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Enjoying the Sweet Moments: Does Approach Motivation Upwardly Enhance Reactivity to Positive Interpersonal Processes?

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In intimate relationships, greater social approach motivation is associated with a host of personal and relational benefits. Why is this the case? Although previous research suggests approach motivation primarily influences relational outcomes via increased *exposure* to positive relational events, in this research, based on approach–avoidance motivational theory, we revive the *upward reactivity* hypothesis, which suggests approach motivation upwardly enhances people's affective and relational experiences in response to positive social events. Specifically, we hypothesized that people with greater social approach motivation would react more positively to positively valenced interactions with their partner, and that this would occur even when accounting for their global levels of key outcomes. We tested these ideas across three studies. In all three studies, couples first reported their approach motivation toward the relationship, then engaged in a gratitude interaction. In Study 3, participants additionally engaged in a capitalization interaction, and provided nightly reports of positive relational events across the course of 14 days. We found robust support for the upward reactivity hypothesis: In lab-based interactions and in daily life, individuals with greater approach motivation reported enhanced outcomes in response to positive social events. We also found support for *upward observability*: When individuals were high in approach motivation, their partners observed them as experiencing greater positive emotion during the laboratory interactions. Moreover, we found evidence for *upward crossover*, as the upward reactivity experienced by people with greater approach motivation indirectly predicted enhanced partner outcomes. These results provide suggestive evidence that approach motivation can make already good relational moments extra sweet.

Keywords: approach motivation, capitalization, gratitude, intimate relationships

Supplemental materials: https://doi.org/10.1037/pspi0000312.supp

Prior research has extensively documented the relational benefits of social approach motivation—or the extent to which people are driven to seek out rewards and positive experiences in the social domain—within intimate relationships (Gable, 2006; Impett et al., 2010, 2008; Mattingly et al., 2012). What is less clear, however, is precisely how social approach motivation has these benefits. Previously, researchers have sought to explain the benefits of social approach motivation primarily in terms of increased *exposure* to positive relational events and experiences (Elliot et al., 2006; Gable, 2006; Gable & Gosnell, 2013; Gable & Impett, 2012), whereby individuals with greater approach motivation actively seek out a greater frequency of positive social events. In this research, we explore an additional, novel mechanism for understanding the benefits of approach motivation to social relationships: Based on approach–avoidance motivational theory (Elliot & Thrash, 2002), we revisit the *reactivity* hypothesis, which suggests that approach motivation upwardly transforms the way people experience positive interpersonal interactions. Specifically, we suggest that people with greater approach motivation in their relationships are upwardly reactive (i.e., experience enhanced affective and relational outcomes) in response to positive interpersonal processes like gratitude and capitalization (Algoe, 2019a); we call this the *upward reactivity hypothesis*.

Extending these ideas, we also believed that upward reactivity would have positive consequences in social interactions for the partners of people higher in approach motivation. In particular, we proposed the corollary *upward observability* and *upward crossover* hypotheses, which suggest that when individuals are high in approach motivation, their upward enjoyment tends to (a) be

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observed by partners, and (b) be beneficially linked with the experience of the partner, regardless of the partner's own level of social approach motivation. We tested these hypotheses using data from 3 studies of intimate couples (overall $N = 642$), in which participants completed gratitude interactions (in Studies 1–3), a capitalization interaction (in Study 3), and a 14-day nightly survey of their relational events (in Study 3).

Approach and Avoidance Motives in Social Relationships

Approach–avoidance motivational theories (Elliot & Thrash, 2002; Gable et al., 2000) argue that individuals can be distinguished in terms of two independent tendencies: the way they seek out, desire, and respond to positive stimuli (approach), and the way they attempt to avoid and/or respond to negative stimuli (avoidance). These theories hold that when people are high in approach motivation, they are especially energized, stimulated, and excited by positive events (Elliot & Thrash, 2002). Likewise, people high in avoidance motivation are theorized to experience negative events as especially threatening and to take particular steps to avoid these events (Elliot & Thrash, 2002). Most theorists argue that these systems are distinct, such that individuals can be high in both approach and avoidance motivation, low in both, or high in one and low in the other. Moreover, these systems appear to have neurobiological underpinnings, with research suggesting the approach and avoidance systems emerge from different neurobiological substrates (Elliot & Thrash, 2002; Gable et al., 2000; Sutton & Davidson, 1997). Importantly, extensive empirical evidence supports approach–avoidance motivational theory, demonstrating that approach and avoidance motives play a role in predicting behavior and outcomes in a variety of domains, including in achievement, daily mood, physical health, and others (e.g., Derryberry & Reed, 1994; Elliot & Sheldon, 1998; Gable et al., 2000; Higgins et al., 1997).

Drawing on the distinction between approach and avoidance motives in these other domains, Gable (2006) suggested that approach–avoidance motivational theory is relevant to understanding behavior in social relationships. Specifically, social approach motivation refers to a desire to create positive interactions, moments, and experiences with close others, whereas social avoidance motivation refers to a desire to avoid conflicts, rejection, and relational unhappiness. In the context of an intimate relationship, a person high in social approach motivation would be particularly concerned with cultivating positive moments with their partner, making their partner happy, and creating a sense of closeness. A person high in social avoidance motivation would be concerned with avoiding conflict, ensuring their partner is not upset, and preventing bad moments in their relationships.

In empirical studies, researchers have operationalized approach and avoidance motivation in a number of ways. For instance, some studies have examined how general approach–avoidance tendencies predict behaviors, experiences, and outcomes in intimate relationships (e.g., Gable, 2006, Study 2). Other studies have examined how the approach and avoidance goals that intimate couples' specifically hold *for their relationship* influence their behaviors and outcomes in intimate relationships (e.g., Impett et al., 2010). Finally, other studies have operationalized approach and avoidance motivation in the form of commitment, reasoning that people can be committed to a relationship for approach- or avoidance-related reasons (Strachman & Gable, 2006a). Researchers argue these types of approach and avoidance motivation are conceptually related and hierarchically organized, such that individuals with greater general approach motivation should also tend to have greater approach social goals or approach motivated commitment, and that these more specific forms of social approach or avoidance also provide an indicator of one's general tendency toward approach or avoidance (e.g., Elliot et al., 2006; Gable, 2006; Strachman & Gable, 2006a).

Regardless of the way approach motivation is operationalized, research demonstrates that it is associated with a host of positive outcomes for intimate relationships. For instance, Impett et al. (2010) conducted a series of dyadic studies of relationship experiences which included daily reports, behavioral observations, and short-term longitudinal outcomes. Across these studies, both individual and partner social approach goals predicted greater relational well-being, including greater relationship satisfaction. By contrast, those with greater social avoidance goals tended to have poorer outcomes on these same indicators of relational well-being. Other research has similarly linked approach motivation (in the form of general approach motivation, social approach goals, and approach motivated relationship commitment) to numerous beneficial relationship behaviors and outcomes, including enhanced sexual desire (Impett et al., 2008; Muise et al., 2013), increased sacrifice in relationships (Impett et al., 2014), enhanced attachment security (Dandurand et al., 2013), and self-expansion in relationships (Mattingly et al., 2012).

How Is Approach Motivation Linked to Beneficial Relationship Outcomes?

Given that approach motivation is linked to an extensive list of beneficial relationship outcomes, researchers have sought to understand how approach motivation has this positive relational influence. In doing so, researchers have argued that social approach motivation primarily influences relationship outcomes via increased *exposure* to positive relationship events, whereas avoidance motivation is primarily thought to influence social outcomes through *reactivity* to negative relational events (Gable & Gosnell, 2013; Gable & Impett, 2012). For instance, supporting the exposure hypothesis, a longitudinal study spanning 2 months demonstrated that individuals with stronger social approach goals at Time 1 reported a greater number of positive social events (e.g., spending time with friends) when surveyed at Time 2, whereas avoidance goals did not predict the frequency of positive or negative social events reported (Gable, 2006). When participants did report negative social events, however, those who reported greater social avoidance goals rated those events as particularly important, and experienced greater decrements in well-being, a pattern that supports the negative reactivity pattern hypothesis. Approach goals, however, did not predict participants' ratings of the importance of positive or negative events, leading researchers to conclude social approach motivation influences exposure and not reactivity to positive social events (see Elliot et al., 2006 for similar findings).

In the present research, our goal is to more deeply examine the way in which individual differences in social approach motivation may enhance relationship outcomes. We take no issue with the conclusion that approach motivation increases exposure to positive

events, as prior research provides evidence that it does. We do, however, believe that prior research has yet to fully test the reactivity hypothesis—that is, whether approach motivation is associated with greater enjoyment of positive social events and interactions. Indeed, general approach–avoidance motivational theory suggests that reactivity to positive stimuli is fundamental to the construct of approach motivation (Elliot & Thrash, 2002); for instance, Elliot and Thrash (2002, p. 805) suggest approach motivation represents a "general neurobiological sensitivity to positive/desirable (i.e., reward) stimuli (present or imagined) that is accompanied by perceptual vigilance for, affective *reactivity* to, and a behavioral predisposition toward such stimuli" (emphasis added). Given this general potential for affective reactivity to positive stimuli outside of relationships, we believe it is likely that individuals with greater social approach motivation experience upward reactivity to positive social experiences, but that prior research has yet to document this reactivity.

Upward Reactivity in Social Relationships

Prior research has examined the influence of approach and avoidance motivation on exposure and reactivity primarily using social events checklists, in which participants retrospectively (across the course of two months) assess the frequency and importance of various positive and negative social events (e.g., Elliot et al., 2006; Gable, 2006). We believe these long-term, retrospective self-reports may not sufficiently capture the upward reactivity that we predict people higher in approach motivation experience in response to positive interpersonal interactions. One reason for this is that reactivity and exposure may be confounded in studies that use these types of methods. That is, if people are upwardly reactive to positive events (i.e., if they enjoy them more), they might report having more of them because their enjoyment enhances their memory for the event. Supporting this idea, previous research suggests that social motives can bias memory for social information (Strachman & Gable, 2006b). Additionally, it might simply be difficult for people to accurately recall exactly how they felt in response to a social event when asked about it days or weeks later (Robinson & Clore, 2002). As such, we believe that prior research has yet to rigorously test whether, as interpersonal moments unfold, individuals high in approach motivation tend to react more positively to positive social experiences. In particular, we believe that a strong test of the upward reactivity hypothesis would expose all participants to a positive social interaction, and assess their subjective experiences of the interaction immediately after it is over. Similarly, prior research suggests daily dairy methods may also help to address the potential problems related to retrospective self-reporting; although they are not immune to self-reporting biases, and although they do involve some level of retrospection (over the day's events), because participants provide reports of key events in closer juxtaposition to the actual event itself, the biases that emerge in diary research tend to be less problematic than retrospection over the course of months (Schwarz, 2012).

Keeping these methodological considerations in mind, we draw on recent research examining *positive interpersonal processes* to explore the possibility that people high in approach motivation may be upwardly reactive to positively valenced relational events. Positive interpersonal processes refer to social interactions in which a positive emotion lies at the heart of the interaction, and one person's thoughts, feelings, or behaviors can influence another's (Algoe, 2019a). Although many types of social interactions have the potential to produce beneficial outcomes (e.g., providing social support when someone is experiencing stress; Feeney & Collins, 2015; Overall et al., 2010), positive interpersonal processes are not just beneficial in terms of typical outcomes, but are inherently positively valanced in terms of the experience of the interaction itself (Algoe, 2019a). In light of their inherently rewarding nature, these interactions represent an excellent theoretical context in which to test the ways in which people high in approach social motivation respond to positive social interactions.

Two prominent examples of positive interpersonal processes in intimate relationships include gratitude and capitalization interactions. For present purposes, gratitude interactions refer to those moments when people express appreciation for the praiseworthy actions of their partners (Algoe et al., 2013, 2016), and capitalization interactions refer to those moments when people share good news with their partners (Gable et al., 2006). Two crucial outcomes of gratitude and capitalization interactions include positive emotions and perceived partner responsiveness: when partners engage in expressed appreciation, or share good news, it lays the groundwork for better relationships via enhanced positive emotions and greater perceptions of partner responsiveness (Algoe, 2012; Algoe et al., 2016; Gable et al., 2006; Peters et al., 2018; Reis et al., 2010). Both positive emotions and perceived partner responsiveness play distinct and important roles in individual well-being and relationship maintenance across time (e.g., Fredrickson, 2001; Impett et al., 2010; Reis, 2013).

Based on approach–avoidance motivational theory, we suspected these already beneficial social interactions would be especially "sweet" for those high in approach motivation. That is, a person high in social approach motivation may experience a gratitude or capitalization interaction with an intimate partner as especially rewarding or enjoyable, a proposition which we call *the upward reactivity hypothesis.* More specifically, we suspected that upward reactivity would have relevance for individuals' experiences of (a) positive emotions and (b) perceived partner responsiveness in response to positive interpersonal interactions. With respect to positive emotions, approach–avoidance motivational theory suggests that people high in approach motivation tend to experience especially strong positive affective reactions to positively valanced stimuli (Elliot & Thrash, 2002, 2010). Given that gratitude and capitalization interactions represent positively valanced interactions that have a general tendency to evoke positive emotions (Algoe, 2012, 2019; Algoe et al., 2016; Gable et al., 2006; Peters et al., 2018; Reis et al., 2010), we suspected that people higher in social approach motivation would experience especially high levels of positive emotions in response to these positively valenced interactions. We call this affect-specific subhypothesis of the more general upward reactivity hypothesis the *upward affective reactivity hypothesis*.

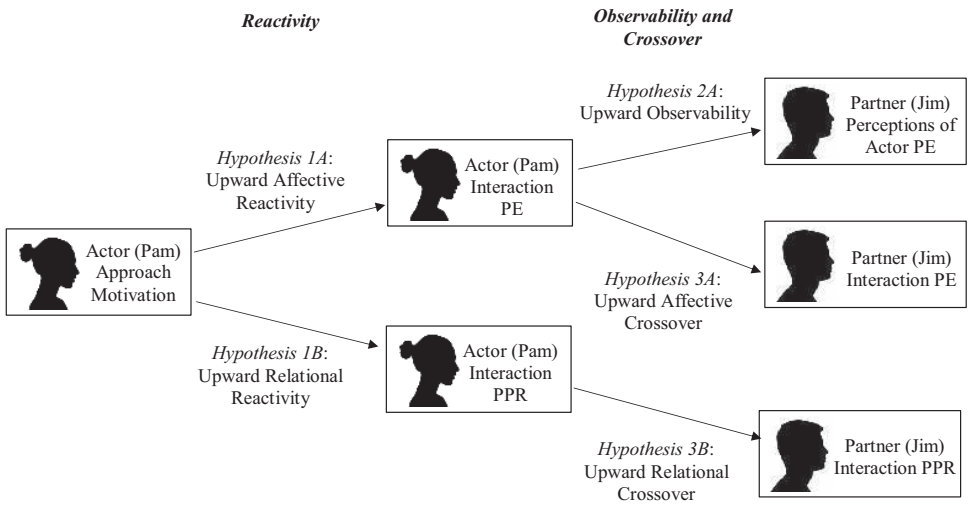
Additionally, although the previous literature examining reactivity has primarily theorized and/or documented this effect with respect to emotions (e.g., Elliot & Thrash, 2002, 2010; Smillie et al., 2012), in positive interpersonal interactions we theorized that upward reactivity would be reflected in more than just the personal affective experience of the individual. Theory and research on positive interpersonal processes suggests that a key attribute of interactions like gratitude and capitalization is that they also in-

fluence people's experience of their relationship—in particular, by promoting the perception that their partner is responsive (Algoe, 2012; Algoe et al., 2016; Gable et al., 2006; Peters et al., 2018; Reis et al., 2010). We suspected these socially rewarding experiences typical of gratitude and capitalization interactions (reflected in generally higher perceived partner responsiveness) would be amplified for people high in social approach motivation. In this way, we extend the concept of reactivity to the relational domain. We call this subhypothesis the *upward relational reactivity hypothesis*, which suggests that approach motivation enhances not just the individual's subjective affective experiences during positive interpersonal processes, but also the individual's subjective relational experiences.

Crucially, prior research demonstrates that people higher in social approach have preexisting differences in positive emotions and perceived partner responsiveness, as compared with people lower in approach motivation. That is, individuals with greater levels of approach motivation have a trait-level, general tendency to experience greater positive emotions (e.g., Elliot & Thrash, 2002, 2010; Gable et al., 2000), and better relational outcomes (Gable & Impett, 2012; Impett et al., 2010; Muise et al., 2013). As such, in examining whether people with greater levels of approach motivation are upwardly reactive to positive relational events in the laboratory and in daily life, it is important to account for global differences in positive emotions and perceived partner responsiveness, because there are likely differences between people high relative to low in approach motivation. That is to say, our upward affective and upward relational reactivity hypotheses are fundamentally about the boosts that people receive in response to positive relational events like gratitude and capitalization *irrespective of their trait-level, global differences* in these affective and relational variables.

At this point, it is important to discuss the perspective of the individuals involved in gratitude and capitalization interactions. Prior research on positively valenced interactions suggests that each individual involved in the interaction does play a unique role in the interaction. For instance, suppose a hypothetical couple—Jim and Pam—are engaged in a gratitude interaction. If Jim is expressing his gratitude to Pam, prior research suggests that Jim's experience as the expresser is unique in certain ways. For instance, Jim's expression of gratitude may uniquely change his view of the relationship (Lambert et al., 2010). As the target of Jim's gratitude expression, Pam also tends to experience unique benefits depending on the nature of Jim's behavior during the gratitude interaction (e.g., Algoe et al., 2016). Most importantly for our purposes, however, despite the fact that prior research suggests that each individual in gratitude and capitalization interactions has a distinct role, prior research suggests that both individuals involved in these interactions tend to experience enhanced affective and relational outcomes regardless of which role they enact (Algoe et al., 2010, 2013; Lambert et al., 2010; Lambert & Fincham, 2011). That is, when Jim is the expresser and Pam is the target in a gratitude interaction, they both tend to experience beneficial outcomes in response to these positively valenced interactions. The same is true in the context of other positively valanced relational processes, like capitalization interactions: Regardless of whether Jim is sharing his good news to Pam, or vice versa, these interactions are theoretically beneficial for both members of the couple (Peters et al., 2018). As such, for both gratitude and capitalization interactions, we suspected that approach motivation would contribute to upward reactivity regardless of each individual's role in the interaction. Figure 1 provides an over-

Figure 1
An Overview of Major Study Hypotheses in a Positive Interpersonal Interaction



Note. PE = positive emotions; PPR = perceived partner responsiveness. All models controlled for global levels of the outcome variable (i.e., positive emotions or responsiveness) for both members of the interaction, the actor's avoidance motivation, as well as the partner's approach and avoidance motivation. The tests of Hypotheses 2A, 3A, and 3B were indirect effects. So, for instance, the upward observability hypothesis includes Pam's upward affective reactivity path *and* the path from Pam's interaction positive emotion to Jim's perceptions of Pam's positive emotions during the interactions.

view of this upward reactivity hypothesis.[1] It suggests that, from the perspective of the individual (in this case, from Pam's perspective), her approach motivation should directly predict her own enhanced outcomes, and this should occur regardless of which role she enacts during the interaction.

Because we expected that both members of these positive interpersonal interactions were likely to experience upward reactivity, it was important to establish that Jim and Pam both independently experience upward reactivity. That is, it is possible (as we outline later in the introduction) that Pam's upward reactivity may mean Jim experiences better outcomes during the interaction. If this were the case, a skeptic might argue that only one person is ultimately driving reactivity in these interactions, and that Jim is merely a passenger to Pam's upward enjoyment. To account for this possibility, in all of our tests of the upward reactivity hypothesis, we statistically controlled for the (a) relationship approach motivation of the partner and (b) trait-levels of the outcome variable for *both members of the interaction*. For instance, when using Jim's approach motivation to predict his own positive emotions after the interaction, by accounting for Pam's approach motivation and Pam's trait positive emotionality (in addition to Jim's trait positive emotionality), we examine the *unique* upward reactivity conferred by Jim's approach motivation, independent of Pam's approach motivation and trait positive emotionality. In this way, we are able to test whether each individual uniquely experiences upward reactivity in these interactions, independent of their partner.[2]

Finally, we wanted to account for one other potential confound: the prospect that these positive interactions may be objectively different for individuals high relative to low in approach motivation. That is, because prior research suggests that people high in approach motivation tend to experience a number of benefits in their relationships (Gable & Impett, 2012; Impett et al., 2010), it is possible that their partners may treat them fundamentally differently during positive interpersonal interactions, which could explain why people high in approach motivation respond especially strongly to these interactions. In the case of gratitude, supposing Pam is the target of Jim's gratitude expression, prior research suggests that, although these interactions tend to be generally beneficial (Algoe et al., 2013), one contributor to Pam's experience of positive outcomes of the interaction is the extent to which Jim's expression of appreciation conveys other-focused praise (Algoe et al., 2016). When expressers convey greater other-focused praise, targets more readily experience positive emotions and perceived partner responsiveness. For capitalization interactions, prior research suggests a contributor to the outcomes for the person sharing the good news is the extent to which the respondent is constructive (vs. destructive) and active (vs. passive) to that news (Gable et al., 2006, 2012; Peters et al., 2018). That is, when Pam shares good news, the extent to which Jim is active and constructive in his response plays a role in determining the outcomes of the interaction for Pam. Were it the case that Pam, as a target or capitalizer with high approach motivation, simply had a partner (Jim) who was especially likely to engage in (a) other-focused praising expressions of gratitude or (b) active and constructive responses to capitalization, it would provide an alternative explanation to the upward reactivity hypothesis. Instead, we believed that people higher in approach motivation would experience enhanced benefits of these interactions even when we statistically controlled for how the partner behaved during the interaction. Our goal in conducting these analyses was to demonstrate that, even when these interactions were statistically adjusted to be relatively similar on the behaviors previously documented to influence the outcomes of interest, both members of the interaction would experience enhanced affective and relational outcomes if they were higher in approach motivation.

The Implications of Upward Reactivity for Partners: Upward Observability and Crossover

Although our first goal was to establish that individuals in positive interpersonal interactions uniquely experience upward reactivity, independent of their partner's experience, we next wanted to explore the implications of upward reactivity for the partner. Specifically, we tested two theoretically important processes, and we provide a conceptual overview of these processes in the right half of Figure 1. First, we tested the *upward observability hypothesis*. Based on longstanding theorizing about the communicative functions of emotional experiences (e.g., Brady et al., 2017; Ekman, 1993; Keltner & Haidt, 2003; Lindquist et al., 2014; Rychlowska et al., 2017; Sauter et al., 2010; Tracy & Robins, 2004; Van Kleef, 2009), and paired with our hypothesis that individuals high in approach motivation would experience more positive emotions during these positively valenced interactions, we reasoned that partners of people high in approach motivation would be able to observe them having an especially enjoyable experience during the interaction (see the top indirect path from Pam to Jim in Figure 1).

This hypothesis was important to examine, because positive emotions serve a signaling function in relationships: When people perceive others as experiencing positive emotions, it signals to the individual that their interaction partner is affiliative and friendly, and aids in the creation of intimacy (Harker & Keltner, 2001; Lyubomirsky et al., 2005). Because of this, perceived partner positive emotion is an important outcome in and of itself: To the extent that partners perceive actors as experiencing greater positive emotions during positive interpersonal interactions, it should aid in the creation of close, intimate, and successful relationships. Additionally, demonstrating that actor approach motivation is indirectly linked to greater partner perceptions of the actor's positive emotion also serves to corroborate the idea of upward reactivity:

[1] This figure is intended to provide a streamlined, graphical depiction of our hypotheses, but is not intended to illustrate how we statistically tested our hypotheses.

[2] We note here that we believe upward reactivity is an individual process that (a) occurs in dyadic contexts and (b) has dyadic implications. Specifically, at the individual level, we predicted that when individuals with greater relationship approach motivation engage in positive interpersonal interactions with their intimate partner, they will experience enhanced individual outcomes (positive emotions and perceived partner responsiveness). Because this individual process occurs in the context of a dyadic interaction, we felt it was important to demonstrate this tends to independently occur for both members of these interactions (so that it is not just one member of the interaction driving outcomes for both individuals) by including a rigorous set of covariates, such as partner approach motivation and partner global positive emotions. Then, once we established upward reactivity occurs for each individual, we also examined the dyadic implications of this individual process, or whether the individual's upward reactivity may have beneficial implications for the partner. We return to these implications for the partner later in the introduction.

Beyond just the individual self-reporting reactivity during these interactions, if the partner notices that individuals higher in approach motivation tend to experience greater positive emotions, it indirectly demonstrates that reactivity is observable beyond self-reports.

In our tests of the upward observability hypotheses we again accounted for a series of key covariates. In particular, we accounted for the global positive emotions for both members of the interaction, as well as the approach motivation of the *partner,* who is the person observing the individual's reactivity. We felt it was important to account for the partner's approach motivation, because of the possibility that if Jim is making judgments about Pam's positive emotions during the interaction, Jim's own approach motives may influence his judgments of Pam's affective experience during the interaction. Similarly, if Jim experiences a high degree of global positive emotions, these may bias his judgments of Pam's experience during the interaction. Finally, by including both Jim and Pam's approach motivation, we account for the possibility of assortative mating (e.g., Luo & Klohnen, 2005), whereby couples tend to be drawn to intimate partners with similar characteristics. That is, using the example of gratitude interactions, when Pam is high in approach motivation, it is possible that her partner, Jim, tends to have similarly high levels of approach motivation. Thus, though it is a conservative test, we statistically controlled for the partner's level of approach motivation and global positive emotions in all analyses that examine upward observability, to ensure upward observability was driven by Pam's upward reactivity, and not Jim's approach motivation or trait levels of positive emotion, considering Jim and Pam may be similar on these characteristics.

In addition to upward observability, we also examined a second way in which upward reactivity may influence partners: the *upward crossover hypothesis* (depicted in the middle and bottom indirect paths of Figure 1). Because we expected that individuals higher in approach motivation would experience greater positive emotions and perceived partner responsiveness during gratitude and capitalization interactions, we predicted these interactions would boost these outcomes for the partners of people higher in social approach motivation as well. We call these sub-hypotheses the *upward affective crossover* and *upward relational crossover* hypotheses.

There is ample theoretical reason to suspect that one person's upward reactivity may cross over into their partner's emotional and relational experiences in positive interpersonal interactions. For instance, theory on emotional contagion suggests that in social situations, the emotional experience of one person can spread to another person's emotional experience (e.g., Parkinson, 2011; Parkinson & Simons, 2009). Moreover, Reis (2014) describes a process called mutual cyclical growth, whereby the trust, benevolence, and caring that underlies perceived partner responsiveness is interdependent, such that it can cross over into one's partner and lead the partner to begin to experience these same types of perceptions and behaviors. Similarly, theory on positivity resonance (Fredrickson, 2016), an outgrowth of broaden-and-build theory (Fredrickson, 2013), suggests that in social situations, the emotions, care, and concern of one person can be coexperienced with another person. All of these ideas provide firm theoretical foundation for predicting a crossover of one person's beneficial experiences to another.[3]

Given this research suggesting one person's emotional and relational experiences can spread to or be coexperienced by another person, we suspected this would apply to our theorizing on positive interpersonal processes. The upward crossover hypothesis predicts that the individual's approach motivation will provide a boost to the partner's experience of the interaction, via the mechanism of the upward reactivity (i.e., enhanced positive emotions or perceived partner responsiveness) of the individual. We expected this to occur even when accounting for the partner's approach motivation and the partner's global positive emotionality or perceptions of responsiveness (i.e., accounting for the possibility of assortative mating). As an example, during a gratitude interaction, if Pam is high in approach motivation, the upward reactivity hypothesis suggests she is likely to experience a greater degree of positive emotion and perceive Jim to be more responsive during the interaction, which are likely to spread to or be coexperienced by Jim. We again expected this would occur (a) controlling for Jim's approach motivation, (b) controlling for both Jim and Pam's general levels of positive emotionality or perceptions of partner responsiveness, and (c) regardless of each person's role during the interaction.

The Current Study

Drawing on approach–avoidance motivational theory, which suggests that people high in approach motivation experience enhanced reactivity to rewarding stimuli, we advanced prior research examining approach motivation in the social domain to test three primary hypotheses: *the upward reactivity hypothesis* (and its two corollary subhypotheses, *the upward affective* and *upward relational reactivity hypotheses*; Hypotheses 1A and 1B), *the upward observability hypothesis* (Hypothesis 2), and *the upward crossover hypothesis* (and its two corollary subhypotheses, *the upward affective* and *relational crossover hypotheses*; Hypotheses 3A and 3B). We examined these hypotheses by drawing on data from 3 archival studies of couples using observational methods (in all three studies) and daily diary methods (in Study 3 only). In all three studies, couples were observed as they engaged in four independent interactions that fall squarely in the theoretical space of interest: They are each positive interpersonal processes. In each of these studies, participants completed assessments of their social approach and avoidance motivation, then engaged in a gratitude interaction, after which they reported their perceptions of partner responsiveness and experience of positive emotions during the interaction. In Studies 1 and 2, participants also reported percep-

[3] Although the exact processes by which emotion contagion, mutual cyclical growth, and positivity resonance occur are different, especially with respect to temporal resolution, our goal was not to test which of these theories best supports our hypothesis; instead, we use these theories to document strong theoretical foundation for our crossover hypothesis. In the gratitude and capitalization interactions that we introduce in the Methods section, we are not able to parse apart the temporal sequence between one individual's experience of positive emotions during the interaction, and their partner's subsequent experience of those positive emotions, because we assessed postinteraction ratings from each person, rather than moment-to-moment experiences throughout the conversation. Nonetheless, for theoretical and conceptual reasons, the hypothesis is on solid ground, and our statistical approach allows for a strong initial test of the possibility that the partner's experience is amplified by the approach motives of the participant.

tions of their partner's positive emotion after the interaction.[4] In Study 3, participants additionally completed a capitalization interaction, which helps us to generalize these findings to a second type of positive interpersonal process not centered on gratitude. Each of these interactions was video-recorded and subsequently coded for behavior by independent observers. Finally, in Study 3 participants also completed 14 days of nightly surveys, in which they reported a notable event that occurred within the context of their relationship. We examined whether people higher in approach motivation reported greater positive emotions and rated the events as more important on days in which they experienced a positive relational event.

Studies 1 and 2

In Studies 1 and 2, we drew upon archival data from two studies which used a well-established laboratory-based gratitude interaction paradigm. The protocol, measures, participants, and gratitude interaction task in both of these studies were similar in many respects (with a few notable exceptions, which we describe later). As such, in accordance with the recommendations of Curran and Hussong (2009; see also Hussong et al., 2013), we pooled the two data sets to conduct an Integrative Data Analysis (IDA). IDA confers a number of advantages, including in maximizing power (Curran & Hussong, 2009; Hussong et al., 2013). In particular, a strength of IDA is that it allows for the use of the raw data even when measures across different studies are distinct (Hussong et al., 2013). We outline further details of this IDA, including methods and results for both studies, below.

Method

Participants and Procedure

Participants for both studies were recruited from the community in the Southeast of the United States for a study advertised as "Everyday Couple Interactions." For both studies, all participants were heterosexual, and currently engaged in a romantic relationship lasting at least 1 year. Both Studies 1 (Adair et al., 2018; Algoe et al., 2017) and 2 (Algoe & Way, 2014; Algoe et al., 2016) have been previously documented in prior publications with distinct aims from this research. Study 2 is also documented in the Love Consortium Dataverse (Algoe, 2019b).

Study 1 consisted of 119 couples ($N = 238$ individuals) who attended the lab session in which the gratitude interaction occurred and completed all measures of interest. On average, participants were 27.21 years old ($SD = 9.89$). Most participants identified as White (69.2%), with 12.1% of participants identifying as Black or African American, 5.3% of participants identifying as East Asian, 2.8% identifying as South Asian, 0.4% identifying as American Indian or Alaskan Native, and 10.1% identifying as another race; 9.1% of participants reported that they were Hispanic. Most of the couples reported that they were in a monogamous dating relationship (61.0%), with the others reporting that they were either engaged to be married or already married (39.0%). On average, participants had been in a relationship for 4.21 years ($SD = 5.09$).

In Study 2, participants were 126 couples (252 people) who attended the lab session in which the gratitude interaction occurred and completed all measures of interest. On average, participants were 23.58 years old ($SD = 5.44$). With respect to race, most participants identified as White (70.9%), with 7.9% of participants identifying as Black or African American, 11.0% of participants identifying as East Asian, 5.0% identifying as South Asian, 1.2% identifying as American Indian or Alaskan Native, and 7.5% identifying as another race. With respect to ethnicity, 9.1% of participants reported that they were Hispanic. Most of the couples reported that they were in a monogamous dating relationship (74.5%), that they were engaged to be married, already married, or cohabiting (22.5%), or that they were in another type of relationship (3.0%). On average, participants had been in a relationship for 2.16 years ($SD = 1.87$).

Procedure

In both studies, participants were recruited for a larger study designed for a different purpose; the procedures described here focus on a subset of measures, taken at baseline, which allow us to test the present hypotheses. In Study 1, participants independently completed an initial set of questionnaires about themselves and their relationship in an online survey at an initial lab session, two weeks prior to the gratitude conversation lab session; the questionnaire included an assessment of relationship approach and avoidance motives, global positive emotions, and global perceived partner responsiveness. In Study 2, participants received an online survey 24–48 hours prior to their coming to the lab, that they were asked to complete from home, which included assessments of relationship approach and avoidance motives, and global perceived partner responsiveness. Upon arrival to the lab, participants in Study 2 also completed an assessment of global positive emotions. During the laboratory session, participants in both studies completed a gratitude interaction task. Participants were provided the following instructions, which are based on a standardized paradigm originally developed in Algoe et al. (2013):

> We are interested in how couples talk about the kind things they do for one another. We are interested in hearing about specific things. We'd like you to think about a specific positive thing your partner did for you recently for which you felt grateful. Your partner's positive gesture may be something that happened before but continues to make you grateful, or something going on now.

Participants were given examples of positive gestures such as if their partner did things like "surprising you with a gift, taking time to listen to a concern, or spending time doing something he or she would not typically do." Participants were instructed that they might be asked to share the thing they listed with their partner in a video-recorded conversation. Privately, in separate rooms, they were informed whether they or their partner was randomly assigned to express gratitude for the event they selected. The couple was then reunited to engage in a gratitude expression task. Participants were given 5 min to talk about the event as they normally would; this allowed the target of gratitude the freedom to respond as usual to their partner's expression of gratitude. In both studies, only one person engaged in the role of the expresser (i.e., partners did not switch roles once the first member of the couple was done).

In both studies, this laboratory session also involved an experimental manipulation that is not the focus of the current research,

[4] Because participants did not report perceptions of their partner's positive emotion after the interaction in Study 3, it was not possible to examine the upward observability hypothesis in Study 3.

reported in (Algoe et al., 2016). Prior to the interaction, while in separate rooms, half of the participants who expressed gratitude were encouraged to focus on the praiseworthy actions of their partner while expressing gratitude in the laboratory conversation, whereas half the participants were told to focus on the benefits they obtained for themselves as a result of their partner's good deeds (Algoe et al., 2016).[5] Although that prior publication already documents that this manipulation did not influence either of the outcomes of interest (perceived partner responsiveness or positive emotion),[6] the manipulation did influence behavior during the interaction (as intended), such that people in the praise condition were more likely to engage in coder-rated praise during the interaction (Algoe et al., 2016). As such, we control for the influence of experimental condition in all subsequent analyses.

Because observed praise was included as a covariate in analyses for targets only, eight additional participants (across Studies 1 and 2) were not available for inclusion in analyses which utilized observed praise as a covariate because of issues with their videorecorded laboratory interaction task (e.g., poor sound quality or problems with the videorecording). As such, the final sample available for pooled analyses at the couple level was $N = 237$ for all analyses focusing on the upward reactivity of targets (i.e., conducted with observed praise as a covariate), $N = 245$ for analyses that focused on expressers' affective reactivity (but did not include observed praise as a covariate), and $N = 247$ for analyses that focused on expressers' relational reactivity (but did not include observed praise as a covariate).

Measures

In the context of integrative data analysis, if identical measures are used—particularly those that assess the same constructs on the same scale—it is possible to use the raw scales in a pooled analysis to test major study hypotheses (Curran & Hussong, 2009; Hussong et al., 2013). When different studies utilize different scales to assess the same construct, it is necessary to standardized these scales prior to pooling the data, to ensure the scaling of the data is standard across the two studies (Curran & Hussong, 2009; Hussong et al., 2013). There were only two cases in which the two studies assessed a construct differently: global levels of (a) positive emotions and (b) perceived partner responsiveness. We outline these measures and scale construction below. All measures and data analytic syntax used in this study can be found in full on the corresponding Open Science Framework page for this study at the following link: https://osf.io/rhcsj/?view_only=89d1fdd758da4386879dc751bc5d8193

Approach and Avoidance Motives in Intimate Relationships. To assess approach and avoidance motivation in the context of the intimate relationship, participants in both studies completed a 12-item scale developed by Strachman (2007), which assesses approach and avoidance motivation for commitment within intimate relationships (see also Strachman & Gable, 2006a). The scale contains six items for approach motives and six items for avoidance motives, and participants indicated their agreement on a scale from 1 = *not at all* to 7 = *very much*. The items for each subscale were averaged to create mean scores, and internal consistency was good for both subscales in both studies (see Table 1 for internal consistencies for all measures in Studies 1 and 2).

Global Positive Emotions. Participants in Study 1 completed the CES-D (Center for Epidemiologic Studies Depression Scale), which is a 20-item scale intended to assess depression. Four positively valanced items ("I felt that I was just as good as other people," "I felt hopeful about the future," "I was happy," and "I enjoyed life") from this scale have frequently been used to assess trait-level positive affect in previous research (e.g., Moskowitz, 2003). Participants were asked how often they felt in accordance with each item in the past week on a scale from 0 = *rarely or none of the time less than 1 day*) to 3 = *most of the time (5 or more days*). In Study 2, participants completed the modified Differential Emotion Scale (Fredrickson, 2013) in which participants are asked to rate how often they felt a series of 11 sets of positive emotion terms (e.g., "amused, fun-loving, silly" "glad, happy, joyful" "inspired, uplifted, elevated" over the past 10 days on a scale from 0 = *not at all* to 4 = *most of the time*. Because these variables were assessed on a different scale, prior to pooling the data, both of these assessments were standardized by creating *z*-scores, and the standardized global positive emotions variable was used as a covariate in all subsequent analyses.

Global Perceptions of Partner Responsiveness. In both studies, participants completed an assessment of their general perceptions of their partner's responsiveness designed by Reis et al. (Reis et al., 2017). In Study 1, this assessment was a shortened version that included only 12 items, whereas in Study 2 this scale included the full 18 items (see the OSF for the items included in both studies). Participants were instructed to indicate how much each statement (e.g., "My partner sees the 'real' me," "My partner understands me") applied to their relationship on a scale from 1 = *not at all true/never true* to 7 = very true/true all of the time. Although this variable was assessed using the same measure in both studies, because the variable was assessed using a different number of items in Studies 1 and 2, prior to pooling the data, both of these assessments were standardized by creating *z*-scores, and the standardized global perceived partner responsiveness variable was used as a covariate in all subsequent analyses.

Positive Emotions After the Interaction. To assess positive emotion during/as a result of the interaction, participants in both studies reported the extent to which they felt 11 positive emotions (e.g., "satisfied," "peaceful," "inspired," "amused") during the interaction on a scale from 0 = *Not at All True/Never True* to 6 = *Very True/True All of the Time*. This measure was constructed by the second and third authors to capture a range of potential emotions following social interactions (first reported in Algoe et al.,

[5] In Study 1, 62 men and 62 women were assigned to the praise condition, whereas 66 men and 62 women were assigned to the control condition. In Study 2, 59 men and 60 women were assigned to the praise condition, whereas 66 men and 65 women were assigned to the control condition.

[6] As reported in that previous research (Algoe et al., 2016), the experimental manipulation did not influence the target's perception of the expresser's responsiveness (Study 1 Other-Praise Condition $M = 5.40$, $SD = 0.58$, Control = 5.51, $SD = 0.60$, $p = .33$; Study 2 Other-Praise Condition $M = 5.28$, $SD = 0.65$, Control = 5.09, $SD = 0.78$, $p = .15$). The same was true for other outcomes, like positive emotions and experienced love, and as shown in bivariate correlations in Table 2, experimental condition was not significantly associated with any outcome variables for expressers or targets.

Table 1
Descriptive Statistics and Internal Consistencies for Major Study Variables in Studies 1 and 2

	Study 1						Study 2					
	Targets			Expressers			Targets			Expressers		
Variable	*M*	*SD*	α	*M*	*SD*	α	*M*	*SD*	α	*M*	*SD*	α
Approach motivation	6.40	0.74	0.82	6.39	0.78	0.82	6.43	0.75	0.86	6.41	0.75	0.88
Avoidance motivation	3.63	1.98	0.94	3.56	1.97	0.94	3.99	2.05	0.95	3.97	2.22	0.96
Global positive emotions	2.51	0.52	0.69	2.49	0.49	0.75	2.83	0.62	0.90	2.83	0.64	0.90
Global perceived partner responsiveness	6.08	0.93	0.85	5.93	0.88	0.90	6.26	0.61	0.94	6.11	0.71	0.95
Interaction positive emotions	4.40	1.12	0.92	4.36	0.97	0.88	4.80	0.84	0.84	4.55	0.92	0.86
Interaction perceived partner responsiveness	5.12	0.83	0.91	5.13	0.87	0.94	5.38	0.76	0.94	5.20	0.84	0.93
Interaction perceptions of partner positive emotions	4.25	1.05	0.87	3.99	1.01	0.87	4.62	0.91	0.85	4.31	1.08	0.90
Observed praise	—	—	—	2.77	0.80	—	—	—	—	3.17	0.97	—

2013). An average score of positive emotion after the interaction was created, and internal consistency was excellent in both studies.

Perceived Partner Responsiveness After the Interaction. After the gratitude interaction, both expressers and targets of gratitude completed 10 items adapted from Reis (2013) and Gable et al. (2006) assessing perceived partner responsiveness during the interaction. The items (e.g., "My partner understood me") were completed on a scale from 0 = *Not at All True/Never True* to 6 = *Very True/True All of the Time*, and internal consistency was good in both studies.

Perceptions of Partner Positive Emotion After the Interaction. To assess perceptions of partner positive emotions, after the interaction both members were provided with the same 11 positive emotion items with the following instructions: "Now, complete the same questionnaire again, but this time indicate *how much you think your partner felt* each of the following emotions during/as a result of the interaction." Internal consistency was good in both studies.

Observational Coding of Expresser Praise. Coding for expresser praise was first reported in (Algoe et al., 2016). Three coders unaware of study hypotheses were trained to identify the extent to which the individual expressing gratitude praised their partner. Coders were first familiarized with the behavior of interest, calibrated to a set of nine randomly selected videos that were precoded by a master-coder and then checked periodically as they coded the rest of the videos. Coders rated each video globally on a scale from 1 = *no or minor use of praise* to 5 = *excellent example or major use of praise*. Examples of praising behaviors included "You know I'm a big flowers person. . ." and "You go out of your way." As reported in (Algoe et al., 2016), the coders' ratings demonstrated good consistency (Study 1 *ICC* = .86; Study 2 *ICC* = .87).

Analysis Plan

For all data analyses in Studies 1 and 2, we implemented the framework of fixed-effects Integrative Data Analysis (IDA; Curran & Hussong, 2009; Hussong et al., 2013), which provides appropriate power to test for medium-sized direct and indirect effects in these analyses, and the estimates from the raw data across the two studies is recommended over a meta-analyzed effect of two separate estimates. Studies 1 and 2 represent an ideal scenario to implement IDA, because many of the potential sources of heterogeneity between studies (e.g., heterogeneity owing to history, geography, or measurement; Curran & Hussong, 2009) were not an issue, given the laboratory session, samples, and measurement were nearly identical in both studies. Additionally, in fixed-effects IDA, it is possible to test for potential sources of heterogeneity, to examine whether they alter any major findings of interest. As such, we conducted analyses in two steps. First, we pooled the data, using raw scores from constructs which were assessed identically across the two studies, and for the two measures which were assessed differently, we standardized the variables prior to pooling the data. As is standard practice in fixed-effects IDA (Curran & Husson, 2009), we also included a dummy-coded indicator variable for data source (Study 1 was coded with a 0 and Study 2 was coded with a 1) as a covariate in all analyses. Our primary hypothesis tests were conducted with these data. Then, after examining our primary hypotheses, we conducted ancillary analyses which included interaction terms between (a) the indicator variable for data source and the primary predictor of interest (e.g., target approach motivation), (b) the indicator variable for data source and the two measures which were assessed differently across the different studies. Additionally, we also specified mediation models that included interactions between data source and standardized versions of *all predictor variables in each model*. Our primary goal with these ancillary analyses source was to examine whether inclusion of these interaction terms *altered* our primary hypothesis tests in a meaningful way (e.g., does inclusion of the interaction term between approach motivation and data source alter the coefficient for upward affective or relational reactivity?). We expected that, even when accounting for potential heterogeneity between the two studies, our major study hypotheses would remain significant when tested using the pooled data.

With respect to our substantive analyses based on the pooled data, to test Hypotheses 1 and 3, we conducted four bootstrapped tests of mediation using the PROCESS Macro (Hayes, 2017) in SPSS. The four tests were for upward (a) affective and (b) relational crossover from targets' approach motivation to expressers' outcomes (i.e., Does Pam's approach motivation indirectly predict Jim's outcomes?), and for upward (c) affective and (d) relational crossover from expressers' approach motivation to targets' outcomes (i.e., Does Jim's approach motivation indirectly predict Pam's outcomes?). PROCESS uses multiple linear regression to calculate the *a* and *b* paths that comprise the indirect effect, then uses bootstrapping to calculate bias-corrected confidence intervals for the estimate of the indirect effect. Because the *a* path calculated

by PROCESS in these indirect effects represents the reactivity path, we examined the association between the individual's approach motivation and their relevant postinteraction outcome (positive emotion or perceived partner responsiveness) to evaluate *Hypothesis 1A* (upward affective reactivity) or *Hypothesis 1B* (upward relational reactivity). Then, we examined the estimate of the indirect effect to evaluate *Hypothesis 3A* (upward affectivity crossover) or *Hypothesis 3B* (upward relational crossover), this time using the partner's reports as outcome measures. All indirect effects were bootstrapped using 10,000 subsamples.

We included a rigorous set of covariates in these analyses. First, we included global levels of the outcome variable for both members of the interaction. Second, we included the approach motivation of the partner. Third, because theory and prior research suggest that avoidance motivation should influence reactivity to negative and not positive social interactions (Gable & Impett, 2012; Impett et al., 2010), we included avoidance motivation for both partners as a covariate in all models, to ensure it was approach and not avoidance motivation that was the primary predictor of reactivity in these situations. Fourth, all analyses controlled for experimental condition. Fifth, when predicting target outcomes, expressers' observed praise was included as a covariate. To illustrate with an example, if Jim expresses his gratitude to Pam, and we are predicting Pam's positive emotions after the interaction from her approach motivation (i.e., testing for upward reactivity), we controlled for Jim's and Pam's global positive emotions, Jim's approach motivation, Jim's and Pam's avoidance motivation, experimental condition, and Jim's observed praising behavior. All of the same covariates were then used to test whether Pam's enhanced positive emotions during the interaction spilled over into Jim's positive emotions during the interaction (i.e., testing Hypothesis 3).

Power Analyses

For the tests of Hypotheses 1A and 1B, we conducted post hoc power analyses using Monto Carlo simulation in Mplus (Muthén, & Muthén, 2017). To do so, estimates were calculated using the total size of the sample at the level of the analysis (in this case, the dyad pooled across Studies 1 and 2), the effect sizes for the key coefficient of interest (as reported in Tables 2 and 3), and 10,000 simulations per model. Based on these simulations, our observed power for our tests of Hypothesis 1A (the upward affective reactivity hypothesis) was = .99 for targets and .96 for expressers. For our test of Hypothesis 1B (the upward relational reactivity hypothesis), observed power was .95 for targets and .74 for expressers. Thus, the tests of upward reactivity in Studies 1 and 2 were generally adequately powered (or slightly underpowered in one case).

To estimate observed power for the bootstrapped tests of indirect effects, we followed the recommendations of Schoemann et al. (2017). Specifically, we used an online macro (Schoemann et al., 2017) which utilizes the sample size, correlations, and standard deviations for the variables comprising the key paths of interest to estimate observed power using Monte Carlo simulation (20,000 simulations per model). The indirect effects examining target approach motivation → target positive emotions → expresser positive emotions had an observed power of .76, the indirect effect of expresser positive emotions → expresser positive emotion → target positive emotion had an observed power of .97, and the indirect effect of expresser approach motivation → expresser perceived partner responsiveness → target perceived partner responsiveness had an observed power of .68. The indirect effect of target approach motivation → target perceived partner responsiveness → expresser perceived partner responsiveness suffered from the low observed power of .40, which appeared to be driven by a weak correlation between target and expresser interaction perceived partner responsiveness in this analysis.

Results

Descriptive statistics for major study variables are presented in Table 1. Bivariate correlations using the pooled data are presented

Table 2
Bivariate Correlations Based on the Pooled Data in Studies 1 and 2

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. T approach	—																
2. T avoidance	.41**	—															
3. T Pre PPR	.22**	−.08	—														
4. T Pre PE	.16*	−.03	.25**	—													
5. T PE	.32**	.10	.27**	.31**	—												
6. T PPR	.33**	.08	.46**	.20**	.63**	—											
7. T PPPE	.28**	.18**	.27**	.24**	.83**	.60**	—										
8. E approach	.16*	.10	.20**	.07	.03	.15*	.06	—									
9. E avoidance	.14*	.24**	−.15*	−.05	−.01	−.03	−.04	.37**	—								
10. E pre PPR	.16*	−.02	.39**	.10	.20**	.40**	.22**	.33**	.12	—							
11. E pre PE	.04	.06	.17*	.13*	.12	.05	.17**	.15*	−.06	.16*	—						
12. E PE	.14*	.00	.24**	.20**	.29**	.28**	.29**	.29**	.06	.28**	.32**	—					
13. E PPR	.06	−.06	.36**	.18**	.33**	.37**	.35**	.27**	−.06	.37**	.32**	.68**	—				
14. E PPPE	.14*	.00	.18**	.20**	.33**	.29**	.30**	.23**	.14*	.26**	.31**	.83**	.63**	—			
15. Condition	−.07	−.02	.04	−.09	−.02	.01	.00	−.03	−.05	.03	−.04	.06	−.03	−.02	—		
16. Praise	−.02	−.01	.06	.00	.23**	.34**	.26**	−.03	−.05	.08	−.02	.27**	.21**	.23**	.32**	—	
17. Data source	.04	.12	.01	.01	.23**	.17*	.23**	.04	.09	.03	−.01	.01	−.01	.16*	−0.03	.23**	—

Note. T = target; E = Expresser; PPR = perceived partner responsiveness; PE = positive emotion; PPPE = perception of partner positive emotion. Data source was coded such that 0 = Study 1 and 1 = Study 2.
* $p < .05$. ** $p < .01$.

Table 3

Results of Multiple Regression Analyses Examining Upward Affective Crossover Predicting Expressers' Outcomes From Targets' Approach Motivation Using Across Studies 1 and 2

		Positive emotions					Perceived partner responsiveness				
				95% CI					95% CI		
Path	Predictor	*B*	*p*	Lower	Upper	*r*	*B*	*p*	Lower	Upper	*r*
Target interaction Outcome (Reactivity)	**Target approach motivation**	**0.41****	**<.001**	**0.23**	**0.58**	**.29**	**0.23****	**.001**	**0.11**	**0.35**	**.24**
	Condition	−0.08	.53	−0.32	0.17	.04	−0.15	.07	−0.32	0.01	.12
	Target global outcome	0.25**	<.001	0.13	0.37	.27	0.24**	<.001	0.15	0.33	.32
	Target avoidance motivation	−0.01	.65	−0.08	0.05	.03	0.01	.76	−0.04	0.05	.02
	Expresser global outcome	0.08	.16	−0.03	0.20	.09	0.19**	<.001	0.10	0.29	.26
	Expresser avoidance motivation	−0.01	.70	−0.07	0.05	.03	−0.02	.41	−0.06	0.02	.05
	Expresser approach motivation	−0.05	.56	−0.22	0.12	.04	0.01	.99	−0.12	0.12	.001
	Observed praise	0.23**	.001	0.09	0.37	.21	0.28**	<.001	0.19	0.38	.36
	Data source	0.37**	.002	0.13	0.60	.20	0.12	.15	−0.04	0.28	.09
Expresser interaction Outcome (Crossover)	Target approach motivation	0.07	.44	−0.10	0.23	.05	−0.08	.28	−0.24	0.07	.07
	Target interaction outcome	**0.17****	**.005**	**0.05**	**0.29**	**.18**	**0.15**	**.057**	**0.00**	**0.31**	**.13**
	Condition	0.03	.82	−0.20	0.25	.02	−0.18	.08	−0.38	0.02	.12
	Target global outcome	0.09	.13	−0.03	0.20	.10	0.17**	.005	0.05	0.29	.19
	Target avoidance motivation	−0.04	.23	−0.09	0.02	.08	0.01	.97	−0.05	0.05	.00
	Expresser global outcome	0.24**	<.001	0.14	0.35	.28	0.17	.01	0.05	0.29	.18
	Expresser avoidance motivation	0.01	.66	−0.04	0.07	.03	−0.04	.17	−0.09	0.02	.09
	Expresser approach motivation	0.31**	<.001	0.15	0.46	.25	0.22**	.003	0.08	0.37	.19
	Observed praise	0.27**	<.001	0.14	0.40	.26	0.17**	.007	0.05	0.29	.18
	Data source	−0.01	.90	−0.24	0.21	.01	−0.03	.80	−0.22	0.17	.02

Note. CI = confidence interval. Focal predictors for each model are highlighted in bold text.
** $p < .01$.

in Table 2. Consistent with prior research (Impett et al., 2010), approach and avoidance motivation were moderately positively correlated for both expressers and targets. At the bivariate level, consistent with predictions, greater social approach motivation was associated with greater perceived partner responsiveness and positive emotions during gratitude interactions for both targets and expressers.

Hypotheses 1A and 1B: Upward Affective and Relational Reactivity in Gratitude Interactions

Results of tests of Hypotheses 1 and 3 are presented in Figure 2 and Tables 3 and 4. Effect sizes, in the form of *r* values, were calculated using the formula recommended by Rosenthal and Rosnow (2007): $r = \sqrt{(t^2/t^2 + df)}$. As shown in the top half of Figure 2, and in left half of Tables 3 and 4, we found robust support for the upward affective reactivity hypothesis (*Hypothesis 1A*): even controlling for a stringent series of covariates (including global positive emotions for both members of the interaction), both targets, $r = .29$, $p < .001$ and expressers, $r = .24$, $p = .002$ with greater approach motivation reported greater positive emotions after the interaction. As shown in the bottom two paths of Figure 3, and the top right of Tables 3 and 4, we also found support for the upward relational reactivity hypothesis (*Hypothesis 1B*): both targets, $r = .25$, $p < .001$ and expressers, $r = .17$, $p < .008$ with greater approach motivation reported greater perceived partner responsiveness after the interaction.[7] Thus, in gratitude interactions both members of the interaction (expressers and targets) tend to experience enhanced positive emotions and perceived partner responsiveness, even accounting for an exhaustive list of covariates.[8]

Hypothesis 3: Upward Affective and Relational Crossover in Gratitude Interactions

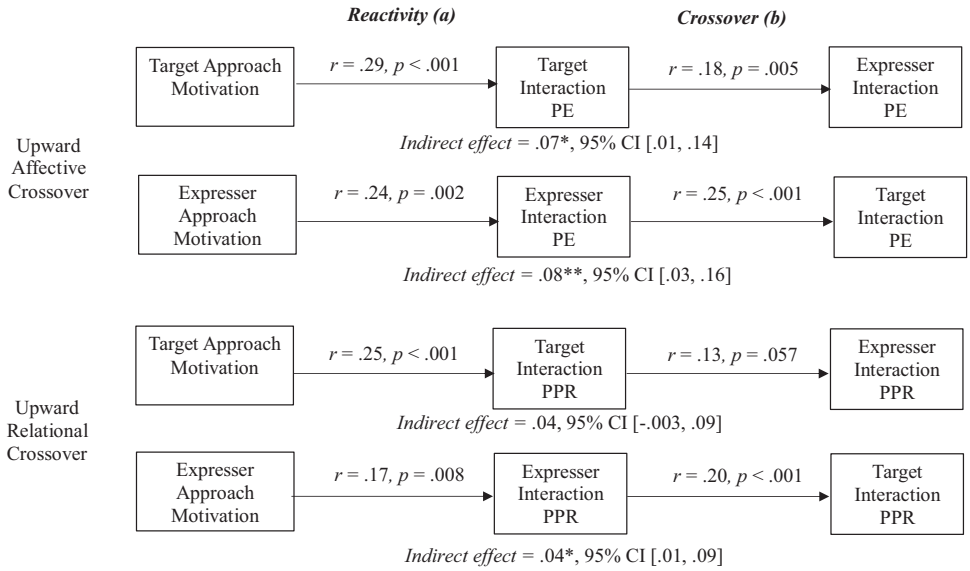
With respect to upward affective crossover (*Hypothesis 3A*), both tests were statistically significant: When targets reported greater approach motivation prior to the interaction, it was indirectly associated with greater *expresser* positive emotion during the interaction, via greater target positive emotion during the interaction (*estimate* = .07, 95% CI [.01, .14]). Similarly, when

[7] We did not have hypotheses about the role of gender, but for informational value we conducted exploratory moderation analyses to examine if upward affective or relational reactivity was dependent on gender for both targets and expressers. None of these analyses produced significant moderation of the hypothesized effect (all *p*s > .05), suggesting that upward affective and relational reactivity operated similarly for both men and women.

[8] Because we did not have strong hypotheses about whether expressers or targets would experience upward affective or relational reactivity differently, we also specified dyadic, multilevel models in which individuals were nested within couples, and where couples were treated as either (a) nondistinguishable or (b) distinguishable by role (Kenny & Kashy, 2011). Results of these analyses are presented in Ancillary Tables 7, 8, and 9. First, for both upward affective and relational reactivity, results suggested that the distinguishable model was not an improvement on the nondistinguishable model, meaning there were not significant differences in upward affective or relational reactivity between expressers or targets. Moreover, results of the nondistinguishable models confirmed the results presented in Figure 2, suggesting that regardless of role, actors with greater approach motivation experienced greater positive emotions ($B = 0.32$, $r = .25$, $p < .001$) and perceived partner responsiveness ($B = 0.19$, $r = .15$, $p = .001$) after the interaction, even accounting for a number of key covariates and any heterogeneity between the two studies.

Figure 2

Overview of Bootstrapped Mediation Analyses Examining the Upward Crossover Hypothesis in Studies 1 and 2



Note. PPR = perceived partner responsiveness; PE = positive emotions. Tests of indirect effects were bootstrapped with 10,000 replications. *r* values were calculated using the formula recommended by Rosenthal and Rosnow (2007): $r = \sqrt{(t^2/t^2 + df)}$. * $p < .05$, ** $p < .01$.

expressers reported greater approach motivation prior to the interaction, it was indirectly associated with greater target positive emotion during the interaction, via greater expresser positive emotions during the interaction (*estimate* = .08, 95% CI [.03, .16]). Because these analyses control for the partner's levels of approach motivation and positive emotion prior to the interaction, these indirect effects test the *unique* indirect association of either expresser or target approach motivation on their partner's interaction outcomes. Thus, these results demonstrate that *even while controlling for Jim's approach motivation and global positive emotions*,

Table 4

Results of Multiple Regression Analyses Examining Upward Affective Crossover Predicting Targets' Outcomes From Expressers' Approach Motivation Across Studies 1 and 2

		Positive emotions					Perceived partner responsiveness				
				95% CI					95% CI		
Path	Predictor	*B*	*p*	Lower	Upper	*r*	*B*	*p*	Lower	Upper	*r*
Expresser interaction Outcome (Reactivity)	**Expresser approach motivation**	**0.31****	**.002**	**0.15**	**0.48**	**.24**	**0.22****	**0.008**	**0.06**	**0.38**	**.17**
	Condition	0.21	.06	−0.01	0.42	.12	−0.06	0.54	−0.27	0.14	.04
	Target global outcome	0.15*	.01	0.03	0.26	.16	0.24**	<.001	0.12	0.36	.25
	Target avoidance motivation	−0.04	.16	−0.10	0.02	.09	−0.01	0.51	−0.08	0.04	.04
	Target approach motivation	0.15	.08	−0.02	0.31	.11	−0.009	0.91	−0.17	0.15	.01
	Expresser global outcome	0.27**	<.001	0.16	0.38	.30	0.18**	0.004	0.06	0.30	.18
	Expresser avoidance motivation	0.01	.82	−0.05	0.06	.01	−0.05	0.08	−0.10	0.01	.11
	Data source	0.18	.11	−0.04	0.40	.10	0.13	0.21	−0.07	0.34	.08
Target interaction Outcome (Crossover)	Expresser approach motivation	−0.11	.23	−0.28	0.07	.08	−0.04	.57	−0.17	0.09	.04
	Expresser interaction outcome	**0.27****	**<.001**	**0.13**	**0.40**	**.25**	**0.16****	**<.001**	**0.06**	**0.26**	**.20**
	Condition	0.02	.88	−0.21	0.24	.01	0.05	.56	−0.11	0.21	.04
	Target global outcome	0.23**	<.001	0.12	0.35	.25	0.23**	<.001	0.13	0.32	.28
	Target avoidance motivation	0.01	.90	−0.06	0.07	.01	0.01	.59	−0.03	0.06	.04
	Target approach motivation	0.35**	<.001	0.18	0.52	.25	0.22**	<.001	0.10	0.35	.22
	Expresser global outcome	0.02	.74	−0.10	0.14	.02	0.20**	<.001	0.10	0.30	.25
	Expresser avoidance motivation	−0.01	.65	−0.07	0.05	.03	−0.02	.46	−0.06	0.03	.05
	Data source	0.37**	.002	0.14	0.6	.21	0.21*	.01	0.05	0.37	.16

Note. CI = confidence interval. Focal predictors for each model are highlighted in bold text.
* $p < .05$. ** $p < .01$.

Pam's upward reactivity is indirectly and uniquely associated with greater positive emotions for Jim. This overall pattern was true for both expressers and targets (i.e., it was true for both Pam and Jim).

With respect to the upward relational crossover hypothesis (*Hypothesis 3B*), as presented in the bottom half of in Figure 2, the indirect effect of target approach motivation → target interaction perceived partner responsiveness → expresser interaction perceived partner responsiveness was marginally significant (e*stimate* = .04, 95% CI [−.003, .09], $p < .10$). In this case, although target approach motivation was significantly associated with enhanced target perceived partner responsiveness during the interaction, $r = .25$, $p < .001$, the association between target and expresser perceived partner responsiveness was only marginally significant in the predicted direction by conventional standards, $r = .13$, $p = .057$, which rendered the indirect effect marginally significant as well. The indirect effect of greater expresser approach motivation on target perceptions of partner responsiveness during the interaction, via expresser perceptions of partner responsiveness, was statistically significant (*estimate* = .04, 95% CI [.01, .09]).[9] Once again, because these models also control for partner approach motivation in predicting partner responsiveness, they test the unique indirect association of the individual's upward reactivity on the partner's relational outcomes. These results suggest that, even while Jim's own approach motivation promotes his own upward relational reactivity, Pam's upward relational reactivity is indirectly and uniquely associated with better relational outcomes for Jim as well, supporting our hypothesis that Pam's extra sweet experience spills over to Jim.[10]

Hypothesis 2: Upward Observability

We examined Hypotheses 2, the upward observability hypotheses, by again utilizing the PROCESS Macro in SPSS (Hayes, 2017) to test the indirect effect of individual approach motivation → individual positive emotions during the interaction → partner *perception* of the individual's positive emotions during the interaction, based on the pooled data. In this case, we conducted two analyses (one predicting expressers' perceptions of targets' positive emotion and one predicting targets' perceptions of expressers), which were bootstrapped with 10,000 replications (see Figure 3 for an overview). These analyses again controlled for (a) both partners' prediscussion levels of positive emotions, (b) the individual's avoidance motivation, (c) experimental condition, (d) the data source, (e) the approach and avoidance motivation of the *partner*, and (f) in the analyses predicting expressers perceptions of targets' positive emotions observed praise during the interaction.

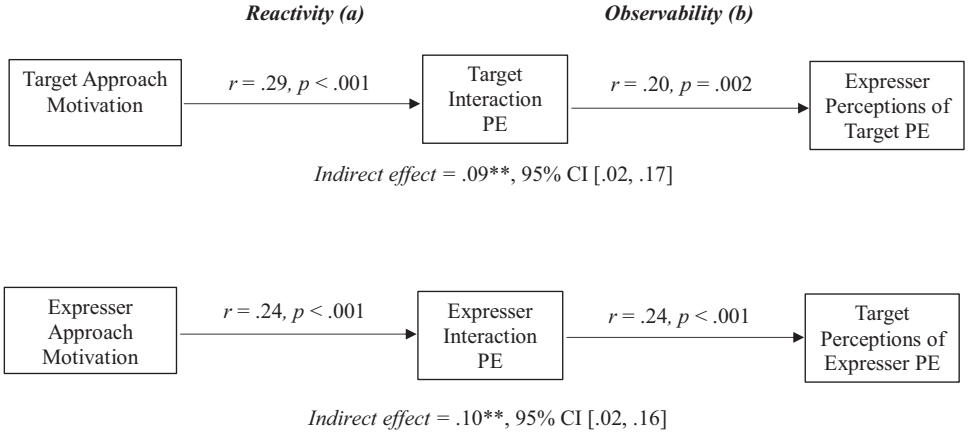
Results of these analyses are presented in Figure 3 and Tables 5 and 6. The indirect effect of target approach motivation → target positive emotions → expressers' perceptions of partner positive emotions was statistically significant (*estimate* = .09, 95% CI [.02, .17]) such that targets with greater approach motivation experienced greater positive emotions during the interaction, $r = .29$, $p < .001$, which was associated with their partners (expressers) being more likely to perceive targets as experiencing positive emotions during the interactions, $r = .20$, $p = .002$. This was true even controlling for the global positive emotions of both the expresser and the target, the avoidance motivation of the target, the approach and avoidance motivation of the expresser, experimental condition, observed praise, and the data source. The indirect effect of expresser approach motivation → expresser positive emotion → target perceptions of expresser positive emotions was also significant (*estimate* = .10, 95% CI [.02, .16]), such that expressers with greater approach motivation experienced greater positive emotions during the interaction, $r = .24$, $p < .001$, which was associated with greater target perceptions of expresser positive emotions during the interaction, $r = .24$, $p < .001$. This indirect effect remained significant even after accounting for all the same aforementioned covariates (with the exception of observed praise).[11]

[9] After conducting the primary hypothesis tests of upward reactivity and crossover based on the pooled data, we conducted 4 ancillary tests of moderated mediation to examine whether there was (a) heterogeneity in the upward reactivity and crossover findings across the two studies and (b), most importantly, whether accounting for any heterogeneity altered the overall findings of the pooled analyses. These analyses included an interaction term between approach motivation and data source and (because we used different assessments of global of positive emotions and perceived partner responsiveness in the two studies) an interaction term between data source and global levels of the outcome variable. Full results of these analyses are presented in Ancillary Tables 1–4 in the online supplemental materials (OSM) for this study. For interpretation of IDA analyses, data source was coded as Study 1 = −1 and Study 2 = 1 in all analyses presented in the OSM. As documented there, two of the four interaction terms for Hypothesis 1 (reactivity) were significant and—following from this—two of the four for Hypothesis 3 (crossover) were significant, indicating variability in the size of the effects across the two studies (the only discrepancy was that reactivity and crossover effects were less consistent for targets in Study 2). Notably, however, across all four of these moderated mediation analyses, the conclusions of the primary tests of our hypotheses remained identical even when accounting for interactions between approach motivation and data source, as well as trait-level controls for positive emotions or perceived partner responsiveness. Finally, we also examined meditation models in which we specified interactions between the source of the data all predictor variables in each of the models, and the substantive conclusions were identical to those presented in Figure 2. Thus, although the reactivity and crossover effects are less consistent for targets (Pam) only, and in Study 2 only, the overall conclusions of the pooled analyses are robust, even accounting for this heterogeneity.

[10] Because these primary analyses included an extensive series of covariates, we also examined a series of additional models that were *unadjusted* for covariates, to ensure the tests of upward reactivity held when we only controlled for (a) actor's global levels of the outcome variable and (b) data source. In Studies 1 and 2, when controlling for actor global positive emotion and data source only, approach motivation was associated with greater interaction positive emotions for both targets ($B = .35$, $p < .001$) and expressers ($B = .31$, $p = <.001$). The same was true for upward relational reactivity: when controlling for actor global perceived partner responsiveness and data source only, in Studies 1 and 2, approach motivation was associated with greater interaction perceived partner responsiveness for targets ($B = .22$, $p < .001$) and expressers ($B = .17$, $p = .03$). Thus, results of these unadjusted models were consistent with those presented in Figure 2.

[11] We again conducted moderated mediation analyses in the same manner described in footnote 8 to examine whether there was heterogeneity between the two studies in the indirect effect of upward observability. As documented in Ancillary Tables 5 and 6, there was no difference between studies for expressers, but there was a difference for targets between the two studies (the indirect effect was significant in Study 1 for targets, but only marginally significant in Study 2 for targets). Once again, the conclusions of the primary test of upward observability across the two studies remained identical when even accounting for the interaction between approach motivation and data source, suggesting that the overall findings from the pooled analyses examining upward observability are robust. We also conducted analyses which included an interaction between data source and every predictor variable in the model, and the conclusions of each analysis remained identical to those reported in Figure 3 (i.e., the *a* and *b* paths, as well as the indirect effects, were significant in both models when tested across the two studies).

Figure 3
Overview of Tests of the Upward Observability Hypothesis in Studies 1 and 2



Note. All models account for the following covariates: global positive emotions for both partners, the avoidance motivation of the individual, the approach and avoidance motivation of the partner, experimental condition, the data source, and in the case of the analyses predicting expressers' perceptions of targets' positive emotions, observed praise. ** $p < .01$.

Thus, in positive interactions, these results demonstrate that when Pam is high in approach motivation, she tends to experience greater positive emotions, which is associated with Jim noticing Pam experiencing more positive emotions (regardless of Jim's level of approach motivation, behavior during the interaction, or global levels of positive emotions). The reverse was also true: even controlling for Pam's own approach motivation and global positive emotions, when Jim is high in approach motivation, he tends to experience a greater degree of positive emotion in gratitude interactions, which Pam tends to notice.

Discussion

Results of Studies 1 and 2 provided support for our hypotheses. Specifically, we found evidence for upward affective reactivity (*Hypothesis 1A*) and upward relational reactivity (*Hypothesis 1B*),

Table 5
Results of Mediation Analyses Testing the Indirect Effect of Target Approach Motivation on Expresser Perceptions of Target Positive Emotions via Target Positive Emotions Across Studies 1 and 2

Outcome	Predictor	*B*	*p*	95% CI Lower	95% CI Upper	*r*
Target interaction PE (Reactivity)	**Target approach motivation**	**0.41****	**<.001**	**0.23**	**0.58**	**.29**
	Condition	−0.07	.55	−0.32	0.17	.04
	Target global PE	0.44	<.001	0.23	0.65	.27
	Target avoidance motivation	−0.02	.62	−0.08	0.05	.03
	Expresser global PE	0.09	.15	−0.03	0.20	.09
	Expresser avoidance motivation	−0.01	.71	−0.07	0.05	.02
	Expresser approach motivation	−0.05	.54	−0.22	0.12	.04
	Observed praise	0.23**	.001	0.09	0.37	.21
	Data source	0.23	.07	−0.02	0.47	.12
Expresser perception of target PE (Observability)	Target approach motivation	0.07	.50	−0.12	0.25	.05
	Target interaction PE	**0.21****	**.002**	**0.08**	**0.35**	**.20**
	Condition	−0.10	.42	−0.35	0.15	.05
	Target global PE	0.16	.16	−0.06	0.38	.09
	Target avoidance motivation	−0.05	.11	−0.12	0.01	.11
	Expresser global PE	0.28**	<.001	0.16	0.41	.29
	Expresser avoidance motivation	0.07*	.04	0.001	0.13	.14
	Expresser approach motivation	0.19*	.03	0.01	0.37	.14
	Observed praise	0.24**	.001	0.09	0.39	.22
	Data source	0.07	.60	−0.19	0.33	.03

Note. PE = positive emotions; CI = confidence interval. Focal predictors for each model are highlighted in bold text.
* $p < .05$. ** $p < .01$.

Table 6

Results of Mediation Analyses Testing the Indirect Effect of Expresser Approach Motivation on Target Perceptions of Expresser Positive Emotions via Expresser Positive Emotions Across Studies 1 and 2

Outcome	Predictor	*B*	*p*	95% CI Lower	95% CI Upper	*r*
Expresser interaction PE (Reactivity)	**Expresser approach motivation**	**0.31****	**<.001**	**0.15**	**0.47**	**.24**
	Condition	0.21	.06	−0.01	0.43	.12
	Target global PE	0.26*	.01	0.06	0.45	.17
	Target approach motivation	0.15	.08	−0.02	0.31	.11
	Target avoidance motivation	−0.04	.15	−0.10	0.02	.09
	Expresser global PE	0.27**	<.001	0.16	0.38	.30
	Expresser avoidance motivation	0.01	.81	−0.05	0.06	.02
	Data source	0.10	.39	−0.13	0.32	.06
Target perception of expresser PE (Observability)	Expresser approach motivation	−0.04	.68	−0.21	0.14	.03
	Expresser interaction PE	**0.25****	**<.001**	**0.12**	**0.39**	**.24**
	Condition	0.01	.90	−0.21	0.24	.001
	Target global PE	0.31	.003	0.10	0.52	.19
	Target approach motivation	0.23*	.01	0.05	0.4	.17
	Target avoidance motivation	0.06	.07	0.00	0.12	.12
	Expresser global PE	0.07	.29	−0.06	0.19	.07
	Expresser avoidance motivation	−0.04	.16	−0.10	0.02	.09
	Data source	0.24*	.05	0.01	0.48	.13

Note. PE = positive emotions; CI = confidence interval. Focal predictors for each model are highlighted in bold text.
* $p < .05$. ** $p < .01$.

as individuals higher in approach motivation reported greater positive emotions and perceived partner responsiveness in gratitude interactions, even accounting for global levels of these variables. Moreover, in the case of upward reactivity for targets of gratitude interactions, this finding was robust even when accounting for a key relational behavior known to govern these outcomes (other-praising behavior). In support of *Hypothesis 2*, we provided evidence for upward observability, such that when individuals were higher in approach motivation, they experienced upward affective reactivity, and this upward emotional response was noticed by partners, an effect which emerged independently for both targets and expressers in these interactions. Finally, in support of the *upward crossover hypothesis*, we found evidence for upward affective (*Hypothesis 3A*) and upward relational (*Hypothesis 3B*) crossover in gratitude interactions. Our results suggest that, even beyond Pam's own approach motives and global positive emotions, when Jim is high in approach motivation, his extra sweet experience independently predicts hers. Additionally, we note that while IDA moderation analyses demonstrated there were a few instances where (for targets only) findings were significant in Study 1, and only marginal or trending in Study 2, part of the rationale for utilizing integrative data analysis is to draw on the power of the combined samples to help determine whether a marginal or trending finding is indeed worthy of interpretation (Curran & Hussong, 2009; Hussong et al., 2013). This was especially important considering the stringent series of covariates we including in our analyses. When doing so, the combined results from both samples results provided robust support for our hypotheses, even when accounting for heterogeneity across the two studies.

Our goal in Study 3 was to replicate and extend the results of Studies 1 and 2 in numerous ways. First, in Studies 1 and 2, only one member of the couple engaged in the role of expresser or target. In Study 3, both members of the couple engaged in both roles (i.e., expresser and target; capitalizer and respondent) in the social interaction tasks. Second, in Studies 1 and 2 we only examined one type of positive relational event (a gratitude interaction), however our hypothesis is that approach motivation enhances upward reactivity to all types of positive interpersonal processes. In Study 3 we were able to examine how approach motivation influences outcomes in response to positive relational events beyond just gratitude events in numerous ways. In the laboratory, in addition to a gratitude interaction, participants also engaged in a capitalization interaction, which allowed us to examine whether approach motivation influenced participants' outcomes in the immediate aftermath of a different type of positive interpersonal event.

Additionally, in Study 3 participants completed daily surveys for 14 days, in which they reported on a notable event that occurred in the context of their relationship. We used these notable event data as an opportunity to examine whether individuals higher in approach motivation experienced enhanced outcomes in response to positive interpersonal processes in two ways. First, participants provided subjective ratings of how positive their daily relational events were; we reasoned that individuals higher in approach motivation would experience greater positive emotions and rate the relational events as more important on days when they reported subjectively experiencing the events as particularly positive. In addition to these subjective reports, because prior research demonstrates approach and avoidance motives can bias the extent to which people perceive events as positive or negative, a team of independent coders evaluated participants' open-ended descriptions of their daily relational events for the experience of gratitude. Based on theory and research in positive interpersonal processes (Algoe, 2019a), we reasoned that gratitude events would be more positive than other daily events, and that people higher in approach motivation would therefore report enhanced outcomes on days in

which they experienced a gratitude event, as compared with days in which they did not experience a gratitude event.

Study 3

Method

Participants

Study 3 is documented in the Love Consortium Dataverse (Algoe & Fredrickson, 2019), and more information can be found in Algoe et al. (2013). Participants were recruited from the community surrounding a university in the Southeast of the United States. To be eligible, participants were required to be 18 years old and in a relationship for at least 6 months at the start of the study. Of the original 160 people included in the study, 152 had usable data for the capitalization task and 136 had usable data for the gratitude task (which was completed two weeks after the capitalization task). Reasons for lacking usable data on one or both of the interactions included issues with the video recordings of their interaction, not returning for the second lab session, or not completing a key measure of interest. Additionally, of the 160 included in the original study, 155 completed at least one nightly questionnaire; however, we only included participants in daily analyses if they completed at least three daily surveys. This meant 152 total participants were included in the daily analyses. Adherence to the daily diary surveys was good: 92.9% of participants provided at least seven (of 14) daily surveys, and 67% completed 13 or 14 days of surveys.

Of participants included in analyses, on average participants were 28.09 years old (SD = 8.05). Most participants identified as White/Caucasian (74.4%), with others identifying as Black/African American (12.5%), East Asian (1.9%), South Asian (2.5%), or another race (5.0%). Additionally, 4.0% of the sample reported that they were Hispanic. On average, participants had been in a relationship with their partner for 4.53 years (SD = 4.99). The majority of the sample identified as straight (96.3%), while 3.7% identified as another sexual orientation.

Procedure and Materials

The measures and tasks utilized in this research are drawn from a larger study, which included a number of other assessments and tasks. Participants who agreed to complete the study came to a research laboratory for two different sessions. At the first of the two sessions, they completed an initial survey, which included the same assessment of relationship approach and avoidance motives completed in Studies 1 and 2 (approach α = .83; avoidance α = .83), the Modified Differential Emotion Scale (which is the same measure of global positive emotions used in Study 2; Fredrickson, 2013; α = .92), and the same global 18-item assessment of perceived partner responsiveness as was used Studies 1 and 2 (Reis et al., 2017; α = .92).

Later during this same laboratory session, one of the tasks was to engage in a pair of capitalization conversations (one for each member of the couple) based on the procedure used by Gable et al. (2006). Specifically, while completing the initial questionnaire, participants were instructed to think of a positive event that had recently happened to them using the following instructions:

> Please briefly describe a personal positive event that has happened to you recently, and that does not directly involve your partner. Your recent positive event may be something that happened before but continues to be make you happy, something going on now, or something you anticipate happening in the future. Some examples would be a successful presentation, a work promotion, getting unexpected money, getting a job, meeting a personal fitness or health goal, receiving a complement, or getting an award or recognition at work.

After they had both selected a positive event, the experimenter gave participants instructions for sharing their positive event with each other in a 5-min conversation. One member of the couple was randomly assigned to share first, and when the couple signaled that the conversation was over or at 5 min, the experimenter instructed them to independently complete the next questionnaire on their laptop (which included outcome assessments of perceived responsiveness on their own emotions). When they were done, the experimenter returned and they repeated this task for the other person who had not yet shared their positive event (see Algoe et al., 2013). Immediately after the interaction, perceived partner responsiveness and positive emotion during the interaction were measured in the same way as they were after the gratitude interactions in Studies 1 and 2. Reliability was good for all outcome assessments, including interaction-specific perceived partner responsiveness (α = .96) and positive emotions (α = .89) while sharing one's own positive event to the partner, as well as perceived partner responsiveness (α = .96) and positive emotions (α = .88) while the partner shared their positive event.

After completing the first laboratory session, participants returned to the lab 14 days later for additional procedures, which included the gratitude interaction. The procedure for the gratitude interaction (described in Algoe et al., 2013) was the same as in Studies 1 and 2, with a few notable differences. First, there was no experimental manipulation; instead, participants were encouraged to express gratitude in a naturalistic manner. Second, like the capitalization conversation, each member of the couple had a chance to express gratitude and to be the target of a gratitude expression. After each interaction, participants again completed assessments of perceived partner responsiveness and positive emotions for (a) when they expressed gratitude (perceived partner responsiveness = .95; positive emotions α = .85) and (b) when their partner expressed gratitude (perceived partner responsiveness = .94; positive emotions α = .88) using the same measures as in Studies 1 and 2. Perceptions of partner positive emotions were not assessed in the capitalization or gratitude interactions in Study 3, meaning it is not possible to test Hypothesis 2 in this study. Both the capitalization and gratitude discussions were video-recorded, and subsequently coded by trained observers.

Observational Coding Procedures for Gratitude and Capitalization Interactions. With respect to the gratitude interaction, the observational coding procedure for other-praising behavior was conducted with 4 coders in the same manner as in Studies 1 and 2. Consistency between coders ratings of praise was adequate (ICC = .70).

With respect to the capitalization interactions, four research assistants unaware of our hypotheses were trained to code the behavior of the person responding to the person sharing their positive event. In these interactions, it is standard (Gable et al., 2006) to create a single overall indicator of the quality of the

responder's behavior during the interaction based on two underlying dimensions (a) how active versus passive they are and (b) how constructive versus destructive they are. Specifically, coders rated the person responding to the good news on two scales: one from 1 = (*extremely passive*) to 7 (*extremely active*), and one from 1 = (*extremely destructive*) to 7 (*extremely active*). Examples of active behaviors included head nodding/shaking, emotional displays, animation, hand gestures, and asking questions, whereas the absence of these types of behaviors indicated a high degree of passivity. Examples of destructive behaviors included negative suggestions and questions, turning the discussion away from the target, and displays of negative emotion, whereas constructive behaviors included expanding on positives, connecting the positive event with other positive events, and smiling and laughing with the person sharing their positive event. We then averaged and calculated internal consistencies of coders' ratings for these two separate indicators (one for active-passive behaviors and one for constructive-destructive). Consistency across the four coders was good for both the active/passive and constructive/destructive dimensions, as indicated by two-way, random effects intraclass correlation coefficients for absolute agreement (active/passive $ICC = .86$; constructive/destructive $ICC = .86$). Finally, to create a single, global indicator of active-constructive behavior by the respondent during the interaction, we averaged the ratings for active/passive and constructive/destructive behaviors ($r = .51$, $p < .001$ between the codes for active/passive and constructive/destructive).

Daily Surveys. In the interim period between the two laboratory tasks, participants completed a daily survey at the end of each day for 14 days, which they were encouraged to complete at around the same time each night. As part of the daily survey, participants described a notable interaction that occurred in the context of their relationship that day. Participants were instructed to think back on the events that occurred in their relationship that day, think about the one that made the biggest impression, and provide a short description of the event:

> Below, we would simply like for you to think about the events that made the biggest impression on you today. . .please give a brief summary of the context and content of the event, to the extent that you feel comfortable. 4 or 5 sentences should be sufficient, but please include enough detail so someone who did not know you or your partner would understand what happened.

Participants were also explicitly told that the event did not need to be positive or negative in valence: "Please remember that we are trying to capture natural events in couples' lives—we do not have expectations that they will (or will not) vary from day to day or whether the events will be good or bad."

After completing their description of the event, participants were presented with a series of 9 positive emotion words (e.g., "satisfied," "warm," "loving"), and asked to rate how much they felt each emotion during that specific event on a scale of 0 = *not at all* to 6 = *very much* ($\alpha = .93$; $M = 3.21$, $SD = 1.64$). Participants were also asked to rate valence of the event ("To what extent would you categorize this as having been a positive or negative event, overall?") on scale from −5 = *very negative or upsetting* to 0 = *neither negative or positive* to 5 = *very positive or satisfying* ($M = 2.19$, $SD = 2.74$), and how important the event was ("How important is this event in your life right now?") on a scale of 0 = *not at all* to 6 = *very much* ($M = 3.18$, $SD = 1.76$).

Construction of Positive, Negative, and Neutral Event Variables. Using participants self-reports of the valence of the positive events, we created dummy-coded indicators of whether each event was positive, negative, or neutral on a particular day. Because approach–avoidance motivation theory suggests that approach motivation should influence the way that people react to positive (but not negative) events, it was important to compare how people higher in approach motivation responded to positive events as compared with *neutral* events. Because approach–avoidance motivation theory suggests that avoidance and not approach motivation should have an influence on how people react to negative events, we expected that approach motivation would have no influence on how people react to negative events.

Any events that participants rated from −5 to a −2 in valence were categorized as negative events, any events that were rated from −1 to + 1 in valence were categorized as neutral events, and any events that were rated from + 2 to + 5 in valence were categorized as positive events. This resulted in a total of 243 negative events, 370 neutral events, and 1,248 positive events. For analyses using participants self-reports of valence, dummy coded variables were created examining the influence of daily positive and negative events on positive emotions and event importance, with the reference group set as neutral events.

Coding of Open-Ended Event Description. In addition to using participants' self-reports of how positive, negative, or neutral the events were, we also coded participants open-ended descriptions of the events for the experience of gratitude. This served two functions. First, prior research documents that approach and avoidance motives can bias encoding of events and experiences in daily life, such that people will perceive things more positively or negatively depending on their motivational orientation (e.g., Strachman & Gable, 2006b). Using a team of research assistants to independently code these events therefore helps to overcome motivational biases in participants' self-reports of the valence of the events by providing an independent lens into whether or not the event is positive from the perspective of an outsider. Second, these independently coded gratitude events are useful because they directly correspond to the results of the laboratory-based interactions. Should the results of the gratitude events in daily life replicate those in the lab, it suggests that the results of the laboratory-based interactions extend to relational experiences in daily life.

A team of six research assistants who were unaware of study hypotheses were trained to code the open-ended event descriptions provided by participants. Specifically, the coders were trained to look for the experience of the emotion of gratitude in the context of their intimate relationship in the description of participants' notable events. Each coder was assigned to a separate group of events, and each of them looked for language that indicated feelings of gratitude in the context of the notable event, such as "thankful," "grateful," and "appreciative," but if the event description indicated a clear feeling of appreciation (e.g., recognizing how thoughtful a partner is), the description did not need to explicitly use these words. Examples of event descriptions that were coded as gratitude events included "My wife knows I am trying to lose weight and she continuously buys healthy foods to help me do that. I have the goal, but she makes it work and I really appreciate that,"

and "My partner is always a big help to me in the morning when he stays over during the work week. This morning he got my water bottle together, got my coat out of the closet etc. He's sweet and thoughtful." If the event included the experience of gratitude, the event was coded as a 1, and if the event did not include the experience of gratitude, the event was coded as a 0. There were 1,860 events coded in total, 529 of which were coded as gratitude events.

As a test of validity of this code, we conducted a three-level multilevel analysis in which persons were nested within dyads, and in which we examined whether the independently gratitude variable predicted participants self-reports of the event's valence. Results demonstrated there was a highly significant association between the independently coded gratitude events, and participants' self-reports of the valence of the events, such that gratitude events were rated as more positive, ($B = 1.90$, $p < .001$, $r = .31$).

Power Analyses. To calculate post hoc power, we again conducted Monte Carlo simulations in the same manner as in Studies 1 and 2, with the exception that in Study 3 the unit of the analysis was now at the individual rather than at the dyad level. Results of these Monte Carlo simulations suggested our analyses were adequately powered to detect medium sized effects (e.g., the size of the association between respondent approach motivation and interaction positive emotions in capitalization interactions was $r = .24$, and this association was adequately powered at .85). However, in practice, many of the effect sizes were smaller than medium, because global control variables were strongly associated with interaction outcomes; the result was that these post hoc tests suggest many of these analyses were underpowered. For instance, in the case of gratitude expressers, the association between their approach motivation and perceived partner responsiveness was .13 (after controlling or for the strong association, $r = .43$, of their global perceived partner responsiveness on interaction responsiveness). For upward affective reactivity, observed power in the gratitude interaction was .18 for targets and .71 for expressers, and in the capitalization interaction it was .65 for capitalizers and .85. For upward relational activity, in gratitude interactions, observed power was .07 for targets and .47, and in the capitalization interactions it was .18 and .38. Because of the observed effect sizes, we would need a substantially greater sample size to draw firm conclusions from the results of this study, so we interpreted findings with caution, but then rely on a quantitative synthesis of Studies 1, 2, and 3 via meta-analysis after the report of Study 3, to make broad conclusions about the upward relational reactivity hypothesis in particular, for which effect sizes (and therefore power) tended to be smaller.

Turning our attention to Hypothesis 3, on the basis of the power analyses above, observed power for indirect effects was calculated for those paths where a reactivity path was significant or trending toward significance. Observed power was .69 for the indirect effect of expresser approach motivation → expresser positive emotion → target positive emotion, and .43 for the indirect effect of expresser approach motivation → expresser perceived partner responsiveness → target perceived partner responsiveness. In the capitalization interactions, observed power was .64 for the indirect effect of capitalizer approach motivation → capitalizer positive emotions → respondent positive emotions, and .88 for the indirect effect of respondent approach motivation → respondent perceived partner responsiveness → capitalizer perceived partner responsiveness.

Analysis Plan

Laboratory-Based Analyses. Because both members of the couple engaged in both roles during each interaction in Study 3 (e.g., target and expresser), the data were nested within the couple, such that for each couple there were two relevant reports of positive emotion and perceived partner responsiveness for each analysis (e.g., when predicting target positive emotion, each couple would have two reports of positive emotions after the interaction, because each person engaged in the role of target). As such, for all subsequent analyses we followed the recommendations of Kenny et al. (2006) for conducting multilevel analyses with repeated observations within a dyad using the MIXED procedure in SPSS.

For the laboratory-based analyses, we conducted analyses in two steps. We first examined Hypotheses 1A (upward affective reactivity) and 1B (upward relational reactivity) using dyadic, multilevel analyses using MIXED procedure in SPSS, as outlined by Kenny et al. (2006). Specifically, we used the individual's approach motivation to predict their own outcomes after each interaction to assess upward reactivity. As in Studies 1 and 2, these analyses controlled for global levels of outcomes of both members of the interaction, the avoidance motivation of both people, the approach motivation of the partner, and (in the case of analyses predicting capitalizers and targets) the behavior of the partner. The coefficient for upward reactivity from these analyses also comprised the *a* path for the upward crossover analyses described below.

To examine Hypotheses 3A (upward affective crossover) and 3B (upward relational crossover), we conducted a second set of analyses using the MIXED procedure in which we used the individual's interaction outcome (positive emotion or perceived partner responsiveness) to predict their *partner's* interaction outcomes. For instance, if the hypothesized indirect effect was capitalizer approach motivation → capitalizer positive emotion → respondent positive emotion, in this second set of analyses, respondent interaction positive emotion was set as the outcome, and the predictor variables were capitalizer interaction positive emotion, approach and avoidance motivation for both individuals, global positive emotion for both individuals, gender, and observed active-constructive behavior. Thus, this analysis tested whether Pam's positive emotion during the interaction predicted Jim's positive emotion during the interaction, controlling for both Jim and Pam's approach motivation, avoidance motivation, global positive emotions, and gender, as well as Jim's active-constructive behavior. The coefficient for individual interaction outcome → partner interaction outcome (e.g., Pam's positive emotion → Jim's positive emotion) was used as the *b* path of the indirect effect to test Hypothesis 3.

Finally, to calculate unbiased estimates of the confidence interval of the indirect effect based on our nested data according to the recommendations of MacKinnon et al. (MacKinnon et al., 2002), we used the RMediation utility (Tofighi & MacKinnon, 2011). For each role in each interaction (target and expresser; capitalizer and respondent), there were two outcomes of interest (positive emotions and perceived partner responsiveness). This resulted in eight

total indirect effects total, two for each outcome of interest across the four different roles in the two interactions.

Daily Diary Analysis. In addition to examining upward reactivity in gratitude and capitalization interactions, our other goal in Study 3 was to examine whether approach motivation conferred greater reactivity to positive events in daily life. To do so, we examined whether individuals higher in approach motivation reported greater (a) positive emotions and (b) ratings of event importance in response to two types of positive relational events. First, by coding participants open ended descriptions of the events, and we reasoned that generally speaking, gratitude events are relational experiences that tend to be experienced by most individuals as positive. As such, we expected that people high in approach motivation would therefore respond more strongly to these events in daily life. In addition to examining gratitude events based on coder-ratings of participants open-ended responses, we also examined whether participants subjective reports of the valence of their daily notable event (i.e., whether it was positive, negative, or neutral), would differentially influence daily positive emotions and event importance depending on levels of approach motivation. We suspected that there would be an interaction between approach motives and positive event days, such that on positive event days, as compared with neutrally valenced interactions with the partner about any topic, participants with greater approach motivation would experience relatively greater positive emotions and see those events as more important. We also accounted for the influence of negative events in this second set of analyses, because prior research suggests that avoidance and *not* approach motivation should influence responses to negative events. That is, we felt it was important to include a separate indicator of negative events in these multilevel models, and specifically examine the influence of approach motivation in response to positive events as compared with *neutral* events, because theory suggests approach and avoidance motives have a distinct influence in response to positive versus negative events.

To test these ideas, we used multilevel modeling to examine whether approach motivation moderated the extent to which an independently coded gratitude event or a subjectively rated positive relational event in daily life predicted (a) the positive emotions associated with that event and (b) the importance of that event. Crucially, we suspected differences would emerge between people high and low in approach motivation even when accounting for (a) between-person differences in the *frequency* of these positive social events in daily life and (b) trait-level differences in the experience of positive emotion. That is, the exposure hypothesis suggests that people high in approach motivation will generally report more positive relational events in daily life. As such, we adopted an analysis strategy to account for this possibility and predicted that even when accounting for any between-person differences in exposure to positive relational events in daily life (i.e., the number of positive events individuals reported across the 14-day study period), individuals higher in approach motivation would report enhanced outcomes on days in which they experienced (in the first set of analyses) an independently coded gratitude event, or (in the second set of analyses) a subjectively reported positive relational event.

In specifying these multilevel models, we followed the recommendation of Bolger and Laurencaeu (2013) for examining within-subjects processes in daily life (see also, Hoffman, 2015). The advantage of these models is that they are designed for parsing the influence of between-persons and within-persons effects. In this case, that means examining whether a positive daily event is especially strongly associated with relevant outcomes for people higher in approach motivation, independent of whether people high in approach motivation tend to report a greater frequency of positive daily events relative to those lower in approach motivation. To do so, for each predictor variable of interest (e.g., daily gratitude events), we first calculated a grand-mean centered daily score across all participants. Next, we created a person-mean score for each individual across the 14-day period, which represents each individual's average across the 14-day period (centered around the grand mean). Using the example of daily gratitude events, this score represents whether the individual tends to be high or low in the occurrence of daily gratitude events across the 14-day period, as compared with other people in the study. This variable is, therefore, the between-person variable. Finally, we calculated the within-person variable by subtracting the between-person variable from the individual's grand-mean centered score for each day. In doing so, we created the within-person score, which represents the individual's daily score, centered around their own person-mean for the 14-day period (Bolger & Laurencaeu, 2013). As such, when including the between- and within-person variables in the final multilevel model simultaneously (i.e., controlling for between-person effects while examining within-person effects), the within-person variable allows for testing the following question: if a person reports a gratitude event on a particular day, does it influence their outcomes, even controlling for whether the person tends to report gratitude events frequently or infrequently across the 14-day period relative to others in the study? As such, this approach allows for directly testing the reactivity hypothesis, independent of exposure to a greater frequency of positive relational events. Our primary test of interest was whether the within-person positive event variables interacted with relationship approach motivation in predicting (a) event positive emotions and (b) event importance.

There were three levels of nesting within this data: days nested within persons, nested within couples. We therefore specified a three-level model with random-intercepts and fixed-slopes, which allowed us to examine our person-focused hypothesis, while accounting for the nested structure of the data within-persons and couples.[12] As recommended (Bolger & Laurencaeu, 2013), we also included an interaction term between approach motivation and

[12] We note here that daily data amongst dyads is often analyzed using two-level models because of the potential for model saturation in three-level models with intimate dyads (e.g., Bolger & Laurencaeu, 2013). However, as Atkins (2005) has demonstrated, using a three-level model among dyads poses no problems under two conditions: (a) when the three-level model contains only random-intercepts (and no random slopes), and (b) when couples are nonnegatively interdependent. Both of these criteria are applicable in the current research: we modeled the data using random-intercepts but not random slopes, and couples are nonnegatively interdependent (their mood on a particular day tends to be positively associated, as opposed to negatively associated). As such, the three-level modeling approach was preferable to the two-level approach outlined by Bolger and Laurencaeu (2013) because that approach forces the researcher to model effects separately by gender (or another arbitrary distinguishable criteria). Given that we had no a priori predictions of gender differences, the three-level approach was more appropriate in the current circumstances.

the between-persons gratitude variable, which examines (as suggested by the exposure hypothesis) whether a greater frequency of gratitude events across the 14-day period—as compared with others in the study—is differentially associated with outcomes for people high in approach motivation, relative to those low in approach motivation. In each of these analyses, we also included as covariates (a) avoidance motivation and (b) global-levels of positive emotion (as assessed during the initial laboratory intake). To ensure global-levels of positive emotion were accounted for in the model in a manner similar to our laboratory-based task, we also included interaction terms between prior positive emotions and the within and between-persons gratitude variables. By including an interaction term between trait levels of positive emotions and within and between-person gratitude variables, we are able to control for the possibility that daily positive events are experienced within and between-persons differently depending upon global differences in positive emotions. This was especially important in the case of the within-persons interaction, because if it were the case that individuals high in global positive emotions (relative to those low in positive emotion) reported better daily outcomes in response to daily gratitude events, it could confound our key hypothesis test. That is, because people high in approach motivation tend to report generally higher levels of positive emotions, we needed to account for the possibility, at the within-person level, that people higher in positive emotions responded to daily gratitude events with better daily outcomes. As in the laboratory-based studies, we predicted that, above and beyond the influence of preexisting differences in positive emotions, approach motivation would interact with the within-persons gratitude variable to predict enhanced positive outcomes. Additionally, in ancillary models, we also included the lagged prior day value of each outcome variable. Controlling for the prior day's event-specific positive emotions or event importance allowed us to examine whether people high in approach motivation received an additional boost in these outcomes even accounting for the levels of these outcomes on the prior day, which may have been different between people high and low in approach motivation on the prior day. Finally, as per recommendations (Bolger & Laurencaeu, 2013), the model was tested using an autoregressive covariance structure.

Results

Means and standard deviations for Study 3 are presented in Table 7, and bivariate correlations for the gratitude and capitalization interactions are presented in Tables 8 and 9, respectively. In the gratitude interaction, target and expresser approach motivation were associated with greater perceived partner responsiveness (target $r = .21$, $p = .01$; expresser $r = .34$, $p < .001$) and positive emotions (target $r = .20$, $p = .02$; expresser $r = .27$, $p = .001$) after the interaction. Similarly, capitalizers and respondents with greater approach motivation also reported greater perceived partner responsiveness (capitalizer $r = .31$, $p < 001$; respondent $r = .33$, $p < .001$) and positive emotion (capitalizer $r = .27$, $p = .001$; respondent $r = .30$, $p < .001$) after the interaction.

Hypotheses 1A: Upward Affective Reactivity in Gratitude and Capitalization Interactions

Results of analyses examining upward affective reactivity in gratitude and capitalization are presented in Figures 4 and 5 and Tables 10, 11, 12, and 13. Results largely supported our hypothesis: For expressers of gratitude, $r = .20$, $p = .02$, people sharing their good news (i.e., capitalizers; $r = .19$, $p = .02$), and people responding to good news, $r = .24$, $p = .003$, individuals with greater approach motivation experienced more positive emotions during the interaction, even controlling for their own and their partner's global levels of positive emotions, their partner's approach motivation, the avoidance motivation of both individuals in the interaction, gender, and (in the case of capitalizers) the behavior of the partner. Only in the case of targets in gratitude interactions was upward affective reactivity not supported, $r = .06$, $p = .48$.[13] As such, these analyses replicate and extend the results of Studies 1 and 2, again suggesting that people high in approach motivation get a greater affective boost from positive interpersonal interactions, including in those beyond gratitude interactions (in this case, capitalization).[14]

Table 7
Means and Standard Deviations for Major Study Variables in Study 3

Variable	*M*	*SD*
Approach motivation	6.39	0.83
Avoidance motivation	3.02	1.96
Global positive emotion	2.69	0.57
Global PPR	6.02	0.69
Target interaction positive emotions	3.77	1.25
Expresser interaction positive emotions	4.10	1.03
Capitalizer interaction positive emotions	4.25	1.24
Respondent interaction positive emotions	4.33	1.14
Target interaction PPR	5.07	0.92
Expresser interaction PPR	5.15	0.88
Capitalizer interaction PPR	5.27	0.88
Respondent interaction PPR	5.03	1.11
Observed praise	3.25	0.70
Observed active-constructive behavior	4.54	0.89

Note. The first four variables in this table, which were trait level variables assessed prior to both interactions, were used in both gratitude and capitalization interactions. PPR = perceived partner responsiveness.

[13] We conducted ancillary analyses to examine whether gender moderated the association between relationship approach motivation and postinteraction positive emotions; the interaction term was not significant in any test of upward affective reactivity.

[14] As in Studies 1 and 2, we reconducted these analyses while collapsing across role, to examine whether actors in gratitude and capitalization interactions were more likely to experience positive emotions if they were higher in approach motivation. We did so according to the recommendations of West (2013), as well as Kenny and Kashy (2011). Results are presented in Ancillary Tables 9, 10, 12, and 13. First, for both gratitude and capitalization interactions, results suggested that the distinguishable models—which assumed differences by role—were not a significant improvement upon the models which assumed non-distinguishability. As such, we interpreted results from the models which assumed the effects were equivalent regardless of role during the interaction. As shown in Ancillary Tables 9 and 12, for both gratitude ($B = .23$, $r = .24$, $p = .01$) and capitalization interactions ($B = .35$, $r = .32$, $p < .001$), actors with greater approach motivation were more likely to report positive emotions after the interaction.

Table 8
Bivariate Correlations for Gratitude Interactions in Study 3

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Target approach motivation	—												
2. Target avoidance motivation	.25**	—											
3. Expresser approach motivation	.31**	.14	—										
4. Expresser avoidance motivation	.11	.10	.24**	—									
5. Observed praise	.08	−.09	.04	−.06	—								
6. Target global PE	.23**	.01	.05	.01	.04	—							
7. Target global PPR	.50**	.07	.15	−.06	.16	.42**	—						
8. Target interaction PPR	.23*	−.14	.15	−.04	.09	.44**	.51**	—					
9. Target interaction PE	.20*	.02	.11	.15	.13	.31**	.30**	.61**	—				
10. Expresser global PE	.06	−.07	.04	−.11	−.22*	.02	.14	.24**	.21*	—			
11. Expresser global PR	.21*	−.09	.32**	.04	.14	−.01	.28**	.19*	.16	−.02	—		
12. Expresser interaction PPR	.17*	−.04	.34**	−.13	.14	.46**	.56**	.68**	.41**	.02	.13	—	
13. Expresser interaction PE	.16*	−.02	.27**	.17*	.16	.37**	.30**	.54**	.78**	.12	.12	.56**	—

Note. PPR = perceived partner responsiveness; PE = positive emotion.
* $p < .05$. ** $p < .01$.

Hypothesis 1B: Upward Relational Reactivity in Gratitude and Capitalization Interactions

With respect to upward relational reactivity in gratitude interactions, the association between either target or expresser approach motivation on perceived partner responsiveness after the interaction, results were not significant (although for expressers it was marginally significant in the hypothesized direction, $r = .15$, $p = .06$). With respect to capitalization interactions, although both target and capitalizer approach motivation were trending in the hypothesized direction, they were not statistically significant when controlling for the extensive series of covariates included in the model.[15,16,17]

Hypothesis 3A: Testing the Upward Affective Crossover Hypothesis Across Gratitude and Capitalization Interactions

First, we wanted to examine whether results from Studies 1 and 2—in which we found robust support for the upward affective crossover hypothesis—replicated to the gratitude interaction in Study 3, and extended to the capitalization interaction. The results presented in Figures 4 and 5 largely supported *Hypothesis 3A*: three of the four indirect effects examining the upward affective crossover hypothesis were statistically significant in Study 3. Specifically, in gratitude interactions, when expressers were higher in approach motivation, they tended to experience greater positive emotions during the interaction, which was associated with greater positive emotions for targets during the interaction (*estimate* = .11, 95% CI [.02, .21], $p < .05$). Similarly, when capitalizers were high in approach motivation, they experienced greater positive emotion during the interaction, which was associated with greater respondent positive emotion during the interaction (*estimate* = .18, 95% CI [.02, .34], $p < .05$). Finally, when respondents were higher in approach motivation, they experienced greater positive emotions during the interaction, which was associated with greater capitalizer positive emotion during the interaction (*estimate* = .16, 95% CI [.05, .28], $p < .01$). With respect to upward affective crossover, only the indirect effect of target approach motivation → target interaction positive emotion → expresser interaction positive emotion was not significant (*estimate* = .02, 95% CI [−.16, .23]).

Hypothesis 3B: Upward Relational Crossover Across Gratitude and Capitalization Interactions

Consistent with the limited evidence for the upward relational reactivity, the indirect effects of upward relational crossover were

[15] When we examined exploratory moderation analyses by gender, the interaction between gender and approach motives in predicting perceived partner responsiveness was significant for both targets and expressers. When probing simple slopes, we found that although there was no association between approach motivation and post-interaction perceived partner responsiveness for female targets ($r = -.13$. $p = .14$) or expressers ($r = .03$), there was a marginally significant positive association for male targets ($r = .15$, $p = .09$) and a significant positive association for male expressers ($r = .17$, $p = .04$). Because these were the only interactions that were statistically significant across the entire set of studies, and because we had no *a priori* predictions about the interaction between gender and approach motivation in predicting perceived partner responsiveness, we interpret these findings with caution.

[16] Because of the number of covariates included in these models, we again examined unadjusted models in the same manner as in Studies 1 and 2. Results of these unadjusted models were again consistent with those reported in Figures 4 and 5. When examining upward affective reactivity in the gratitude interaction while controlling for the actor's global positive emotions only, results were significant for expressers ($B = .26$, $p = .006$), but not for targets ($B = .21$, $p = .07$). When examining upward relational reactivity in gratitude interactions, results were not significant for targets ($B = .01$, $p = .95$) or expressers ($B = .13$, $p = .11$). As in Figure 5, when controlling for global levels of positive emotion or perceived partner responsiveness, approach motivation significantly predicted greater positive emotions for both capitalizers ($B = .32$, $p = .005$) and respondents ($B = .31$, $p = .001$), but was not significantly associated with greater responsiveness for capitalizers ($B = .05$, $p = .51$) or respondents ($B = .13$, $p = .17$).

[17] We again examined the upward relational reactivity hypothesis in Study 3 while testing for distinguishability across role in both capitalization and gratitude interactions. Results, presented in Ancillary Tables 9, 11, 12, and 14, again demonstrated there was little evidence for distinguishability. Results also confirmed those presented in Figure 5, as actor approach motivation was not a statistically significant predictor of perceived partner responsiveness in gratitude ($B = .03$, $r = .03$, $p = .71$) or capitalization ($B = .10$, $r = .12$, $p = .18$) interactions in Study 3.

Table 9
Bivariate Correlations for Capitalization Interactions in Study 3

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Capitalizer approach motivation	—												
2. Capitalizer avoidance motivation	.27**	—											
3. Respondent approach motivation	.30**	.11	—										
4. Respondent avoidance motivation	.11	.12	.26**	—									
5. Active-constructive behavior	.09	−.19*	−.02	−.03	—								
6. Capitalizer global PE	.18*	−.06	.11	.01	.22**	—							
7. Capitalizer global PPR	.44**	.07	.21**	−.03	.32**	.41**	—						
8. Capitalizer interaction PPR	.33**	.06	.15	−.05	.26**	.37**	.62**	—					
9. Capitalizer interaction PE	.27**	.04	.07	.06	.18*	.37**	.33**	.66**	—				
10. Respondent global PE	.05	−.07	.02	−.10	−.11	.01	.13	.04	.13	—			
11. Respondent global PPR	.21**	−.01	.44**	.08	.12	.06	.26**	.09	.04	−.02	—		
12. Respondent interaction PPR	.37**	.06	.09	.03	.23**	.33**	.59**	.74**	.49**	.10	.06	—	
13. Respondent interaction PE	.31**	.01	.11	.02	.20*	.40**	.32**	.53**	.77**	.09	.12	.48**	—

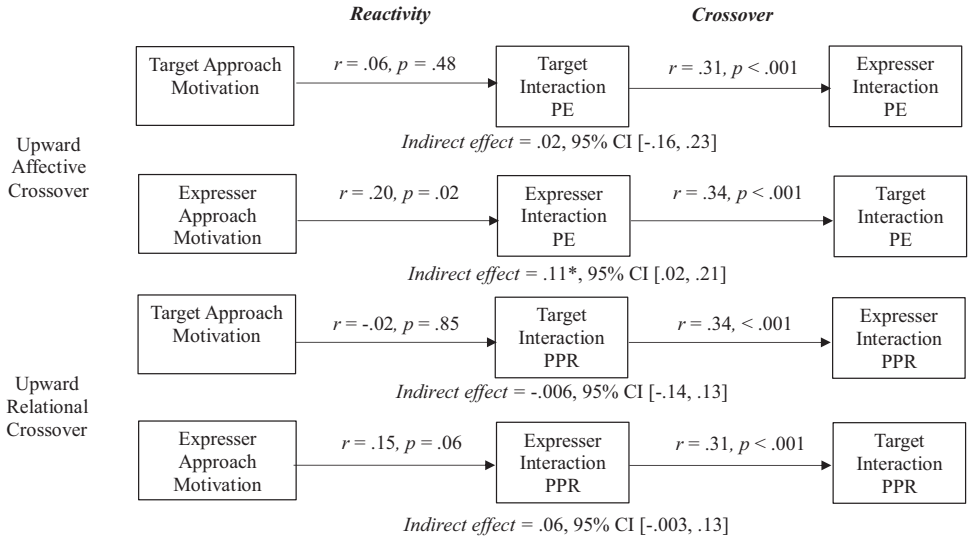
Note. PPR = perceived partner responsiveness; PE = positive emotion.
* $p < .05$. ** $p < .01$.

also not supported Study 3. As shown in Figures 4 and 5, none of the indirect effects examining upward relational crossover were significant in Study 3.

Hypothesis 1: Do Daily Gratitude Events Predict Greater Positive Emotion and Event Importance for People Higher in Approach Motivation?

Results of fixed and random effects examining positive emotions and event importance are presented in Table 14 and Figure 6. In predicting positive emotions, the between and within-persons variables were both statistically significant, meaning when individuals reported greater gratitude events as compared with other people (between-persons), or when they reported a gratitude event on a particular day (within-persons), it predicted greater event-specific positive emotions, and greater ratings of the importance of the notable event. People with greater global levels of positive emotionality were generally more likely to report positive emotions associated with their notable events. Surprisingly, there was also an interaction between global positive emotions and the within-persons gratitude variable in predicting the positive emotions associated with an event, such that people with *lower* global levels of positive emotions were more likely to experience positive emotions when they experienced a daily gratitude event. There was no interaction between global positive emotionality and the between-persons gratitude variable in predicting positive emotions. There was also no interaction between trait positive emotions and the between or within-persons gratitude variable in predicting event importance. With respect to our primary hypotheses, there was a statistically significant interaction between approach motivation and within-person daily reports of gratitude in

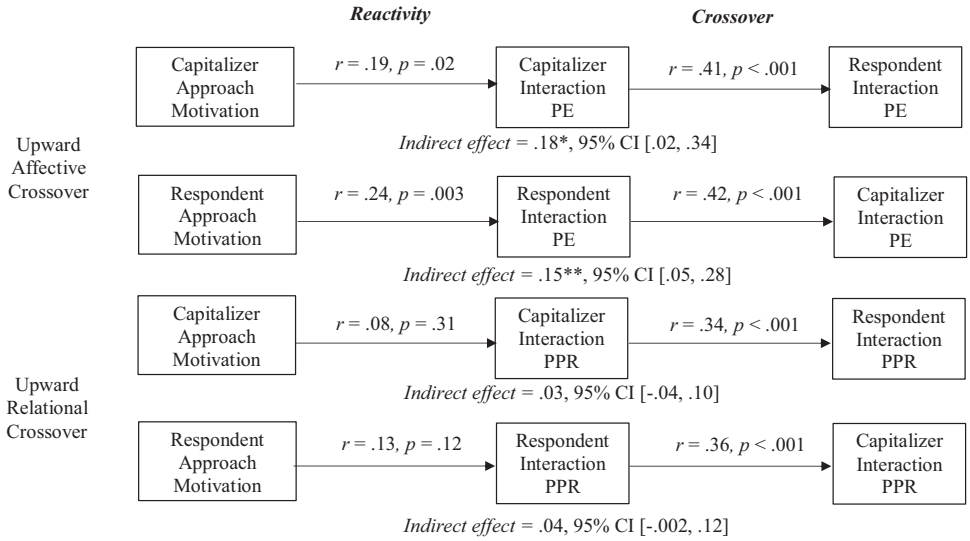
Figure 4
Overview of Tests of the Upward Crossover Hypothesis in Gratitude Interactions Study 3



Note. PPR = perceived partner responsiveness; PE = positive emotions. * $p < .05$.

Figure 5

Overview of Tests of the Upward Crossover Hypothesis in Capitalization Interactions Study 3



Note. PPR = perceived partner responsiveness; PE = positive emotions. * $p < .05$, ** $p < .01$.

predicting both the positive emotions associated with that event ($B = .20$, $p = .03$) and importance associated with that event ($B = .21$, $p = .02$).

We probed simple slopes of the interaction for the within-person gratitude events and approach motivation in predicting positive emotions and event importance at low (−1 *SD*) and high (+1 *SD*) levels of approach motivation. With respect to positive emotions, as shown in Panel A of Figure 6, results demonstrated that while there was a significant association between reports of a gratitude event and positive emotions within-persons for all participants, the association was stronger for people high in approach motivation ($B = .99$, $p < .001$, $r = .23$) than it was for people low in approach motivation ($B = .66$, $p < .001$, $r = .15$), even controlling for preexisting differences in positive emotions, and between-person differences in the frequency of gratitude events. When probing the simple slopes for event importance (see Panel B of Figure 6), we found—consistent with the reactivity hypothesis—that when individuals were high in approach motivation and they experienced

Table 10

Results of Dyadic Multilevel Analyses Predicting Examining Reactivity for Targets and Crossover to Expressers in Gratitude Interactions in Study 3

		Positive emotions					Perceived partner responsiveness				
				95% CI					95% CI		
Outcome	Predictor	*B*	*p*	Lower	Upper	*r*	*B*	*p*	Lower	Upper	*r*
Target interaction	**Target approach motivation**	**0.09**	**.48**	**-0.17**	**0.35**	**.06**	**-0.02**	**0.85**	**-0.22**	**0.18**	**.02**
Outcome (Reactivity)	Target global outcome	0.66	.001	0.28	1.03	.30	0.68	<.001	0.44	0.92	.44
	Target avoidance motivation	0.01	.86	−0.09	0.11	.02	−0.08	0.03	−0.15	−0.01	.19
	Expresser global outcome	0.04	.81	0.31	0.40	.27	0.04	0.77	−0.20	0.28	.03
	Expresser avoidance motivation	0.10	.07	−0.01	0.20	.16	0.00	0.98	−0.07	0.07	.00
	Expresser approach motivation	0.13	.38	−0.17	0.44	.08	0.06	0.63	−0.17	0.28	.04
	Observed praise	0.31	.04	0.02	0.61	.19	−0.01	0.93	−0.21	0.20	.01
	Gender	−0.18	.36	−0.58	0.21	.08	−0.13	0.39	−0.41	0.16	.08
Expresser interaction	**Target interaction outcome**	**0.26**	**<.001**	**0.12**	**0.41**	**.31**	**0.32**	**<.001**	**0.17**	**0.48**	**.34**
Outcome (Crossover)	Target approach motivation	0.09	.48	−0.15	0.33	.06	0.29	.58	−0.14	0.25	.05
	Target global outcome	−0.26	.07	−0.55	0.03	.16	0.07	.02	−0.52	−0.05	.21
	Target avoidance motivation	0.08	.06	−0.004	0.16	.17	−0.19	.30	−0.10	0.03	.09
	Expresser global outcome	0.57	<.001	0.27	0.86	.32	−0.04	<.001	0.42	0.84	.46
	Expresser avoidance motivation	−0.06	.18	−0.14	0.03	.12	0.56	.12	−0.11	0.01	.14
	Expresser approach motivation	0.20	.05	−0.003	0.40	.17	−0.04	.26	−0.08	0.27	.10
	Observed praise	0.11	.36	−0.13	0.35	.08	0.15	.63	−0.23	0.14	.04
	Gender	−0.17	.28	−0.48	0.14	.10	0.02	.99	−0.25	0.25	.00

Note. CI = confidence interval. Focal predictors for each model are highlighted in bold text.

Table 11

Results of Dyadic Multilevel Analyses Predicting Examining Reactivity for Expressers and Crossover to Targets in Gratitude Interactions in Study 3

		Positive emotions					Perceived partner responsiveness				
				95% CI					95% CI		
Outcome	Predictor	*B*	*p*	Lower	Upper	*r*	*B*	*p*	Lower	Upper	*r*
Expresser interaction	**Expresser approach motivation**	**0.25**	**.02**	**0.05**	**0.45**	**.20**	**0.16**	**.06**	**-0.01**	**0.33**	**.15**
Outcome (Reactivity)	Expresser global outcome	0.51	<.001	0.24	0.79	.29	0.58	<.001	0.38	0.77	.43
	Expresser avoidance motivation	−0.03	.54	−0.11	0.06	.05	−0.04	.20	−0.10	0.02	.11
	Target global outcome	0.00	.12	0.00	0.00	.13	−0.02	.87	−0.21	0.18	.01
	Target avoidance motivation	0.08	.04	0.00	0.16	.17	−0.06	.06	−0.12	0.00	.16
	Target approach motivation	0.03	.75	−0.17	0.23	.03	0.08	.33	−0.09	0.25	.08
	Gender	−0.09	.55	−0.40	0.21	.05	0.03	.78	−0.21	0.28	.02
Target interaction	**Expresser interaction outcome**	**0.42**	**<.001**	**0.23**	**0.62**	**.34**	**0.34**	**<.001**	**0.17**	**0.51**	**.31**
Outcome (Crossover)	Expresser approach motivation	−0.13	.29	−0.37	0.11	.09	−0.02	0.80	−0.20	0.15	.02
	Expresser global outcome	−0.11	.53	−0.45	0.23	.05	−0.13	0.25	−0.36	0.09	.10
	Expresser avoidance motivation	0.11	.03	0.01	0.20	.18	0.00	0.93	−0.06	0.07	.01
	Target global outcome	0.61	<.001	0.28	0.93	.30	0.61	<.001	0.41	0.82	.44
	Target avoidance motivation	−0.03	.55	−0.13	0.07	.05	−0.05	0.14	−0.12	0.02	.12
	Target approach motivation	0.15	.21	−0.08	0.39	.11	0.02	0.83	−0.16	0.19	.02
	Gender	−0.15	.40	−0.51	0.21	.07	−0.07	0.59	−0.32	0.18	.04

Note. CI = confidence interval. Focal predictors for each model are highlighted in bold text.

a gratitude event, it was associated with increases in their daily rating of the importance of that notable event ($B = .48$, $p < .001$, $r = .10$), whereas when individuals were low in approach motivation and they reported a gratitude event, it was not associated with their rating of the importance of that notable event ($B = .08$, $p = .47$, $r = .02$).

After testing these initial models, we also tested models which were identical to those presented in Table 14, with the exception that they included prior day event positive emotions and event importance as controls. Results of those models are presented in Ancillary Table 15. When predicting event-specific positive emotions and controlling for prior day positive emotions, the interaction between the within-person occurrence of gratitude events and approach motivation became marginally significant, $B = .16$, $p = .10$. When predicting event importance and controlling for prior day event importance, the interaction between within-person gratitude events and approach motivation remained statistically significant, $B = .23$, $p = .045$.

Table 12

Results of Dyadic Multilevel Analyses Predicting Examining Reactivity for Capitalizers and Crossover to Respondents in Capitalization Interactions in Study 3

		Positive emotions					Perceived partner responsiveness				
				95% CI					95% CI		
Outcome	Predictor	*B*	*p*	Lower	Upper	*r*	*B*	*p*	Lower	Upper	*r*
Capitalizer interaction	**Capitalizer approach motivation**	**0.27**	**.02**	**0.04**	**0.51**	**.19**	**0.08**	**0.31**	**-0.07**	**0.23**	**.08**
Outcome (Reactivity)	Capitalizer global outcome	0.66	<.001	0.33	0.98	.32	0.70	<.001	0.51	0.89	.52
	Capitalizer avoidance motivation	0.03	.61	−0.07	0.12	.04	0.01	0.78	−0.05	0.07	.02
	Respondent global outcome	0.03	.89	−0.31	0.34	.01	−0.14	0.12	−0.33	0.04	.13
	Respondent avoidance motivation	0.04	.40	−0.05	0.14	.07	−0.02	0.46	−0.08	0.04	.06
	Respondent approach motivation	−0.07	.55	−0.30	0.16	.05	0.07	0.37	−0.08	0.22	.07
	Active-constructive behavior	0.15	.17	−0.06	0.36	.11	0.08	0.23	−0.05	0.21	.10
	Gender	−0.15	.41	−0.51	0.21	.07	−0.06	0.59	−0.28	0.16	.05
Respondent interaction	**Capitalizer interaction outcome**	**0.36**	**<.001**	**0.23**	**0.50**	**.41**	**0.43**	**<.001**	**0.24**	**0.62**	**.34**
Outcome (Crossover)	Capitalizer approach motivation	−0.11	.29	−0.31	0.09	.09	−0.09	.35	−0.27	0.10	.08
	Capitalizer global outcome	−0.28	.06	−0.57	0.01	.16	−0.49	<.001	−0.75	−0.23	.29
	Capitalizer avoidance motivation	−0.01	.83	−0.09	0.07	.02	0.03	.42	−0.04	0.10	.07
	Respondent global outcome	0.69	<.001	0.41	0.96	.38	0.90	<.001	0.67	1.13	.54
	Respondent avoidance motivation	−0.01	.83	−0.09	0.07	.02	0.00	.99	−0.07	0.07	.00
	Respondent approach motivation	0.35	<.001	0.15	0.55	.28	0.19	.048	0.00	0.37	.16
	Active-constructive behavior	0.09	.30	−0.09	0.28	.09	0.00	.95	−0.17	0.16	.00
	Gender	−0.28	.07	−0.59	0.02	.15	−0.04	.75	−0.31	0.22	.03

Note. CI = confidence interval. Focal predictors for each model are highlighted in bold text.

Table 13

Results of Dyadic Multilevel Analyses Predicting Examining Reactivity for Respondents and Crossover to Capitalizers in Capitalizations Interactions in Study 3

		Positive emotions					Perceived partner responsiveness				
				95% CI					95% CI		
Outcome	Predictor	*B*	*p*	Lower	Upper	*r*	*B*	*p*	Lower	Upper	*r*
Respondent interaction	**Respondent approach motivation**	**0.33**	**.003**	**0.12**	**0.54**	**.24**	**0.16**	**.12**	**-0.04**	**0.37**	**.13**
Outcomes (Reactivity)	Respondent global outcome	0.73	<.001	0.44	1.02	.38	0.90	<.001	0.65	1.14	.51
	Respondent avoidance motivation	−0.01	.76	−0.10	0.07	.02	−0.02	.68	−0.09	0.06	.03
	Capitalizer global outcome	−0.01	.91	−0.31	0.27	.01	−0.17	.16	−0.41	0.07	.11
	Capitalizer avoidance motivation	−0.01	.80	−0.10	0.07	.02	0.01	.72	−0.06	0.09	.03
	Capitalizer approach motivation	0.00	.99	−0.21	0.21	.00	−0.05	.66	−0.25	0.16	.04
	Gender	−0.24	.15	−0.56	0.09	.12	0.04	.82	−0.26	0.33	.02
Capitalizer interaction	**Respondent interaction outcome**	**0.47**	**<.001**	**0.30**	**0.63**	**.42**	**0.28**	**<.001**	**0.16**	**0.39**	**.36**
Outcomes (Crossover)	Respondent approach motivation	−0.24	.03	−0.47	−0.02	.17	0.004	0.96	−0.14	0.15	.001
	Respondent global outcome	−0.34	.03	−0.66	−0.03	.17	−0.36	0.001	−0.56	−0.16	.28
	Respondent avoidance motivation	0.02	.62	−0.07	0.11	.04	−0.03	0.35	−0.08	0.03	.08
	Capitalizer global outcome	0.74	<.001	0.44	1.03	.38	0.83	<.001	0.65	1.00	.61
	Capitalizer avoidance motivation	0.02	.69	−0.07	0.11	.03	−0.01	0.85	−0.06	0.05	.02
	Capitalizer approach motivation	0.31	.01	0.09	0.53	.23	0.07	0.34	−0.07	0.22	.08
	Gender	−0.22	.19	−0.55	0.11	.11	0.003	0.98	−0.21	0.21	.001

Note. CI = confidence interval. Focal predictors for each model are highlighted in bold text.

Hypothesis 1: Do Self-Rated Positive (But Not Negative) Daily Events Predict Greater Positive Emotions and Event Importance for People Higher in Approach Motivation?

Results of multilevel analyses examining whether participants self-reported dummy-coded positive and negative daily events (vs. neutral events) predicted event positive emotions and importance are presented in Table 15. Results demonstrated there was a main effect of daily positive events on positive emotions both between- ($B = 3.73$, $p = .04$) and within- ($B = 2.07$, $p < .001$) persons, such that (a) people who reported greater positive events as compared with others across the study period tended to report generally higher levels of event-specific positive emotions and (b) when people experienced a positive event, rather than a neutral event on a particular day, they also reported greater positive emotions associated with that event. With respect to our primary hypothesis, as predicted, there was a significant interaction between the positive daily relational events within-persons and approach motivation, and this interaction is plotted in Figure 7. We probed simple slopes at high and low levels of approach motivation. Results demonstrated that while daily positive events (as compared with neutral events) were associated with greater event-specific positive emotions for all participants, the association was stronger at high levels (+1 *SD*) of approach motivation ($B = 2.22$, $p < .001$) than it was at low levels (−1 *SD*) of approach motivation ($B = 1.91$, $p < .001$). Surprisingly, we also found approach motivation moderated the association between negative daily events (as compared with neutral events) and positive emotions ($B = 0.20$, $p = .04$).[18] We also conducted an ancillary analysis in which we included all the same variables as in the previous model, but also included a control for the prior day's positive emotions. In this model (presented in Ancillary Table 16), although prior day positive emotion was a strong predictor of subsequent day event-specific positive emotion ($B = .05$, $p = .009$), the interaction between approach motivation and within-person positive daily events was still statistically significant in the hypothesized direction ($B = .21$, $p = .03$). Thus, regardless of the person's (a) trait-level positive emotions and (b) positive emotions associated with their notable event on the previous day, when people are higher in approach motivation they tend to experience greater positive emotions from positive relational events on that particular day, as compared with people lower in approach motivation.

Results for event importance demonstrated that positive daily events (as compared with neutral events), were associated with greater ratings of event importance at the within-person ($B = 2.02$, $p < .001$), but not at the between-person level ($B = -1.21$, $p = .60$). In partial support of our hypotheses, there was a marginally significant interaction between approach motivation and the within-persons daily positive event variable ($B = 0.22$, $p = .09$). However, when we examined a lagged-model (presented in Ancillary Table 17 in the OSM, which controlled for prior day ratings of the event's importance, we found that the interaction between the within-persons positive daily event variable and approach motivation became statistically significant ($B = 0.21$, $p = .03$). As such, we present the interaction from this lagged model in Figure 7, however we note here that because the interaction was only marginally significant in the model without controlling for prior day ratings of event importance, this interaction should be inter-

[18] Because of the surprising finding that approach motivation moderated participants' responses to negative relational events (in addition to positive events), we respecified a model which was identical to our primary model, with the exception that avoidance and not approach motivation was set to interact with between- and within-persons negative events in predicting event-specific positive emotions in daily life. In this model, we surprisingly found that avoidance motivation did not significantly interact with between ($p = .87$) or within-persons ($p = .56$) negative daily events in predicting participants' positive emotions. As such, it appears that—at least in this study—approach motivation was most relevant to the experience of positive emotions in response to participants' positive *and* negative relational events, as compared with their neutral events.

Table 14
Results of Multilevel Models Predicting Event-Specific Positive Emotions and Event Importance in Daily Life

	Event positive emotions				Event importance			
			95% CI				95% CI	
	B	*p*	Lower	Upper	*B*	*p*	Lower	Upper
Fixed effects								
Intercept	3.18	<.001	2.97	3.41	3.17	<.001	2.92	3.42
Gender	0.07	.61	−0.19	0.32	0.01	.94	−0.30	0.32
Global PE	0.60**	<.001	0.35	0.86	0.14	.36	−0.16	0.44
Gratitude between-persons	1.06*	.01	0.24	1.88	1.65**	.001	0.69	2.61
Gratitude within-persons	0.83**	<.001	0.69	0.97	0.28**	.001	0.12	0.44
Approach motivation	0.09	.32	−0.09	0.28	0.10	.37	−0.12	0.32
Avoidance motivation	−0.05	.18	−0.13	0.02	0.02	.73	−0.07	0.10
Gratitude Between-Persons × Prior PE	0.25	.71	−1.05	1.53	−0.32	.68	−1.84	1.20
Gratitude Within-Persons × Prior PE	−0.40**	.001	−0.65	−0.16	−0.22	.12	−0.49	0.06
Gratitude Between-Persons × Approach	0.15	.71	−0.68	0.97	0.75	.13	−0.22	1.73
Gratitude Within-Persons × Approach	**0.20***	**.03**	**0.02**	**0.38**	**0.24***	**.02**	**0.04**	**0.43**
Random effects								
Level-1 (within-persons)								
Residual	1.66	<.001	1.54	1.78	2.03	<.001	1.89	2.17
Autocorrelation	0.11	<.001	0.05	0.16	0.09	.003	0.03	0.14
Level-2 (between persons)								
Intercept	0.38	.001	0.21	0.69	0.39	.009	0.19	0.82
Level-3 (between-persons)								
Intercept	0.34	<.001	0.21	0.56	0.55	<.001	0.35	0.88

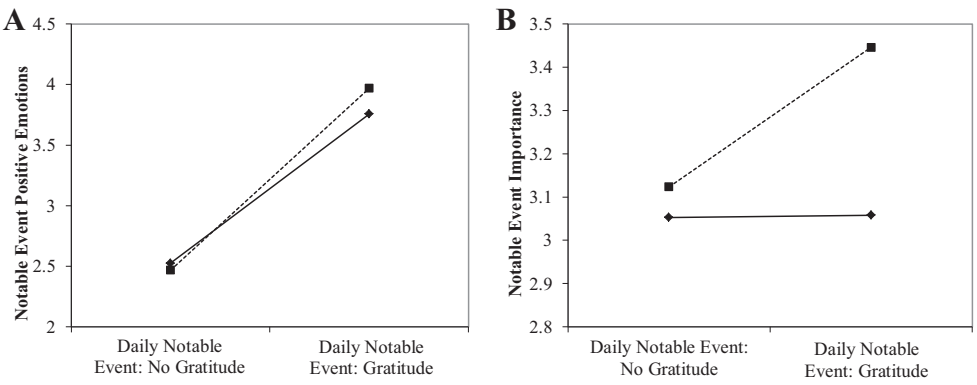
Note. CI = confidence interval. Focal predictors that were statistically significant are presented in bold.
* $p < .05$. ** $p < .01$.

preted tentatively. To probe the interaction from the lagged model, we conducted simple slopes analyses in which we examined the association between positive daily events and event importance at low and high levels (± 1 *SD*) of approach motivation. Although the within-person association between positive daily events and greater event importance was significant at both low and high levels of approach motivation, the association was stronger at high levels of approach motivation ($B = 2.04$, $p < .001$) than it was at low levels of approach motivation ($B = 1.52$, $p = .001$). Thus, in support of the upward reactivity hypothesis, when individuals higher in approach motivation reported a positive daily event, they tended to (a) experience more positive emotions and (b) rate the event as more important, a tendency which was independent of the number of positive events they reported across the 14-day study period.

Discussion

Results of Study 3 partially supported our hypotheses and extended the results of Studies 1 and 2 in numerous ways. Although in Studies 1 and 2 we found robust support for the upward affective *and* upward relational reactivity hypothesis, in Study 3

Figure 6
Interactions Between the Within-Person Everyday Occurrence of Gratitude Events and Approach Motivation in Predicting Positive Emotions and Event Importance in Study 3



Note. The dotted lines refer to individuals who are +1 *SD* above the mean in approach motivation, whereas solid lines refer to individuals who are −1 *SD* below the mean in approach motivation.

Table 15
Results of Multilevel Analyses Predicting Event-Specific Positive Emotions and Event Importance in Daily Life in Study 3

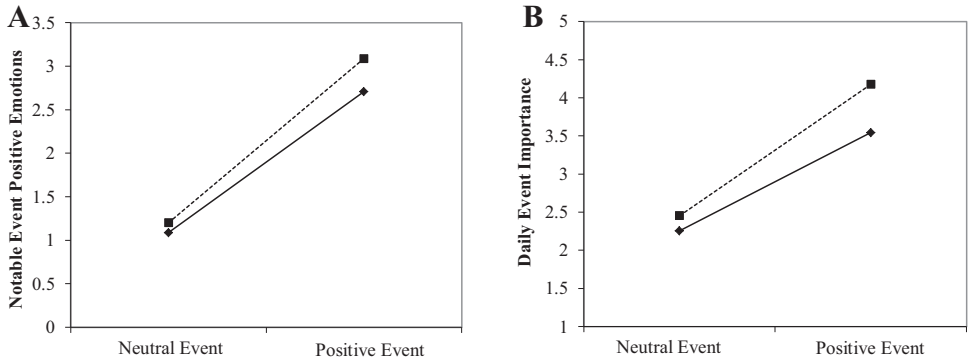
	Event positive emotions				Event importance			
	B	*p*	*LLCI*	*ULCI*	*B*	*p*	*LLCI*	*ULCI*
Fixed effects								
Gender	−0.01	.92	−0.23	0.21	−0.09	.53	−0.38	0.20
Global PE	0.45**	<.001	0.23	0.67	0.06	.71	−0.24	0.35
Negative events between-persons	1.41	.63	−4.36	7.18	−1.93	.62	−9.55	5.70
Negative events within-persons	−0.96*	.01	−1.70	−0.22	1.22	.03	0.12	2.32
Positive events between-persons	3.73*	.04	0.27	7.19	−1.21	.60	−5.78	3.37
Positive events within-persons	2.07**	<.001	1.51	2.64	2.02**	<.001	1.18	2.87
Approach motivation	0.15	.14	−0.05	0.36	0.16	.24	−0.11	0.43
Avoidance motivation	−0.02	.62	−0.08	0.05	0.04	.31	−0.04	0.13
Negative Events Between-Persons × Global PE	−1.28	.23	−3.41	0.84	0.35	.80	−2.46	3.15
Negative Events Within-Persons × Global PE	−0.18	.21	−0.46	0.11	−0.18	.41	−0.60	0.25
Positive Events Between-Persons × Global PE	−0.72	.25	−1.96	0.52	0.96	.24	−0.68	2.60
Positive Events Within-Persons × Global PE	−0.24	.03	−0.45	−0.02	−0.28	.08	−0.60	0.04
Negative Events Between-Persons × Approach	−0.83	.28	−2.37	0.70	−0.57	.58	−2.60	1.47
Negative Events Within-Persons × Approach	0.20*	.04	0.004	0.40	−0.01	.95	−0.31	0.29
Positive Events Between-Persons × Approach	0.02	.96	−1.13	1.18	0.00	.99	−1.54	1.53
Positive Events Within-Persons × Approach	**0.19***	**.03**	**0.02**	**0.36**	0.22	.09	−0.04	0.48
Random effects								
Level-1 (within-persons) – Residual	0.82	<.001	0.76	0.88	1.80	<.001	1.68	1.93
Autocorrelation	0.11	<.001	0.07	0.18	0.09	.002	0.03	0.14
Level-2 (between persons) – Intercept	0.22	.008	0.11	0.47	0.42	.007	0.20	0.87
Level-3 (between-persons) – Intercept	0.32	<.001	0.21	0.49	0.53	<.001	0.33	0.84

Note. The reference group was set to neutral events. PE = positive emotions; LLCI = lower limit of the 95% confidence interval; ULCI = upper limit of the confidence interval. Focal predictors that were statistically significant are presented in bold.

we primarily found support for the upward affective reactivity hypothesis. Specifically, we found evidence for upward affectivity reactivity in three of the four paths we examined in the laboratory-based interactions, including in both gratitude (for expressers only) and capitalization (for both capitalizers and respondents) interactions, suggesting that the affective sweetening benefits of approach motivation are robust, and extend beyond gratitude interactions. Moreover, replicating and extending Studies 1 and 2, in Study 3 we found support for the upward affective crossover hypothesis in three of the four indirect effects we tested, including in both gratitude and capitalization interactions.

In contrast to the support we found for upward affective reactivity and crossover, we found limited support for the upward relational reactivity and crossover hypotheses in Study 3. None of the four main effects of upward relational reactivity was statistically significant after accounting for the stringent series of control variables that we included our models. Because we found limited support for upward relational reactivity, there was also limited

Figure 7
Interactions Between the Within-Person Everyday Occurrence of Positive Events and Approach Motivation in Predicting Positive Emotions and Event Importance in Study 3



Note. The dotted lines refer to individuals who are +1 *SD* above the mean in approach motivation, whereas solid lines refer to individuals who are −1 *SD* below the mean in approach motivation. The results for event importance are derived from the lagged model presented in Ancillary Table 17.

support for upward relational crossover in Study 3, as 0 of the 4 indirect effects we tested were significant. One plausible explanation for this lack of findings is power: Power analyses suggested these tests were underpowered, at least in part because of the strong correlation between global levels of perceived partner responsiveness and perceptions of responsiveness during the interaction.

Additionally, in Study 3 we were able to extend our findings to relational experiences in daily life. We found that approach motivation moderated the association between positive daily relational events and the (a) positive emotions and (b) ratings of importance associated with these events. This was true when we examined gratitude events, as identified by independent-coders, and when we examined positive events based on participants' ratings of the valence of the events. Although positive relational events were generally associated with greater positive emotions and ratings of importance at within-person level, when people were higher in approach motivation (relative to people lower in approach motivation) they experienced greater within-person boosts in their positive emotions and ratings of the importance associated with the event on days when they reported a gratitude event. This was true even when accounting for general levels of positive emotions, and between-person differences in the frequency with which people high in approach motivation experiences these positive daily events. Moreover, for participants' self-rated positive events, results were robust even when we controlled for prior day positive emotions or event importance, meaning the interaction between approach motivation and positive events on a specific day is not attributable to (a) trait-differences in positive emotion or (b) positive emotions or ratings of the event's importance on the previous day. As such, these results provide a naturalistic, within-person conceptual replication of our laboratory-based results. Moreover, given we found evidence for upward reactivity using participants' self-ratings of the valence of their events, which included *many types of events* beyond just gratitude and capitalization events, these results provide further evidence to suggest that upward reactivity is not limited to gratitude or capitalization interactions, but likely generalizes to many types of positive events in intimate relationships.

Meta-Analysis of Findings Across Studies 1, 2, and 3

The findings related to upward affective reactivity and crossover were largely consistent across studies 1, 2, and 3, whereas they were less consistent with respect to upward relational reactivity. Given that we included a stringent series of covariates in all analyses, and power may have been a concern, we wanted to quantitatively summarize the pattern of the findings across these three studies using meta-analysis. We did so for the laboratory-based gratitude interactions specifically, because participants completed the gratitude interactions in all three studies. That is, we examined the size and significance of the coefficients for the upward reactivity hypothesis and the upward crossover hypothesis, because these two hypotheses were tested in all three studies (upward observability was only examined in Studies 1 and 2). Using the effect size *r* values and sample sizes from the analyses presented the pooled analysis in Studies 1 and 2, and the multilevel dyadic analysis in Study 3, we followed the recommendations of Lipsey and Wilson (2001) for computing weighted *r* values assuming random-effects component models, and the results are reported in Table 16. We utilized random-effects models because there were methodological differences between the studies, and because our aim is for the results of this research to be generalizable to other populations (Goh et al., 2016). For the tests of indirect effects, we calculated the average effect size *r* for the coefficients which constituted the *a* and *b* paths.

As shown in Table 16, when summarizing across the three studies, both the upward reactivity path, and its corresponding upward crossover path, were significant in all cases except one: When examining whether targets in gratitude interactions, the coefficient for upward relational reactivity was not statistically significant across the three studies (average $r = .13$, $p = .27$). As such, results of the meta-analysis provide evidence for upward affective reactivity and crossover for both expressers and targets, and evidence of upward relational reactivity and crossover for expressers only.[19] Thus, across the three studies, we found that when Jim expresses gratitude to Pam, if Pam is higher in approach motivation, she experiences greater positive emotions during gratitude interactions, which predicts Jim's positive emotions during these interactions (independent of Jim's global positive emotions and approach motivation). We also found that when Jim expresses gratitude to Pam, when Jim is higher in approach motivation, he tends to experience greater positive emotions and greater perceptions of Pam's responsiveness, which predicts better outcomes for Pam, in the form of greater positive emotions and greater perceptions of Jim's responsiveness (again, independent of Pam's own global outcomes and approach motivation).

General Discussion

Whereas recent accounts of the role of approach motivation in social relationships have focused on increased exposure to positive events as a key mechanism through which beneficial downstream outcomes may accrue (Elliot et al., 2006; Gable et al., 2006; Gable & Gosnell, 2013; Gable & Impett, 2012), here we revived and carefully tested the reactivity hypothesis (Elliot & Thrash, 2002; Elliot et al., 2006). Specifically, by assessing social approach motivation, then providing all participants the opportunity to engage in a standardized positive social interaction with their intimate partner, we found robust support for *upward reactivity*. Across four naturalistic conversations that tend to be inherently rewarding, people with greater approach motivated commitment toward their intimate relationship partner experienced greater positive emotions, and (although less consistently) enhanced perceptions of their partner's responsiveness. Importantly, in the laboratory, we found evidence for upward affective reactivity in both capitalization and gratitude interactions, regardless of role: whether expressing gratitude or being the target of it, whether sharing good news or having good news shared. Results from daily reports of couples' relational events in Study 3 supplemented these observational findings by demonstrating that positive events in

[19] These results are consistent with the results we were unable to include in the meta-analysis. Specifically, (a) the results of analyses examining the upward observability hypothesis from Studies 1 and 2, and (b) the results of the analyses of the capitalization interactions in Study 3, which suggested that upward *affective* reactivity was particularly robust in positive interpersonal interactions.

Table 16
Meta-Analysis of Effect Sizes Examining Upward Crossover and Reactivity in Gratitude Interactions Across Studies 1, 2, and 3

Measure	Average effect size *r*	95% CI		*z*	*p*
		Low	High		
Upward affective reactivity and crossover—Target → Expresser					
Approach motivation → Target positive emotion (Reactivity)	.19	0.01	0.35	2.12	.03
Target positive emotion → Expresser positive emotion (Crossover)	.23	0.13	0.32	4.43	<.001
Upward affective reactivity and crossover—Expresser → Target					
Approach motivation → Expresser positive emotion (Reactivity)	.22	0.13	0.32	4.55	<.001
Expresser positive emotion → Target positive emotion (Crossover)	.29	0.19	0.37	5.87	<.001
Upward relational reactivity and crossover—Target → Expresser					
Approach motivation → Target PPR (Reactivity)	.12	−0.10	0.34	1.08	.28
Target PPR → Expresser PPR (Crossover)	.23	0.07	0.37	2.81	.005
Upward relational reactivity and crossover—Expresser → Target					
Approach motivation → Expresser PPR (Reactivity)	.16	0.07	0.26	3.25	.001
Expresser PPR → Target PPR (Crossover)	.24	0.15	0.33	4.91	<.001

Note. CI = confidence interval; PPR = perceived partner responsiveness.

daily life were experienced differently in terms of (a) positive emotions and (b) importance by people high relative to low in relationship approach motivation.

Further supporting a renewed interest in reactivity, high approach motivation did not only forecast the experiences of individuals, but the upward reactivity of these individuals was also observed by partners. That is, we found support for the *upward observability hypothesis* by demonstrating in Studies 1 and 2 that in gratitude interactions, individuals who were higher in approach motivation were perceived by their partners as experiencing more positive emotions during these interactions, via the meditating mechanism of upward affective reactivity (i.e., enhanced positive emotions during the interaction). This finding also held when accounting for a rigorous set of control variables, including global positive emotions for both members of the couple and the partner's own social approach and avoidance motivation.

Finally, we provided evidence for the *upward affective crossover hypothesis* in all three studies. In both gratitude and capitalization interactions, when actors were higher in approach motivation, they tended to experience greater positive emotions during these interactions, which was associated with greater positive emotions for the partner. We also found some evidence of upward relational crossover, although the evidence was less consistent (see Table 16). Overall, however, our tests of the upward crossover hypothesis provide initial evidence that the approach motivation is beneficially, indirectly, and uniquely associated with the outcomes of their partner. The implications of these findings are discussed below.

Approach Motivation and Upward Reactivity in Intimate Relationships

Prior research examining the influence of approach motivation demonstrates that it predicts broad, beneficial evaluations of relationships for both individuals and their partners, including enhanced relationship satisfaction (e.g., Impett et al., 2010). In understanding the mechanisms by which approach motivation might have a beneficial influence on relationships, researchers had previously proposed the possibility that approach motivation enhances exposure *and* reactivity to positive events. Yet, when examining these possible mechanisms, previous studies—particularly those that used social events checklists—did not find evidence for reactivity (e.g., Elliot et al., 2006; Gable et al., 2006), which we proposed was largely attributable to methodological considerations within those previous studies. We believe, ultimately, the strongest tests of reactivity to positive social events involve studying them in situ: that is, as these social events unfold. Although one prior study exposed participants to a positive social interaction, and examined how behaviors in the interaction differed depending on levels of approach social motivation (Impett et al., 2010), this study was not intended to address whether people higher in approach motivation were upwardly reactive to the positive social interaction, and it did not assess participants' experience of the interaction (e.g., their positive emotions or perceptions of partner responsiveness). As such, the novel contribution of the current work lies in (a) exposing all participants to positively valenced social events, and documenting their responses to these interactions as they occurred and (b) tracking participants' daily relational events, and examining their responses to these events soon after they occurred, to reduce the potential for retrospective bias. When we did so, we found robust evidence that approach motivation enhances reactivity (in particular, our strongest evidence was for affective reactivity) to positive social interactions.

We drew upon prior theory and research to account for numerous covariates in carefully testing our major study hypotheses. Prior research demonstrates that people higher in approach motivation exhibit trait-level differences in the experience of positive emotions and relationship evaluations (e.g., Elliot & Thrash, 2010), meaning it is possible that any differences in affective and relational outcomes between people higher and lower in approach motivation in response to positive relational events could have been a result of global differences in the tendency to experience positive emotions or positive relational evaluations. Thus, by controlling for global differences in these outcome variables, it helps facilitate the interpretation that it was the social interaction itself driving the outcomes of interest. Similarly (in the case of targets and capitalizers), controlling for the partner's behavior accounts for the possibility that individuals high in approach motivation have partners who are objectively more engaged in those situa-

tions. If this were the case, it would not necessarily be upward *reactivity* that explains the association between approach motivation and beneficial outcomes in response to positively valenced social events; instead, these outcomes could be attributed to the possibility that these positive social events were actually objectively better for individuals high in approach motivation, because of their partner's better behavior. Yet, even when leveling the playing field by statistically adjusting for trait-level differences in emotions and (in the case of targets and capitalizers) partner behavior, people high in approach motivation still enjoyed these interactions to a greater degree. Thus, it is not just that people high in approach motivation are enjoying these interactions more because they (a) they generally tend to experience more positive emotion or (b) because their partners treat them better in the interaction. On the contrary, even when accounting for their partner's behavior and global positive-emotions, people with greater social approach motivation tend to respond more positively to positive social events relative to people with lower social approach motivation.

One question that arises is why upward affective reactivity (Hypothesis 1A) was supported in nearly every test we conducted, whereas the upward relational reactivity hypothesis (Hypothesis 1B) was less consistently supported. Although there are many possible explanations for this pattern of findings, there are three we feel are worth noting here. First, it is possible that approach motivation, even in the social domain, exerts its beneficial influence primarily through affect, and that the relational benefits that tend to accrue as a result of social approach motivation are distal: that is, they only occur as a downstream consequence of the upward affective reactivity associated with approach motivation. This explanation coheres with the more general approach motivation literature, which theorizes that positive emotionality is core to the experience of, and outcomes associated with, approach motivation (Elliot & Thrash, 2002). Second, it is also possible that the association between approach motivation and perceptions of partner responsiveness was less consistent because global levels of perceived partner responsiveness were particularly strongly associated with this variable during the interaction, meaning there was less variability available for approach motivation to explain. This is plausible considering in the meta-analysis of effect sizes, the upward relational reactivity effect was only slightly smaller than the upward affective reactivity effect across the three studies (for instance, for targets, $r = .12$ for upward relational reactivity and .19 for upward affective reactivity). Moreover, examination of global levels of perceived partner responsiveness suggests that the couples included in this research began with high levels of perceived partner responsiveness (on a scale of 1 to 7, trait levels of perceived partner responsiveness ranged from 5.93 to 6.26 across studies 1–3), meaning a ceiling effect may have limited the extent to which participants' perceived partner responsiveness was capable of shifting during the interaction. Third, it is possible that the way we assessed covariates may have played a role: Generally speaking, our assessments of trait-level perceived partner responsiveness were more closely aligned with the way perceived partner responsiveness was assessed during the gratitude and capitalization interactions, as compared with the way trait-level and interaction positive emotions were assessed. It is possible, therefore, that smaller effect sizes emerged for perceived partner responsiveness, in part, because global assessments of perceived partner responsiveness were more closely aligned with the interaction assessments than global assessments of positive emotions. We suspect the true reason for the difference in our findings regarding upward affective and relational reactivity involves some combination of these explanations.

Our tests of the reactivity hypothesis provide important insight into *how* social approach motivation likely contributes to broad outcomes like relationship satisfaction for both individuals and their partners: Many theories suggest that positive relational experiences and interactions are crucial to maintaining relationship satisfaction and well-being (Algoe, 2019; Aron et al., 2000; Reis & Gable, 2003; Stanton et al., 2017; Walsh et al., 2017). Indeed, gratitude and capitalization interactions specifically play a critical role in shaping perceived partner responsiveness, positive emotion, security, and other proximal relational processes (Algoe et al., 2013, 2016; Gable, 2006; Gable et al., 2012; Park et al., 2019), all of which contribute to more broad and distal relational evaluations and behaviors, like relationship satisfaction and dissolution. Thus, one of the proximal ways in which approach motivation appears to contribute to relationship satisfaction is by enhancing the sweet moments in relationships, which, in the long-term, contribute to the success and enjoyment of intimate relationships.

Because we focused specifically on positively valenced interactions, our results do not speak to how approach motivation influences affective or relational reactivity to other types of interactions in intimate relationships. We chose to examine social approach motivation in relation to positive interpersonal processes specifically because approach–avoidance motivational theory suggests that people high in approach motivation respond especially strongly to positive events and experiences (Elliot & Thrash, 2002). Yet, many types of interactions in intimate relationships can produce beneficial outcomes without necessarily being positively valanced in terms of the typical experience of the interaction itself. For instance, social support interactions are not necessarily infused with positive emotions (e.g., supporting a partner experiencing distress may be challenging; Don et al., 2019; Marigold et al., 2014) but in many cases do predict beneficial outcomes (e.g., Don & Hammond, 2017; Feeney & Collins, 2015; Overall et al., 2010). Given that these interactions can be positive in terms of relational outcomes, but not necessarily in terms of the actual experience of the interaction (i.e., they can sometimes be stressful), it is possible to imagine conflicting ways in which social approach motivation influences how people react to these interactions. On the one hand, approach motivation may upwardly enhance reactivity to any interpersonal interaction that ultimately produces beneficial outcomes, even if the interaction is not infused with positive emotion. On the other hand, it is possible that approach motivation is primarily beneficial in interpersonal contexts that are positive in terms of their valence, such as the ones we examined in the current research.

We also found surprising evidence as it relates to reactivity to negative relational events in daily life. Approach–avoidance motivational theory suggests that avoidance motivation, and not approach motivation, should be the primary driver of reactivity to negative interpersonal events (Elliot & Thrash, 2002; Gable, 2006). Although prior research has found some support for this hypothesis using social events checklists (Elliot et al., 2006; Gable, 2006), our diary data surprisingly did not support prior theory or research. That is, we found approach but not avoidance motivation

moderated the influence of negative daily relational events on participants' event-specific positive emotions. Although this finding is notable, it is specific to *positive emotions* as an outcome, and we suspect that avoidance motivation would play a role in influencing negative emotions in response to negative events. Regardless, our results provide suggestive evidence that future research should examine the exposure and reactivity hypotheses using methods that track individuals' affective outcomes in close juxtaposition to the occurrence of the events themselves.

Approach Motivation and Its Influence on Partners

Prior research demonstrated that social approach motivation not only predicts better relational outcomes for individuals but also does so for the partners of people with greater approach motivation (e.g., Impett et al., 2010). According to prior research and theory, the exposure hypothesis could partly explain why this partner effect was occurring: If people high in approach motivation create more positive relational events, then their partners should benefit. In this study, however, we proposed that upward reactivity could also explain why an individual's approach motivation beneficially influences their partner, a hypothesis for which we found support.

Why did upward crossover occur? There are multiple theoretical explanations for upward crossover, including emotional contagion (Parkinson & Simons, 2009), mutual cyclical growth (Reis, 2014), and positivity resonance (Fredrickson, 2016). Each of these theories suggests a different precise process by which crossover may occur; although the goal of the present research was not to tease apart exactly how the crossover effect occurs, it does point to the value of future theorizing and mechanistic tests of this process. Because our assessments of positive emotion and responsiveness during the interaction for both partners occurred at the end of the social interaction (looking back over their experiences during and as a result of the interaction), we have no way of knowing whether one person's affect precedes another. As such, our tests of upward crossover should be viewed as examining emotional and relational experiences resulting from the same, shared episode of interaction, and our mediation analyses should be viewed as indirect *associations*, rather than implying causal direction. Despite this, examining the co-occurrence of an emotional or relational experience is still crucially important, based on theory. For instance, Fredrickson's (2016) theory of positivity resonance suggests that interpersonal interactions in which positive emotion and mutual care are collectively *coexperienced* in brief momentary interchanges have profound impact on individual health and well-being (e.g., Otero et al., 2019), suggesting the practical importance of understanding situations in which emotions occur collectively or simultaneously (rather than in which one precedes another; Barsade & Gibson, 2012; de Rivera, 1992; Goldenberg et al., 2020). Regardless, because of the rigorous sets of control variables we included in each test of crossover, we were able to demonstrate that one person's reactivity predicts another person's emotional experience during the interaction, even controlling for the other person's approach motivation and global positive emotions. Thus, although we cannot draw conclusions as to which individual's emotional experience caused or preceded another, we were able to achieve our original aim, which was to provide solid evidence that one person's approach motivation can indirectly predict another person's experience in these positive interpersonal interactions.

Implications for Research on Positive Interpersonal Processes

Our results also have implications for research on positive interpersonal processes. Extensive research has examined the nature, function, and outcomes of positive interpersonal processes like gratitude and capitalization (Algoe, 2012; Algoe et al., 2013; Gable et al., 2006, 2012; Gordon et al., 2012; Park et al., 2019; Peters et al., 2018); building on this recent proliferation of studies, we forge new ground by examining individual differences in *how* people experience these interactions. Critically, our work answers the recent call from theorists pushing back against blanket assertions that "positive" processes in relationships are equivalently good, and that it is important to understand when, for whom, and how these types of interactions are beneficial (McNulty & Fincham, 2012). Our research suggests that, although positive interpersonal processes tend to be broadly beneficial, people with greater social approach motivation tend to reap *even greater* rewards from these interactions, relative to those with lower social approach motivation. As such, our results add a degree of nuance to the literature, advancing understanding by illuminating when and how these positive relational interchanges are especially beneficial.

Caveats

Our results provided support for our hypotheses across three studies, four different laboratory-based interactions, and a nightly survey completed across the course of 14 days. Yet, the current research is not without limitations. One important limitation has to do with the nature of our control variables for positive emotions and perceived partner responsiveness in the laboratory-interactions in Studies 1–3. In each of these interactions, we assessed global, trait-level positive emotions or perceived partner responsiveness. Although there is good theoretical reason to control for trait-level positive emotions or perceived partner responsiveness when testing for upward reactivity (Elliot & Thrash, 2002), it is also possible there may have been momentary, state-like differences between individuals high and low in approach motivation immediately prior to the interaction. Importantly, in Study 3, trait-level positive emotions and perceived partner responsiveness was assessed just before the capitalization interaction, so these assessments should at least partially encapsulate any differences that occurred prior to the interaction. Similarly, in Study 2, trait-level positive emotions were assessed just before the gratitude interaction. Moreover, in our diary analyses, results of the lagged analyses were generally consistent with the nonlagged analyses, which provide further evidence that momentary differences in positive emotions do not confound these findings. Regardless, future research may benefit from a more immediate and state-like assessment of positive emotions and perceived partner responsiveness in examining upward reactivity. Second, the current work is purely naturalistic, meaning causal conclusions are not possible without a randomized experiment. Third, although we drew from three well-powered community-based samples, most participants were relatively similar in terms of demographic characteristics, meaning future work should look to replicate these findings among samples of greater diversity in terms of age, cultural background, and affect ideals. Fourth, our results are limited to intimate rela-

tionship partners. Although we believe approach motivation is likely to enhance reactivity to positive social interactions in other types of relationships (e.g., friendship or familial relationships), future research is needed to test whether this assumption is accurate. Finally, although we were interested in meta-analyzing the upward crossover effect across Studies 1–3, we are unaware of a commonly used technique for meta-analyzing indirect effects across multiple studies. As such, we were only able to draw conclusions based on the statistical significance of the underlying *a* and *b* paths constituting the indirect effects in the upward crossover effect, which is a limitation we note here.

Conclusion

Theory on social approach motivation emphasizes individual differences in the extent to which people value positive, rewarding moments (Gable, 2006). In this research, we took advantage of recent theorizing on positive interpersonal processes (Algoe, 2019a)—inherently positively valenced, rewarding moments—to carefully test an important way in which people with higher social approach motives might experience even more benefit from these generally beneficial moments. Our findings not only provide support for the hypothesis that positive social moments are upwardly enhanced for people higher in approach motivation, but also demonstrate that their partners observe this upward reactivity, and may reap rewards themselves. Given the documented personal and relational value of positive interpersonal processes and social approach motives, this now-documented reactivity mechanism for their joint effects is especially illuminating. Overall, we provide evidence for one way in which approach motivation may influence healthier relationships: by predisposing people to enjoy the sweet moments with their partner.

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