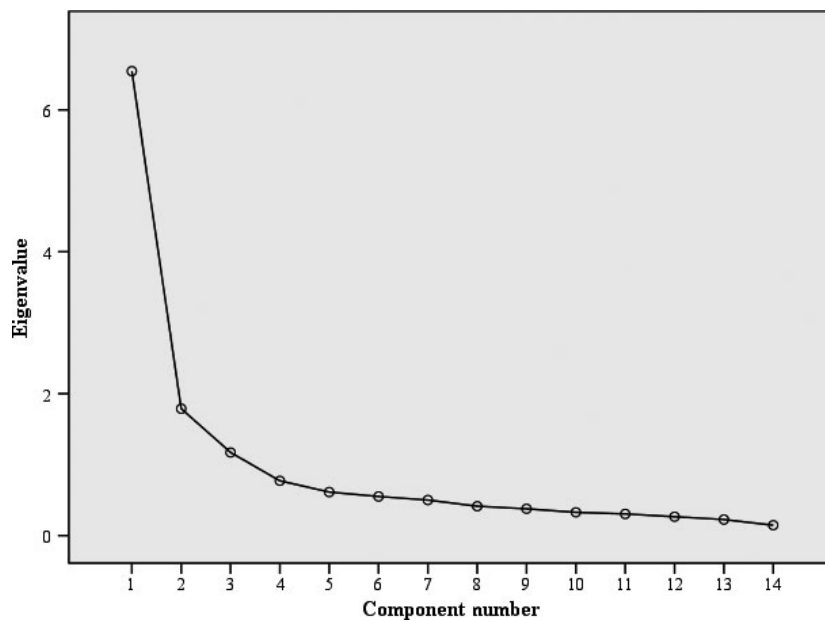*Note*: The items "feeling sad" and "feeling anxious" have been removed.

Fig. A1: Scree plot for exploratory principal component analysis with oblimin rotation