



# Find, Remind, and Bind: The Functions of Gratitude in Everyday Relationships

Sara B. Algoe\*

University of North Carolina at Chapel Hill

---

## Abstract

Though interest in the emotion of gratitude has historically focused on its role in social exchange, new evidence suggests a different and more important role for gratitude in social life. The *find-remind-and-bind* theory of gratitude posits that the positive emotion of gratitude serves the evolutionary function of strengthening a relationship with a responsive interaction partner (Algoe, Haidt, & Gable, 2008). The current article identifies prior, economic models of gratitude, elaborates on unique features of the *find-remind-and-bind* theory, reviews the accumulating evidence for gratitude in social life in light of this novel perspective, and discusses how the *find-remind-and-bind* theory is relevant to methodology and hypothesis testing. In sum, within the context of reciprocally-altruistic relationships, gratitude signals communal relationship norms and may be an evolved mechanism to fuel upward spirals of mutually responsive behaviors between recipient and benefactor. In this way, gratitude is important for forming and maintaining the most important relationships of our lives, those with the people we interact with every day.

---

For decades, social and behavioral scientists have been fascinated by questions of why and when one organism will expend resources to help another, even with no immediately apparent benefit to the self. In his sweeping and now classic theory of reciprocal altruism in humans, the sociobiologist Robert Trivers (1971) proposed a solution that gave center stage to an elaborate system of psychological processes. One particular process was the emotion of gratitude, about which he had this to say:

If the cost/benefit ratio is an important parameter in determining the adaptiveness of reciprocal altruism, then humans should be selected to be sensitive to the cost and benefit of an altruistic act, both in deciding whether to perform one and in deciding whether, or how much, to reciprocate. I suggest that the emotion of gratitude has been selected to regulate human response to altruistic acts and that the emotion is sensitive to the cost/benefit ratio of such acts (p. 49; 1971).

This was a perfectly sufficient treatment of gratitude for his purposes, and rested on evidence available at the time. In fact, the empirical literature from psychology regarding gratitude's role in social life has been largely guided by the economic variables Trivers highlighted in these sentences, including the focus on cost, value, and repayment behavior (see reviews in McCullough, Kilpatrick, Emmons, & Larson, 2001; McCullough, Kimeldorf, & Cohen, 2008). These themes continue to shape hypotheses tested as well as methodologies employed. Yet theories within affective and relationships science have come a long way since 1971, and highlight the rich complexity in emotional experience and interpersonal interactions that should be associated with the momentary experience of gratitude. These literatures suggest a different and more important role for gratitude in social life beyond merely facilitating interpersonal accounting.

I have been advocating a fresh way to look at the social functions of the emotion of gratitude, which I term the “find, remind, and bind” theory of gratitude (p. 429; Algoe et al., 2008). The shift in perspective came when my collaborators and I identified a key overlooked aspect of situations that trigger gratitude: Specifically, when the emotion of gratitude is experienced in response to a benefit, it is, in part, because the recipient has noticed a particularly *responsive* action on the part of a benefactor (e.g., Algoe et al., 2008). From within a sea of social contacts, a responsive gesture stands out from the rest: it signals that the person understands, approves, or cares about the self (Reis, Clark, & Holmes, 2004). This new insight about the situations that trigger gratitude leads to novel predictions across all aspects of the emotional experience, including: situational appraisals that trigger gratitude; short-term changes in cognition, motivations, and behaviors (e.g., about the benefactor and relationship); expression of gratitude and its consequences; changes in the quality of the dyadic relationship as perceived by the recipient or the benefactor; implications for group-level functioning; and potential reflection of cultural norms. All aspects can be viewed as working in concert to serve these broad functions: In the moments it is experienced, gratitude updates our view of the benefactor – specifically, finding new or reminding of current high-quality relationship partners –, and helps to bind the people in the relationship more closely together.

As reviewed below, the *find-remind-and-bind* theory pushes beyond prior accounts to significantly enrich understanding of how the emotion of gratitude functions in social life. For example, it calls into question assumptions that gratitude is most useful for establishing new reciprocal relationships between strangers or acquaintances (e.g., McCullough et al., 2008) and instead suggests that, when experienced, gratitude has the same purpose in any type of relationship, no matter how well established. Moreover, the *find-remind-and-bind* theory posits that rather than primarily helping us understand how we might come to trust a stranger, gratitude is probably best understood as a mechanism for forming and sustaining the most *important* relationships of our lives, those with the people we care about and count on from one day to the next. Because the lens of the *find-remind-and-bind* theory encompasses the benefactor-recipient dyad as a unit, it prompts hypotheses about the psychology and behavior of each member of the pair. The most recent tests of the theory, described below, show how and why expressed gratitude can play a central role in drawing a benefactor closer in to the relationship, while simultaneously highlighting the explanatory power of this novel approach. In the current article, I elaborate on the *find-remind-and-bind* theory, incorporate the latest evidence, and discuss the next questions it prompts.

## A Functional Approach to Emotions

Other people comprise a key structural element of our everyday lives, with typical days involving numerous social interactions. Our brains and bodies are wired for navigating these social interactions. Specifically, humans’ mental architecture has evolved over millennia within the context of living in close-knit social groups: our most efficient wiring is tailored for navigation of social interactions within the meaningful and ongoing relationships of our everyday lives (e.g., Tooby & Cosmides, 1990). Emotions – different types like anger, embarrassment, gratitude, and pride – have evolved within this context as a critical mechanism for social navigation (Keltner & Haidt, 1999).

Any given emotion type functions in two fundamental ways: to draw attention to a notable situation and to coordinate a response to that situation. Each type of emotion – whether negative/unpleasant or positive/pleasant – has been shaped by selection processes

to draw attention to a specific type of recurring and important situation. In general, negative emotions are thought to draw attention to threats or problems in the environment, whereas positive emotions draw attention to opportunities (Algoe & Fredrickson, 2011; Fredrickson, 1998, 2001). For example, embarrassment draws attention to one's own social gaffe (Keltner & Buswell, 1997), whereas admiration draws attention to someone's display of a socially valued skill (Algoe & Haidt, 2009). The emotional response, in turn, engages mind, body, and behavior in a coordinated way. Like fuel for an engine, the emotion facilitates resolution to the problem, in the case of a negative emotion, or takes advantage of the opportunity that has arisen, in the case of a positive emotion. For example, embarrassment helps to restore one's social standing (Keltner & Buswell, 1997), whereas admiration has been proposed to facilitate skill acquisition from exemplary models (Algoe & Haidt, 2009). These types of responses have, on average, proven to be advantageous to the person, thereby preserving their integrity into present-day psychological processes.

This is the lens through which I have approached questions about the evolved functions of the emotion of gratitude, and which has led to the *find-remind-and-bind* theory (Algoe et al., 2008). At its core, the *find-remind-and-bind* theory posits that gratitude has evolved to take advantage of a different situational opportunity than considered by earlier accounts (e.g., Bartlett & DeSteno, 2006; McCullough et al., 2001, 2008). In short, for the emotion of gratitude, the notable situation is the identification of a high-quality relationship partner, and the coordinated response serves to improve the relationship: that is, it *finds* new or *reminds* of a known good relationship partner, and helps to *bind* recipient and benefactor closer together. The starting point makes all the difference, because the environmental opportunity (i.e., to what one's attention is drawn in the situation) is what dictates how the emotion coordinates a response. In support of this idea, Lerner and colleagues have demonstrated that situational appraisals associated with different types of negative emotions have implications for different types of future cognitions and behaviors (see Lerner & Keltner, 2000; Lerner & Tiedens, 2006). Likewise, recent research comparing specific positive emotions to one another has demonstrated that situational appraisals forecast distinct outcomes here too (e.g., Algoe & Haidt, 2009). By identifying the key situational appraisal that gives rise to gratitude, the *find-remind-and-bind* theory significantly shifts and enriches scholarly understanding of how gratitude plays out in the social interactions and relationships of everyday life.

### **The Find, Remind, and Bind Theory of Gratitude: On Seizing Opportunities for Connection with Responsive Others**

Below, I review evidence regarding multiple aspects of the emotion of gratitude's experience and consequences, viewed through the lens of the *find-remind-and-bind* theory. I spend relatively more time on the situational appraisals that trigger gratitude, because this is where the distinctions between theories can appear to be superficial if glossed. Yet, as I argue, the situational appraisals set the stage for differential predictions as the emotion plays out, even into social interactions and consequences for the group.

#### *Situational appraisals: Identifying opportunity within the current social environment*

Emotions scholars have long agreed that gratitude arises when another person provides a benefit to the self.<sup>1</sup> However, humans are an interdependent species, continuously exchanging favor for favor with those around them: receipt of any given objective

“benefit” does not necessarily cause feelings of gratitude. That is a point on which gratitude researchers agree, and several studies have identified situational features that increase the intensity of grateful feelings (Algoe & Stanton, 2012; Algoe et al., 2008; Converse & Fishbach, forthcoming; Tesser, Gatewood, & Driver, 1968; Tsang, 2006a; Tsang, 2007; Weinstein, DeHaan, & Ryan, 2010; Wood, Brown, & Maltby, 2011), or that differentiate gratitude from indebtedness (Mathews & Green, 2010; Tsang, 2006a; Watkins, Scheer, Ovnicke, & Kolts, 2006). Though prior well-cited accounts of gratitude acknowledge this nuance in aspects of the benefit-provision situation that triggers gratitude, it is fair to characterize them as emphasizing a recipient’s own personal benefit as the defining feature of gratitude-inducing situations (e.g., the “benefit-detector” function of gratitude, McCullough et al., 2008). This focus on the benefit (or, positive outcome for the self) leads to predictions that gratitude functions to facilitate social exchange, through repayment or reciprocation of the benefit (Bartlett & DeSteno, 2006; see McCullough et al., 2001, 2008). These earlier accounts of gratitude were economic in nature and, in line with Trivers (1971), rest on the consideration of resource distribution. To the extent that the argument was extended to illuminate how gratitude might be related to relationship formation, it was thought to do so by establishing, through repeated interactions, that the grateful person was trustworthy (i.e., because he or she had repaid a provided benefit; see theorizing in Bartlett & DeSteno, 2006; McCullough et al., 2001, 2008). I take no issue with the hypothesis that repaying a favor demonstrates trustworthiness. But I do think the economic account neglects to consider critical aspects of the situation that significantly alter complete understanding of how gratitude functions in social life, and under-sells the power of this emotion in relationship formation and maintenance.

The *find-remind-and-bind* theory, in contrast, is a *relational* account. It acknowledges that with humans’ interdependence comes a need to evaluate and know how we *relate to* our interaction partners. In fact, others’ actions toward the self reveal information about the relationship with that person (e.g., Clark & Mills, 1979). For situations that cause gratitude, this means more than determining whether a benefit was provided intentionally or unintentionally (Tesser et al., 1968) or whether the benefactor is a moral agent (see McCullough et al., 2001 review). As a starting point, the *find-remind-and-bind* theory emphasizes a different aspect of the situation that causes gratitude than prior, economic accounts: a unique appraisal that is relational.

Specifically, knowing that tit-for-tat, exchange-based relationships are relatively easy to come by and a mainstay of our social economy, my collaborators and I proposed that gratitude draws attention to a rarer and potentially more important social opportunity: the opportunity to solidify a connection with someone who would be a high-quality dyadic relationship partner, that is, someone who will be there through thick and thin, both providing support and enriching one’s life. Therefore, independent of whether the benefit recipient *values* a benefit provided by another person, we hypothesized that an additional strong predictor of gratitude would be whether the benefactor was perceived to be *responsive* to the recipient’s needs and preferences when providing it (Algoe et al., 2008). The theory centers on responsiveness for a reason: in contrast to economic considerations of cost, value, repayment, and stranger relationships that characterized the earlier empirical literature, perceived responsiveness sends the message that the responsive person understands, approves, or cares about the self; it is a central construct underlying relational intimacy and is predominantly apparent in *close* relationships, especially those that are communal in nature (Reis et al., 2004).

My collaborators and I first tested the importance of relational appraisals in a study that capitalized on a tradition in which each new member of a sorority was showered with benefits by a specific (anonymous) benefactor for a week (Algoe et al., 2008). The new members provided reports after each benefit received. As predicted, recipient appraisal of benefactor responsiveness in providing the particular benefit was positively associated with feelings of gratitude for the benefit, above and beyond several factors, including how much the benefit was valued (i.e., liked), the real or perceived cost to the benefactor in providing the benefit, and how surprising it was; in short, gratitude arose in situations that were simultaneously relevant to the self (i.e., liking of benefit) and to one's relationship with the benefactor (i.e., thoughtfulness of the benefactor toward the self; Algoe et al., 2008).

Key to understanding the value added by this evidence, and the *find-remind-and-bind* theory more generally, communal relationship orientations are principally characterized by the provision of benefits based on another person's *need*, not on expectation of repayment. In contrast, exchange relationship orientations are those in which careful accounting of costs, value, and repayment are made, and are often experienced between relative strangers (see review of communal and exchange relationships in Clark & Mills, 2011). In fact, a classic experiment demonstrated that being in a communal versus exchange relationship influenced how much a person was liked after repaying a favor, with repayment of a benefit (the key motivation endorsed by the economic model) being a relationship *liability* when the original benefactor thought the relationship was communal (Clark & Mills, 1979; Study 1). My collaborators and I have argued elsewhere that attention to perceived responsiveness and therefore communal relationship norms may sound like a subtle distinction from attention to repayment and exchange-based relationships, but it nonetheless has important implications for understanding and theorizing about how gratitude functions in social life (Algoe, Gable, & Maisel, 2010). A responsively-provided benefit marks a prime opportunity: put selfishly, the responsive benefactor appears to be both motivated to be in one's corner, and well-suited to be there, making for a very attractive relationship partner. This is qualitatively different than a focus on paying back an imbalance of debt.

Moreover, Clark and Mills argue that, though of course exchange-based relationships are necessary for our economy, communal relationships are the most important types of relationships, in part because "they can provide a sense of security and fulfillment not furnished by exchange relationships" (1993; p. 690). In support of the importance of communal relationships and the potential adaptive value of gratitude, a robust empirical literature demonstrates that close, supportive relationships are the ones that show prospective associations with long-term mental and physical health as well as longevity (e.g., Berkman & Syme, 1979; Berscheid & Reis, 1998; Holt-Lunstad & Smith, 2012; Uchino, Cacioppo, & Keicolt-Glaser, 1996). Notably, *any* relationship can increase in strength of communal norms: though communal relationship norms tend to be stronger in more interdependent relationships (e.g., romantic partners and family members; Mills, Clark, Ford, & Johnson, 2004), experimental work using a simple manipulation demonstrates that communal relationship norms can be established between strangers in a one-time lab interaction as well (e.g., Clark & Mills, 1979). This means that, as long as the benefit is appropriately calibrated to the current state of the relationship, responsiveness can be conveyed, gratitude can be experienced, and the emotion may act as fuel to bring the recipient and benefactor psychologically closer than they had been previously. In short, in the moments it is experienced, gratitude can help people *find* previously unnoticed good relationship partners or *remind* them of those who are currently in their lives.

In addition to the new relationships described above (finding; e.g., Algoe et al., 2008), we have found evidence for gratitude's utility even in day-to-day fluctuations within highly-satisfied cohabiting couples (reminding; Algoe et al., 2010), which I describe in greater detail below. The *find-remind-and-bind* theory therefore expands our understanding of gratitude and clarifies that, more than just a mechanism for repayment of strangers, gratitude signals any responsive conspecific and *promotes interpersonal bonds* with that person (e.g., Algoe et al., 2010). This happens right from the start: people feel gratitude when they welcome the relational implications that come with a responsive benefit (Algoe & Stanton, 2012). Next, I review evidence for how this begins to unfold.

*Short-term cognitive shifts: Improved perspective on benefactor and relationship*

In the moments that an emotion is experienced, one's cognitions about the world and social partner shift in such a way as to facilitate the potential for adaptively relevant future behaviors. When we randomly assigned people to recall situations in which they may have experienced gratitude or situations that may have induced joy (limited to people who explicitly indicated that *someone else had caused their joy*), we found that people in the gratitude condition were more likely than those in the joy condition to spontaneously report noticing new positive qualities in their benefactors and were more willing to associate with the benefactor in the future (Algoe & Haidt, 2009; Study 1). In another paper, within-person experience-sampling reports from across a variety of benefits revealed that greater gratitude for any individual benefit was associated with perceived higher quality relationship with a benefactor at the time (e.g., liking, closeness), independent of the degree to which the recipient liked the benefit itself (Algoe et al., 2008). Two additional studies use responses to hypothetical scenarios; these studies use a wide range of measures, including perceived closeness (Weinstein et al., 2010) and "thinking positive thoughts or happy memories about my friend" (Watkins et al., 2006), which provide additional support for hypothesized links between experienced gratitude and improvements in the grateful recipient's perspective on the benefactor as well as relationship. Such shifts in the mind of the grateful individual set the stage for the downstream impact of the emotional response.

*Short-term motivational and behavioral changes: Focus on relationship promotion*

On the whole, emotions motivate (cf. Baumeister, Vohs, DeWall, & Zhang, 2007). If it is true that gratitude promotes interpersonal bonds, grateful recipients could use a variety of behaviors beyond repayment to do so. Indeed, grateful people report intrinsic motivations toward a range of behaviors that would promote the relationship, including simply spending more time with the person (e.g., Algoe & Haidt, 2009; Study 1; Watkins et al., 2006). Importantly, beyond feeling closer, gratitude should trigger communal relationship norms, so if a grateful recipient does provide a benefit back to the benefactor, he or she should be *responsive* to the benefactor's needs. Table 1 summarizes evidence for benefactor-focused motives and behavior after experienced gratitude. This is where the bulk of recent empirical work has focused and Table 1 illustrates previously-used experimental manipulations as well as the heavy emphasis on economic variables (e.g., resources expended on or distributed to the benefactor). The methods of earlier studies that measured prosocial behavior do not allow disentanglement of exchange versus communal motives (e.g., to elicit a grateful recipient's prosocial behavior, his or her previous benefactor asked for help, thereby directly expressing a need).

**Table 1** Experience of gratitude and benefactor-directed motives and behaviors

Study	Induction method	Comparison condition	Dependent measure
Algoe & Haidt, 2009; Study 1	Recalled narrative	Joy (interpersonally-caused)	Enhance other's reputation Motivation to acknowledge (e.g., thank or hug) Motivation to "repay" (explicit language) Positive relationship focus (e.g., motive to build relationship) Time spent helping benefactor on tedious task
Bartlett & DeSteno, 2006; Studies 1 & 2	Benefactor's helping behavior	Amusement (induced with humorous video)	Decision to work with the benefactor again in a future study (vs. alone)
Bartlett et al., 2012; Study 1	Benefactor's helping behavior	Benefactor's neutral behavior	"Social inclusion" of benefactor*
Bartlett et al., 2012; Study 2	Benefactor's helping behavior	Benefactor's neutral behavior	Core relational theme within narrative of "wanting to give back"
Campos et al., forthcoming	Recalled narrative	Amusement, awe, contentment, interest, joy, love, pride	Cooperative economic behavior toward benefactor or other
DeSteno et al., 2010	Benefactor's helping behavior	Benefactor's neutral behavior	Distribution of resources
Tsang, 2006b	Benefactor's provision of a favor/gift	Receipt of favor by chance	Distribution of resources*
Tsang, 2007	Benefactor's provision of a large or small favor/gift	Receipt of large or small favor by chance	
Watkins et al., 2006	Hypothetical helping scenario with no expected repayment	Moderate and high expectation of repayment from benefactor	Positive, approach-related interpersonal motives

\*Effect of gratitude manipulation on this outcome was at least partially mediated by the self-reported conscious experience of gratitude.

Since the first evidence for the *find-remind-and-bind* theory (Algoe et al., 2008), it is encouraging that researchers have begun to examine a greater variety of post-gratitude social behaviors than those that could easily be characterized as “repayment” (e.g., Bartlett, Condon, Cruz, Baumann, & DeSteno, 2012), lending further support for the idea that grateful people see themselves in closer relationships with their benefactors and follow communal relationship norms. These recent studies do not rule out the possibility that grateful people use exchange-based relationship norms. But recent work on the expression of gratitude, reviewed next, appears to “rule in” support for the hypothesis that communal relationship norms are strong following gratitude.

*Mechanisms: Expressed gratitude affects grateful recipient and benefactor*

The social gestures from gratitude are critical for relationship growth. *Expression* of gratitude is the social behavior that may be most illuminating of the emotion’s interpersonal processes. As one rationale for this focus, expression is the most frequently-reported spontaneous motive from gratitude (Algoe & Haidt, 2009; Study 1). Additionally, expression may be necessary: we recently demonstrated that, for grateful individuals under chronic stress, improvement in perceived social support over 3 months was dependent on being unambivalent about expressing one’s emotions (Algoe & Stanton, 2012). In fact, experimental evidence shows relationship-relevant changes within a grateful recipient who expresses the emotion, and this evidence is fully consistent with the *find-remind-and-bind* theory. Specifically, expression of one’s gratitude increases the expresser’s perception of being in a communal relationship with the benefactor (Lambert, Clark, Durtschi, Fincham, & Graham, 2010) and his or her level of comfort voicing relationship concerns (Lambert & Fincham, 2011).

We also know that expressed gratitude shows some effects on the benefactor’s behavior: people who are thanked are more likely to behave prosocially back to the expresser (and to others) in the future (Clark, Northrop, & Barkshire, 1988; Crano & Sivacek, 1982; Goldman, Seever, & Seever, 1982; Grant & Gino, 2010; Rind & Bordia, 1995). But what little we know about psychological mechanisms for such effects (see Grant & Gino, 2010) does not address predictions from the *find-remind-and-bind* theory. Recently, to fill this gap my collaborators and I have examined expressions of thanks directly. One hypothesis was that expressions of gratitude provide a prime opportunity to convey relational information back to the benefactor, and this information should be consistent with the posited communal nature of gratitude. Specifically, building on the fact that perceived benefactor responsiveness triggers a recipient’s gratitude (and signals potential communal relationship norms), we predicted that expressed gratitude would lead to a *benefactor’s* perceptions that the *recipient* is responsive (i.e., understands, validates, and cares for the benefactor). Evidence for this type of relational information from expressed gratitude would provide strong support for the *find-remind-and-bind* theory.

Indeed, in live interactions between romantic partners in the lab, where each person had a chance to thank the partner for an appreciated gesture, expressions of “thanks” that contained more observed grateful behavior were perceived by the benefactor to be more responsive (Algoe, Frederickson, Gable, & Akers, forthcoming). A second prediction is that the responsiveness perceived by the benefactor contributes to consequential psychological rewards for remaining engaged in a dyadic relationship with the grateful recipient. As predicted, the perception of the grateful partner’s responsiveness from this representative “thank you” in the lab was associated with the benefactor’s everyday

feelings of satisfaction with life and the relationship, as measured for each of 14 days (Algoe et al., forthcoming). Evidence from this paper begins to address key questions prompted by the *find-remind-and-bind* theory, about how and why expressed gratitude may act as a hook to keep the benefactor intrinsically interested in being part of the dyadic relationship.

*Impact on relationship quality: Individual and dyadic level analysis*

The functional account of gratitude set forth in the *find-remind-and-bind* theory requires tests of the relational impact of gratitude (Algoe et al., 2008). Moreover, as Fredrickson (1998, 2001, 2009) theorizes, positive emotions facilitate long-term strategies for success, and provide opportunities for *growth*. As such, one can test the reach of the *find-remind-and-bind* theory by examining repeated or accumulated instances of gratitude as well as downstream social consequences in the context of ongoing relationships. Testing the theory in the context of everyday ongoing relationships allows for evaluation within the most important relationships for which gratitude is relevant; can illustrate the strength and nuance of the theory by showing gratitude's relevance even in relationships where individuals already depend on, trust, and like one another; and has the methodological advantage that people who know each other have repeated interactions, so the hypothesized effects of gratitude can be tracked over time. Finally, examining gratitude in everyday life (i.e., outside of the lab) can push the limits of this functional account: can gratitude be parsed from related constructs in the richness of everyday life? With my collaborators, I have begun to collect evidence of “everyday” gratitude from within ongoing relationships.

Of course, examining the grateful person's own future feelings about the relationship is an important first step toward testing the relational claims from the *find-remind-and-bind* theory. Still stronger support comes from tests at the dyadic level of analysis, in which one person's gratitude is associated with his or her *benefactor's* feelings about the relationship. Evidence from two prospective correlational studies now supports the hypothesis that gratitude promotes high-quality relationships, for each member of the dyad, in the context of friendships (Algoe et al., 2008) and romantic relationships (Algoe et al., 2010). In one paper, a recipient's gratitude forecasted the benefactor's report, 1 month later, of time spent “hanging out” with the recipient in the previous week (Algoe et al., 2008). Another paper relied on the strength of a within-subjects day-lagged analysis design, using 14 daily reports to demonstrate that, on days when one person in a romantic relationship reported greater gratitude toward a partner, the partner (i.e., benefactor) showed *increased* feelings of connection to the grateful individual and satisfaction with the relationship from the previous day (Algoe et al., 2010).

In this latter paper, we added analyses that would begin to address predictions from the *find-remind-and-bind* theory over economic accounts. Specifically, as a proxy for contrasting exchange with communal motives, we found that the emotion of indebtedness – thought to draw attention to the cost of a benefit as well as repayment motives – was *not* associated with changes in relationship quality, whereas (as reported above) gratitude was (Algoe et al., 2010).

Taking into account daily fluctuations in gratitude between people who already have close and caring relationships provides strong initial evidence that gratitude can act as a “booster shot” for ongoing relationships. These findings call into question speculations from economic accounts that gratitude is “probably more valuable for establishing

reciprocal relationships than for maintaining them” (McCullough et al., 2008; p. 284). Instead, the *find-remind-and-bind* theory posits that, when gratitude is experienced, its primary function is to capitalize on the opportunity to improve the interpersonal connection, no matter what the baseline intimacy level (that is, it can help find new or remind of old high-quality relationship partners).

Finally, changes in quality of the relationship should be driven by the grateful recipient's behavior toward the benefactor and the relational message it conveys. Indeed, benefactors who perceived greater responsiveness in a grateful romantic partner's expression of thanks in a representative lab interaction showed increases in relationship satisfaction over the course of 6 months (Algoe et al., forthcoming). This finding showcases the explanatory power of the *find-remind-and-bind* theory over exchange-based accounts. Moreover, these findings for relationship growth – for the benefactor who is well-thanked, no less – underscore the potential power of the positive emotion of gratitude within the relationships that are central to health and well-being. Collectively, the prospective and sometimes dyadic nature of the evidence reviewed in this section provides promising initial support for the *find-remind-and-bind* theory.

### *Considering evidence at the group and cultural levels of analysis*

Of course, the most obvious potential benefits of gratitude are for the recipient, with additional benefits for the benefactor. But evolutionary theory suggests that gratitude may also provide utility for the group in which the dyad is embedded as well as reflect and perhaps promote cultural values (Keltner & Haidt, 1999). Very little empirical work addresses these questions. However, going back to the thesis that gratitude is a growth-oriented emotion, beyond sustaining economic equilibrium, we may discover that gratitude *promotes* the good of society. As a preliminary step, we found that greater gratitude felt toward a benefactor within the context of a group tradition was associated with the grateful recipient's greater sense of being integral to the group (Algoe et al., 2008). This may be explained by the perception of stronger communal ties within the group (i.e., greater sense of being cared for). Later, I return to evidence that indirectly supports hypotheses at these levels of analysis.

### **Directions for Future Research**

The *find-remind-and-bind* theory draws attention to several methodological considerations for the study of gratitude going forward. The first is about the selection of stimuli used to induce feelings of gratitude. Though gratitude is often conceptualized as an emotion that occurs when a person *is in need*, evidence suggests that this situational feature is neither sufficient (Algoe & Stanton, 2012) nor necessary (Algoe et al., 2008), and may actually increase the likelihood of producing *negative* emotions (e.g., Bolger, Zuckerman, & Kessler, 2000; Mathews & Green, 2010). Instead, the key ingredients for gratitude from a provided benefit appear to be appraisals that it was valued and the benefactor was perceived to be responsive.

Related to this point, it will be critical to bring insights and methods from relationship science to bear on the study of gratitude in the future. For example, stranger-based dyadic interactions are more convenient to study than people in ongoing relationships and, because each person is coming to the interaction with unknown relational intentions, there is more variance to work with for experimental manipulations. However, stranger relationships may sometimes lead to significantly different hypotheses than those that

might be made for meaningful (e.g., close) relationships. Relationship context needs to be carefully considered when making predictions and drawing conclusions.

Of course, individual differences in what each person brings to the social interaction may influence whether gratitude is experienced (e.g., attachment styles, see work described in Mikulincer & Shaver, 2010; Mikulincer, Shaver, & Slav, 2006; narcissism, see Mathews & Green, 2010), and whether and how it is expressed (e.g., ambivalence over emotional expression, see Algoe & Stanton, 2012). Still, when gratitude is experienced, it should be triggered by the same situational appraisals and cause the same initial response across people as described here, on average: the social functions we propose are aspects of a basic psychological phenomenon. Finally, experiments are needed whenever possible, particularly to rule out the possibility that effects of gratitude cannot be attributed to other positive emotions. In parallel, when examining effects of the *expression* of gratitude, a social behavior, it will often be important to control for other positive relationship behaviors, as relevant to the hypothesis at hand.

The *find-remind-and-bind* theory is guided by several underlying assumptions that are drawn from theories on emotions in general (e.g., Fredrickson, 1998; Keltner & Haidt, 1999; Lazarus, 1991; Lerner & Keltner, 2000) as well as relationship science (e.g., Clark & Mills, 2011; Gable & Reis, 2001; Reis et al., 2004). As such, researchers looking to use and test the *find-remind-and-bind* theory in the future would be well-served to familiarize themselves with these perspectives. Below, I describe what I see as some of the most fruitful and important next steps for testing the *find-remind-and-bind* theory of gratitude as I have described it in this manuscript.

Gratitude starts inside one individual and its effects spread to a dyadic relationship and perhaps throughout a social network. Future work must identify the mechanisms for such effects. Starting with the grateful individual, precision in predictions for all downstream effects of gratitude will come from understanding the unique social cognitions that arise from the emotion of gratitude as opposed to related types of positive emotions or feelings of indebtedness. At the dyadic level of analysis, the *find-remind-and-bind* theory predicts that an expression of gratitude increases the motivation of a benefactor to remain engaged in the dyadic relationship with a grateful recipient. The best tests of the theory would involve testing whether a thanked benefactor spontaneously enacts pro-relationship behaviors other than those reinforced by the thanks, and which couldn't easily be characterized as repayment (e.g., affiliation).

The group and cultural levels of analysis are virtually untouched, empirically. A few studies have demonstrated that people who feel grateful will, in absence of their original benefactor, "misdirect" their gratitude by being prosocial toward another person (e.g., Bartlett & DeSteno, 2006). This has been termed "upstream reciprocity", and has been posited as a mechanism by which gratitude may help cooperation spread throughout a society (Nowak & Roch, 2006). Though I agree that this indirect route is not to be overlooked, other effects of gratitude may have been more direct within the context of ancestral group living. For example, the expression itself may provide direct effects at the group and cultural levels of analysis: expressed gratitude contains a praising component which is a potent source of reward for the recipient of the praise (Algoe & Haidt, 2009; Algoe et al., forthcoming). Moreover, praise draws attention to culturally valued skills. I speculate that expression of gratitude inspires incidental witnesses to be prosocial, due to the fact that attention has been drawn to appropriate group behavior and because such behavior appears to be socially rewarding. The *find-remind-and-bind* theory needs to be fleshed out at the group and cultural levels of analysis. However, theory and evidence suggest several viable mechanisms through which the emotion of gratitude may play a

central role in strengthening social ties throughout the group, ultimately helping to weave the rich fabric of our social lives.

## Conclusions

Resting on evolutionary theory, the *find-remind-and-bind* theory of gratitude (Algoe et al., 2008) updates and enriches understanding of this emotion to provide a clearer picture of the role of gratitude in reciprocally altruistic relationships. As such, the *find-remind-and-bind* theory provides several underlying assumptions to guide future research questions, methodology, and understanding of the role of gratitude in social life. In particular, gratitude is sensitive to much more than the cost/benefit ratio of the altruistic act: it is sensitive to the potential for a particular kind of relationship with a benefactor. And more than merely helping to determine “whether or how much to reciprocate” an act of altruism (p. 49; Trivers, 1971), gratitude helps to solidify an interpersonal connection with the responsive benefactor.

To be sure, though the rapidly-accumulating body of evidence provides a promising start, the adaptationist claims I make about how gratitude functions require more work, with special consideration of theory from evolutionary biology (e.g., the detection of cheaters), for which the current evidence just scratches the surface (see Algoe et al., forthcoming). From my perspective, this future work is important in part because of its potential impact: the little moments add up to make a big difference. For example, researchers who study the grateful disposition, a measure which may capture people who have frequent emotional experiences of gratitude as described here, consistently find robust – even prospective – links with mental health (e.g., Wood, Maltby, Gillett, Linley, & Joseph, 2008; also see Wood et al., 2010 review of gratitude and well-being). More directly to the point of the current manuscript, we know that high-quality, close relationships are essential for health, well-being, and even longevity. Perceived responsiveness is a central aspect of such relationships. The emotion of gratitude appears to have evolved as a mechanism to fuel upward spirals of mutually-responsive behavior between individuals, thereby placing everyday gratitude right at the heart of the most important relationships of our daily lives.

## Acknowledgment

I would like to acknowledge, with appreciation, funding from three National Institute of Mental Health training grants and fellowships that supported much of my empirical work on the *find-remind-and-bind* theory that is reviewed in this manuscript. Also, I am grateful to Benjamin Converse for his comments on the first draft of this manuscript, in which he kindly pushed me to articulate the contrasts between the *find-remind-and-bind* theory and what has been done before; I think the manuscript is significantly better for it. C. Daryl Cameron, Laura Kurtz, Keith Payne, and two anonymous reviewers provided additional insightful comments on subsequent drafts.

## Short Biography

Sara Algoe received her PhD in Psychology from The University of Virginia, and completed a postdoctoral fellowship in Health Psychology at the University of California, Los Angeles, before moving to the University of North Carolina at Chapel Hill for postdoctoral training in psychophysiology. She is currently an Assistant Professor of Psychology

at UNC Chapel Hill. Algoe's expertise spans emotions, interpersonal relationships, and health psychology. Specifically, her research focuses on understanding the basic emotional and interpersonal mechanisms through which people capitalize on opportunities from the social environment; she uses this information to guide predictions about how and why these moments can accumulate for long term intrapersonal and interpersonal functioning.

## Endnotes

\* Correspondence address: University of North Carolina at Chapel Hill, Department of Psychology, CB #3270, Chapel Hill, NC 27599, USA. Email: algoe@unc.edu

<sup>1</sup> The word "gratitude" has been used to refer to a broader variety of states than what I describe here. For example, Lambert, Graham, and Fincham (2009) hypothesized that laypersons may think about this word in different ways. They tested two. One (i.e., which Lambert and colleagues term "benefit-triggered" gratitude) maps on to the emotion, as described here, and the other (i.e., which Lambert and colleagues term "generalized" gratitude) is a positive affective state similar to what Wood, Froh, and Geraghty (2010) discuss as a "focusing on and appreciating the positive aspects of life" (p. 890). However, the current review is on evidence regarding the form and function of the emotion of gratitude. No empirical evidence sufficiently categorizes the latter conceptualization of gratitude as an emotion, as emotion is typically defined by affective scientists. Thus, the substantial body of empirical work on gratitude-as-cognitive-appreciation is not included in the current manuscript. I suggest that these additional uses of the term have come from generalizations of the emotions-based account of gratitude under consideration here, in which gratitude evolved as a momentary response to another person's responsiveness to one's needs. That is a topic for an entirely different manuscript.

## References

- Algoe, S. B., & Fredrickson, B. L. (2011). Emotional fitness and the movement of affective science from lab to field. *American Psychologist*, *66*, 35–42.
- Algoe, S. B., Frederickson, B. L., Gable, S. L., & Akers, A. W. (forthcoming). *More than Reinforcement: Expressions of Gratitude Reveal how and why Gratitude Functions for the Dyad*. Manuscript submitted for publication.
- Algoe, S. B., Gable, S. L., & Maisel, N. (2010). It's the little things: Everyday gratitude as a booster shot for romantic relationships. *Personal Relationships*, *17*, 217–233.
- Algoe, S. B., & Haidt, J. (2009). Witnessing excellence in action: The "other-praising" emotions of elevation, gratitude, and admiration. *Journal of Positive Psychology*, *4*, 105–127.
- Algoe, S. B., Haidt, J., & Gable, S. L. (2008). Beyond reciprocity: Gratitude and relationships in everyday life. *Emotion*, *8*, 425–429.
- Algoe, S. B., & Stanton, A. L. (2012). Gratitude when it is needed most: Social functions of gratitude in women with metastatic breast cancer. *Emotion*, *12*(1), 163–168.
- Bartlett, M. Y., Condon, P., Cruz, J., Baumann, J., & DeSteno, D. (2012). Gratitude: Prompting behaviors that build relationships. *Cognition & Emotion*, *26*(1), 2–13.
- Bartlett, M. Y., & DeSteno, D. (2006). Gratitude and prosocial behavior: Helping when it costs you. *Psychological Science*, *17*, 319–325.
- Baumeister, R. F., Vohs, K. D., DeWall, C. N., & Zhang, L. (2007). How emotion shapes behavior: Feedback, anticipation, and reflection, rather than direct causation. *Personality and Social Psychology Review*, *11*, 167–203.
- Berkman, L. F., & Syme, S. L. (1979). Social networks, host resistance, and mortality. A nine-year follow-up study of Alameda county residents. *American Journal of Epidemiology*, *109*, 186–204.
- Berscheid, E., & Reis, H. T. (1998). Attraction and close relationships. In D. T. Gilbert, S. T. Fiske & G. Lindzey (Eds.), *The Handbook of Social Psychology*, Vol. 1 & 2. (4th edn). (pp. 193–281). New York, NY: McGraw-Hill.
- Bolger, N., Zuckerman, A., & Kessler, R. C. (2000). Invisible support and adjustment to stress. *Journal of Personality and Social Psychology*, *79*, 952–961.
- Campos, B., Shiota, M. N., Keltner, D., Gonzaga, G. C., & Goetz, J. L. (forthcoming). What is shared, what is different? Core relational themes and expressive displays of eight positive emotions. *Cognition and Emotion*.
- Clark, M. S., & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology*, *37*, 12–24.
- Clark, M. S., & Mills, J. (1993). The difference between communal and exchange relationships: What it is and is not. *Personality and Social Psychology Bulletin*, *19*, 684–691.

- Clark, M. S., & Mills, J. R. (2011). A theory of communal (and exchange) relationships. In P. A. M. Van Lange, A. W. Kruglanski & E. T. Higgins (Eds.), *Handbook of Theories of Social Psychology* (pp. 232–250). Los Angeles, CA: Sage.
- Clark, H. B., Northrop, J. T., & Barkshire, C. T. (1988). The effects of contingent thank-you notes on case managers' visiting residential clients. *Education & Treatment of Children*, **11**, 45–51.
- Converse, B. A., & Fishbach, A. (forthcoming). Instrumentality boosts appreciation: Helpers are more appreciated while they are useful. *Psychological Science*.
- Crano, W. D., & Sivacek, J. (1982). Social reinforcement, self-attribution, and the foot-in-the-door phenomenon. *Social Cognition*, **1**, 110–125.
- DeSteno, D., Bartlett, M. Y., Baumann, J., Williams, L. A., & Dickens, L. (2010). Gratitude as moral sentiment: Emotion-guided cooperation as economic exchange. *Emotion*, **10**(2), 289–293.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, **2**, 300–319.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, **56**, 218–226.
- Fredrickson, B. L. (2009). *Positivity: Groundbreaking Research Reveals how to Embrace the Hidden Strength of Positive Emotions, Overcome Negativity, and Thrive*. New York, NY: Crown.
- Gable, S. L., & Reis, H. T. (2001). Appetitive and aversive social interaction. In J. Harvey & A. Wenzel (Eds.), *Close Romantic Relationships: Maintenance and Enhancement* (pp. 169–194). Mahwah, NJ: Lawrence Erlbaum.
- Goldman, M., Seever, M., & Seever, M. (1982). Social labeling and the foot-in-the-door effect. *The Journal of Social Psychology*, **117**, 19–23.
- Grant, A. M., & Gino, F. (2010). A little thanks goes a long way. Explaining why gratitude expression motivate prosocial behavior. *Journal of Personality and Social Psychology*, **98**, 946–955.
- Holt-Lunstad, J., & Smith, T. B. (2012). Social relationships and mortality. *Social and Personality Psychology Compass*, **6**, 41–53.
- Keltner, D., & Buswell, B. N. (1997). Embarrassment: Its distinct form and appeasement functions. *Psychological Bulletin*, **122**, 250–270.
- Keltner, D., & Haidt, J. (1999). Social functions of emotions at four levels of analysis. *Cognition & Emotion*, **13**, 505–521.
- Lambert, N. M., Clark, M. S., Durtschi, J., Fincham, F. D., & Graham, S. M. (2010). Benefits of expressing gratitude: Expressing gratitude to a partner changes one's view of the relationship. *Psychological Science*, **21**, 574–580.
- Lambert, N. M., & Fincham, F. D. (2011). Expressing gratitude to a partner leads to more relationship maintenance behavior. *Emotion*, **11**, 52–60.
- Lambert, N. M., Graham, S. M., & Fincham, F. D. (2009). A prototype analysis of gratitude: Varieties of gratitude experiences. *Personality and Social Psychology Bulletin*, **35**, 1193–1207.
- Lazarus, R. S. (1991). *Emotion and Adaptation*. New York, NY: Oxford University Press.
- Lerner, J. S., & Keltner, D. (2000). Beyond valence: Toward a model of emotion-specific influences on judgment and choice. *Cognition and Emotion*, **14**, 473–493.
- Lerner, J. S., & Tiedens, L. Z. (2006). Portrait of the angry decision maker: How appraisal tendencies shape anger's influence on cognition. *Journal of Behavioral Decision Making*, **19**, 115–137.
- Mathews, M. A., & Green, J. D. (2010). Looking at me, appreciating you: Self-focused attention distinguishes between gratitude and indebtedness. *Cognition & Emotion*, **24**, 710–718.
- McCullough, M. E., Kilpatrick, S. D., Emmons, R. A., & Larson, D. B. (2001). Is gratitude a moral affect? *Psychological Bulletin*, **127**, 249–266.
- McCullough, M. E., Kimeldorf, M. B., & Cohen, A. D. (2008). An adaptation for altruism? The social causes, social effects, and social evolution of gratitude. *Current Directions in Psychological Science*, **17**, 281–284.
- Mikulincer, M., & Shaver, P. R. (2010). Does gratitude promote prosocial behavior? The moderating role of attachment security. In M. Mikulincer & P. R. Shaver (Eds.), *Prosocial Motives, Emotions, and Behavior – The Better Angels of our Nature* (pp. 267–284). Washington, DC: American Psychological Association.
- Mikulincer, M., Shaver, P. R., & Slav, K. (2006). Attachment, mental representations of others, and gratitude and forgiveness in romantic relationships. In M. Mikulincer & G. S. Goodman (Eds.), *Dynamics of Romantic Love: Attachment, Caregiving, and Sex* (pp. 190–215). New York: Guilford Press.
- Mills, J., Clark, M. S., Ford, T. E., & Johnson, M. (2004). Measurement of communal strength. *Personal Relationships*, **11**, 213–230.
- Nowak, M. A., & Roch, S. (2006). Upstream reciprocity and the evolution of gratitude. *Proceedings of the Royal Society: Biological Sciences*, **274**, 605–610.
- Reis, H., Clark, M. S., & Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness. In D. J. Mashek & A. P. Aron (Eds.), *Handbook of Closeness and Intimacy* (pp. 201–225). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Rind, B., & Bordia, P. (1995). Effect of server's 'thank you' and personalization on restaurant tipping. *Journal of Applied Social Psychology*, **25**, 745–751.

- Tesser, A., Gatewood, G., & Driver, M. (1968). Some determinants of gratitude. *Journal of Personality and Social Psychology*, **9**, 233–236.
- Tooby, J., & Cosmides, L. (1990). The past explains the present: Emotional adaptations and the structure of ancestral environments. *Ethology & Sociobiology*, **11**, 375–424.
- Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology*, **46**, 35–57.
- Tsang, J. (2006a). The effects of helper intention on gratitude and indebtedness. *Motivation and Emotion*, **30**, 199–205.
- Tsang, J. (2006b). Gratitude and prosocial behaviour: An experimental test of gratitude. *Cognition and Emotion*, **20**, 138–148.
- Tsang, J. (2007). Gratitude for small and large favors: A behavioral test. *Journal of Positive Psychology*, **2**, 157–167.
- Uchino, B. N., Cacioppo, J. T., & Keicolt-Glaser, J. K. (1996). The relationship between social support and physiological processes: A review with emphasis on underlying mechanisms and implications for health. *Psychological Bulletin*, **119**, 488–531.
- Watkins, P. C., Scheer, J., Ovnicke, M., & Kolts, R. (2006). The debt of gratitude: Dissociating gratitude and indebtedness. *Cognition & Emotion*, **20**, 217–241.
- Weinstein, N., DeHaan, C. R., & Ryan, R. M. (2010). Attributing autonomous versus introjected motivation to helpers and the recipient experience: Effects on gratitude, attitudes, and well-being. *Motivation and Emotion*, **34**, 418–431.
- Wood, A. M., Brown, G. A., & Maltby, J. (2011). Thanks, but I'm used to better: A relative rank model of gratitude. *Emotion*, **11**, 175–180.
- Wood, A. M., Froh, J. J., & Geraghty, A. W. A. (2010). Gratitude and well-being: A review and theoretical integration. *Clinical Psychology Review*, **30**, 890–905.
- Wood, A. M., Maltby, J., Gillett, R., Linley, P. A., & Joseph, S. (2008). The role of gratitude in the development of social support, stress, and depression: Two longitudinal studies. *Journal of Research in Personality*, **42**, 854–871.