

The debt of gratitude: Dissociating gratitude and indebtedness

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We investigated the relationship between the emotional states of gratitude and indebtedness in two studies. Although many have suggested that these affects are essentially equivalent, we submit that they are distinct emotional states. Following Heider (1958), we propose that with increasing expectations of return communicated with a gift by a benefactor, indebtedness should increase but gratitude should decrease. The results of two vignette studies supported this hypothesis, and patterns of thought/action tendencies showed these states to be distinct. In addition, we found that with increasing expectations communicated by a benefactor, beneficiaries reported that they would be less likely to help the benefactor in the future. Taken together, we argue that the debt of gratitude is internally generated, and is not analogous to an economic form of indebtedness.

Gratitude is a duty which ought to be paid, but which none have a right to expect.
Jean Jacques Rousseau

Gratitude has been identified as “one of the most neglected emotions and one of the most underestimated of the virtues” (Solomon, 2004, p. v). Although gratitude appears to be one of the most understudied emotions in psychological science (Emmons, 2004), it is an emotion evident in all cultures and is a virtue encouraged by all of the major religions (Emmons & Crumpler, 2000). In addition, recent analyses and research have supported the idea that gratitude is an important component of the good life (Emmons & McCullough, 2003, 2004; McCullough, Emmons, & Tsang, 2002; McCullough, Kilpatrick, Emmons, & Larson, 2001; Watkins, 2004; Watkins, Woodward, Stone, & Kolts, 2003). Given the importance of this social emotion and its apparent neglect, there is a need for research on the cognitive structure of grateful emotion.

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Although the benefits of gratitude have also been lauded in the popular press, not all have been as enthusiastic about gratitude. Stalin for example, concluded that: “Gratitude is a sickness suffered by dogs”. In somewhat more diplomatic prose, Hobbes also expressed his reservations about gratefully receiving significant benefits (cited in Greenberg, 1980, p. 17).

To have received from one, to whom we think ourselves equal, greater benefits than there is hope to requite, disposeth to counterfeit love; but really secret hatred; and puts a man into the estate of desperate debtor. . . .For benefits oblige; and obligation is thralldom; and unrequitable obligation, perceptual thralldom; which is to ones equal, hateful.

In this passage, Hobbes appears to equate gratitude with indebtedness. If gratitude and indebtedness are essentially equivalent emotions, gratitude may not be as pleasant an experience as is commonly assumed. Indeed, a number of scholars in the social sciences have equated gratitude and indebtedness (e.g., Komter, 2004). In the studies reported here, we sought to study the relationship between gratitude and indebtedness, specifically to investigate whether gratitude and indebtedness are distinct emotional states.

The reduction of gratitude and indebtedness into a single construct may be due to the influential work of Marcel Mauss (1925/2002), who argued that in pre-capitalist societies the community was held together by reciprocity. Thus, expressions of gratitude are viewed as simple exchanges for benefits to restore social balance in obedience to the *norm of reciprocity*. In the past, psychology appears to have followed his lead. For example, in his earlier writings Greenberg treats gratitude and indebtedness as synonymous (Greenberg, 1980). Similarly, in an important seminal study of gratitude, Tesser and colleagues combined gratitude and indebtedness into a composite dependent variable because they were significantly correlated (Tesser, Gatewood, & Driver, 1968). As a psychological construct, indebtedness has been defined as “a state of obligation to repay another” in the context of the receipt of a benefit from another (Greenberg, 1980, p. 4). Greenberg goes on to argue that indebtedness is an emotional state of “arousal and discomfort” (p. 4), and that when one is in this state one is alert to opportunities to reduce this discomfort. Gratitude on the other hand, has been defined as “a feeling of thankful appreciation for favors received” (Guralnik, 1971, p. 327). Are gratitude and indebtedness essentially equivalent emotional states?

Some data suggest that these two constructs may not be equivalent. For example, Greenberg, Bar-Tal, Mowrey, and Steinberg (1982) found that 92% of their research participants said that being “indebted” to others was an unpleasant state, but a Gallup poll indicated that the vast majority of people feel that gratitude is a happy state (Gallup, 1998). At least in the minds of most people, gratitude and indebtedness are experienced very differently (see also Gray, Emmons, & Morrison, 2001).

Although psychology has largely neglected the study of gratitude (Emmons & Crumpler, 2000; McCullough et al., 2001), gratitude may be an important component of happiness (McCullough et al., 2001; Watkins, 2004; Watkins et al., 2003). Heider (1958) is a notable exception to this neglect in that he felt that gratitude was an important interpersonal emotion, and therefore should be explicated. However, even Heider's treatment of gratitude is quite short, and gratitude is discussed largely as the counterpart to revenge in the context of retributive emotions. But Heider's theory of gratitude may be informative as to how gratitude and indebtedness might differ. Heider argued that in situations where the benefactor *obliges* the beneficiary to be grateful, the beneficiary would actually experience *less* gratitude. This is because the beneficiary would prefer to infer that their gratitude is self-motivated, rather than controlled by external sources. Thus, when there is an increasing external expectation of return associated with a benefit, Heider predicted a decreasing experience of gratitude. Although Heider did not explicitly discuss indebtedness, from his theory one might deduce a contrasting scenario for this emotional state. It seems plausible that with increasing expectations from a benefactor, the beneficiary should feel an increasing sense of indebtedness. Thus, Heider's approach to gratitude appears to imply that gratitude and indebtedness will show different patterns in response to increasing expectations of return communicated by the benefactor.

Distinct emotional states should have distinct action tendencies (Frijda, 1986, 1988). If gratitude is distinct from indebtedness it should show different action tendencies. Recently, Fredrickson has applied her *broaden and build theory* of positive emotions to gratitude (Fredrickson, 2004). In her theory, she argues that gratitude should have broad and creative thought/action tendencies similar to other positive emotions, whereas indebtedness should be associated with a more narrowed tit-for-tat type of reciprocity (p. 160). We sought to evaluate whether gratitude and indebtedness are associated with distinct action tendencies.

In two vignette studies we investigated patterns of gratitude and indebtedness responses to favours received. In each study, participants read a vignette describing the receipt of a benefit, and were asked how they would respond to this benefit on a number of emotion scales, including gratitude and indebtedness. In the stories we manipulated the benefactor's expectations of return associated with the gift. We predicted that with increased benefactor expectation of return, indebtedness would increase but gratitude would decrease. Participants also completed scales assessing thought/action readiness. Here, we predicted that gratitude and indebtedness would be associated with distinct thought/action readiness states.

STUDY 1

In study 1 we investigated the relationship between gratitude and indebtedness with a vignette that described a person helping the protagonist move. We created a story that we felt would ensure responses of gratitude by describing a valuable

favour that was not expected (McCullough et al., 2001). Our stories were identical, with the exception of what kind of response was expected by the benefactor. We created three levels of expectation: one where no return favour was expected (no expectation condition); one where the benefactor expected some return expression of gratitude (moderate expectation condition); and finally a condition where the benefactor expected a similar return favour in addition to an expression of gratitude for the move assistance (high expectation condition).

Method

Participants

A total of 107 students were involved in this study and received partial course credit for their participation. Participants were run anonymously in a group format and were randomly assigned to experimental condition (no expectation: $n = 35$, moderate expectation: $n = 37$, high expectation: $n = 35$).

Materials

Questionnaires. It is possible that our experimental manipulation could affect mood state. In order to assess emotional state both before and after the primary experimental task, we administered the Positive and Negative Affective States scales (PANAS; Watson, Clark, & Tellegen, 1988). We instructed our participants to respond with regard to their immediate affective state. We also used two measures of trait gratitude to investigate relationships of dispositional gratitude to emotional responses to the scenarios. The GQ-6 (McCullough, Emmons, & Tsang, 2002), and the GRAT (Watkins et al., 2003), are developed trait gratitude measures that appear to have good psychometric properties.

The following base vignette was administered to all participants:

You have met someone in one of your classes, have become fairly well acquainted, and have now known them for three months. You have studied several times together with your new friend, have had coffee on several occasions, and you have enjoyed your conversations. You have found a new apartment which is a better deal for you, and so you decide that you will move to the new apartment. You decide that it's best to complete the move in one day so you rent a truck to move on Saturday. During the week your friend asks you what you're doing on Saturday, and you explain that you'll be spending the day moving. When Saturday rolls around you rent the truck and drive to your old apartment to begin your move. When you arrive at your apartment you see your new friend waiting for you, ready to help you move. Your friend helps you for most of the day until all your boxes are transported to your new apartment. The move is completed by 2 pm, when you originally thought that you would finish in the evening.

We accomplished our manipulation by adding several sentences to the end of the base vignette. In the no expectation condition the vignette concluded with: “As you consider your friend’s help, you know them well enough that you feel your friend does not expect any kind of return favour. Your friend’s help was offered simply as a gift without any future expectations on you”. The sentence: “As you consider your friend’s help, you remember that others have told you that when this friend helps anyone, he or she expects a clear expression of thanks, usually in person and in the form of a card or written note”, was added to the vignette for the moderate expectation condition. In the high expectation condition the following explanation was added to the core scenario: “As you consider your friend’s help, you remember that others have told you that when this friend helps anyone, he or she expects a clear expression of thanks, usually in person and in the form of a card or written note, and they also expect a return favour. You happen to know that your friend is moving next Saturday”.

Procedure

After completing an immediate state PANAS, participants were randomly assigned to read one of the three scenarios. Before reading the vignette, we instructed our participants to: “Please try to put yourself in the situation below and imagine how you would respond”. After reading the vignette we asked our participants to respond to various emotion scales on what amounted to a 5-point Likert-type scale. Subjects were probed about seven different emotional states: gratitude, indebtedness, gladness, resentment, guilt, irritation/annoyance, and pride. Half of the subjects responded to the gratitude probe first and the indebtedness probe third, and the remaining subjects did the converse. Subjects were first asked to determine if they in fact would experience the emotion (responding in a yes/no format), and if they indicated “yes” they were to rate the extent of their emotional response ranging from 1 (“mild”) to 4 (“extreme”). Because we felt that the term *indebtedness* would not be familiar to at least some of our subjects, we included a brief definition (following Greenberg, 1980) in parentheses after the term (“feeling obligated to repay”).

After estimating their emotional responses to the scenario, subjects answered a number of questions related to thought/action tendencies (cf. Frijda, 1986). As with the emotions, we first asked our subjects to indicate whether they would have any “urge to do or think” in the way indicated, and if so, we asked them to indicate the extent of their inclination on a 5-point Likert-type scale (ranging from “slight urge” to “very strong urge”). These items generally followed Frijda’s approach (1986), and are listed in Table 1. This was followed by a question regarding the participants’ inclination to help the benefactor if they saw them in need (on a 5-point Likert scale). Subjects then recorded their age and gender and the gender of the benefactor that they imagined in the vignette. They

TABLE 1
Study 1: Thought/Action readiness items

<i>Thought/Action readiness item</i>	<i>Thought/Action readiness factor</i>
I would feel like approaching my friend	Approach
I would feel like avoiding my friend	Active Against
I would feel like being with my friend	Approach
I would notice my friend more and be more interested in them	Adoration
I would feel like rejecting my friend	Active Against
I would feel like ignoring my friend	Active Against
I would feel like acting against my friend	–
I would feel like trying to regain control over my friend	Active Against
I would feel like stopping whatever I was doing, and pay attention only to my friend	Yielding
I would feel like yielding to my friend	Yielding
I would feel like maintaining control over my friend	Active Against
I would feel like insulting my friend to their face	Active Against
I would feel like insulting or deriding my friend to others when my friend was not present	Passive Against
I would feel like fighting with my friend	–
I would feel like running from my friend	–
I would feel like helping my friend	Adoration
I would feel like expressing my happiness to my friend	Adoration
I would feel like giving my friend a gift	Adoration
I would feel like doing something for my friend	Adoration
I would feel like complimenting my friend	Adoration
I would feel like praising my friend to others when my friend was not present	Adoration
I would feel like thinking positive thoughts or happy memories about my friend	Adoration
I would feel like thinking negative thoughts or unpleasant memories about my friend	Passive Negative

Note: Items listed with no factor title showed no variance and thus were eliminated from the analysis.

then completed a second administration of the PANAS. Finally, all participants completed the GRAT and the GQ-6.

Results and discussion

Our primary analysis was conducted with a 3 (benefactor expectation condition) \times 2 (emotion: gratitude and indebtedness) mixed GLM. Emotion was analysed as a repeated measure. The dependent variable was extent of emotional response. Our primary predictions were supported; we found an interaction between level of benefactor expectation and emotion type, such that as

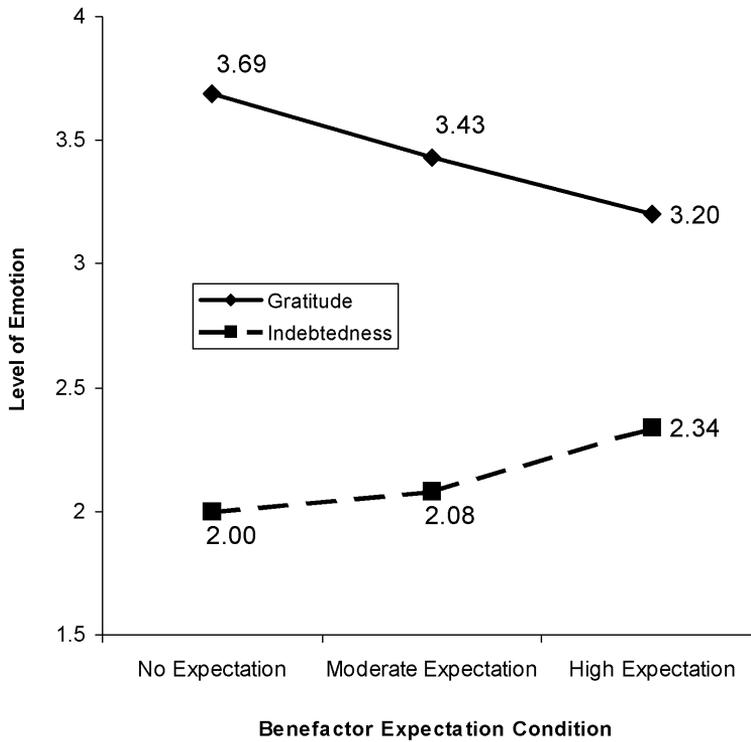


Figure 1. Gratitude and indebtedness by benefactor expectation condition

benefactor expectations increased, gratitude decreased but indebtedness increased, $F(2, 104) = 4.05, p < .05$. Figure 1 illustrates this result. Also, note the strong main effect of emotion type indicating that regardless of expectation condition, subjects responded with more gratitude than indebtedness, $F(1, 104) = 119.91, p < .05$. No main effect was found for the expectation condition, $F(2, 104) = 0.14, ns$.

Correlational analyses of emotional responses to the scenarios (see Table 2) showed that gratitude was strongly associated with gladness ($r = .46$) and moderately with pride ($r = .19$), but negatively correlated with resentment ($r = -.24$) and annoyance ($r = -.29$). Gratitude and indebtedness were not found to be reliably associated ($r = .16, p = .097$). Only guilt was significantly correlated with indebtedness ($r = .25, p < .05$). This corroborates past research showing that gratitude tends to covary with positive affect while indebtedness covaries with some negative affects.

We reduced our 24 thought/action tendency items through factor analysis to 6 factors and analysed responses by condition. Four thought/action tendency items

TABLE 2
Study 1: Correlations of emotional states

<i>Emotion</i>	1.	2.	3.	4.	5.	6.	7.
1. Gratitude	–	.16	.46***	–.24*	–.00	–.29**	.19*
2. Indebtedness		–	.13	.03	.25*	.08	.09
3. Gladness			–	–.07	–.11	–.31**	.24*
4. Resentment				–	.24*	.37***	.11
5. Guilt					–	.20*	–.04
6. Irritation/ Annoyance						–	–.08
7. Pride							–

* $p < .05$; ** $p < .01$; *** $p < .001$.

showed no variance and thus were eliminated from the analysis. The factors are listed with the relevant items in Table 1. Three factors were significantly affected by condition: Adoration, $F(2, 104) = 8.47, p < .05$; Approach, $F(2, 104) = 10.45, p < .05$; and Yielding, $F(2, 104) = 8.91, p < .05$ —all decreasing with increased expectation of return (see Figure 2). Expectation condition did not reveal a significant impact on the remaining factors (the pattern of the means with each of the antisocial factors showed essentially no differences between low and moderate obligation conditions, and increased action tendencies for the high obligation condition). Thus, as return expectations from the benefactor increased, prosocial action tendencies decreased. We also correlated gratitude and indebtedness responses to the scenarios with our 6 action tendency factors. Gratitude responses were positively and reliably associated with prosocial thought/action tendencies (Adoration, Approach, Yielding), and negatively associated with antisocial action tendencies (Active Against, Passive Negative, and Passive Against). Table 3 contains the relevant Pearson r correlation coefficients for both gratitude and indebtedness. Indebtedness was not reliably correlated with any of the action tendency factors. As thought/action tendency is an important attribute of distinct emotions (Frijda, 1986, 1988), the pattern of correlations supports the hypothesis that gratitude and indebtedness are different emotional states.

To evaluate Fredrickson's (2004) *broaden and build theory* with respect to gratitude, we created a variable that reflects the total number of endorsed prosocial action tendencies, and correlated this with gratitude responses. If a subject endorsed at least a "1" on any prosocial action tendency item, this was considered to indicate some inclination on this item, and the total number of prosocial items endorsed with one or more was computed for each subject. Gratitude was positively associated with total number of prosocial action tendencies endorsed ($r = .44, p < .05$), but indebtedness was not ($r = .08, ns$). This finding supports Fredrickson's theory that gratitude is associated with a broader array of responses to a benefit than is indebtedness. We also created a

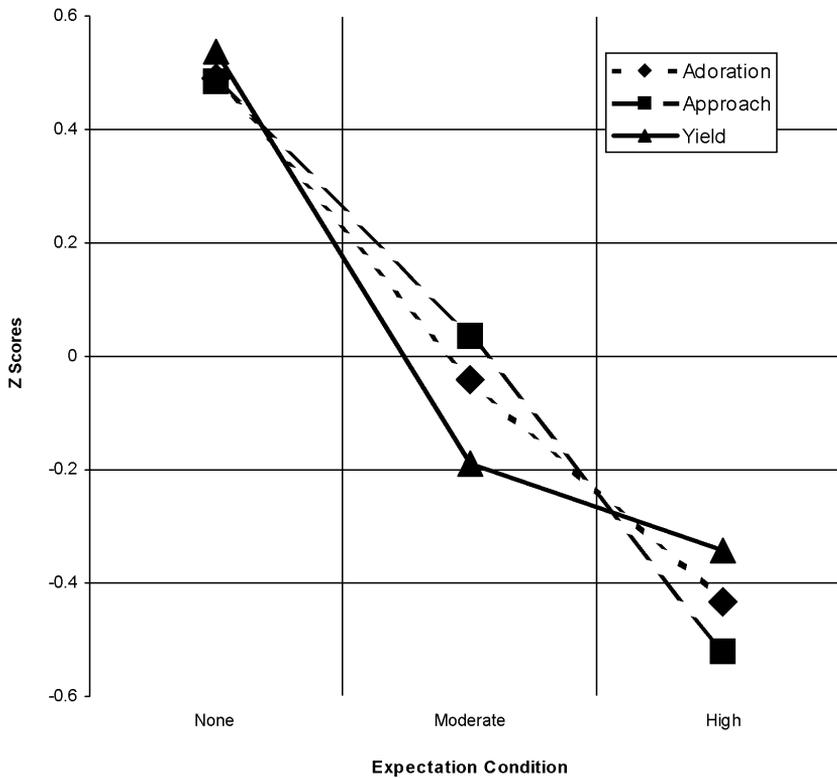


Figure 2. Thought/Action tendency by benefactor expectation condition

TABLE 3
Study 1: Thought/Action tendency correlations with gratitude and indebtedness

Emotion	Thought/Action tendency factor					
	Adoration	Approach	Yielding	Active Against	Passive Negative	Passive Against
Gratitude	.57	.40	.30	-.21	-.37	-.27
Indebtedness	.16	.04	.10	.17	.16	.13

Note: All correlations with gratitude were statistically significant, but none of the above correlations with indebtedness reached significance.

complimentary variable tapping total number of antisocial action tendencies endorsed. Gratitude was inversely associated with the total number of antisocial action tendency items endorsed ($r = -.25, p < .05$), but indebtedness was positively associated with the antisocial total ($r = .20, p < .05$).

Is trait gratitude predictive of subjects' responses to the scenarios? We conducted correlational analyses with our trait gratitude measures and emotional response variables to investigate this question. With the emotional responses to the scenario, the GRAT was significantly associated with gratitude ($r = .20$), and gladness ($r = .34$), and negatively associated with guilt ($r = -.31$), and annoyance ($r = -.27$). Generally speaking, correlations involving the GQ-6 showed the same pattern of relationships, but the correlation between the GQ-6 and gratitude response did not reach significance ($r = .14$). This pattern of results suggests that grateful individuals are more likely to respond positively to a gift or favour. In addition, we found that the GRAT and GQ-6 correlated highly ($r = .77$), supporting the concurrent validity of these instruments.

We also found interesting results with respect to affect change over the course of the experiment. We created affect change scores by subtracting pre-treatment from posttreatment PANAS scores. As subjects reported more gratitude in response to the vignettes, positive affect increased as measured by the PANAS ($r = .25, p < .05$), and negative affect decreased ($r = -.17, p < .05$). Indebtedness was not reliably associated with affect change (positive affect: $r = -.10$, negative affect: $r = -.01$). Thus, merely imagining grateful responses to a benefit is related to improvements in mood.

Finally, we found that expectation condition significantly affected a subject's reported inclination to help the benefactor in the future, $F(2, 104) = 3.86, p < .05$. As expectation from the benefactor increased, inclination to help decreased.

To summarise the important findings of Study 1, we found that when a favour is given, with increasing expectations of return from the benefactor the beneficiary feels less gratitude but more indebtedness. Second, we found that individuals were more likely to respond with gratitude than indebtedness to a favour. Also, we found that gratitude was positively associated with positive emotional states and negatively correlated with unpleasant states, but indebtedness was only reliably associated with guilt. Fourth, we found that the thought/action tendency patterns of gratitude were distinct from those of indebtedness.

STUDY 2

In Study 1 we used a costly gift from the benefactor in order to ensure gratitude responses. However, observation of means indicated that our results may have suffered from a ceiling effect. In an attempt to rectify this problem, in Study 2 we elected to use a scenario with a benefit that was less costly to the benefactor, and somewhat less valuable to the beneficiary. We hoped that this benefit would produce less gratitude (Tesser et al., 1968), and so be less vulnerable to a ceiling

effect. In this study our vignette described a benefactor photocopying notes for the beneficiary for a day they missed class. This less costly favour also provides for a situation that is likely to be more common for our respondents. We hoped that these scenarios would provide us with information relevant to more everyday gratitude responses. We also felt that our 5-point response scales may have been somewhat limited in scale, and thus we expanded our response scales to 7 alternatives. In Study 1, we clearly indicated in our vignette that a positive relationship existed between the benefactor and the beneficiary before the favour took place. However, it is possible that a different pattern of results might ensue if the benefactor was initially disliked. In fact, Heider (1958) suggests that favours from disliked benefactors will result in less gratitude on the part of the beneficiary. Thus, in Study 2 we not only manipulated sense of expectation as in Study 1, but we also attempted to manipulate the valence of the benefactor.

Method

Overview and design

In this study we used a 3 (benefactor expectation condition) \times 2 (valence of benefactor: liked or disliked) \times 2 (emotional state) mixed design. Expectation condition and benefactor valence were between-subjects factors, and emotional state was a repeated measure. Thus, participants were randomly assigned to read one of six different vignettes, and were asked how they felt they would respond emotionally to the situation.

Participants

As in Study 1, participants were run in a group format, and their participation was anonymous. A total of 152 respondents were involved in this study, and received extra credit for their participation.

Materials

Questionnaires. As before, we administered the PANAS both before and after our experimental treatment, and participants took the GRAT and the GQ-6 as well.

The following base vignette was administered to all participants:

You have met someone in one of your classes, have become fairly well acquainted, and have now known them for three months. You have had class projects with this person and like (dislike) them. You are unable to make it to class on a day when very important information was being discussed. The following week this same classmate comes to class with a photocopy of their notes from the class you missed. They explain that they had noticed you were missing from class and so took notes for you.

We attempted to manipulate the valence of the benefactor with the “like” and “dislike” statements as shown above. As before, we manipulated obligation by adding a sentence to the end of the vignette. For the no expectation condition we added: “Based on what others have told you, you realise that your classmate’s help was offered with no expectation of return”. For the moderate expectation condition participants read the following sentence at the conclusion of the vignette: “As you consider your classmate’s help, based on what others have told you, you realise that when your classmate helps anyone they expect a clear expression of thanks, usually in person and in the form of a card or written note”. Finally, in the high expectation condition we added the sentences: “As you consider your classmates help, based on what others have told you, you realise that when this classmate helps anyone he or she expects a clear expression of thanks, usually in person and in the form of a card or written note and they also expect a return favour. Your classmate has also mentioned to you that they have to miss class next week”.

Procedure

The procedure was essentially identical to Study 1 with the following exceptions. After reading the vignette participants were asked to indicate how they would feel in response to the situation described in the vignette. They were asked to respond to 11 different emotional states: “grateful”, “happy”, “indebted”, “contended”, “guilty”, “wonder”, “fortunate”, “flustered”, “obligated”, “uneasy”, and “thankful”. Participants responded to these emotion queries on a 7-point scale. The emotion probes were presented in the above order, with the exception that half of the participants responded to the indebtedness query first and gratitude third. Also, we defined indebtedness slightly differently than in Study 1. In this case the definition “feeling like you owe” was included in parentheses after the word “indebted”. Following their estimations of their emotional responses, participants responded to various thought/action tendency questions as in Study 1. Although our list of thought/action tendency items was very similar to Study 1, in this study the items we used were from Frijda’s research (Frijda, Kuipers, & ter Schure, 1989), as well as several items we felt to be relevant to gratitude (Table 4 contains a list of these items). We also utilized a 7-point Likert type scale (0 = “no urge at all” and 6 = “very strong urge”).

As in Study 1, the thought/action queries were followed with a question regarding the participant’s inclination to help the benefactor in the future, and a question about the gender of the imagined benefactor. We then asked participants to indicate their like/dislike of the benefactor on a 9-point scale ranging from “I disliked them very much” to “I liked them very much”. This item would serve as a manipulation check for our benefactor valence manipulation. We then asked: “How important do you think it is to express gratitude to

TABLE 4
Study 2: Thought/Action readiness items

<i>Thought/Action readiness item</i>	<i>Thought/Action readiness factor</i>
I would feel like approaching or making contact with this person	Positive Response/Approach
I would want to have nothing to do with this person or would want to stay away from this person	Rejecting/Avoiding
I would feel like staying close or being receptive to this person	Positive Response/Approach
I would want to pay more attention to this person	Positive Response/Approach
I would feel like rejecting this person	Rejecting/Avoiding
I would feel like ignoring my friend	Rejecting/Avoiding
I would feel like opposing or insulting this person	Rejecting/Avoiding
I would feel like trying to regain control over this person	Inhibition
I would feel like stopping whatever I was doing, and pay attention only to this person	Positive Response/Approach
I would feel like yielding (or not opposing) the wishes of this person	Positive Response/Approach
I would feel like I had command of this situation	Rejecting/Avoiding
I would boil inside	Rejecting/Avoiding
I would feel like helping	Positive Response/Approach
I would feel like keeping this person at a distance	Rejecting/Avoiding
I would feel like giving this person a gift	Positive Response/Approach
I would feel like doing something for this person	Positive Response/Approach
I would feel like complimenting this person	Positive Response/Approach
I would feel like praising this person to others when my friend was not present	Positive Response/Approach
I would feel like thinking positive thoughts or recalling happy memories about my friend	Positive Response/Approach
I would feel like thinking negative thoughts or unpleasant memories about my friend	Rejecting/Avoiding
I would wish that they hadn't given me their notes in the first place	Rejecting/Avoiding
I would not be able to concentrate or order my thoughts	Inhibition
I would feel like disappearing, so I wouldn't be noticed by anyone	Apathy
I would feel inhibited, paralyzed, or frozen	Inhibition
I would blush or be afraid of blushing	Inhibition
I would not feel like doing anything, I would feel apathetic	Apathy
I would feel like quitting or giving up	Inhibition
I would feel like shutting myself off from my surroundings	Inhibition
I would want to do something, but would not know what to do	Inhibition
I would cry or feel like crying	Inhibition
I would feel excited and restless, I could not sit still	Inhibition
I would feel exuberant, would feel like singing, jumping, or undertaking things	Play/Leisure
I would laugh or feel like laughing	Play/Leisure
I would feel at rest, that everything was OK, that there was no need to do anything	Play/Leisure

others?’’ (9-point Likert scale), followed by queries about their gender and age. Participants then completed another immediate state PANAS, followed by the GRAT and GQ-6. Finally, we asked our participants two religiosity questions not relevant to the primary purpose of this study. After completing the packet, students were awarded class credit and thanked for their participation.

Results and discussion

Manipulation check

We first conducted a manipulation check on likeability of the benefactor with a 2 (like and dislike) \times 3 (benefactor expectation condition) ANOVA on the likeability of the benefactor. We found a large main effect for our likeability manipulation, $F(1, 145) = 54.68, p < .0001$, indicating that our manipulation was successful. Expectation condition did not show a significant main effect on likeability, $F(2, 145) = 2.14, p = .12$, nor did it interact with like/dislike of the benefactor, $F(2, 145) = 0.36, ns$.

Primary analyses

For our primary analysis we conducted a 3 (benefactor expectation) \times 2 (like/dislike of benefactor) \times 2 (type of emotion: gratitude vs. indebtedness) mixed GLM on extent of emotion. Type of emotion was a repeated measure. As in Study 1, a large main effect was found for emotion, $F(1, 146) = 77.05, p < .0001$, indicating that regardless of expectation condition, participants responded with more gratitude than indebtedness (see Figure 3). We also found a main effect for likeability of the benefactor, $F(1, 146) = 8.11, p < .004$. This effect resulted from the fact that if subjects liked their benefactor, they reported more gratitude *and* more indebtedness. Likeability of the benefactor did not interact with any other variables (all $F_s < 1$). Supporting our primary predictions, and replicating the results of Study 1, we found a significant two-way interaction between benefactor expectation and type of emotion, $F(2, 146) = 8.95, p < .0001$. Again, as expectation of return from the benefactor increased, gratitude decreased but indebtedness increased (see Figure 3). The three-way interaction between benefactor expectation, benefactor likeability, and emotion type was not significant, $F(2, 146) = 0.19, ns$. Thus, as in Study 1, we were able to show that gratitude and indebtedness show opposite patterns in response to increasing expectations of return from a benefactor. This offers further support for the conclusion that gratitude and indebtedness are indeed distinct emotional states.

As noted earlier, we gave our subjects a slightly different definition of indebtedness in this study (“feeling that you owe”). This definition is different from that used in Study 1, and different from the original definition provided by Greenberg (1980, “feeling obligated to repay”). One could argue that our

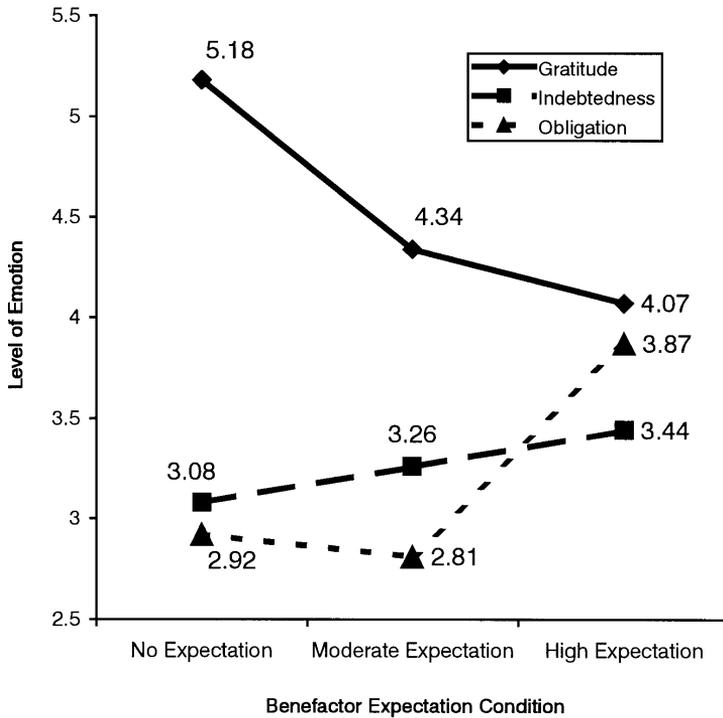


Figure 3. Gratitude, indebtedness, and obligation by benefactor expectation condition

“obligation” emotional response might correspond more closely to the form of indebtedness that we measured in Study 1. Thus, we also conducted a 3 (benefactor expectation) \times 2 (like/dislike of benefactor) \times 2 (type of emotion: gratitude vs. obligation) mixed ANOVA on extent of emotion, with type of emotion as a repeated measure. Again, we found a large main effect for type of emotion, $F(1, 146) = 74.72, p < .0001$, indicating that regardless of expectation condition, respondents reported more gratitude than obligation. In contrast to our previous finding, we found no main effect due to likeability of the benefactor, $F(1, 146) = 0.72, ns$. Likeability of the benefactor did not show any other main effects. However, a marginal interaction was found between likeability of the benefactor and emotion type, $F(1, 146) = 3.81, p = .053$. When participants liked the benefactor they showed more gratitude than when they disliked their giver, but they showed slightly less obligation when their benefactor was liked than when disliked. As with our previous analysis, the two-way interaction between benefactor expectation and emotion type was significant, $F(2, 146) = 15.31, p < .0001$. Although this interaction revealed a similar pattern as our initial analysis, obligation showed a slightly different pattern from indebtedness. While

indebtedness showed a clear linear increase with benefactor expectation, obligation showed no increase from the no expectation to moderate expectation condition, but a large increase in the high expectation condition (see Figure 3). As before, the three-way interaction was not significant, $F(2, 146) = 0.27, ns$.

Correlations of emotional responses to the scenarios

Table 5 shows the correlations between the emotions we measured in response to the various scenarios. As in Study 1, gratitude tended to correlate positively with positive affective states. In this study, gratitude did correlate significantly with indebtedness ($r = .25$). Although the correlation between gratitude and indebtedness did not reach significance in Study 1, the correlations were not significantly different (.16 vs. .25; $z = .74, ns$). This statistically nonsignificant difference may reflect our different definitions of indebtedness, but whatever the case, gratitude and indebtedness shared only 6.2% of variance in this study, far from what one would expect if these were essentially equivalent emotional states. Indebtedness was most strongly correlated with obligation ($r = .64$), showing the similarity of these feeling states. Although indebtedness was correlated with some positive affective states, it was also significantly correlated with several negative states (guilt and flustered), whereas gratitude was not. In this study, indebtedness appeared to be a somewhat mixed affective state, but obligation was not. The feeling of being obligated was primarily correlated with negative affective states. These results are largely consistent with those of Study 1, and support the conclusion that gratitude and indebtedness are distinct affective states.

TABLE 5
Study 2: Correlations among emotional states

<i>Emotion</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Grateful	—	.25	.12	.73	.61	.49	.12	.04	.58	-.09	-.18
2. Indebted		—	.64	.20	.27	.23	.25	.09	.19	.26	.14
3. Obligated			—	.13	.08	.10	.30	.22	.09	.37	.37
4. Thankful				—	.60	.53	.08	.11	.65	-.12	-.16
5. Happy					—	.69	.11	.14	.60	-.23	-.27
6. Contented						—	.03	.06	.52	-.22	-.32
7. Guilty							—	.41	.16	.54	.56
8. Wonder								—	.14	.28	.37
9. Fortunate									—	-.10	-.12
10. Flustered										—	.67
11. Uneasy											—

Note: All correlations $> |.15|, p < .05$, correlations $> |.20|, p < .01$, correlations $> |.27|, p < .001$.

Analyses of Thought/Action tendencies

As in Study 1, we reduced our 34 action tendency items through factor analysis. Our initial factor analysis indicated that five factors had eigenvalues close to or above two, so we retained five factors. We titled these factors Rejecting/Avoiding, Positive Response/Approach, Inhibited, Apathy, and Play/Leisure. Action tendency items and the factor they most strongly loaded on are found in Table 4.

We first conducted separate ANOVAs to evaluate the impact of our independent variables on each action tendency factor. Benefactor expectation showed a significant main effect on the Positive Response/Approach factor, $F(2, 144) = 15.62, p < .0001$, such that as benefactor expectation increased, positive response and approach to the benefactor decreased. Not surprisingly, likeability of the benefactor also impacted this factor, $F(1, 144) = 12.77, p < .0001$, with subjects showing more positive responses and approach tendencies if they liked the benefactor. However, no significant interaction was found ($F < 1$).

When analysing the effects of our independent variables on the Rejection/Avoidance action tendency factor, complementary results were found. Again, we found a main effect of benefactor expectation on rejection and avoidance, $F(2, 145) = 9.32, p < .0001$. The more the benefactor expected in return, the more rejection and avoidance action tendencies were revealed. Likeability of the benefactor also significantly affected this factor, $F(1, 145) = 7.53, p < .01$. When the benefactor was disliked subjects were more likely to show increased rejection and avoidance action tendencies. With this factor the benefactor expectation \times benefactor likeability interaction approached significance, $F(2, 145) = 2.43, p = .09$. This trend appeared to be due to the fact that with increased benefactor expectation, Rejection/Avoidance action tendency increased much more if the benefactor was disliked.

Benefactor expectation was also found to have a significant effect on our Play/Leisure action tendency factor, $F(2, 146) = 4.16, p < .05$. In this case, as benefactor expectation of return increased, exuberance, laughter, and rest tendencies decreased. No other significant effects were found with this factor. Finally, no significant effects of our manipulations were found with the Inhibited or the Apathy action tendency factors.

We also conducted correlation analyses between the emotional responses to the vignettes and the reported action tendencies. We first correlated gratitude, indebtedness, and obligation with our five action tendency factors (see Table 6). Observation of these correlations also supports the distinctiveness of gratitude and indebtedness. Gratitude is strongly correlated with prosocial tendencies, but appears to be associated with inhibited antisocial tendencies (indicated by the significant negative correlation with the Rejection/Avoidance factor). Although indebtedness shows some positive correlation with prosocial thought/action

TABLE 6
 Study 2: Correlations between emotional responses and action tendency factors

Emotion	Action tendency factor				
	Positive Response/ Approach	Rejection/ Avoidance	Inhibition	Apathy	Play/Leisure
Gratitude	.44***	-.42***	-.06	.01	.14
Indebtedness	.29***	-.07	.06	.08	-.07
Obligation	.07	.19*	.28**	.01	-.11

* $p < .05$; ** $p < .01$; *** $p < .001$.

tendencies, it does not appear to inhibit antisocial tendencies. Feelings of obligation, on the other hand, are not associated with prosocial action tendencies, and in fact are positively correlated with antisocial tendencies (as indicated by the significant positive correlation with the Rejection/Avoidance factor). Interestingly, obligation was positively correlated with the Inhibition factor. This suggests that when people feel obligated to return a favour, they tend to feel upset and are somewhat confused about how to respond to the situation.

To evaluate Fredrickson's (2004) ideas regarding the diversity of prosocial action tendencies related to gratitude, we created a variable that indicated the total number of prosocial action tendencies endorsed as in Study 1. Consistent with Fredrickson's suggestions, gratitude was more strongly associated with the total number of endorsed prosocial action tendencies ($r = .38, p < .05$) than was indebtedness ($r = .30, p < .05$), although this difference was not statistically significant ($t = .87, ns$). Additionally, Gratitude was significantly more strongly related to prosocial tendencies than was obligation ($r = .11, ns; t = 2.89, p < .01$). Recall that in this experiment "feeling obligated" is probably closer to our original conception of indebtedness in Study 1. These results support the theory that gratitude is associated with a more broad array of prosocial responses than is indebtedness. Total number of antisocial action tendencies endorsed was inversely associated with gratitude ($r = -.36, p < .001$), not correlated with indebtedness ($r = .00$), and positively related to obligation ($r = .25, p < .05$).

The general picture one gleans from the action tendency results is that gratitude tends to be associated with broad prosocial thought/action tendencies, and appears to inhibit antisocial tendencies. Action tendencies associated with indebtedness and obligation on the other hand, appear to be more narrow and mixed. Although some prosocial action tendencies are associated with indebtedness/obligation, they tend to be much weaker than with gratitude, and obligation is actually associated with an increased likelihood of experiencing some antisocial tendencies.

Altruism analyses

We conducted a 3 (benefactor expectation) \times 2 (likeability of the benefactor) analysis on one's reported inclination to help. Recall that we actually had two items that tapped this tendency, one's reported likelihood of help if their benefactor was in need, and the help item in the action tendency list ("I would feel like helping"). No significant effects were found with the help when the benefactor was in need item, although means were in the expected direction. It appeared that results were limited in this analysis because of a ceiling effect (i.e., virtually all subjects reported that they would be very likely to help their benefactor if they were in need). However, results did reach significance with the help action tendency item. Here we found a main effect for benefactor expectation condition, $F(2, 146) = 7.46, p < .001$, with inclination to help decreasing as benefactor expectation increased. We also found a main effect for likeability of the benefactor, $F(1, 146) = 4.91, p < .05$, with subjects reporting more inclination to help if they liked their benefactor. The interaction between benefactor expectation and likeability of benefactor was not significant, $F(2, 146) = 0.35, ns$. Thus, as in Study 1, we are left with an interesting paradox of altruism; as expectations of return favors from a benefactor increase, the beneficiary is less inclined to help.

We also conducted correlational analyses between emotional responses to the scenarios, and inclination to help. Gratitude was significantly correlated with both help variables ($r = .34$ and $.30$), as was indebtedness ($r = .26$ and $.20$). Obligation on the other hand, was only weakly associated with the inclination to help the benefactor in need ($r = .18$), and was not associated with the action tendency to help ($r = .04$).

Emotion change analyses

Using the PANAS we again evaluated the impact of our manipulation on emotion change. Thus, we conducted a 3 (benefactor expectation) \times 2 (benefactor likeability) \times 2 (time: pretest and posttest) mixed GLM with time as our repeated measure. We found a main effect for time, $F(1, 142) = 17.54, p < .001$. In general, subjects reported less positive emotion after the treatments than before. However, this main effect was modified by a time \times benefactor expectation interaction, $F(2, 142) = 3.31, p < .05$. This interaction was due to the fact that in the condition with no benefactor expectation, positive affect remained constant. However, in the moderate and high expectation conditions positive affect decreased from pre to posttest. No other interactions reached significance.

The only significant effect involving negative affect was with the time \times benefactor expectation interaction, $F(2, 142) = 3.05, p = .05$. Negative affect decreased most in the no expectation condition (-1.24), decreased somewhat less in the moderate expectation condition (-0.77), but actually increased in the

high expectation condition (0.73). As in Study 1, our vignette manipulation actually impacted our subject's mood.

To summarise the findings of Study 2, once again we found that as the return expectations of the benefactor increased, the gratitude of the beneficiary decreased, but indebtedness and feelings of obligation increased. Thus, we again were able to dissociate gratitude and indebtedness. Although likeability of the benefactor did not interact with benefactor expectation, if subjects liked their benefactor they reported more gratitude and more indebtedness. Also, gratitude and indebtedness appeared to show distinct action tendencies. Taken together, these results support the proposition that gratitude and indebtedness should be seen as distinct emotional states.

GENERAL DISCUSSION

In both studies, we showed that gratitude and indebtedness can be dissociated. In this sense, gratitude and indebtedness may best be viewed as distinct emotional states. Supporting Heider's predictions, we found that with increasing expectations from a benefactor, indebtedness increases but gratitude decreases. Correlational analyses within emotional responses and with our thought/action tendency factors supported the theory that gratitude should be viewed as a positive affect but indebtedness has mixed affective associations. Finally, we found that gratitude responses were more strongly associated with inclination for future altruism than indebtedness and feelings of obligation. In their review of gratitude as a moral affect, McCullough et al. (2001) argue that gratitude functions as a moral barometer, a moral motivator, and a moral reinforcer. The moral motivator hypothesis submits that grateful affect motivates individuals to prosocial behaviour. Although a few studies offer support for this hypothesis, direct evidence supporting this notion is scant. Our results appear to provide direct support for the moral motivator hypothesis.

Taken together, the results of this study leave us with a curious paradox of giving and gratitude. If gifts are given for the purpose of receiving return favours from the beneficiary, the beneficiary is less likely to feel grateful, and is less likely to feel like returning the favour. The more a benefit is received as a gift of grace, the more likely there will be a return of gratitude.

We believe our results have notable implications for reciprocity theory (Gouldner, 1960). First, it is interesting that the more a benefactor made the *norm of reciprocity* salient, the less grateful the beneficiary felt, and they apparently felt less motivated to fulfil the requirements of the norm of reciprocity. Our results seem to suggest that when exchange aspects of a relationship are emphasised by the benefactor, the beneficiary is less likely to feel grateful. Perhaps one important distinction between indebtedness and gratitude is that indebtedness is an emotion of exchange, whereas gratitude is not. Although there is often some kind of reciprocity that is often motivated by gratitude, the

evidence presented here suggests that prosocial returns of gratitude are not viewed by the actor in terms of exchange. Stated differently, when returning a favor motivated by gratitude, the actor does not consider their behaviour as some kind of exchange for past favours.

In this matter it is interesting to consider our results in the context of the distinction between exchange and communal relationships. Clark and Mills (1979) defined communal relationships as those in which the partners give to each other primarily as a response to perceived need, while in exchange relationships people give in response to perceived benefits from their partner. It is possible that our participants assumed a communal relationship with their benefactor, and when the benefactor communicated relationship rules of exchange, this change in relationship caused the observed changes in gratitude and indebtedness. However, communal relationships as described by Clark and Mills (1979), tend to be intimate attachment relationships that do not fit with the "acquaintances" we described in our vignettes. Nonetheless, the communal/exchange relationship distinction is likely to be of importance when considering gratitude and indebtedness responses to benefits. Future research may wish to manipulate relationship status in this manner.

Another alternative explanation to our results might be that our participants were surprised with the return expectations of the benefactor, and this is what caused the decrement in gratitude. If, when receiving a benefit, beneficiaries assume that benefactors do not expect a return favour, then when the benefactor communicates expectations of return, this results in surprise and hence results in less gratitude as well. On the other hand, the norm of reciprocity might lead us to predict that individuals usually expect the benefactor to desire a return favour. Of course, it is an empirical question as to whether beneficiaries typically believe their benefactor expects a return favour or not, and individual differences are likely to play an important role here. Whatever the case, these considerations provide interesting questions for future research.

An obvious limitation of these studies is that we used vignettes rather than actual benefits given to our subjects. It is possible that our findings reflect subject's lay theories of gratitude, not their actual experience of response to benefits. In this way, future studies that use actual benefits would extend our findings. However, there are significant advantages to vignette studies. In vignette studies such as these, one can carefully control the perceived expectations of the benefactor. With the actual conferral of a benefit, it would seem much more difficult to control the perceived expectations of the benefactor. Also, it is difficult to actually provide subjects with meaningful benefits in experimental settings. In general, vignette studies offer the experimenter control over conditions that cannot be easily achieved with other laboratory manipulations. Also, it should be emphasised that in both experiments our vignette manipulations impacted subject's mood. In general, as expectations from the benefactor increased in the scenarios, mood deteriorated. This suggests that our

subjects actually did try to imagine themselves in the scenario, and the fact that the scenarios impacted mood suggests that the emotional responses subjects reported to the vignettes are reflective of how they would have responded in actual life settings.

Another limitation of this study is common in most psychology experiments; our population was culturally limited. Would these results extend to individuals of other cultures? This would be an interesting question for future research. It is possible that in other cultural settings, gratitude and indebtedness are seen as much more synonymous than they are in the United States. For example, a number of researchers have noted that emotions of dependence and consequently indebtedness are more acceptable in eastern cultures such as Japan. Although there are likely to be important cultural differences in how individuals respond to benefits, a recent study suggested that indebtedness is still an undesirable state to individuals in eastern cultures. Naito, Wangwan, and Tani (2005) investigated feelings evoked by a favour and found that for both Japanese and Thai students, indebtedness loaded strongly on their negative affect factor (along with "shame", "regret", and "uneasiness"). "Thankfulness" loaded strongly on the positive affect factor. Although gratitude appears to be quite cross-cultural, expressions of gratitude vary considerably between cultures, and cross-cultural investigations of gratitude and indebtedness would be informative.

In this study we were able to show that benefactor expectations impact gratitude and indebtedness in very different ways. Are there other variables that might dissociate gratitude and indebtedness? One candidate might be the locus of cause of the benefit. Some studies have shown that a beneficiary experiences more indebtedness when they ask for a benefit than when a benefactor provides unprompted help (e.g., Greenberg & Saxe, 1975). Would gratitude responses reveal a different pattern? Gratitude and indebtedness might also show different patterns of response following reciprocity behaviour. Suppose a benefit is given to a beneficiary. If gratitude and indebtedness are distinct affects as we propose, when the beneficiary provides a return favor one might expect indebtedness to dissipate but gratitude to remain. Future investigations that demonstrate dissociations between gratitude and indebtedness would provide significant contributions to our understanding of gratitude.

In these studies we found that gratitude is more clearly an enjoyable state than is indebtedness, and that gratitude was more predictive of an inclination for future altruism than was indebtedness. These findings have interesting implications for altruism that is motivated by gratitude vs. helping behaviour more motivated by indebtedness. If gratitude is indeed a more enjoyable state than indebtedness, might favours motivated by gratitude be more enjoyable than those motivated by indebtedness? If this is true, one might also propose that acts of "thanks giving" are more likely to continue than acts of indebtedness. These

suggestions are highly speculative at this point, but would be a fruitful avenue for future research. If “thanks giving” is indeed more enjoyable and enduring than altruism motivated by indebtedness, gratitude may well be an impetus for the “upward spirals” or “cycles of virtue” that have been recently proposed (Fredrickson, 2004; Watkins, 2004).

Our findings from Study 2 suggest that there may be different forms of indebtedness. Indebtedness and feelings of obligation appeared to show somewhat different patterns in this study, and our finding does not appear to be unique (Greenberg & Frisch, 1972). This points to the need to carefully define indebtedness for subjects. For the sake of consistency, we recommend Greenberg’s (1980) definition that we used in Study 1 (“feeling obligated to repay”). However, is it possible that one may feel as though they are in someone’s debt, but do not feel *obligated* to repay? It seems worthwhile to investigate this form of indebtedness as well, although some may argue that this is the essence of gratitude (e.g., Roberts, 2004).

Is there a debt of gratitude? Although we dissociated gratitude and indebtedness in these studies and these states are clearly experienced differently, in Study 2 we found that gratitude and indebtedness were positively correlated. Tesser and colleagues also found that gratitude and indebtedness were significantly correlated (Tesser et al., 1968). Also, gratitude was correlated with a desire to help their benefactor in the future. However, the debt of gratitude does not appear to be analogous to an economic debt. An economic debt is one where the debtor *must* recompense the lender, the debt is established by the lender, and it is a state the debtor desires to be free of (cf. Berger, 1975; Card, 1988; Wellman, 1999). Thus, although gratitude appears to be associated with a desire to recompense the benefactor, participants report enjoying this feeling, and if the obligation is externally imposed the desire to return the favour *decreases*. Roberts’ approach to gratitude might shed some light on this dilemma (1991a, 1991b, 2004). He defines gratitude as *a glad acceptance of our debt to one who has acted for our benefit*. In this view, gratitude is expressed as a token of appreciation for the benefit and for the beneficiary’s relationship with the benefactor. If this is the case, then the grateful person may respond with grateful recompense, not necessarily to discharge the debt, but rather to establish and encourage the interdependent relationship with his/her benefactor. Perhaps Milton (1667/1999, p. 238) has best summarised this paradox of gratitude:

A grateful mind
By owing owes not, but still pays, at once
Indebted and discharged.

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