Forgiving the Self and Others: Exploring Component Level Differences and the Effects of Personality

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Forgiving the Self and Others: Exploring Component Level Differences and the Effects of Personality

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Abstract

Forgiveness has been predicted by and correlated with aspects of personality, although few have analyzed these relationships by a forgiveness of self and others distinction, or by components of forgiveness (benevolence, avoidance, revenge). This study tested 91 university students using the Big Five Personality Inventory, and assessed forgiveness through scenario based measures. The study addressed three questions in specific: (a) are there differences between forgiveness of self and forgiveness of others; (b) does personality predict forgiveness; and (c) are there any moderating variables (explanatory style or working memory capacity) in the relationships found. I found that differences existed within types of forgiveness (self and other); that neuroticism is the most significant personality predictor of forgiveness; and that explanatory style moderates the forgiveness by condition (self versus other) relationship. These results suggest that people on average are more willing to forgive themselves than others, that across types of forgiveness (self and other), individuals scoring higher in neuroticism are less likely to forgive in general, and that the effect of condition on forgiveness becomes less prominent in individuals with higher explanatory style scores.

Keywords: forgiveness, personality, neuroticism, extraversion, agreeableness, explanatory style, attributional style, working memory capacity, executive functions, benevolence, avoidance, revenge
Introduction

A forgiving nature is widely considered to be a positive quality in an individual, for the act of forgiveness facilitates progress, is necessary for success, and signifies a general goodwill. Forgiveness can be encountered on a daily basis, and it is an important factor in conflict resolution, personal wellbeing, as well as social and romantic relationships (APA Report, 2006; McCullough, Root, Tabak, & Witvliet, 2009; van der Wal, Karremans, & Cillessenj, 2014). Every individual at one point has forgiven another as well as been forgiven. The questions of why people forgive, and who is more likely to forgive, have been the focus of many research studies; and while much has been gained towards answering these questions, it is not yet well understood—compared to other social cognitive processes. Gaining a better understanding of forgiveness and its mechanisms stands to benefit a number of domains, both academic and social.

Many studies have characterized forgiveness in terms of the cognitive processes that must underlie the phenomenon; namely, it has been characterized by a reduction of revenge and an enhancement of benevolence (Burnette et al., 2013). Forgiveness has also been discussed in terms of self and others (Ross & Hertenstein 2007), and this has led to research that questions whether forgiveness of self and others are subserved by separate or identical cognitive processes. Despite such prior work, however, studies that marry these characterizations of forgiveness are sparse. The main gap in knowledge lies in the convergence of executive functions, personality, and forgiveness; this study attempts to reveal how these facets of social cognition interact, and whether the effect of personality or forgiveness type (self or other) on forgiveness is in fact being moderated by executive functions or explanatory style.
One of the goals of the current study is to investigate the role of personality in forgiveness. I will test this while evaluating forgiveness as a two part model: forgiving the self and forgiving others, and further, I will measure forgiveness—in both types—using three subcomponents: benevolence, avoidance, and revenge. Specifically, this study will address three major questions: (a) are there differences between forgiveness of self and forgiveness of others; (b) does personality predict forgiveness; and (c) does explanatory style and working memory capacity interact with the aforementioned relationships.

What Is Forgiveness?

Defining forgiveness. Forgiveness has been defined as the intentional change in one’s perception of another following a transgression (McCullough, 2001; Burnette et al., 2013). This process involves promoting an attitude of goodwill or benevolence towards the transgressor, while inhibiting attitudes of avoidance and revenge towards the transgressor. This definition centers on the notion of “prosocial motivational change on the victim’s part” (p. 194), and so precludes behaviors such as ‘condoning’ or ‘tolerating’ (McCullough, 2001), for it requires both a positive motivational change as well as an inhibition of negative motivations. Forgiveness can be examined as a whole in itself (Burnette et al., 2013), as a situational set: forgiveness of self and forgiveness of others (Neto & Mullet, 2004; Ross, Kendall, Matters, Rye, & Wrobel, 2004; Ross & Hertenstein, 2007), and also as a set of subcomponents: benevolence, avoidance, and revenge (McCullough, Root, & Cohen, 2006).

Forgiveness subcomponents. Forgiveness has been a research focus for many years, the result of which is a robust model that offers multiple levels of investigation. In particular, forgiveness has been separated into multiple levels (self and other) and multiple components
(benevolence, avoidance, and revenge). The multiple components model of forgiveness has been developed mostly by Michael McCullough (2001a) and will be the primary focus in this study when addressing forgiveness; this model measures forgiveness as a composite of the three separate subcomponents: benevolence, avoidance, and revenge.

Measuring forgiveness as multiple components is a more interpretable and more intuitive approach—considering the subscribed definition. Benevolence—having goodwill towards the transgressor—is indicative of forgiveness, and is in itself a direct, although murky, measure of forgiveness. Avoidance is the intentional distancing of oneself from the situation or those involved, this applies to both forgiveness of the self and of others, for higher levels of avoidance in forgiveness situations prevents the forgiving process by directing the subject’s thoughts and actions elsewhere, and so forgiveness in general is not even considered. Revenge is the most intuitive of the forgiveness subscales, for revenge is the desire for retaliation or retribution—usually in the form of harm—and can also include having feelings of malice or anger towards the individual or oneself. Avoidance and revenge are reactions to transgressions that require inhibition in order to advance in the forgiveness process. The three subcomponents of forgiveness can be measured by the Transgression-Related Interpersonal Motivations Inventory (TRIM; McCullough, Root, & Cohen, 2006).

Three Major Questions Examined in This Thesis Project

Forgiving self versus other. Do people forgive themselves differently than they forgive others? Forgiveness has recently been parsed into forgiveness of self and forgiveness of other; these two types are described as distinct, yet subsets of overall forgiveness (Ross & Hertenstein, 2007). The types of forgiveness are defined by the context of the forgiveness situation, namely, it depends on who is being forgiven. Instances in which one has wronged another would require
forgiveness of self, whereas instances in which one has been wronged by another would require forgiveness of others.

Forgiveness of others is the traditional view of forgiveness—someone forgiving another who is perceived to have committed a transgression. Forgiveness of self includes instances in which one views oneself as the transgressor in a conflict or negative event. Forgiveness of self includes forgiving oneself for an act against another, as well as not forgiving oneself for a selfharming act—such as bad financial decisions or procrastination. The benefit of separating forgiveness into its types is evident in the additional questions it has prompted, for many moderation effects have been proposed within known relationships with forgiveness, and such effects may be shown to differ depending on the type of forgiveness being analyzed. For example, executive control has been suggested as a predictor of forgiveness for the reasons that those who are more motivated to forgive will forgive more easily (van der Wal et al., 2014), and that motivation is a key component of forgiveness. In this situation, removing the self and other distinction from forgiveness would introduce ambiguity in the hypothesis, for one’s motivations in forgiving others differs greatly from that in forgiving oneself.

The two part, self and other, model of forgiveness was initially examined by Ross, Kendall, Matters, Rye, & Wrobel (2004). Using several measures of forgiveness that distinguished between self and other, they observed that the two were distinct constructs, overlapping slightly in facet level personality traits (Ross & Hertenstein, 2007). These findings suggest that future investigations of forgiveness must include a self and other distinction in order to best explain the data. A foremost goal of this study is to validate the proposed distinction between forgiveness of self and forgiveness of others; specifically, I will be testing the hypothesis that forgiveness of self differs from forgiveness of others, and that these differences are observable at the
component level. After testing these hypotheses, I will assess the effect of personality on forgiveness.

**Forgiveness and personality.** Do aspects of personality predict an individual’s willingness to forgive? Several studies have investigated the links between personality and forgiveness, and the majority of these studies associate forgiveness with neuroticism and agreeableness (Brose, Rye, Lutz-Zois, & Ross, 2005; McCullough, Bellah, Kilpatrick, & Johnson, 2001). Few studies however have investigated how, on a component level, aspects of personality are related to components of forgiveness, and if the relationships between neuroticism, agreeableness and forgiveness can be explained by such component level correlations. Personality can be categorized according to the Big Five Inventory (BFI; John, Donahue, & Kentle, 1991): extraversion (sociable, energetic, adventurous), agreeableness (sympathetic, modest, altruistic), openness (curious, imaginative, artistic), conscientiousness (efficient, organized, dutiful), and neuroticism (anxious, shy, discontent). Among these personality traits, agreeableness and neuroticism have been most frequently found to be associated with forgiveness, whereas extraversion has been most frequently found to be associated with executive functions. It is important to note that studies using different measures of personality have failed to find these effects (Ross & Hertenstein, 2007).

Agreeableness is opposed to antagonism—and is associated with trust, altruism and modesty (John & Srivastava, 1999). Given that traits of agreeableness are so closely tied to traits of a forgiving nature, it is no surprise that it has been widely reported to be positively associated with forgiveness, such that individuals high in agreeableness show a greater willingness to forgive (McCullough et al., 2001). The effect sizes of this relationship are modest, $r = .40$ (Brose
et al., 2005), $r = .49$ (McCullough et al., 2001). I expect agreeableness to be positively correlated to the benevolence component of forgiveness.

Neuroticism is contrasted by emotional stability; it is related to anxiety, depression, and vulnerability (John & Srivastava, 1999). Neuroticism has been shown to predict forgiveness with a higher probability than agreeableness. Neuroticism is negatively correlated with forgiveness, such that those who score highly in neuroticism are less willing to forgive. This effect has been shown to remain significant even when measured two and a half years after the transgression (Maltby et al., 2008). A wide range of effect sizes have been reported, $r = .36$ (McCullough et al., 2001), $r = .52$ (Brose et al., 2005). I predict that neuroticism will be positively correlated with the avoidance component of forgiveness.

Extraversion is contrary to introversion, for extraverts are sociable, energetic, and outgoing (John & Srivastava, 1999). Extraversion, among the other Big Five personality traits, has been found to be one of the least associated with forgiveness; however, some have found small effects showing a positive relationship in one or more measures of forgiveness (Brose et al., 2005). For reasons clarified in later sections, I expect that extraversion will be negatively correlated with the revenge component of forgiveness. Extraversion is more easily associated with executive control, for individuals high in extraversion score higher on the majority of executive control measures. Campbell, Davalos, McCabe, & Troup (2011) found that extraverts scored higher in both updating and inhibition tasks, with extroverts outperforming introverts in difficult tasks across all measures, $t(45) = 1.98$, $p < .05$; findings such as these led to the expectation that executive control may moderate any relationships found between extraversion and forgiveness.

In this study, I will be testing the hypothesis that aspects of personality are related to forgiveness by showing that personality significantly predicts forgiveness such that individual
aspects of personality map onto specific subcomponents of forgiveness. Agreeableness is expected to be positively predictive of benevolence; neuroticism is expected to be positively predictive of avoidance; and Extraversion is expected to be negatively predictive of revenge. Of any of these predictions are observed, I will test whether there are any interactions with other predictor variables.

**Potential moderation effects of executive function and explanatory style on forgiving.** If the aforementioned relationships are observed, do they interact with other variables? The differences between forgiveness of self and forgiveness of other and the relationship between personality and forgiveness are potentially moderated by other variables, specifically working memory capacity and explanatory style.

**Working memory capacity.** Working memory capacity relates to executive functions through several shared elements, for WMC processes enlist qualities within executive functions—updating in particular, and executive function processes are all dependent upon WMC. Working memory has been described as “the capacity to store and update information while simultaneously processing other information” (Schmeichel & Hofmann, 2011, p. 184). The model of working memory capacity was developed by Baddeley and Hitch (1974) and consists of multiple components: the phonological loop, visuospatial sketchpad, episodic buffer, and central executive. The initial link between the two constructs arose when measuring individual differences in WMC—primarily through complex span tasks, and it was found that individual differences arose in the central executive component of working memory, and that these “individual differences in WMC [also] assess executive attention,” or executive control.
(Schmeichel & Hofmann, 2011, p. 186). To the extent that individual differences in WMC reflect differences in executive functions, measures of WMC through complex span tasks necessarily also measure executive function ability.

The link between executive functions—measured by working memory capacity—and forgiveness is well established, for an individual’s level of executive functions positively predicts their willingness to forgive (Finkel & Campbell, 2001; van der Wal et al., 2014; Pronk, Karremans, Overbeek, Vermulst, & Wigboldus, 2010; Burnette et al., 2013). Although this link is well established, the effect is difficult to detect. Using a four-item measure of forgiveness (TTF; Brown, 2003) and performance on the two-back task (Jonides et al., 1997), Pronk et al. (2010) observed a significant positive relationship between executive functions (EF) and forgiveness, $r(48) = .31, p < .02$. In examining the roles of relationship value and EF on forgiveness, van der Wal et al. (2014) found that relationship value and executive control significantly predict forgiveness, and moreover, that EF moderated the simple effect of relationship value on forgiveness, such that at lower levels of EF, relationship value no longer predicted forgiveness. A meta-analysis on the current research was performed by Burnette et al. (2013); the data consisted of 40 independent studies and reached a sample size of 5105 individuals. Surprisingly, the results indicated a significant, but small effect, $r = .18, 95\% CI [0.14, 0.23]$ of EF on forgiveness. Despite the small effect size, the link between EF and forgiveness is an observed, and “statistically robust” (p. 443) phenomena (Burnette et al., 2013).

I will be directly testing the simple effect of EF on forgiveness through working memory capacity measures, and I will also test the hypothesis that EF interacts with differences between forgiveness of self and other as well as a model that regresses forgiveness on personality traits.
Explanatory style. Explanatory style is predicted to moderate the differences between forgiveness of self and forgiveness of others. Explanatory style measures assess whether one predominantly attributes the causes of negative events either to themselves or to external factors (Peterson et. al., 1982). This measure also captures a permanence quality—how likely this cause is to exist in the future, and a pervasive quality—how prevalent is this cause in day to day events. Interpretations of these measures can extend to optimist-pessimist distinctions, for those who attribute causes outside of themselves—and believe the cause to be temporary and infrequent—are more likely to have an optimistic perspective in general than those who attribute causes to themselves and believe that cause to be imminent and ever-present.

Given that the differences between forgiveness of self and forgiveness of others hinge on the context of forgiveness—namely, who is doing the wronging—I hypothesize that explanatory style will interact with condition to moderate the differences. Explanatory style directly relates to forgiveness types because an internal and external distinction (made by explanatory style measures) is central to the distinction between forgiveness of self and forgiveness of others, for self and others are labeled within internal and external categorization. Given the aforementioned shared characteristics of explanatory style and forgiveness type, I predict that individuals who score highly on the personal aspect of explanatory style (indicating a greater causal attribution to external factors) will report higher levels of forgiveness of others and lower level of forgiveness of the self. This hypothesis is an extension of the relationships predicted between personality and types of forgiveness, for individuals who score highly on the personal aspect of explanatory style tend to blame external events or people for wrongdoings, for this reason, these individuals will accordingly not recognize that they are the cause of a negative event, and so they will have more
forgiveness difficulties in contexts in which they may be responsible (forgiveness of self condition).

In summary, this study will test predictions regarding forgiveness differences and personality predictors and then determine if these relationships depend on explanatory style or WMC. The current study was designed in such a way that allows us to measure the desired variables, manipulate forgiveness type, and thus address our specific research questions.

Current Study

The current study examines differences in forgiveness of self and forgiveness of others, personality predictors of forgiveness, and potential moderation effects. After gathering measures of explanatory style, personality, and working memory capacity, participants will be randomly placed into conditions that are designed to capture self and other differences. The two conditions represent the two forgiveness types through the scenarios in which the participants are asked to read and of which the participants are asked to take on the perspective. Each scenario describes an act of wrongdoing from a different perspective, either one in which the participant is the wrongdoer, or one in which the participant is being wronged. Subsequent questionnaires will measure forgiveness subcomponents in the context of the immediate prior scenario; such manipulations will allow for a three by two analysis testing each component of forgiveness (benevolence, avoidance, and revenge) by forgiveness type (self and other). The general procedure of the study is outlined in figure 1, and a sample scenario including forgiveness subcomponent measures is presented in figure 2.
You have been living at the same apartment for quite some time, and you just got a new roommate. Everything is going well with you two, but she recently got a new job, and the job requires that she has reliable transportation. Given that you work only several blocks from your house, you offer to let her use your car.

One day when you leave the house to run errands, you notice that your car had been left unlocked. You confront your roommate about it; she apologizes, and says that it won’t happen again.

Since then you hadn’t been paying attention as to whether your roommate had or had not been making sure to lock your car at night, but, on the news, you hear that there has been a rise in car burglaries in your neighborhood. Just to be cautious, you inform your roommate and once again remind her to be vigilant about locking the car.

The very next morning you awake and see that your roommate’s car has been broken into and stripped of all electronics and valuable parts. Your roommate had used the car last night and forgot to lock it.

1) I would be upset if this happened to me.
2) I recently experienced a similar situation.
1) Despite what she did, I would be working hard to bury the hatchet and move forward with our relationship. (Benevolence)
2) I would be avoiding her. (Avoidance)
3) I would want her to get what she deserves. (Revenge)

You have recently moved into a new apartment. Your new roommate has lived there for several years. Everything is going well with you two, but you recently got a new job, and the job requires that you have reliable transportation. Given that your roommate works only several blocks from your house, she offers to let you use your car.

One day when your roommate leaves the house to run errands, she notices that her car had been left unlocked. She confronts you about it; you apologize, and say that it won’t happen again.

Since then your roommate hadn’t been paying attention as to whether you had or had not been making sure to lock the car at night, but, on the news, she hears that there has been a rise in car burglaries in your neighborhood. Just to be cautious, she informs you and once again reminds you to be vigilant about locking the car.

The very next morning you awake and see that your roommate’s car has been broken into and stripped of all electronics and valuable parts. You had used the car last night and forgot to lock it.

1) I would be upset if I did this.
2) I recently experienced a similar situation.
1) Despite what I did, I would be working hard to bury the hatchet and move forward with our relationship. (Benevolence)
2) I would be avoiding her. (Avoidance)
3) I should get what I deserve. (Revenge)
There are six scenarios in total—each having a self and other version, and all were designed for the purpose of answering the question of if there are differences between forgiveness of self and forgiveness of others.

After completion of the study, I will have gathered the variables and measures necessary to answer the questions raised. If aspects of personality—specifically, extraversion, neuroticism and agreeableness differentially predict forgiveness, then these differences should be observable at the component level of forgiveness. Furthermore, variation in this effect will also be observable within the type of forgiveness, self or other; and these effects should be dependent upon explanatory style and working memory capacity. I will test this hypothesis by asking three questions: (a) are there differences between forgiveness of self and forgiveness of others; (b) does personality predict forgiveness; and (c) does explanatory style and working memory capacity interact with the aforementioned relationships.

Method

Participants

The sample population was drawn from students enrolled in an introductory psychology course (n=94, 38 male, 56 female) at the University of Colorado Boulder and were recruited by a university-wide online portal. Participants were mostly freshman; the ages ranged from 18 to 25 (M= 19.04, SD= 1.21), and most participants identified themselves as Caucasian. Participation requirements included proficiency in the English language and use of both hands. A handful (n = 3) of participants were excluded from the results for lack of language proficiency, experimenter error, or if the participant answered incorrectly on more than one of the inserted foil questions.
Materials

All questionnaires were presented with Qualtrics online survey (Qualtrics, Provo, UT), and the measures of working memory capacity were presented with PsyScope (Cohen J.D., MacWhinney B., Flatt M., & Provost J., 1993).

**Questionnaires.** Demographics questions were presented at the onset of the study and were limited to age, gender, and ethnicity. Following demographics, participants were asked to complete questionnaires regarding explanatory style, personality, and forgiveness\(^1\). Throughout these questionnaires were three foil questions designed to catch and exclude participants who did not answer honestly.

**Personality.** Personality was measured with the Big Five Personality Inventory (BFI; John, O. P., Donahue, E. M., & Kentle, R. L., 1991). This is a 44-item questionnaire measuring a participant’s agreeableness, conscientiousness, neuroticism, extraversion, and openness. The questionnaire is on a 5 point Likert scale, and prompts the participant to assign a score to qualities that may or may not describe them (e.g. I am someone who is talkative).

**Explanatory style.** Explanatory style was measured by the Expanded Attributional Style Questionnaire-Short (EASQ-S; Whitley, 1991), a twelve item questionnaire which asks the participant to respond to hypothetical negative situations (e.g. “You are fired from your job”). The participant is asked to assign a cause to the hypothetical event (e.g. I did not show up for work), and is then asked three questions about the cause they assigned. The questions (“is the cause…due to something about you or to something about other people or circumstances?,” “in the future…will this cause be present?,” “is the cause something that just influences …or does it

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\(^1\) An additional questionnaire, the Heartland Forgiveness Scale (HFS), was also administered to the participants, but was not included in the analyses.
also influence other areas of your life?”) measure the locus, stability, and globality of the cause (also referred to as personal, permanent, and pervasive). Personal, permanent, and pervasive measures were reverse scored and summed for a total explanatory style score; higher scores indicate an attributional style in which blame is assigned more towards external events or people.

**Working memory tasks.** Basic computer tasks were administered to participants to capture working memory capacity (WMC). The tasks include shortened versions of the reading span (Friedman & Miyake, 2004) and spatial span (Miyake, Friedman, Rettinger, Shah, & Hegarty, 2001). A total WMC variable was calculated by z-scoring and then averaging the two span task scores.

**Reading span.** In this task, the participant must make a true or false judgment of a simple sentence displayed on the computer screen (e.g., A rose is a flower). The experimenter types ‘T’ or ‘F’ on the keyboard, and then a word flashes on the screen for one second (e.g. twig, lotion, ruler). This process repeats several times, and then a series of question marks—???—prompts the participant to recall the words that were presented and the order in which they were presented. The participant reads the sentence, makes the judgment, and reads the target word all out loud. Scores were calculated by summing the number of words answered correctly and in the correct order.

**Spatial span.** This task is very similar to the reading span task, only instead of making true or false judgments of a sentence, the participant is asked to make ‘mirror’ or ‘normal’ judgments of a letter presented on the screen (e.g. F or <KeyValuePair>)—letters used were R, F, and P. Upon making the judgment—and the experimenter entering the result into the keyboard—an arrow pointing in one of eight directions flashes on the screen for one second. This process repeats several times, and when prompted with a series of question marks, the participant is asked to recall the direction of
the arrows and the order in which they were presented. Scores were calculated by summing the number of arrows placed in the correct orientation and in the correct order.

**Forgiveness scenarios.** Forgiveness was measured through self-reported responses to six scenarios that described an event in which someone hurt or wronged another individual. Participants were randomly assigned to one of two conditions, self or other. The scenarios were designed so that the perspective is of the participant, and that perspective is either one who has hurt someone or one who has been hurt by someone—depending on the condition. The first condition, forgiveness of self, places the participant in the shoes of one who has wronged another person; whereas the second condition, forgiveness of others, places the participant in the shoes of one who has been wronged by another person. Each act described involves negligence, and has clear and foreseeable consequences (e.g. procrastinating on a group project so that your group suffers the consequences). The gender of the transgressors and bystanders in the scenarios were randomized.

Each scenario was carefully designed to differ only to the degree of the reader’s perspective. In the example in figure 2, the two scenarios differ only in who is responsible—at least partially—for the theft, either the participant, or the other. The scenarios also attempt to illicit some type of investment by the reader: social, emotional, financial, etc., in order to provoke a genuine feeling of wrongdoing, hurt, or resentment, which in turn would promote genuine forgiveness tendencies. The subject of transgression between scenarios was also designed to be as similar as possible, and the reliabilities of which will be validated by postscenario questionnaire measures that ask the participant the degree to which the scenario would have upset him or her. The subjects of the six scenarios are car theft, property loss, pet death, academic negligence, personal favors, and employment opportunity.
Scenario Questionnaires. Following each scenario is a questionnaire measuring the effectiveness of the scenario, the participant’s relatability to the scenario, and the potential for forgiveness, our main dependent variable. The forgiveness related items in the post-scenario questionnaires are modified questions from the Transgression-Related Interpersonal Motivations Scale (TRIM). The questions are adopted from the TRIM-18 (McCullough, Root, & Cohen, 2006) and assess the three components of forgiveness. Two questions from each forgiveness subscale (benevolence, revenge, and avoidance) were presented in random order through a random number generator; the questions were slightly modified to match the sexes in the scenarios presented. As a measure of benevolence, participants were asked questions such as “I would be striving to achieve reconciliation;” the revenge component was gauged by questions such as “I would want to make him/her pay;” and the avoidance component was measured in a similar fashion, “I would be keeping as much distance between us as possible.” These questions were modified from the original TRIM verbatim in order to more directly relate them to the scenarios. The forgiveness subcomponent questions were also changed to match the subjunctive mood of the scenarios, and therefore tense was also changed.

The most significant modifications to these questions were in regard to the reconciliation of forgiveness type (self and other) and component (benevolence, avoidance, revenge), for avoidance or revenge towards oneself is not easily interpretable. In this regard, all questions were modified so to measure component forgiveness in the context of the forgiveness situation. For example, the self and other differences in avoidance measures do not reflect a difference between avoidance of others and avoidance of oneself, but rather, it is the difference between avoidant tendencies incited by a situation in which one has wronged another and avoidant tendencies
incited by a situation in which one has been wronged by another. Therefore, all benevolence questions were modified to reflect the type of forgiveness rather than the type of benevolence (e.g. “Despite what I did” versus “Despite what he/she did”); all revenge questions were modified with the same intention (e.g. “...get what I deserve” versus “…get what he/she deserves”). In this spirit, avoidance questions did not need to differ between conditions.

Following each scenario will be two types of forgiveness measures: global and specific. The global measures entail time to forgive (Time to Forgive): “how long would it take you to forgive this person,” as well as total forgiveness score (hereafter, Forgiveness Total)—a composite of the three specific forgiveness measures. The specific forgiveness measures are the three subcomponents of forgiveness: benevolence, avoidance, and revenge.

Procedure

The order in which materials were presented is described in figure 1. Experimenters were instructed to sit in the back of the room in order to promote honest responses. Upon arrival, participants were greeted and given a consent form. The participant was then asked to complete the initial questionnaires in the following order: demographics, EASQ-S, BFI. The participant then moved on to the working memory tasks (reading span and spatial span). Finally, the participant—randomly assigned to self or other scenario condition—was asked to read six scenarios that involve a particular transgression and answer a brief questionnaire following each scenario. Participants were then debriefed, thanked, and given a small amount of course credit.

Results

Forgiving Self Versus Other

The first goal of the study was to examine whether people forgive themselves differently than they forgive others. Thus, I compared participants’ ratings for each of the dependent
measures in the self condition and the others condition using a one-way between-subjects analysis of variance (ANOVA). As summarized in Table 1, the two global measures of forgiveness—the Forgiveness Total and the Time to Forgive—showed a significant difference between the conditions, $F(1, 89) = 5.15$, $\eta^2 = .055^2$, $p = .026$, for Forgiveness Total, and $F(1, 89) = 8.92$, $p = .004$, for Time to Forgive. In both measures, participants were more willing to forgive themselves than to forgive others.

Table 1.
*Descriptive Statistics*

<table>
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<th>Measure</th>
<th>Self</th>
<th>Other</th>
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<td>M</td>
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<tr>
<td>Benevolence</td>
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<tr>
<td>Avoidance</td>
<td>44</td>
<td>2.96</td>
</tr>
<tr>
<td>Revenge</td>
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<tr>
<td>Time to Forgive</td>
<td>44</td>
<td>3.59</td>
</tr>
</tbody>
</table>

To better understand these mean differences, I examined the ratings for the three components of forgiveness (benevolence, avoidance, and revenge) separately. It was found that all three component means differed greatly between the self and others conditions (see Table 1). The most prominent difference occurred in the Benevolence subcomponent, $F(1,89) = 144.24$, $p < .0001$, suggesting that individuals on average show more benevolence towards themselves than others. The relationship between the Avoidance subcomponent and self versus other differences is significant yet in the opposite direction, $F(1,90) =14.44$, $p <.001$. Unsurprisingly, individuals in the forgiveness of self condition indicated less avoidant tendencies than individuals in the other condition—reiterating the positive trend in forgiveness of self found earlier. Finally,

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*Partial eta-squared reported*
regarding the Revenge subcomponent of forgiveness, I found that an individual is more likely to show revenge or have feelings of revenge towards oneself rather than towards others in circumstances requiring forgiveness. This finding is somewhat surprising given the findings previously discussed, for this suggests that differences between forgiveness of self and forgiveness of others is mainly driven by differences in the Benevolence and Avoidance subcomponents, and that the Revenge component actually reduces the variation detected between self and other.

In summary, significant differences between forgiveness of self and forgiveness of others were found. These differences indicated that individuals forgive themselves easier than they forgive others, and further, that these differences could be evaluated through forgiveness subcomponents. These results suggest that individual differences in forgiveness of self and forgiveness of others extend to the different components of forgiveness, such that individuals in the forgiveness of self condition reported higher scores in benevolence and revenge and lower scores in avoidance than in the forgiveness of others condition.

**Forgiveness and Personality**

The second hypothesis of the study was that personality plays an important role in forgiveness, and that extraversion, agreeableness, and neuroticism in particular would be predictive of forgiveness. Moreover, these aspects of personality are expected to be associated with separate components of forgiveness; specifically, I predicted that extraversion would correlate negatively with revenge, and that agreeableness and neuroticism would correlate positively with benevolence and avoidance, respectively. The descriptive statistics for the Big Five personality variables for all the participants are provided in Table 2. The correlations among
the five personality variables and the five forgiveness measures (two global and three specific) are summarized in Table 3.

Table 2
*Other Variable Descriptive Statistics*

<table>
<thead>
<tr>
<th>Measure</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>91</td>
<td>3.67</td>
<td>0.46</td>
<td>2.56 - 4.67</td>
<td>-0.1</td>
<td>-0.38</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>91</td>
<td>2.97</td>
<td>0.63</td>
<td>1.38 - 4.50</td>
<td>0.25</td>
<td>-0.12</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>91</td>
<td>3.32</td>
<td>0.57</td>
<td>1.56 - 4.67</td>
<td>0.11</td>
<td>0.33</td>
</tr>
<tr>
<td>Openness</td>
<td>91</td>
<td>3.63</td>
<td>0.52</td>
<td>2.20 - 4.80</td>
<td>0.22</td>
<td>-0.28</td>
</tr>
<tr>
<td>Extraversion</td>
<td>91</td>
<td>3.22</td>
<td>0.55</td>
<td>1.62 - 4.25</td>
<td>-0.17</td>
<td>-0.37</td>
</tr>
<tr>
<td><strong>WM Capacity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading Span</td>
<td>91</td>
<td>13.03</td>
<td>3.38</td>
<td>4.00 - 23.0</td>
<td>0.11</td>
<td>0.17</td>
</tr>
<tr>
<td>Spatial Span</td>
<td>91</td>
<td>17.59</td>
<td>5.66</td>
<td>5.00 - 28.0</td>
<td>-0.31</td>
<td>-0.87</td>
</tr>
<tr>
<td><strong>Explanatory Style</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanence</td>
<td>91</td>
<td>3.45</td>
<td>0.75</td>
<td>1.89 - 5.22</td>
<td>0.11</td>
<td>-0.49</td>
</tr>
<tr>
<td>Pervasive</td>
<td>91</td>
<td>3.54</td>
<td>0.78</td>
<td>1.44 - 5.67</td>
<td>0.17</td>
<td>-0.06</td>
</tr>
<tr>
<td>EASQ Total</td>
<td>91</td>
<td>10.12</td>
<td>1.50</td>
<td>6.22 - 13.78</td>
<td>-0.16</td>
<td>0.16</td>
</tr>
</tbody>
</table>

*Note: WM = Working Memory, EASQ = Expanded Attributional Style Questionnaire*

Table 3
*Correlations*

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Neuro</th>
<th>Consc</th>
<th>Open</th>
<th>Extra</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuro</td>
<td>-0.032</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consc</td>
<td>0.45*</td>
<td>0.033</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open</td>
<td>-0.022</td>
<td>0.028</td>
<td>-0.096</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Extra</td>
<td>0.23*</td>
<td>-0.015</td>
<td>0.19</td>
<td>0.14</td>
<td>1</td>
</tr>
<tr>
<td>Bene</td>
<td>0.23</td>
<td>0.008</td>
<td>-0.007</td>
<td>-0.16</td>
<td>0.08</td>
</tr>
<tr>
<td>Avoid</td>
<td>0.24</td>
<td>0.07</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rev</td>
<td>0.04</td>
<td>0.15</td>
<td>-0.16</td>
<td>-0.0001</td>
<td>0.08</td>
</tr>
<tr>
<td>FT</td>
<td>0.26</td>
<td>-0.23*</td>
<td>0.17</td>
<td>-0.13</td>
<td>-0.02</td>
</tr>
<tr>
<td>Time</td>
<td>-0.05</td>
<td>0.33*</td>
<td>-0.05</td>
<td>-0.07</td>
<td>0.15</td>
</tr>
</tbody>
</table>

*Note: *p < .05. r values reported are Pearson product-moment correlations. Agree = Agreeableness, Neuro = Neuroticism, Consc = Conscientiousness, Open = Openness, Extra = Extraversion, Bene = Benevolence, Avoid = Avoidance, Rev = Revenge, FT = Forgiveness Total, Time = Time to Forgive*
Consistent with the original predictions, agreeableness correlated positively with benevolence, \( r(89) = .23, p < .05 \), and neuroticism also correlated positively with avoidance, \( r(89) = .24, p < .05 \). In contrast to the predictions, however, extraversion did not significantly correlate with revenge, \( r(89) = .08, p = .47 \).

Thus, there was support for some of the predictions; however, in the correlational analyses reported in Table 3, the distinction between the self and others conditions was not coded, and given that there were significant differences between the self and others conditions in their forgiveness ratings, it is possible that those correlations are driven primarily by the condition differences. For this reason, I conducted multiple regression analyses for each dependent measure to statistically account for the condition differences. In addition, as Table 2 indicates, at least some of the five personality variables were significantly correlated with one another. Thus, I entered all five personality variables simultaneously into regression models to identify which personality variable serves as a unique predictor (or predictors) of each forgiveness variable after controlling for the other personality variables. The results of these simultaneous regression analyses are reported in Table 4, which summarizes the standardized regression coefficient (beta) for each personality variable for each of the forgiveness dependent measures.
Table 4.
**Beta Weights and p values**

<table>
<thead>
<tr>
<th></th>
<th>Benevolence</th>
<th>Avoidance</th>
<th>Revenge</th>
<th>FT</th>
<th>Time to Forgive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>p</td>
<td>β</td>
<td>p</td>
<td>β</td>
</tr>
<tr>
<td>Agree</td>
<td>0.12</td>
<td>0.11</td>
<td>-0.19</td>
<td>0.074</td>
<td>-0.001</td>
</tr>
<tr>
<td>Neuro</td>
<td>-0.04</td>
<td>0.55</td>
<td><strong>0.26</strong></td>
<td><strong>0.006</strong></td>
<td>0.11</td>
</tr>
<tr>
<td>Consc</td>
<td>0.01</td>
<td>0.90</td>
<td>-0.09</td>
<td>0.36</td>
<td>-0.11</td>
</tr>
<tr>
<td>Open</td>
<td>-0.03</td>
<td>0.61</td>
<td>-0.03</td>
<td>0.70</td>
<td>0.07</td>
</tr>
<tr>
<td>Extra</td>
<td>-0.02</td>
<td>0.73</td>
<td>0.13</td>
<td>0.18</td>
<td>0.02</td>
</tr>
<tr>
<td>Condition</td>
<td>-0.76</td>
<td>&lt;.0001</td>
<td>0.38</td>
<td>0.0001</td>
<td>-0.58</td>
</tr>
</tbody>
</table>

*Note:* Agree = Agreeableness, Neuro = Neuroticism, Consc = Conscientiousness, Open = Openness, Extra = Extraversion, Condition = self or other scenario, FT = Forgiveness Total, bold statistics are significant, italicized statistics are marginally significant.

As indicated in Table 4, once the effects of the condition differences and the other personality variables were accounted for, only one personality variable, namely neuroticism, still had a significant effect on the two global measures, $\beta = -0.25$, $F(1, 84) = 6.36, p = .014$, for the Forgiveness Total, and $\beta = 0.31$, $F(1, 84) = 10.23, p = .002$, for the Time to Forgive. More importantly, these two global effects seem to have been driven primarily by neuroticism’s effect on one of its subcomponents, avoidance, $\beta = 0.26$, $F(1, 84) = 8.05, p = .006$. None of the other predictors reached statistical significance, although the effect of agreeableness on avoidance was marginally significant, $\beta = -0.19$, $F(1, 84) = 3.27, p = .074$. These results suggest that neuroticism is the only reliable predictor of forgiveness such that highly neurotic individuals are on average less likely to forgive.

**Potential moderation effects of executive function and explanatory style on forgiving.**

The third goal of the study was to examine whether two individual differences variables, namely
WMC and explanatory style, moderate the effect of forgiveness. To test this prediction, I conducted, for each forgiveness measure, a multiple regression analysis that included the following five predictors: condition (self vs. others), WMC, explanatory style, condition by WMC interaction, and condition by explanatory style interaction. Because I did not predict any higher-order interactions involving both WMC and explanatory style, no additional terms were included in the regression models. The results of these analyses are provided in Table 5.

Table 5.

<table>
<thead>
<tr>
<th></th>
<th>Benevolence</th>
<th>Avoidance</th>
<th>Revenge</th>
<th>FT</th>
<th>Time to Forgive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>β</strong></td>
<td><strong>p</strong></td>
<td><strong>β</strong></td>
<td><strong>p</strong></td>
<td><strong>β</strong></td>
<td><strong>p</strong></td>
</tr>
<tr>
<td><strong>Condition</strong></td>
<td>-0.79 &lt;.0001</td>
<td>0.37 &lt;.001</td>
<td>-0.60 &lt;.001</td>
<td>-0.24</td>
<td>0.02 -0.29 0.004</td>
</tr>
<tr>
<td>WMC</td>
<td>0.11 0.09</td>
<td>-0.055 0.59</td>
<td>0.08 0.35</td>
<td>0.04 0.72</td>
<td>-0.21 0.04</td>
</tr>
<tr>
<td>Exp. Style</td>
<td>-0.12 0.07</td>
<td>0.003 0.98</td>
<td>-0.03 0.69</td>
<td>-0.05 0.66</td>
<td>-0.01 0.91</td>
</tr>
<tr>
<td>C. x WMC</td>
<td>0.05 0.50</td>
<td>0.04 0.44</td>
<td>-0.11 0.22</td>
<td>0.15 0.16</td>
<td>-0.09 0.38</td>
</tr>
<tr>
<td>C. x Exp. Style</td>
<td>-0.12 0.08</td>
<td>0.04 0.67</td>
<td>0.16 0.06</td>
<td>-0.21 0.05 0.22 0.03</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Condition/C. = self or other scenario, WMC = working memory capacity, Exp. Style = explanatory style FT = Total Forgiveness, bold statistics are significant, italicized statistics are marginally significant.*

As Table 5 indicates, the condition variable was significant for all of the five dependent measures, and the WMC variable was significant in predicting time to forgive; both measures also reached marginal significance in predicting some of the components of forgiveness. WMC did not significantly interacted with the condition (self vs. others), \( p = .16 \), but explanatory style was found to interact with condition in predicting both global measures of forgiveness, \( \beta = -0.21, p = .05 \), for Forgiveness Total, \( \beta = 0.22, p = .03 \), for Time to Forgive, indicating that the effect of condition on forgiveness—namely, that forgiveness decreases moving from the self to the other condition—is of a lesser extent as one increases in EASQ score (reflecting an attributional style
of which blame lies more on external factors). The effect of working memory capacity on Time to Forgive suggests that those with higher working memory capacity find it easier to forgive in general. The main effect of working memory capacity and the interaction of explanatory style with condition are displayed in figures 3 and 4, respectively.

![Figure 3. Forgiveness (Time) regressed on working memory capacity controlling for condition, explanatory style, and their interaction; z-scores are reported.](image-url)
Figure 4. Forgiveness (Time) regressed on explanatory style by condition interaction; reported values are z-scores; EASQ is reported at its mean and above and below one standard deviation.

Although the lack of any significant results involving WMC interactions might be due to insufficient statistical power, these results suggest that, at least in this scenario based study, the effects of these individual differences variables on forgiveness might be quite small at best.

**Discussion**

The current study examined three primary questions; the first asks if there are differences between forgiving oneself and forgiving others; the second addresses whether personality is a predictor of forgiveness; and the third questions whether these relationships interact with explanatory style and working memory capacity. In this section, the results for each of these questions will be summarized and the implications will be discussed.

**Forgiving Self Versus Other**

Our study found that there were significant differences between forgiveness of self and forgiveness of others, such that individuals were more likely to forgive themselves than others.
This relationship held across all measures of forgiveness. Further, the analysis showed that this difference existed on a component level of forgiveness. I found that individuals showed more benevolence and revenge in forgiving themselves, and more avoidance in forgiving others.

Previous studies have reported differences between types of forgiveness (Ross, Kendall, Matters, Rye, & Wrobel, 2004; Ross & Hertenstein 2007; Thompson et al., 2005), and our study successfully replicated the previous findings. Distinguishing between forgiveness of self and forgiveness of others allows for a more dynamic model of forgiveness, and it is not at all surprising that one’s willingness to forgive depends greatly upon whether or not that individual was the one who committed the wrongdoing. Traditional forgiveness measures only captured forgiveness of others, and failed to take into account the difference motivations that arise from difference forgiveness contexts. The hypothesis of the current study predicted that not only the self and other difference would be observed, but also that this difference would be observable within components of forgiveness. Our study presents unique findings that show these differences between self and other at the component level.

The differences between forgiving oneself and others is less straightforward as the simple relationship suggests, for component level differences in forgiveness reveal complexities in the self and other distinction that offer several implications. These results suggest that benevolence may be the most important factor in forgiving, and that most find it easier to show benevolence in forgiveness when they themselves have wronged another. Patterns in revenge subcomponent measures may suggest that revenge plays a counteracting role in the normal self and other patterns; however, an alternative interpretation of these results is that feelings of revenge or anger may be necessary in the forgiveness process, for a revenge state may facilitate the transition to feelings of benevolence and thus successful forgiveness. These findings also imply
that future studies—and previous findings—would find it advantageous to include a self and other distinction in their analyses

**Forgiveness and Personality**

Our study intended to investigate which—if any—of the big five personality traits best predicted forgiveness, and which component of forgiveness with which each predictor closest correlates. I found that several personality traits were significant predictors of forgiveness, and that specific aspects of personality are predictive of specific subcomponents of forgiveness. Agreeableness predicted one measure of forgiveness with marginal significant, and neuroticism significantly predicted both measures of forgiveness. Correlational analyses found significant links between agreeableness and benevolence (positive), agreeableness and avoidance (negative), and neuroticism and avoidance (negative). In the full model component forgiveness, neuroticism predicting avoidance is the only significant link. The effects of personality on forgiveness did not interact with self or other forgiveness.

Although the current study does capture the findings of prior research, other previously reported links between personality and forgiveness failed to be detected. Brose et al., 2005 found significant effects in neuroticism, agreeableness, conscientiousness, and extraversion; and among the initial predictions of the study, only neuroticism and avoidance was detected. This inconsistency may be due to the scenario based study design, or by measuring forgiveness at the component level.

Partial motivation behind our initial predictions that relationships would exist between extraversion and revenge and benevolence and agreeableness was the prior literature. However, these predictions were also made based on shared characteristics between these measures.
Measures of extraversion capture the social tendencies of an individual, for extraversion is often defined in terms of sociability. Revenge also by default captures some aspect of sociability; one cannot fully participate in social behavior or engage in new social activities while harboring feelings of revenge or vengeance. Given that extraversion and revenge seem to be directly related to an individual’s social tendencies, it would follow that the two correlate, and that extraversion would predict the revenge component of forgiveness, especially on the level of self versus other. Despite these motivation, no such relationship was found between extraversion and revenge. The predicted link between agreeableness and benevolence also has roots in previous findings, and is perhaps a more intuitive association. The current study did find a correlation between the two, and the effect of agreeableness on benevolence in the context of the full model did reach marginal significance; a follow up study with a greater sample size hopes to detect this effect with greater significance.

This study validated previous reports of the links between neuroticism and forgiveness, but also provides novel implications for the forgiveness discussion. Without considering component forgiveness, neuroticism would seem to be the greatest personality predictor of forgiveness, with individuals scoring higher in neuroticism forgiving less. This effect could bias the results of previous studies that did not account for differences in personality. Further, these effects also gives cause to use personality as a covariate in future forgiveness studies, for excluding any variation in forgiveness due to differences in neuroticism would further elucidate our understanding of the forgiveness process.

Component level analyses of forgiveness and personality are most revealing to the field, for although it has been widely reported that neuroticism is negatively predictive of forgiveness, assigning avoidance as the explanatory mechanism for the effect is a relatively new
development. Understanding neuroticism through avoidance changes how neuroticism is currently discussed in the forgiveness literature. The relationship between neuroticism and forgiveness is often explained by links of neuroticism to EF, for individuals low in neuroticism score low in EF tasks, and EF is thought to be predictive of forgiveness, and so neuroticism has often been explained away in terms of motivations—or lack thereof—and goal-failure.

Evaluating neuroticism through the lens of avoidance allows for an alternative interpretation, for the highly neurotic are not failing to achieve their forgiveness goals, they are avoiding them altogether. These results suggest that neuroticism predicts forgiveness because neuroticism instills an avoidance of the situation as a whole, and thus does not allow for the forgiveness process to initiate.

Despite the differential effects of personality on forgiveness components, and the differences revealed between self and other, it is worth noting that the patterns of correlation were similar in both the self and other condition. This trend would indicate that although forgiveness differs between self and other, it does not appear to be the case that personality correlates with components of forgiveness differ between self and other.

**Potential Moderation Effects of Executive Function and Explanatory Style on Forgiving**

Although the search for moderators within forgiveness effects was a focus within the study, not all of the effects predicted were detected. The rationale behind testing such predictions followed from the literature as well as intuition regarding known forgiveness characteristics. For example, explanatory style measures capture the degree to which individuals assign blame to internal or external causes, a difference that is strikingly similar to forgiveness of self and forgiveness of others. I predicted that the explanatory style of an individual would mirror the forgiveness tendencies of that individual, such that highly external attributions would be
associated with a greater forgiveness of others. Explanatory style was found to interact with condition in predicting forgiveness, such that those who tend to place more blame on external causes for negative events more than they place on themselves have a less pronounced effect of condition on forgiveness—meaning, individuals scoring highly in the EASQ will not exhibit as great a predominance towards forgiving themselves than others as would individuals who score low in the EASQ. These results are understandable intuitively, for if one tends to attribute the causes of negative events to external forces, then those individuals would not consider that forgiveness is even necessary. Those who score highly in attributional style show a lesser degree of forgiveness because they do not believe that they need to forgive; they believe that they are not responsible for wrongdoings, and so do not show forgiveness.

Many have reported a positive effect of executive functions on forgiveness (Finkel & Campbell, 2001; van der Wal et al., 2014; Pronk et al., 2010; Burnette et al., 2013), and the motivations behind such tests are easily justified. Executive functions involve goal management and motivational control, and—if forgiveness is a goal—individuals high in EF should have an easier time in forgiveness situations. Although this effect is mostly established, it is very difficult to detect, and requires a large sample size, our study was able detect a simple relationship between WMC and forgiveness, but any interactions involving working memory capacity were not detected.

These results imply that the previously reported effects between EF and forgiveness are somewhat fragile and are difficult to detect, for the lack of moderation effects may be due to a lack of sufficient statistical power, calling for a greater consideration of power in the design of future studies.
Limitations and Future Directions

The primary limitation of the study was a relatively small sample size for the effects being tested. Furthermore, due to task impurities, many have suggested that executive functions and working memory capacity tasks are only reliable when administered in a battery of several tasks. Our measure of WMC used shortened versions of two different WMC tasks. The interaction effect of executive control on forgiveness models may not have been detected due to an insufficient WMC measure.

I plan to continue collecting data and testing the predictions that follow from the original research hypothesis. The current study reflects only the initial predictions of a multifaceted hypothesis regarding forgiveness, personality, and executive functions. The future plans for the study include increasing the sample size as well as exploring other measures of forgiveness, personality, and executive functions. An increased sample size will likely raise the reported marginal effects to significance. Ideally, I will administer a number of WMC and EF tasks in order to capture the EF and forgiveness effect. Further, I am exploring using separate measures of personality and forgiveness in order to further validate our results. Given the aforementioned strategies, I would expect to detect a significant link between agreeableness and benevolence, effect of EF on forgiveness, and a moderation effect of EF on the personality forgiveness relationship.
References


Appendix

Forgiveness Scenarios & Questionnaires.

Instructions (other)

Everyone has been in a situation where they were wronged or hurt by someone, and sometimes by somebody close. You will now read a series of scenarios that describe events in which someone was hurt or wronged by another person. The events described will be told from the perspective of somebody who has been wronged, and we would like you to try your best to assume the perspective in which the story is told.

After you read each scenario, you will be given a short questionnaire. Remember to try and imagine yourself in that person’s shoes.

Please read the following story carefully. Once you move on to the next page, you cannot go back.

Remember to try and imagine yourself in this person’s shoes.

Instructions (self)

Everyone has been in a situation where they wronged or hurt someone, and sometimes somebody close. You will now read a series of scenarios that describe events in which someone hurt or wronged another person. The events described will be told from the perspective of somebody
who has wronged another, and we would like you to try your best to assume the perspective in which the story is told.

After you read each scenario, you will be given a short questionnaire. Remember to try and imagine yourself in that person’s shoes.

Please read the following story carefully. Once you move on to the next page, you cannot go back.

Remember to try and imagine yourself in this person's shoes.

Scenario 1 (group project).

Others

In one of your upper division degree requirement courses, you are assigned a group project. You are placed in a group with two other classmates and the three of you are assigned a project topic. There are 100 points in the entire class, and this project is worth thirty points, 10 being an individual grade and the other 20 being a group grade.

You have known both of your group members for several years, as all three of you have moved through the degree path in a similar manner. Your group meets to discuss the project, and you all agree that this project would be best handled by dividing the project into three equal sections: one person will summarize the project goals and introduce the topic, another will
present the fine details and problem solving process, and another will summarize their findings and present a conclusion.

The project takes several weeks, but on the presentation day you are well prepared. Your group decides to meet half an hour before class to merge the sections together, but one of your group members does not show up. The class begins, and he has still not arrived. Your missing group member decides that the group is better off without him, and so he never shows up for class.

Your professor is unsympathetic with your group, and even though you received a 9/10 on the individual grade, your group grade was 10/20; so you ended up with a 63%, which severely affected your grade in the course overall.

Self

In one of you upper division degree requirement courses, you are assigned a group project. You are placed in a group with two other classmates and the three of you are assigned a project topic. There are 100 points in the entire class, and this project is worth thirty points, 10 being an individual grade and the other 20 being a group grade.

You have known both of your group members for several years, as all three of you have moved through the degree path in a similar manner. Your group meets to discuss the project, and you all agree that this project would be best handled by dividing the project into three equal sections: one person will summarize the project goals and introduce the topic, another will present the fine details and problem solving process, and another will summarize their findings and present a conclusion.

The project takes several weeks, but on the presentation day you are not at all prepared.
Your group decides to meet half an hour before class to merge the sections together, but you do not show up. The class eventually begins without you. You decide that your group is better off without you, and so you never show up for class.

Your professor is unsympathetic with your group, and even though your group members received a 9/10 on their individual grade, the group grade was 10/20; so they ended up with a 63%, which severely affected their grade in the course overall.

**Scenario 2 (job interview).**

**Others**

It is the end of the fall semester, and you are about to graduate from college. You have been sending out resumes for months now hoping to transition directly into a career, and you have just been asked to interview for your dream job. The job is in Chicago, where a friend of yours lives.

The interview is several days before Christmas, and so when you try to book the flight, you see that almost every day is fully booked. Your only option is to arrive on the day of the interview, and the earliest available flight arrives only four hours before the interview. You book the flight, but since the window of time is so narrow, and you don’t want to risk having to rely on a cab, you ask your friend in Chicago if she can pick you up. She says that she will happily pick you up and take you to the interview. Before you get off the phone with her, you explain the very short window of time and the necessity that she is there on time. She reassures you that she will be there on time.

Your flight ends up arriving early. You decide to call your friend to let her know, but she doesn’t respond. Thirty more minutes pass, and you call her again, but again she doesn’t answer. After waiting for an hour, you look around for a cab, but due to the holidays, but there are many,
many people waiting in line, and the line is not moving at all. You call the cab company, but they
don’t have an available driver for another three hours.

You eventually get hold of your friend. She explains that she forgot about your flight and
saw a movie with another friend. While in the theater, she could not hear her phone. You end up
missing your interview, and when you call the company to reschedule, they let you know that the
position has already been filled.

**Self**

It is the end of the fall semester, and your friend is about to graduate from college. She has
been sending out resumes for months now hoping to transition directly into a career, and she
have just been asked to interview for her dream job. The job is in Chicago, where you live.
The interview is several days before Christmas, and so when she tries to book the flight, she sees
that almost every day is fully booked. Her only option is to arrive on the day of the interview,
and the earliest available flight arrives only four hours before the interview. She books the flight,
but since the window of time is so narrow, and she doesn’t want to risk having to rely on a cab,
she asks if you can pick her up. You say that you will happily pick her up and take her to the
interview. Before she gets off the phone with you, she explains the very short window of time
and the necessity that you are there on time. You reassure her that you will be there on time.

On the day of your friend’s arrival, you are invited to see an afternoon movie. You—
completely forgetting that you have to pick up your friend—agree to go see the movie. When the
movie is over, you discover several texts and voicemails on your phone. She decided to call you
when she arrived, but your phone was silenced in the movie theater. After thirty more minutes
had passed, she called you again, but again you were in the movie. After waiting for an hour,
your friend looked around for a cab, but due to the holidays, there were many, many people waiting in line, and the line was not moving at all. She called the cab company, but they didn’t have an available driver for another three hours.

You eventually get hold of your friend. You explain that you forgot about her flight and saw a movie with another friend. While in the theater, you could not hear your phone. She ended up missing her interview, and when she called the company to reschedule, they let her know that the position had already been filled.

Scenario 3 (dog dying).

Others

You have been saving up your vacation days for the entire year, and you finally decide to take two weeks and go on your dream vacation. The only problem is that you have a dog, and cannot leave it alone for so long. Putting your dog in a kennel for two weeks is not only too expensive, but you care about your dog too much to leave it in such a place.

One of your friends offers to watch your dog. She works from home so the dog will get plenty of attention. You are very relieved that this problem is resolved, and you proceed to take your dream vacation. Before you go, you remind your friend to make sure not to leave any doors open, for your dog likes to get outside whenever it can.

Your vacation goes very well. The day you come to pick up your dog, your friend goes to the grocery store and accidently leaves the front door ajar. You come to pick up the dog before your friend gets back, and you find it on the road; it was hit by a car.
Self

Your friend has been saving up her vacation days for the entire year, and she finally decides to take two weeks and go on her dream vacation. The only problem is that she has a dog, and cannot leave it alone for so long. Putting her dog in a kennel for two weeks is not only too expensive, but she cares about the dog too much to leave it in such a place.

You offer to watch the dog. You work from home, so the dog will get plenty of attention. Your friend is very relieved that this problem is resolved, and she proceeds to take her dream vacation. Before she goes, she reminds you to make sure not to leave any doors open, for her dog likes to get outside whenever it can.

Your friend’s vacation goes very well. The day she comes to pick up the dog, you go to the grocery store and accidently leave the front door ajar. Your friend comes to pick up the dog before you get back, and she finds it on the road; it was hit by a car.

Scenario 4 (moving help).

Others

The lease for your apartment ends in several weeks. You have already found a new apartment in an ideal area. The lease is signed, but you can’t start moving until just two days before the lease at your old apartment ends, and property management has told you that the new tenants are moving in the day after your lease ends.

You don’t have too many things to move, but there are several large items—namely, a couch, a bed, two bookshelves, and a dining room table—that require more than one person to move. Your friend offers to help you move, but he is only free on the day before you are
supposed to be moved out. You decide to rent a storage truck for that day, and hopefully—
between the two of you—you can tackle all of the heavy furniture.

The day begins and your friend calls you. He lets you know that he was invited to a tennis
match in the early morning, but that it should be over well before you are scheduled to pick up
the moving truck. You remind him that this is your only day to move the big furniture, and he
reassures you that he will be there.

Your friend’s tennis match tied and went into extra sets. You weren’t able to move even
half of the furniture, and the new tenants arrive at your old apartment tomorrow morning.

Self

The lease for your friend’s apartment ends in several weeks. He has already found a new
apartment in an ideal area. The lease is signed, but he can’t start moving until just two days
before the lease at his old apartment ends, and property management has told him that the new
tenants are moving in the day after his lease ends.

He doesn’t have too many things to move, but there are several large items—namely, a
couch, a bed, two bookshelves, and a dining room table—that require more than one person to
move. You offer to help him move, but you are only free on the day before he is supposed to be
moved out. He decides to rent a storage truck for that day, and hopefully—between the two of
you—you can tackle all of the heavy furniture.

The day begins and you get a call. Some other friends of yours are playing tennis in the
early morning, but it should be over well before your friend is scheduled to pick up the moving
truck.
You call the friend whom you told that you would help move and let him know. He reminds you that this is his only day to move the big furniture, and you reassure him that you will be there.

Your tennis match tied and went into extra sets. Your friend wasn’t able to move even half of the furniture, and the new tenants arrive at his old apartment tomorrow morning.

**Scenario 5 (robbery).**

**Others**

You have been living at the same apartment for quite some time, and you just got a new roommate. Everything is going well with you two, but she recently got a new job, and the job requires that she have reliable transportation. Given that you work only several blocks from your house, you offer to let her use your car.

One day when you leave the house to run errands, you notice that your car had been left unlocked. You confront your roommate about it; she apologizes, and says that it won’t happen again.

Since then you hadn’t been paying attention as to if your roommate had or had not been making sure to lock your car at night, but on the news you hear that there has been a rise in car burglaries in your neighborhood. Just to be cautious, you inform your roommate and once again remind her to be vigilant about locking the car.

The very next morning you awake and see that your car has been broken into and stripped of all electronics and valuable parts. Your roommate had used the car last night and forgot to lock it.
Self

You have recently moved into a new apartment. Your new roommate has lived there for several years. Everything is going well with you two, but you recently got a new job, and the job requires that you have reliable transportation. Given that your roommate works only several blocks from your house, she offers to let you use your car.

One day when your roommate leaves the house to run errands, she notices that her car had been left unlocked. She confronts you about it; you apologize, and say that it won’t happen again.

Since then your roommate hadn’t been paying attention as to if you had or had not been making sure to lock the car at night, but on the news she hears that there has been a rise in car burglaries in your neighborhood. Just to be cautious, she informs you and once again reminds you to be vigilant about locking the car.

The very next morning you awake and see that your roommate’s car has been broken into and stripped of all electronics and valuable parts. You had used the car last night and forgot to lock it.

The very next day you call your roommate saying that you rushed out this morning and you cant remember how well you covered the key; you ask if she can go home and check. You return home to find that your house has been broken into, and almost all of your roommate’s things have been stolen: her television, computer, books, movies, music, clothes, and even her bed. The police inform you that no locks were broken, and that the front door still had the key in the door.

Scenario 6 (fire).
Others

You have recently moved into a new apartment, and you decide to throw a housewarming party. You invite several of your friends, order catered food, and provide drinks. When everyone gets to the party, you give the tour of the new apartment and show everyone to the food and drinks.

As things progress, you notice one of your friends smoking a cigarette on your patio, and—once he is finished—he casually throws it into the yard. You approach him and give him a friendly reminder to use the ash tray, for fire danger is very high at the moment, and your neighbor’s house recently burnt to the ground because of a careless smoker. He says that he understands.

Towards the end of the night you see your friend once again absentmindedly throw a cigarette into the yard, however this time you see that it hits some dry leaves. Next thing you know the fire alarms go off and the party scatters outside. Your house completely burns down.

Self

Your friend has recently moved into a new apartment and is throwing a housewarming party. He invited several of your friends, ordered catered food, and provided drinks. When everyone gets to the party, he gives a tour of the new apartment and shows everyone to the food and drinks.

As things progress, you decide to smoke a cigarette on the patio, and—once you are finished—you casually throw it into the yard. Your friend approaches you and gives you a friendly reminder to use the ash tray, for the fire danger is very high at the moment, and his neighbor’s house recently burnt to the ground because of a careless smoker. You say that you understand.
Towards the end of the night you once again absentmindedly throw a cigarette into the yard, however this time you see that it hits some dry leaves. Next thing you know the fire alarms go off and the party scatters outside. The house completely burns down.

**Post Scenario Questionnaires**

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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6 Strongly Agree</th>
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<td>Moderately Disagree</td>
<td>Slightly Disagree</td>
<td>Slightly Agree</td>
<td>Moderately Agree</td>
<td></td>
</tr>
</tbody>
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**Others**

1) I would be upset if this happened to me.

2) I recently had a similar experience.

3) I would be trying to keep as much distance between us as possible.

4) Despite what he/she did, I would be working hard to bury the hatchet and move forward with our relationship.

5) I would want to make him/her pay.

6) I would be striving to achieve reconciliation.

7) I would be avoiding him/her.

8) I would want him/her to get what he/she deserves.

9) I would probably never forgive him/her.

10) How long would it take you to forgive him/her (please select the response that aligns closest with your thoughts/opinions)?*

* This question using the following scale:

<table>
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<tr>
<th>One day</th>
<th>One week</th>
<th>One month</th>
<th>Three months</th>
<th>One year</th>
<th>Three years</th>
<th>Ten years</th>
<th>never</th>
</tr>
</thead>
</table>
Self

1) I would be upset if I did this.
2) I recently had a similar experience.
3) I would be trying to keep as much distance between us as possible.
4) Despite what I did, I would be working hard to bury the hatchet and move forward with our relationship.
5) I should have to pay for what I did.
6) I would be striving to achieve reconciliation
7) I would be avoiding him/her.
8) I should get what I deserve.
9) I would probably **never** forgive this person.
10) How long would it take you to forgive this person (please select the response that aligns closest with your thoughts/opinions)?*

* This question using the following scale:

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