On the Effects of Positive Emotions on Morality

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Abstract

How do positive emotions influence morality? Asking myself this relevant question, led to the goal to make predictions on the impact of various positive emotions on moral judgments and behaviors. In my PhD research, I approached this goal by developing a theoretical framework and conducting empirical studies. The newly developed theoretical framework was given the name ‘full-perspective hypothesis’ and provided predictions on which positive emotions were expected to increase (e.g., optimism) or decrease (e.g., love) moral outcomes. To test these predictions, I measured how various positive emotions influence moral outcomes in different ways and examined the processes that underlie these effects.

This research program resulted in 4 empirical chapters in which the full-perspective hypothesis was tested (all empirical chapters are submitted to be considered for publication). First, as a basis for the predictions, the effects of 14 positive emotions on particular mindsets were measured. When people experience a positive emotion that gives them a sense of goal-fulfillment and makes them focus on specific (i.e., short-term, individual) aspects of life, they are predicted to judge and behave less morally compared when they experience a positive emotion that gives them a perception that one’s goal are not fulfilled yet and make them focus on global (i.e., long-term, collective) outcomes. Consistent with this prediction, I showed that positive emotions inducing a fulfilled, specific perspective mindset (i.e., love, amusement, relaxation) led to less moral outcomes compared to positive emotions leading to an unfulfilled, global perspective mindset (i.e., optimism, compassion, inspiration). Also, the finding that love led to less moral judgments and behaviors than optimism was robust across economic and environmental social dilemmas. Finally, I examined how morality was affected by different experiences of love (e.g., requited vs. unrequited) and optimism (i.e., trait and state). My findings contribute to knowledge on how moral outcomes can be optimized.
Declaration

This research was partly funded by a PhD scholarship awarded to me by the Irish Council for the Social Sciences and Humanities (IRCHSS).

The research for this PhD dissertation was conducted following the ethical standards of the University of Limerick and the American Psychological Association (APA).

The empirical chapters of this dissertation have been submitted for review at international journals with American English being the most common form. Therefore, for consistency reasons, the whole dissertation is written in American English. Furthermore, to conserve the original format of the empirical chapters, the dissertation is written and formatted according to the American Psychological Association (APA) style (6th edition).

Once an empirical chapter has been accepted for publication, the materials of its studies will be made available on the website: http://van-dongen.socialpsychology.org/

I declare that this thesis in my own original work. Any assistance or information I have received in developing the materials herein is duly acknowledged.

Frederieke van Dongen

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“Happiness only real when shared” (Alexander Supertramp, 1992)

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<td>ANCOVA</td>
<td>Analysis of Covariance</td>
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<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
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<td>APA</td>
<td>American Psychological Association</td>
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<tr>
<td>CLT</td>
<td>Construal Level Theory</td>
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<td>CPM</td>
<td>Component Process Model</td>
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<td>IRCHSS</td>
<td>Irish Research Council for the Humanities and Social Sciences</td>
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<tr>
<td>MFQ</td>
<td>Moral Foundations Questionnaire</td>
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<tr>
<td>Mturk</td>
<td>(Amazon’s) Mechanical Turk</td>
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<tr>
<td>PD</td>
<td>Prisoner’s Dilemma</td>
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<td>PhD</td>
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Chapter 1:

Introduction
Love, pride, relaxation, relief, optimism, satisfaction, flow, amusement, inspiration, alert, compassion, and gratitude: These positive emotions play an important part in people’s everyday life. What positive emotions have in common is that the experience is pleasant for people who experience them. However, how does the experience of each positive emotion impact judgments on others and behaviors towards others; is this always positive as well? Specifically, do positive emotions influence whether and how people consider the interests of others? For positive emotions that are so frequently experienced, we know surprisingly little about how they impact our judgments and behaviors, especially in relation to morality. This inspired me to the quest of answering the question: Which positive emotions make us righteous, moral people, and which positive emotions make us turn to the dark, immoral side?

For centuries, researched have argued and shown that emotions influence people’s judgments, decisions, and behaviors (e.g., Angie, Connelly, Waples, & Kligyte, 2011; Descartes, 1961/1649; Freud, 1940; Frijda, 1986; Isen & Labroo, 2002; James, 1890; Johnson & Tversky, 1983; Lerner & Tiedens, 2006; Loewenstein & Lerner, 2003; Winkielman, Knutson, Paulus, & Trujillo, 2007), and in the last 2 decades the crucial influence of emotions on moral judgments, decisions, and behaviors has become apparent (e.g., Giner-Sorolla, 2012; Haidt, 2001; Valdesolo & DeSteno, 2006). Although it has frequently been studied how mood states (positive and negative; Carlson & Miller, 1987; Cialdini, & Kenrick, 1976; Hertel, Neuhof, Theuer, & Kerr, 2000; Isen & Levin, 1972) and discrete negative emotions (e.g., Averill, 1983; De Hooge, Nelissen, Breugelmans, & Zeelenberg, 2011; Fischer & Roseman, 2007; Gausel & Leach, 2011; Haidt, 2001; Haidt, Koller, & Dias, 1993; Hofmann & Baumert, 2010)
influence moral outcomes, up until a few years ago, psychology remained in the dark on how discrete positive emotions influence these moral outcomes.

Excitingly, in the last few years, a novel line of research on the effects of positive emotion on morality has emerged (e.g., Algoe & Haidt, 2009; Cameron & Payne, 2012; DeSteno, Bartlett, Baumann, Williams, & Dickens, 2010; Freeman, Aquino, & McFerran, 2009; Katzir, Eyal, Meiran, & Kessler, 2010; Schnall, Roper, & Fessler, 2010; Strohminger, Lewis, & Meyer, 2011), showing us that various positive emotions can have different influences on moral outcomes, even when the positive emotion is not related to the particular moral situation in question. However, no approach has offered a comprehensive framework that makes predictions that can be applied to the effects of multiple positive emotions on morality.

My goal is to add to this novel research area in multiple ways. First, I aim to develop a general framework that allows for the predictions of multiple positive emotions. Second, this general framework will be applied to predictions on how morality is affected by emotions that have thus far not been examined in relation to morality. Third, where other research has shown that positive emotions differ in the extent to which they facilitate morality, my approach goes further and makes the intriguing prediction that some positive emotions even reduce people’s morality.

To this end, I propose a hypothesis (i.e., the full-perspective hypothesis) that allows for predictions with regard to the relative impact of positive emotions on moral judgments and behaviors (i.e., how some positive emotions influence morality in comparison to other positive emotions). To be more specific, I examine the effects of exogenous positive emotions on morality: The influence of positive emotions that are not directly related (i.e., logically irrelevant) to the moral situation in which the judgment, decision, or behavior takes place. I will now guide you through the
theoretical steps that I took in pursuit of answering the question: How do exogenous positive emotions influence morality?

**Morality**

Most people have a shared sense of what is right and what is wrong, which enables people to evaluate whether something (e.g., a decision or behavior) or someone is moral or immoral (Wilson, 1993). One’s moral reputation determines one’s sense of self-worth and how one is treated by others, therefore, it is highly important for one’s self-esteem and for social relations to be perceived as a moral person (e.g., Crocker & Wolfe, 2001; Haidt & Kesebir, 2010; Leach, Bilali, & Pagliaro, in press; Rodriguez Mosquera, Manstead, & Fischer, 2002; Scheff, 2000; Tafarodi & Swann, 2001).

Specifically, social relations and interactions depend largely on whether or not one is perceived as a person with moral integrity (for reviews see Brewer, 1999; Brown, 1965). Further, traits related to trustworthiness—an important aspect of morality—are considered to be most desirable in a person (e.g., Anderson, 1968; Van Lange & Sedikides, 1998), and people monitor, judge and—if necessary—sanction their own moral conduct (e.g., Bandura, 2004). Therefore, it is an intrinsic motivation for most people to be evaluated morally (by the self and others) and to live up to that moral standard (e.g., Schwartz & Howard, 1982). The high desirability of being moral and the importance to perceive oneself as a moral being is also reflected in people’s bias in the perception of their own morality. For example, people evaluate themselves as more moral than others—even when exposed to a more moral peer (e.g., Epley & Dunning, 2000; Monin, Sawyer, & Marquez, 2008; Paulhus & John, 1998; Van Lange & Sedikides, 1998). It appears that morality is highly important for people, however, how is morality measured?

Social psychologists have frequently examined moral behavior by measuring people’s degree of harming, fairness, honesty, selfishness, helping, or cooperating (e.g.,
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Haidt & Kesebir, 2010). Moral judgment and thinking, on the other hand, is usually measured more abstractly by responses to moral dilemmas (e.g., Bartels, 2008; Greene, Nystrom, Engell, Darley, & Cohen, 2004; Waldmann, Nagel, & Wiegmann, 2012) or by endorsement of moral values (i.e., harm/care, fairness/equality, ingroup/loyalty, authority/respect, purity/sanctity; Graham et al., 2011; Haidt & Graham, 2007; Hirsh, DeYoung, Xu, & Peterson, 2010). Furthermore, moral identity research has defined the traits caring, compassionate, fair, friendly, generous, hardworking, helpful, honest, and kind as moral traits (e.g., Aquino & Reed, 2002).

In this research program, moral outcomes are measured by people’s judgments of the importance or relevance of harm/care and fairness/equality values, people’s antisocial and prosocial behaviors (representing harm/care values), and people’s justice and equity decisions (representing fairness/equality values). Specifically, in addition to measuring people’s endorsement of the harm/care and fairness/reciprocity values, moral outcomes are examined in fairness, and honesty situations consisting of conflicts between private and collective interests (e.g., social dilemmas). People’s decisions and behaviors may be pulled towards self-interest, however, their moral values may guide them towards decisions and behaviors that represent caring (e.g., helping) and fairness (e.g., cooperating) and serve the collective interest.

After having defined the moral domain that I focus on in my research (i.e., judgments, decisions, and behaviors that reflect the harm/care and fairness/reciprocity values), it is important to mention that morality is a multi-dimensional construct. In addition to the harm/care and fairness/equality values, the moral domain also encompasses other values. Historically, most psychologists who studied morality solely focused on the harm/care and fairness/reciprocity values (e.g., Gilligan, 1982; Hoffman, 1982; Kohlberg, 1969; Turiel, 1983; Walster, Berscheid, & Walster, 1976). However, more recently, research has shown that a substantial subgroup of people (i.e., people
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with a conservative political ideology) endorse the ingroup/loyalty, authority/respect, purity/sanctity values as moral values as well—in addition to the harm/care and fairness/equality values (Graham et al., 2011; Haidt & Graham, 2007). Furthermore, these values are argued to play an important part in binding people to their moral roles and duties as they emphasize the importance of loyalty and self-control (e.g., Graham, Haidt, & Nosek, 2009). I do not deny the existence or importance of these ‘binding’ moral values. However, for the current research I chose to focus on the harm/care and fairness/reciprocity values because these values are more generally accepted as moral values. That is, people with different political ideologies (i.e., both liberals and conservatives) endorse the harm/care and fairness/reciprocity values as moral values, whereas other values (i.e., ingroup/loyalty, authority/respect, purity/sanctity) are considered to be moral values only by people with a conservative political ideology (e.g., Haidt & Graham, 2007).

“The rules of morality are not the conclusion of our reason” (Hume, 1739-1740, p. 325). The focus of attention in morality research has shifted—over the last 20 years—from explaining moral outcomes by ‘reasoning’ to explaining them by ‘emotions and intuitions’ (Haidt & Kesebir, 2010). It has been argued that moral outcomes are determined by intuitive primacy—but not dictatorship (Haidt, 2007). This means that, although moral reasoning happens and matters, emotions appear to be the primary source of people’s morals. When making a moral judgment of a person or situation, or when contemplating a (im)moral decision of behavior, an affective reaction is elicited (i.e., moral emotions), and it is this affective reaction that guides the (post hoc) explanation of what is right and what is wrong, and thereby guides decisions and behaviors (e.g., Haidt & Bjorklund, 2008). This claim is supported by anecdotal evidence (i.e., Phineas Gage changed into a different and immoral person after his emotion functions were damaged by a brain injury; Damasio, 1994) and empirical
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studies. Specifically, it has been reported that brain areas that are related to emotions are important for making moral judgments (e.g., Damasio, 1994; Greene et al., 2004), the induction of moral emotions influences people’s moral judgments (e.g., Schnall, Haidt, Clore, & Jordan, 2008; Valdesolo & DeSteno, 2006; Wheatley & Haidt, 2005), and prosocial behaviors (e.g., donating, helping) seem to be based on intuitions rather than rational reasons (e.g., Bartlett & DeSteno, 2006; Cialdini et al., 1987; Fultz, Batson, Fortenbach, McCarthy, & Varney, 1986; Loewenstein & Small, 2007; for a full overview see Haidt & Kesebir, 2010). Based on this literature, it is evident that affect plays an important role in moral judgments, decisions, and behaviors. However, before discussing which particular affect states facilitate versus impede moral outcomes, it is important to consider the relationship between emotions and judgments and behaviors in general.

Emotions

In understanding affective influences on judgments and behaviors, it is important to distinguish between various discrete emotions (e.g., Van Kleef, Van Doorn, Heerdink, & Koning, 2011). Although the valence (i.e., positive vs. negative) itself can have influences on judgments and behaviors (e.g., positive vs. negative mood leads to more use of general knowledge structures; e.g., Bless, 2001), further differentiations between emotions seem to lead to more precise predictions as affective influences can greatly differ within each valence (i.e., within positive and within negative affect). Specifically, discrete emotions with the same valence (e.g., anger and fear, or elevation and mirth) are found to have different, or even opposite effects on judgments and behaviors (e.g., Angie et al., 2011; Lerner & Keltner, 2001; Schnall et al., 2010). This suggests that, examining positive emotions together under the umbrella ‘positive mood’ would be too general; it is crucial to make a distinction between positive emotions. Unfortunately, only one positive emotion (i.e., happiness) is
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identified as a basic emotion (i.e., an emotion that meets criteria such as ‘distinctive 
universal signals’, ‘presence in other primates’, and ‘distinctive physiology’; see 
Ekman, 1992). Given that it is necessary to distinguish between positive emotions, it is 
not functional for this line of research to be restricted to only basic emotions.

Furthermore, the basicness of emotions seems to be a matter of degree, and emotions 
that are phylogenetically newer (e.g., inspiration, compassion) are unlikely to meet all 
the criteria for a basic emotion (e.g., Algoe & Haidt, 2009; Haidt & Keltner, 1999). To 
enable the possibility to examine less studied affective experiences, I adopted the 
approach of including modal emotions (for a similar approach see Algoe & Haidt, 2009; 
for arguments for the inclusion of modal emotions see Scherer, 2005).

My concept of emotions is in line with Scherer’s component process model, 
which defines an emotion as “an episode of interrelated, synchronized changes in the 
states of all or most of the five organismic subsystems in response to the evaluation of 
an external or internal stimulus event as relevant to major concerns of the organism” 
(2005, p. 697). As suggested by this definition, for a state to be considered as an 
emotion, it should include at least many of the five proposed organismic subsystems 
(i.e., cognitive, neurophysiological, motivational, motor expression, subjective feeling).

To be specific, my research on emotions includes positive affect states that are 
frequently experienced, prototypical, and minimally have subjective feeling, 
motivational, and cognitive components. I decided to take these three components as 
selection criteria as they allow for including a wide variety of positive affect states, yet 
they differentiate these affect states from moods, and research has shown that these 
components are crucial for explaining the effects of discrete emotions (e.g., Angie et al., 
2011; Lerner & Keltner, 2001; Lerner & Tiedens, 2006; Tiedens & Linton, 2001).

Moving on from valence differences, underlying cognitive (e.g., appraisal 
dimensions; Smith & Ellsworth, 1985) and motivational (e.g., direction and intensity;
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Cacioppo & Gardner, 1999) differences between emotion have been shown to be partly responsible for emotions’ different influences on people’s information processing, judgments, and behaviors (e.g., Angie et al., 2011; Lerner & Keltner, 2001; Lerner & Tiedens, 2006; Tiedens & Linton, 2001). Appraisal theories (e.g., Lerner & Keltner, 2000; Smith & Ellsworth, 1985) have added significantly to understanding the effects of emotions on judgments, decisions, and behaviors (e.g., Angie et al., 2011; Lerner & Keltner, 2001; Lerner & Tiedens, 2006; Schmidt, Tinti, Levine, & Testa, 2010; Tiedens & Linton, 2001). For example, based on predictions derived from the appraisal-tendency framework (e.g., Lerner & Keltner, 2000), it was found that fear leads to pessimistic risk estimates, whereas anger leads to optimistic risk estimates, and that this difference was mediated by the appraisals of ‘uncertainty’ and ‘control’ (i.e., Lerner & Keltner, 2001). Although my approach is similar as it uses emotions’ underlying cognitive characteristics in explaining the various effects of emotions, there are also differences. First, in addition to cognitive components, my research also takes into account motivational components to explain the different effects of various emotions. Second, whereas appraisal theory focuses on the interpretation (i.e., appraisal) of a situation as cognitive cause of an emotion, my research explains different emotions’ effects by focusing on the cognitive and motivational consequences of an emotion. Third, the relevant cognitive and motivational components in my research are specifically selected based on their relationship to morality, whereas the previously identified appraisals are not necessarily related to morality.

In addition to considering discrete emotions and their underlying cognitive and motivational differences, it is important to take into account the relationship between the emotion and the judgment or behavior at hand. How a particular emotion influences a person’s judgment or behavior depends on whether the emotion is immediate (i.e., experienced at the time of the subsequent judgment or behavior) or expected (i.e., not
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experienced, but anticipated as a consequence of the judgment or behavior; for an overview see Loewenstein & Lerner, 2003). In addition, whether an emotion is endogenous or exogenous to the judgment/behavior situation determines its influences. An emotion is considered endogenous when the emotional experience is relevant for to the current judgment or behavior, whereas an exogenous emotion is unrelated to the judgment or behavior situation (e.g., Zeelenberg & Pieters, 2006). The effects of emotions on unrelated judgments and behaviors have been explained by people’s mindsets (e.g., cognitions, motivations, appraisals, mental representations) which carry over from the emotional experience to the unrelated judgment or behavior (e.g., Bargh & Williams, 2006; Lerner, Goldberg, & Tetlock, 1998; Lerner & Keltner, 2000; Lerner, Small, & Loewenstein, 2004). The current research examines the different effects of immediate emotions (i.e., emotions that are experienced vs. anticipated), that are exogenous (i.e., unrelated) to the moral judgment or behavior at hand, and explains and predicts these effects based on differences in underlying cognitive and motivational differences.

How Affect Influences Morality

Recently, it has become apparent that affective experiences have a crucial influence on morality (e.g., Greene, 2007; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Valdesolo & DeSteno, 2006). In the absence of an emotional response to a moral dilemma, a moral judgment or decision is likely to be made based on the deliberative system. However, when emotion-related brain centers are activated, then the moral judgment or decision will be based on the emotionally intuitive system (i.e., emotions will guide the moral judgment or decision; e.g., Greene, 2007; Greene et al., 2001; Valdesolo & DeSteno, 2006).

Furthermore, Haidt (2001) argues that moral judgment is guided by moral emotions (e.g., anger, shame, disgust, gratitude), which function as moral intuitions as
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guidance of what is right and wrong (i.e., social intuitionist approach). Specifically, a person’s emotional experience is informative of how the situation is construed, whether the situation (or person) is considered moral or immoral. According to the social intuitionist approach, moral reasoning functions as a retroactive explanation of the judgment, but emotions lay at the origin of the moral judgment. However, as argued by Haidt (2007), intuitions are no dictatorship. Reasoning or deliberations can have an effect on moral judgments, or behaviors. For example, reasoning can influence moral outcomes in discussions between people, when moral intuitions conflict within a person, or—in extreme cases—overturn one’s initial intuitive response (e.g., Baumeister & Newman, 1994; Greene, 2008; Haidt, 2001). However, under most circumstances, moral judgments and behaviors are primarily based on automatic, emotional processes (for a review on intuitive versus deliberative effects see Haidt & Kesebir, 2010). Given that affect has such a crucial influence on morality, it is important to examine how particular affective states facilitate or impede moral outcomes.

Research on how discrete emotions (independent of whether they are endogenous or exogenous, or positive or negative) influence moral outcomes, has mainly adopted a functionalist perspective: The effects of emotions on morality have been explained by the (social) function of each emotion. However, I argue that, even though emotions may have their individual functions, the way people’s judgments and behaviors are influenced, is not always in line with the emotion’s function (for a similar argument see Oatley & Jenkins, 1992, or Parrott, 2001a). However, before dissecting the processes underlying emotions’ effects on morality, what is known about the influence of different types of affect on morality?

Positive versus negative affect influences on morality. Mood research has examined how positive and negative affect—without distinguishing between discrete emotions—influence moral outcomes. Some research supports the view that positive
affect increases moral outcomes as exogenous positive affect is found to facilitate helping behavior (e.g., Cunningham, 1979; Fried & Berkowitz, 1979; Isen & Levin, 1972), enhance prosocial behavior (e.g., Carlson, Charlin, & Miller, 1988), and lead to higher levels of moral reasoning compared to neutral and negative affect (e.g., Olejnik & Larue, 1980). However, findings on the relationship between negative affect and moral outcomes are less consistent. Negative affect is found to impair helping behavior, suggesting a linear relationship between affect and helping, with positive affect leading to the most, and negative affect leading to the least benevolent behaviors (e.g., Moore, Underwood, & Rosenhan, 1973; Rosenhan, Underwood, & Moore, 1974). However, inconsistently, other research shows that negative affect can also increase prosocial behaviors (vs. neutral affect; e.g., Cialdini, Baumann, & Kenrick, 1981; Manucia, Baumann, & Cialdini, 1985).

These are indications suggesting that the relationship between affect and morality is rather complicated. Furthermore, exogenous positive affect is found to increase morally appropriate judgments (i.e., more utilitarian decisions; e.g., ValdeSolo & DeSteno, 2006). This is explained by positive affect overriding the negative reaction to a personal moral violation, and therefore leading to decisions led by the deliberative (vs. emotionally intuitive) process system, increasing proneness to utilitarian solutions in moral dilemmas (e.g., Valdesolo & DeSteno, 2006). Normally, when people are confronted with a personal moral violation, negative moral emotions (e.g., anger, disgust, shame) are elicited, causing the emotionally intuitive process system to determine their actions. However, when people experience positive affect, this may override the natural elicitation of negative moral emotions, which then reduces the influence of the emotionally intuitive process system. Whether or not this leads to outcomes that serve the collective (vs. an individual) depends on the nature of the situation and moral violation.
Further, evidence suggesting that the question of ‘whether positive or negative affect leads to more moral outcomes’ remains to be unanswered, is research showing that positive (vs. negative) affect increases both cooperative and competitive strategies in social dilemmas. That is, positive affect does not increase prosocial outcomes per se, but rather increases variability of outcomes (e.g., Hertel & Fiedler, 1994). Additionally, negative affect (vs. a neutral affective state) is found to decrease altruism for six to eight year olds, but to increase altruism for fifteen to seventeen year olds (Cialdini & Kenrick, 1976). Furthermore, a meta-analytic review (Carlson & Miller, 1987) found that negative affect is associated with helping behavior, but the outcomes depend on perceptions of responsibility and attentional focus (self vs. other). This wide variability in findings in how positive versus negative affect influences moral outcomes suggests that there is no simple answer to which valence facilitates or impedes morality. It thus seems more promising to differentiate between affective states of the same valence as there are differences within negative affect and differences within positive affect states (e.g., Carlson & Miller, 1987; Sauter, 2010), especially when it concerns their effects on moral outcomes (e.g., Algoe & Haidt, 2009; Giner-Sorolla, 2012; Strohminger et al., 2011).

Influences of discrete emotions on morality. Most research on the influences of discrete emotions on morality has mainly focused on negative emotions. Researchers have shown that the emotions guilt (e.g., Baumeister, Stillwell, & Heatheron, 1994; Cohen, Wolf, Panter, & Insko, 2011; Darlington & Macker, 1966; Frijda, Kuipers, & Ter Schure, 1989; Katzev, Edelsack, Steinmetz, Walker, & Wright, 1978; Kugler & Jones, 1992; Lickel, Schmader, Curtis, Scarnier, & Ames, 2005; Rawlings, 1968), shame (Gausel, Leach, Vignoles, & Brown, 2012), anger (e.g., Gutierrez, Giner-Sorolla, & Vasiljevic, 2012; Nelissen & Zeelenberg, 2009; Russell & Giner-Sorolla, 2011), contempt (e.g., Rozin, Lowery, Imada, & Haidt, 1999), embarrassment (e.g., Tangney,
Stuewig, & Mashek, 2007), and disgust (e.g., Hutcherson & Gross, 2011; Rozin, Haidt, & McCauley, 2000; Schnall et al., 2008; Van Dillen, Van der Wal, & Van den Bos, 2012) promote moral judgments and behaviors. However, the question of whether these emotions always lead to moral outcomes seems to be more complicated as anger has also been shown to lead to unethical social motives and decision making, depending on the interpretation of the emotion-evoking event (Thiel, Connelly, & Griffith, 2011). Furthermore, although endogenous shame and guilt increase moral outcomes, exogenous shame and guilt impede moral decisions (e.g., De Hooge, Breugelmans, & Zeelenberg, 2008; De Hooge et al, 2011). My research focuses on the effects of positive emotions, however, these findings—and inconsistencies—on the effects of negative emotions stress again how important it is to take into account underlying cognitive and motivational differences induced by an emotion and the relationship between the emotion and moral situation, which will, therefore, be considered when examining the effects of positive emotions.

**Exogenous positive emotions.** The labeling of emotions as ‘moral emotions’ started off with mainly negative emotions (e.g., Haidt, 2003a), but recently, there has been a growing amount of positive emotions that have been suggested to be defined as moral emotions as well, for example, the ‘other-praising’ emotions admiration, elevation, and gratitude (e.g., Algoe & Haidt, 2009; Giner-Sorolla, 2012; McCullough, Kilpatrick, Emmons, & Larson, 2001; Schnall et al., 2010). In addition, the emotions sympathy, pity, and compassion have been suggested to lead to the action tendency to help (although they may not be free of self-serving motives), whereas the effects of other positive emotions (e.g., the self-conscious emotion pride) are predicted to be more ambiguous (e.g., Giner-Sorolla, 2012).

Whereas research on the influences of negative emotion on morality has mainly focused on *endogenous* effects—of negative emotions elicited by the moral dilemma—
research on the effects of positive emotions on morality has mainly focused on their exogenous effects. So what is known so far about how exogenous positive emotions influence moral outcomes?

Different studies show that *exogenous elevation* (sometimes used as a broader term, encompassing the positive emotions compassion, inspiration, and admiration; e.g., Freeman et al., 2009) leads to more altruistic behaviors than exogenous mirth or a neutral state (Schnall et al., 2010), less permissiveness for deontological moral violations than exogenous mirth (Strohminger et al., 2011), more moral motivations than exogenous joy or amusement (Algoe & Haidt, 2009), and increases donations (Freeman et al., 2009) and the nursing and hugging of infants by breastfeeding women (Silvers & Haidt, 2008). Furthermore, *exogenous gratitude* (vs. exogenous admiration or a neutral state) induces a motivation to ‘give back to others’ (Algoe & Haidt, 2009) and it increases helping (vs. exogenous amusement or a neutral state; Bartlett & DeSteno, 2006). Finally, although endogenous sympathy increases helping behavior, this comes at the cost of others who may be in higher need for help (Batson, Klein, Hightberger, & Shaw, 1995). This contrast, again, stresses the importance to distinguish between the effects of endogenous and exogenous positive emotions.

These effects on morality are usually explained by the functionality of particular positive emotions and their physical (i.e., oxytocin release after witnessing a virtuous act; Silvers & Haidt, 2008), and cognitive consequences (i.e., the distinct mindsets induced by these positive emotions; Strohminger et al., 2011). For example, elevation is an other-praising emotion that induces a motivation to help others, become a better person, and to emulate a virtuous role model, whereas joy and amusement do not induce these motivations (e.g., Algoe & Haidt, 2009). Further, both elevation and admiration are argued to induce a motivation to ‘rise to meet’ the exemplary person (e.g., Giner-Sorolla, 2012). Also, mirth influences people to take on an ‘irreverence’ mindset—
causing people to take topics (e.g., moral concerns) lightly—whereas elevation is associated with reverence, which explains their different effects on morality (e.g., Algoe & Haidt, 2009; Haidt, 2003b; Strohminger et al., 2011). Furthermore, the exogenous effects of gratitude are explained by its function to build and maintain social relationships through motivating people to pursue long-term benefits by accepting short-term costs (e.g., Bartlett & DeSteno, 2006).

These findings indicate that various positive emotions influence moral outcomes in different ways. Moral outcomes cannot be explained by simply the ‘positivity’ of an affective state (e.g., Strohminger et al., 2011). Importantly, these different effects even emerge when the emotion is exogenous to the moral dilemma. Furthermore, to explain the effects of a positive emotion, it seems important to consider the cognitive and motivational processes underlying the particular emotion. So far, my line of reasoning and method is similar to the above mentioned research. However, where I deviate is that the effects of positive emotions on morality are not explained by their individual functionality. Although I do not question the importance of functionality of emotions or the validity of this approach, my research identifies a more general mindset that can predict the effects of multiple positive emotions (vs. the effect of only one particular emotion).

**The Full-Perspective Hypothesis**

I propose a theoretical framework that holds predictions for how a wide variety of positive emotions influence moral judgments and behaviors in unrelated situations. This framework, the ‘full-perspective hypothesis’, is based on the following idea: The experience of an emotion activates a particular mindset (consisting of cognitive and motivational components). This particular mindset can carry over from the emotional experience to an other, unrelated situation (e.g., a situation containing a moral dilemma). Subsequently, in this unrelated situation, the mindset influences the (moral)
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judgments and decisions people make. In order to identify mindsets that potentially account for exogenous positive emotion influences on moral outcomes, it is important to consider moral dilemmas and how its outcomes are determined.

Proposed Mindset Components: Fulfillment and Perspective

According to Bandura (1999), moral conduct requires motivational as well as cognitive regulators. Therefore, I examine both the motivational and cognitive outcomes of positive emotions and how these mindsets influence moral judgments and behaviors. Given that mindsets (i.e., motivational, cognitive orientations that influence people’s goals, and goal-related judgments and behaviors; e.g., Gollwitzer, Heckhausen, & Steller, 1990) can carry over from one situation to another, it can influence one’s judgments and behaviors in unrelated—moral—situations. Two mindset components in particular appear to be crucial for moral outcomes. Specifically, ‘goal-fulfillment’ and ‘globality of perspective’ are predicted to play an important role in people’s moral judgments and behaviors. Some literature already suggests a link between similar components and moral behavior (e.g., Conway & Peetz, 2012), but I will explain the rationale for each component in more detail.

Fulfillment. The first factor, that seems to be crucial for moral outcomes, is perceived goal-fulfillment. When one perceives their goals to be fulfilled, this is a signal that one’s desired state or standard is reached, therefore no further actions or efforts are required. However, if needs or goals are perceived to be unfulfilled, then this indicates a gap between the actual and desired state, and people will be motivated to invest efforts in closing this gap. These goal-related motivations remain active and present in people’s mind, until that goal is fulfilled (e.g., Carver & Scheier, 1999; Förster, Liberman, & Friedman, 2007; Taylor, 1991; Vallacher & Wegner, 1987; Zeigarnik, 1927). As long as the goal remains unfulfilled, people will be focused on the desired standard and
motivated to improve the current state. But why is perceived goal-fulfillment important for moral outcomes?

The perceived fulfillment or unfulfillment of goals is likely to feed into one’s current mindset, and this mindset will influence the judgments and behaviors in unrelated situations (e.g., moral situations). If the mindset indicates a discrepancy between the actual and desired state (i.e., an unfulfillment mindset), then this signals that the situation is challenging, requiring extra efforts or engagement to improve the situation. When this unfulfillment mindset carries over to a moral situation it influences people’s focus within this situation. Specifically, the moral standard (i.e., the desired state) in this situation becomes salient, which will cause people to become aware of the importance of moral values. Also, as behaving morally requires effort (e.g., Baumeister & Exline, 1999; Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009), a mindset that signals that extra efforts are required, will cause people to be more likely to make these effort investments in moral behaviors. However, a fulfillment mindset will signal that the desired state is reached. Therefore there will be less focus on the desired state (i.e., moral standards) and the motivation to engage in effortful behaviors will be reduced, resulting in less moral outcomes.

Perceived goal-unfulfillment is likely to have an additional influence when it comes to specifically moral behaviors. Moral behavior is desirable, but costly, therefore, people should only be willing to pay these costs of behaving morally when it is necessary. Put differently, people are more likely to engage in moral behaviors when they perceive an internal imbalance between the actual and desired state and are, therefore, required to make these costly efforts to reach a more desired state (e.g., Eisenberg & Shell, 1986; Sachdeva, Iliev, & Medin, 2009). This perceived internal imbalance is part of one’s fulfillment mindset, providing and additional explanation of why perceived goal-unfulfillment would lead to moral behaviors.
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Consistently, research on fulfillment of specifically moral goals showed that when a person engaged in a concrete moral action, they feel resolved of their moral obligation (i.e., the moral obligation is fulfilled), and will subsequently behave less morally (e.g., Effron, Cameron, & Monin, 2009; Monin & Miller, 2001). Also, the status of one’s moral self-worth influences people’s morality. For example, a threat to one’s moral self-worth (i.e., a discrepancy between one’s actual and desired moral self-worth) increases moral behaviors to regain some of that moral self-worth (i.e., reach the desired state; e.g., Sachdeva et al., 2009). However, I argue it is not only fulfillment of moral goals that has this effect, but even a fulfillment mindset in general (i.e., perceived fulfillment of other, non-moral goals) reduces moral outcomes.

To summarize, perceived goal-fulfillment is predicted to feed into a mindset that influences moral outcomes. Specifically, the perception that one’s goals are unfulfilled signals to a person that extra efforts and engagement is required. Simply put, people are motivated to reach a more desired state. When people are then confronted with a moral situation, this motivation will ‘carry over’ resulting in more engagement with and commitment to moral values, increasing moral judgments and behaviors. However, if goal are perceived to be fulfilled, then this is an indicator that additional efforts and engagement are superfluous (i.e., the actual and desired state are relatively close). Therefore, a fulfillment mindset is less likely to bring out the motivation that is required to facilitate the occurrence of costly moral outcomes. In short, I predict that a fulfillment (vs. unfulfillment) mindset reduces moral outcomes. In addition to fulfillment, the globality of people’s perspective is expected to be an important mindset component to influence moral judgments and behaviors.

Perspective. It is of great importance to people to be evaluated—by the self and by others—as a moral person (e.g., Anderson, 1968; Bandura, 2004; Dunning, 2005; Schwartz & Howard, 1982); unfortunately, this is no guarantee for moral outcomes. A
failure to reach one’s moral standard could be due to a reduced motivation (i.e., one’s desired standard is perceived to be fulfilled; see above), or due to incognizance of the influence of one’s actions onto other people’s welfare (e.g., Schwartz, 1970) or onto long-term outcomes (e.g., Ebreo & Vining, 2001; Kortenkamp & Moore, 2006). Given that moral outcomes represent outcomes that are collectively good (vs. only good for the self) and moral judgments and intuitions are associated with a future focus (e.g., Agerström & Björklund, 2009; Caruso, 2010; Ebreo & Vining, 2001; Kortenkamp & Moore, 2006), a perspective that attunes people to broad and long-term considerations (i.e., a global perspective) is expected to facilitate moral outcomes.

Furthermore, given that moral values (e.g., respecting others, not harming others, sharing; Hardisty & Weber, 2009; Kant, 1785/1996) guide people how to live their lives (e.g., Bandura, 2004), are highly important to one’s identity and self-worth (e.g., Crocker & Wolfe, 2001; Epley & Dunning, 2000; Sachdeva et al., 2009; Tafarodi & Swann, 2001; Van Lange & Sedikides, 1998), and relate to important life outcomes (e.g., social relations; Brewer, 1999; Brown, 1965; Scheff, 2000), they represent people’s global and superordinate values. Therefore, a global (vs. specific) perspective (consisting of collective and long-term considerations vs. specific/concrete and short-term considerations) is more likely to activate moral values and goals. Further, if a global (vs. specific) perspective mindset is adopted, then this mindset can carry over to other, unrelated situations. When carried over to a situation entailing a moral dilemma, this global perspective mindset will activate moral values and goals, leading to more moral outcomes.

To bring the two mindset components together: Moral outcomes are facilitated by a drive to reach a desired (moral) standard and by activation of superordinate, collective goals and values, therefore, a mindset that consists of a sense of unfulfillment and broad, long-term considerations is expected to promote moral judgments and
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behaviors. This brings me to the hypothesis that an unfulfilled, global perspective (i.e., consisting of a collective and future orientation) mindset leads to more moral judgments and behaviors compared to a relatively fulfilled, specific perspective mindset (i.e., the full-perspective hypothesis). How are these mindset components influenced by various positive emotions?

Fulfillment-Perspective Mindsets: Induced by Positive Emotions

According to prior research, exogenous emotion influences can be explained by cognitive and motivational processes (e.g., Angie et al., 2011; Cacioppo & Gardner, 1999; Lerner & Keltner, 2001; Lerner & Tiedens, 2006; Smith & Ellsworth, 1985; Tiedens & Linton, 2001). The cognitive and motivational processes underlying the effects of positive affect generally (e.g., Schmidt et al., 2010), and of negative emotions (e.g., Lerner & Keltner, 2000; Smith & Ellsworth, 1985) have been thoroughly examined in explaining their exogenous effects. However, very little is known about the cognitive and motivational aspects of positive emotions (for a similar argument see Strohminger et al., 2011). However, the emotion literature indicates that there are differences within positive emotions in their cognitive and motivational consequences.

The full-perspective hypothesis poses that positive emotions differ in which particular fulfillment-perspective mindsets they induce. Earlier research has already shown that affect can influence people’s globality of perspective. Specifically, a positive mood (vs. neutral affect) has been found to increase people’s actions in accordance with their superordinate, long-term goals (e.g., Gervey, Igou, & Trope, 2005; Raghunathan & Trope, 2002; Trope, Igou, & Burke, 2006). My research goes beyond these findings by arguing that not all positive affect states have this effect as they differ in the extent to which they induce a global (vs. specific) perspective.

Also goal-fulfillment has been shown to be related to emotional experience. Specifically, the experience of a particular emotion depends on the evaluation of
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‘goal/need significance’ of the stimulus (i.e., relevance, expectation, conduciveness, urgency; e.g., Scherer, 1984). This suggests that an emotion signals information about the relevance, expectation, conduciveness, and urgency of one’s goals or needs, influencing a person’s mindset. However, based on its relevance for morality, I only focus on one particular sub-aspect (i.e., expectation: “whether the outcome is consistent with or discrepant from the state expected for this point in the goal/plan sequence”; Leventhal & Scherer, 1987, p. 9), therefore, it would be incorrect to use the umbrella term ‘goal/need significance’; the term ‘fulfillment’ is more appropriate.

To test the incidental effects of positive emotions on moral outcomes—explained by the mindsets they induce—14 positive emotions were selected: love, pride, relaxation, relief, optimism, satisfaction, flow, amusement, horny, inspiration, alert, compassion, energetic, and gratitude. These particular positive emotions were chosen because a review of the literature indicated that these positive emotions differ from each other sufficiently in which mindsets they would induce (e.g., Batson et al., 1995; Cohen, 2006; Csikszentmihalyi, 1990; Fredrickson, 1998; Frijda et al., 1989; Goetz, Keltner, & Simon-Thomas, 2010; Green & Sedikides, 1999; Keller & Blomann, 2008; Kiviniemi, Snyder, & Omoto, 2002; Kruglanski et al., 2012; Liberman, Trope, & Stephan, 2007; Panayiotou, Brown, & Vrana, 2007; Panksepp, 1998; Peterson, 2006; Shiota, Keltner, Campos, & Hertenstein, 2004; Smith & Ellsworth, 1985; Solomon, 2004; Steck, Levitan, McLane, & Kelley, 1982; Thrash & Elliott, 2004). The literature on each of these positive emotions is more thoroughly reviewed in the second chapter of this dissertation (i.e., On the different effects of positive emotions on morality: The full-perspective hypothesis). To give an example, I will apply the full-perspective hypothesis to an emotion inducing a fulfilled, specific perspective mindset (i.e., love) and to an emotion inducing an unfulfilled, global perspective mindset (i.e., optimism).
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**Love.** “Love is a many splendored thing, love lifts us up where we belong, all you need is love” (cited from the movie Moulin Rouge; Baron, Brown, & Luhmann & Luhmann, 2001). Based on the idea that love seems to be able to fully absorb a person and meet important needs and goals, I argue that love is an emotion that induces a relatively fulfilled, specific perspective mindset. Furthermore, not only romantic love is predicted to be associated with this mindset. Irrespective of whether love is experienced towards a family member, friend, or partner, it is predicted to induce a perception of goal-fulfillment and a perspective focusing on a specific target in the moment.

**Love and perceived goal-fulfillment.** Of all positive emotions, love seems to be one that prototypically induces a sense of fulfillment (e.g., Baumeister & Leary, 1995; Fromm, 1956; Roseman, 1984; Seyfried, 1977; Winch, 1958). Love fulfills important wishes and personal needs (e.g., Roseman, 1984; Seyfried, 1977), for example, the fundamental human need to belong (e.g., Baumeister & Leary, 1995). Furthermore, it induces a sense of fulfillment on a more abstract level because it can lead to emotional satisfaction and fulfilling insights (e.g., Fromm, 1956). Therefore, generally, love is predicted to induce a fulfillment mindset. This fulfillment mindset is expected to signal to the individual who experiences love that important needs and goals are met, and therefore, the motivation to make additional effort investments in other areas will be reduced.

**Love and a specific perspective.** It may appear odd to argue that love induces a specific perspective mindset, considering that love is usually felt towards another person and a global perspective is argued to include the interests of others (vs. the interests of only the self). However, love does direct a person’s attention towards one specific love target, which is particularly important to one’s self-interest. Furthermore, by suggesting that love induces a specific perspective, it is also implied that love induces a short-term focus. This does not mean that love is short-lived; it rather means
that love causes people to lose themselves in the moment, like the world stops turning. What does the literature say about the perspective that is induced by love?

Love is highly self-relevant, and although love is directed towards another social target, its strong relationship to self-relevant goals, might come at the cost of others’ interests or goals (e.g., Leo & Manner, 2012; Steck et al., 1982) as it can reduce awareness of other’s needs or experiences (e.g., Baumeister, Wotman, & Stillwell, 1993; Steck et al., 1982). The importance of love to the self seems to induce a rather specific perspective, focused on one’s own desires or needs that relate to one specific love target. Further, although movies (e.g., “I’d rather die tomorrow than live a hundred years without knowing you” as expressed by John Smith to Pocahontas; Pentecost, Gabriel, & Goldberg, 1995) and songs (e.g., “I could stay lost in this moment forever” as sung by Steven Tyler; Warren, 1998) are quite clear about how love can make a person lose all sense of time, research on love remains relatively silent on this matter. Therefore, the effect of love on particularly time perspective needs to be scientifically examined. However, based on literature supporting the narrow view caused by love—towards one’s own needs and desires and towards a particular love target—, it is fair to claim that love induces a specific perspective mindset.

To combine the proposed effects of love on these two mindset components, love is predicted to induce a relatively fulfilled, specific perspective mindset. Considering that, according to the full-perspective hypothesis, a fulfillment mindset and a specific perspective mindset are both associated with a reduction in moral outcomes, exogenous love is not expected to facilitate—but even impede—moral outcomes.

**Optimism.** Various manifestations of optimism have been examined, and it has been characterized as personality trait, attitude, explanatory style, and temporal affective state. In this research, however, I exclusively study optimism as temporal affective state: Optimism as a positive emotion (for findings supporting the
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characterization of optimism as positive emotion see Parrott, 2001b; Peterson, 2006; Plutchik, 2001).3 Further, in line with previous research (e.g., Peterson, 2006), I argue that the positive emotion optimism is defined by the expectation of a desirable future.

Optimism is associated with an overwhelmingly amount of positive outcomes—and only some negative outcomes in the case of extreme or unrealistic optimism—for the individual and even some positive interpersonal consequences (see Chapter 5 for an overview). However, to my knowledge, the relationship between optimism and moral outcomes has not been examined empirically. In order to predict how optimism will influence moral outcomes, the mindset induced by optimism needs to be examined. I argue that optimism is associated with perceived goal-unfulfillment and induces a rather global (vs. specific) perspective on broad and long-term outcomes.

**Optimism and perceived goal-unfulfillment.** Given that optimism is caused by an anticipated gain of a valued goal (e.g., George, 2000; Plutchik, 2001) and is associated with pursuing unfulfilled goals (e.g., Scheier, Weintraub, & Carver, 1986), it is likely that optimism induces a focus on goals that have not been fulfilled yet, feeding into an unfulfillment mindset. Consistent with the prediction for the relationship between an unfulfillment mindset and motivation, optimism has been found to be associated with motivational strategies (e.g., Peterson, 2006; Tiger, 1979). Further, optimism towards a particular goal can flexibly be channeled into efforts towards other goals (e.g., Peterson, 2000), supporting the idea that the perceived goal-unfulfillment—induced by optimism—may be transferred to other, unrelated situations.

**Optimism and a global perspective.** Two inherent characteristics suggest that optimism induces a global perspective mindset. First, there is an apparent association between optimism and a long-term, future focus (e.g., Aspinwall & Leaf, 2002; Carroll, Sweeney, & Sheppard, 2006; Peterson, 2006; Strathman, Gleicher, Boninger, & Edwards, 1994). Additionally, literature supports the idea that optimism induces a broad
(vs. narrow) focus (e.g., Basso, Scheffà, Ris, & Dember, 1996; Bryant & Cvengros, 2004; Fredrickson, 1998; Geers, Wellman, & Lassiter, 2009; Wong & Lim, 2009). Both the long-term and the broad focus are expected to tap into a global (vs. specific) perspective mindset.

To conclude, given that optimism is predicted to induce an unfulfilled, global perspective mindset, and unfulfillment is predicted to increase motivation and thereby effort investment, and a global perspective is predicted to increase attunement to superordinate values (e.g., moral values) including collective and long-term outcome considerations, I predict that exogenous optimism facilitates moral outcomes. The predicted effect of optimism and the predicted effects of other exogenous positive emotions—based on the fulfillment-perspective mindsets they are expected induce—are tested in the present thesis.

As the descriptions of love and optimism illustrate, the differences between positive emotions are likely to lead to different influences on moral judgments and behaviors. I propose that the incidental influences of positive emotions on morality depend on which mindsets they induce. Specifically, the fulfillment-perspective mindset seems to be crucially related to moral outcomes. Both an unfulfillment (vs. fulfillment) and a global (vs. specific) perspective mindset are predicted to facilitate moral outcomes. Given that these mindsets can ‘carry over’ from an emotional experience to an unrelated moral situation, I predict that positive emotions that induce an unfulfilled, global perspective (vs. fulfilled, specific perspective) mindset facilitate (vs. impede) moral judgments and behaviors in unrelated situations.

The Present Thesis

In this thesis, I tested the full-perspective hypothesis in several steps. First, I examined the effects of 14 positive emotions on the fulfillment-perspective mindsets, the effects of six exogenous positive emotions on moral judgments and behaviors, and
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the direct effects of the fulfillment-perspective mindsets on moral judgments (Chapter 2). Then, the exogenous effects of two positive emotions (i.e., love and optimism) were further tested in economic and environmental social dilemmas (Chapter 3). Finally, different aspects of both emotions (i.e., love and optimism) and their effects on morality were more closely examined. For example, the proposed mindset components were manipulated within the love experience to test their relevance for moral outcomes (Chapter 4). For optimism, it was tested if its beneficial consequences for morality were robust across trait and state optimism, and to which extend it induced a ‘motivational’ state (Chapter 5).

Chapter 2: Full-Perspective Hypothesis
In Chapter 2, the processes—as predicted by the full-perspective hypothesis—underlying the effects of exogenous positive emotions on moral outcomes were investigated by using a stepwise causal chain test. First, the predicted effects of 14 positive emotions on the fulfillment and the perspective mindset components were examined. Based on how each positive emotion influenced these fulfillment-perspective mindsets, the incidental effects of positive emotions on moral outcomes were predicted and the proposed effects of six positive emotions (i.e., love, amusement, relaxation, optimism, inspiration, compassion) were tested. Finally, the direct effect of each mindset component on moral judgments was tested. A total of eight studies contributed to support the proposed mediational model of the full-perspective hypothesis. Importantly, each positive emotion’s induced fulfillment-perspective mindset was predictive of how each positive emotion influenced moral outcomes. This chapter is based on a manuscript that is currently under review (Van Dongen & Igou, 2013a).

Chapter 3: Love Versus Optimism on Social Dilemmas
After establishing the predictive value of the full-perspective hypothesis and showing that optimism leads to more moral judgments and behaviors compared to love
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in Chapter 2, Chapter 3 sought to further test this effect of love versus optimism in a social dilemma context. Social dilemmas reflect a conflict between the private and the collective interest. Although acting on private interest and profiting from economic and environmental common goods can be tempting, doing so can have disastrous consequences for the collective (e.g., Kerr, 1983). Therefore, profiting (vs. contributing) from these common goods is considered to be immoral (e.g., Batson et al., 1999; Beggan, Messick, & Allison, 1988). Across six studies, the effects of love versus optimism on profiting from common goods were examined in two societal relevant contexts: The economic and environmental context. Consistently, love led to a greater likelihood of profiting from these economical common goods compared to optimism. This finding was consistent with the predictions of the full-perspective hypothesis, and shows the proposed effects in economic and environmental scenarios relating to social dilemmas. This chapter is based on a manuscript that is currently under review (Van Dongen & Igou, 2013b).

Chapter 4: Detrimental Consequences of Love for Morality

After consistently showing across multiple measures of morality that love leads to less moral outcomes compared to other positive emotions (see Chapters 2 and 3), in Chapter 4, the effect of love on moral outcomes was compared to a neutral affect state, and the effects of different love experiences were examined more closely. The full-perspective hypothesis predicts that it is the fulfilled, specific perspective mindset—caused by love—that is responsible for the effects of love on moral outcomes. To examine the importance of each mindset component more closely, perceived fulfillment and globality of perspective were manipulated within the love experience. Revealing its detrimental consequences, love was found to reduce moral outcomes compared to a neutral affect state. This effect emerged irrespective of the particular love target, and irrespective of whether love was experimentally induced or measured. Furthermore, the
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effects of manipulating the mindset components within the love experience supported the full-perspective hypothesis. Specifically, more moral outcomes were found for unfulfilled (vs. fulfilled) love and global (vs. specific) perspective love. Also, as expected, although the negative effect of exogenous love on moral outcomes was shown repeatedly, endogenous love had the opposite effect. This chapter is based on a manuscript that is currently under review (Van Dongen & Igou, 2013c).

Chapter 5: Beneficial Consequences of Optimism for Morality

The studies in Chapters 2 and 3 consistently showed that optimism leads to more moral outcomes compared to other positive emotions. However, the absolute direction of the effect of the experience of optimism (vs. the absence of optimism) on moral outcomes still needed to be examined. In addition to manipulating optimism as a temporal effective state in an entirely irrelevant (i.e., non-moral) context and testing its effect on moral values, the relationship between trait optimism and moral judgments and decision making in economic and environmental contexts was examined, showing similar results (i.e., optimism is positively associated with moral outcomes). Furthermore, the ‘motivational’ state, which is predicted to be associated with optimism, was further explored for both trait and state optimism. This chapter is based on a manuscript that is currently under review (Van Dongen & Igou, 2013d).
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Footnotes

1 The name ‘full-perspective’ relates to the mindset components fulfillment and perspective.

2 Many of these positive emotions are unlikely to fit the criteria to be considered ‘basic emotions’ (Ekman, 1994), however, for the purpose of testing the full-perspective hypothesis, it seemed better to be over inclusive than too restrictive.

3 In one study in Chapter 5 (All we need is optimism? On the effects of trait and state optimism on morality), optimism is examined as personality trait (vs. temporal affective state), however, all other studies solely study optimism as temporal affective state.
Chapter 2: Full-Perspective Hypothesis

“The rules of morality are not the conclusion of our reason” (Hume, 1739-1740, p. 325)

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Abstract

Positive emotions differ in their effects on morality. We pose that mindsets induced by positive emotions may carry over to moral judgments and behaviors in unrelated situations. Two mindset components appear to be crucial: perceived goal-fulfillment (unfulfilled vs. fulfilled) and perspective (specific vs. global). Specifically, we hypothesize that emotions associated with unfulfillment (vs. fulfillment) of goals and a global (vs. specific) perspective increase moral outcomes. Consistent with our predictions, 8 studies showed that positive emotions differ in their influence with respect to the fulfillment-perspective mindset that people adopt (Studies 1, 2, and 3). Importantly, participants who were induced with an emotion associated with a fulfilled, specific perspective mindset (i.e., love, relaxation, amusement) made less moral judgments and decisions compared to participants who were induced with an emotion associated with an unfulfilled, global perspective mindset (i.e., optimism, compassion, inspiration; Studies 4, 5, and 6). Moreover, direct manipulations of these mindsets influenced moral judgments in the predicted direction (Studies 7 and 8), thus providing additional support for our full-perspective hypothesis.

Keywords: Emotion, Moral Behavior, Moral Values, Mindset, Love, Optimism
Imagine that you are cycling on a country road in The Provence while feeling optimistic. You then encounter an unmanned farmer’s stall with delicious red cherries in exchange for a small donation. Would you take the cherries without paying for them? Would your behavior be different if you were feeling relaxed, amused, or love before spotting the cherries? These are just some examples of the wide variety of positive emotions that are frequently experienced, and we argue that whether people are relatively moral (e.g., pay for the cherries) or immoral (e.g., steal the cherries) is influenced in different ways by these various positive emotions. Importantly, we are interested in the effects of positive emotions that are not directly related to the moral dilemmas of the situation. The aim of our research is to differentiate between the effects of various positive emotions on morality, and to map out which positive emotions facilitate (vs. impede) moral judgments and behaviors.

Morality is defined as “principles concerning the distinction between right and wrong or good and bad behaviour” (Oxford Dictionaries, 2012). Although people might not know this definition by heart, most people usually have a sense of whether behavior is moral or immoral (Wilson, 1993), at least in many situations. Most people recognize that it is right to recycle and pay one’s bills, just as most people recognize it is wrong to litter or steal; however this understanding does not always cause people to enact what is generally seen as ‘the right thing’. Whether or not people behave morally is heavily influenced by many different contextual factors (e.g., current situation, previous experiences, mindsets, affect).

Recently, it has become apparent that affect is an important factor to consider in morality research as it has a major influence on moral judgments and behaviors (e.g., Haidt, 2001; Valdesolo & DeSteno, 2006). Therefore, it is important to identify which
specific types of affect facilitate (vs. impede) moral judgments and behaviors. Our aim was to identify positive emotions that would increase (vs. decrease) morality in judgments and behaviors in situations that are per se unrelated to the emotional experience, and to offer a theoretical framework that explains these effects. To predict how positive emotions influence moral outcomes, it is important to take into account the relationship between people’s emotional experience and the moral situation.

**Exogenous Emotions**

Experienced emotions can influence judgments and behaviors in different ways. The literature distinguishes between *endogenous emotions*—i.e., related to the judgment or behavior—and *exogenous emotions*—i.e., incidental to the situation (e.g., Angie, Connelly, Waples, & Klgyte, 2011; Loewenstein & Lerner, 2003). Our approach concerns exogenous emotions. That is, the emotion can be entirely unrelated to the moral situation (e.g., induced by an external factor) and still have an incidental influence on the judgment or behavior in this situation (for a review see Loewenstein & Lerner, 2003). This incidental influence can be explained by particular thoughts, emotion specific motivations, or facilitated processing styles that are induced by emotions (e.g., Angie et al., 2011; Bartlett & DeSteno, 2006; Lerner & Keltner, 2000; Smith & Ellsworth, 1985). That is, these mediating processes seem to influence people’s judgments and behaviors, even if the emotions as the cause of these processes are unrelated to the situations that people encounter. It is this effect—of *exogenous* emotions—and the underlying mediating process that we focus on in this research.

**Positive Affect and Its Influence on Morality**

Research on the influence of positive affect on morality often suggests that positive affect leads to morally appropriate judgments (e.g., ValdeSolo & DeSteno, 2006) and increases helping behavior (e.g., Isen & Levin, 1972). However, more recent research stresses that it is important to differentiate between various positive affective
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states given the diverse effects that they may have (e.g., Sauter, 2010), especially concerning moral judgments and behaviors (e.g., Algoe & Haidt, 2009; Strohminger, Lewis, & Meyer, 2011).

**Positive emotions on morality.** Recently, a subset of positive (in addition to negative) emotions have been defined as moral emotions, for example, the ‘other-praising’ emotions admiration, compassion, elevation, gratitude (e.g., Algoe & Haidt, 2009; Giner-Sorolla, 2012; Schnall, Roper, & Fessler, 2010). These moral emotions function as moral intuitions: They guide judgment of what is right or wrong and are therefore predicted to increase moral outcomes (e.g., Haidt, 2001). However, the moral effects of other positive emotions have yet to be explored (e.g., Giner-Sorolla, 2012). We aimed to close this gap by developing a framework that allows for inclusion of all positive emotions, independent of whether or not they are defined as moral emotions.

In the last few years, the differential effects of exogenous positive emotions on moral outcomes have been examined more frequently. Different studies show that exogenous elevation leads to more altruistic behaviors than general positive affect or a neutral state (Schnall et al., 2010), less permissiveness for deontological moral violations than exogenous mirth (Strohminger et al., 2011), more moral motivations than exogenous joy or amusement (Algoe & Haidt, 2009), and increases the nursing and hugging of infants (Silvers & Haidt, 2008). Furthermore, exogenous gratitude (vs. exogenous admiration or a neutral state) motivates people to ‘give back to others’ (Algoe & Haidt, 2009) and it also leads to more helping (vs. exogenous amusement or a neutral state; Bartlett & DeSteno, 2006). These effects have been explained by the function of each particular emotion, however, the relative effects of a variety of exogenous positive emotions on morality as well as the underlying processes have not been systematically examined and remain unclear.
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We propose a theoretical framework that allows for predictions on the impact of exogenous positive emotions on moral judgments and behaviors. This framework considers emotion-related mindsets (vs. each particular emotion’s function), which are proposed to influence these judgments and behaviors in situations that are unrelated to the situations that originally elicited the emotion. Which mindsets could potentially account for—and predict—the different effects of multiple exogenous positive emotions on moral outcomes?

Proposed Mindset Components: Fulfillment and Perspective

Based on prior research (e.g., Gollwitzer, Heckhausen, & Steller, 1990), we define ‘mindsets’ as cognitive orientations that influence people’s goals, and goal-related judgments and behaviors. Given that mindsets—induced by a particular emotion—can ‘carry over’ to unrelated situations, they are likely to influence judgments and behaviors in such situations. Although cognitive and motivational processes relating to negative emotions (e.g., Lerner & Keltner, 2000; Smith & Ellsworth, 1985) and to positive affect in general (e.g., Schmidt, Tinti, Levine, & Testa, 2010) have been examined extensively, relatively little is known about the different mindsets that are induced by various positive emotions (for a related argument see Strohminger et al., 2011). We recognize the relatedness of the terms ‘mindsets’, ‘appraisals’ (e.g., Smith & Ellsworth, 1985), and ‘action tendencies (e.g., Frijda, 1987). However, we believe that the term mindset best captures the cognitive orientation and the motivationally based consequences of emotions. This, however, does not mean that characteristics associated with other terms would not play a role regarding the processes that we propose and test.

People often subscribe to the goal to be moral, but whether or not they in fact judge and behave morally depends on a range of factors. To predict the influence of exogenous positive emotions on morality, we focused on two crucial mindset components. Specifically, we pose that people’s perceived goal-fulfillment (unfulfilled
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vs. fulfilled) and the globality of people’s perspective (specific vs. global) have an important influence on moral judgments and behaviors. The centrality of goal-fulfillment and people’s perspective is consistent with recent work on morality (e.g., Conway & Peetz, 2012).

**Goal-fulfillment.** Perceived goal-fulfillment stems from the relative gap between an actual and a desired state or standard. This discrepancy indicates that certain goals are unfulfilled, which motivates people to ‘close the gap’ by pursuing these goals (e.g., Carver, 2004). The literature indicates that goal-related motivations remain active and present in people’s mind, until that goal is fulfilled (e.g., Carver & Scheier, 1999; Förster, Liberman, & Friedman, 2007). An unfulfilled state causes people to keep searching for ways to close this gap. The focus of attention is thus on the desired state, that is, the standard that people want to reach.

Crucially, we argue that positive emotions differ in their implications for perceived ‘goal-fulfillment’. That is, when people experience a positive emotion, this affective state implies a certain degree of goal-fulfillment. This perceived fulfillment is then likely to feed into people’s mindsets, which in turn carries over to unrelated situations. If the emotion induces a large discrepancy, the desired state (i.e., important goals) is more salient than when the discrepancy is small. In this case, people interpret the situation as a challenge or a problem, requiring additional efforts. However, if the emotion induces a small discrepancy the situation is less likely to be interpreted as a challenge or problem, requiring less engagement. When it comes to moral judgments and behaviors, the ‘unfulfilled’ state (large discrepancy)—stemming from an emotional experience—may carry over to an unrelated situation encompassing a moral issue. In turn, the discrepancy that carried over makes the moral standard (desired state) salient, which then causes people to endorse moral values and to act morally. If a ‘fulfilled’ state (small discrepancy) carries over, these moral judgments and behaviors are less
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likely to occur. Importantly, it is not the mere feeling of unfulfillment, but rather the motivation to close the gap between the current and desired state that underlies the predicted effect on moral judgments and behaviors. In addition, we argue that globality of people’s perspective—stemming from the emotion that they experience—feeds into people’s mindsets.

**Perspective.** The desire to do the right thing according to one’s own values and beliefs is an intrinsic motivation that influences many of our social behaviors (e.g., Schwartz & Howard, 1982). However, for this internal moral obligation to result in moral behavior, the influence of one’s actions on other people’s welfare must be brought to mind (e.g., Schwartz, 1970). Furthermore, moral judgments and intuitions seem to be linked to a future focus (Caruso, 2010). How is an understanding of the long-term, future consequences of one’s actions and how they may affect others influenced by positive emotions?

Different affect theories propose that affective states influence the globality of people’s perspective. Specifically, it is argued that positive emotions broaden people’s perspective (e.g., Fredrickson, 1998) and that a positive mood activates superordinate and long-term goals (e.g., Trope, Igou, & Burke, 2006). Our hypothesis builds on these prior approaches; however, we argue that positive emotions differ in the degree to which they are associated with specificity versus globality.

We define a global perspective as a perspective that attunes people to collective and long-term outcomes, whereas a specific perspective focuses more on individual and short-term outcomes. Consistent with the idea that moral principles are related to collective goals and superordinate values (i.e., respecting others, sharing; Hardisty & Weber, 2009; Kant, 1785/1996), and long-term considerations (e.g., Caruso, 2010; Eyal, Liberman, & Trope, 2008), a global perspective is more likely to lead to moral outcomes compared to a specific perspective. Thus, if a positive emotion induces a
global perspective, then broad, long-term goals are activated, and therefore judgments and behaviors that are congruent with collective goals, superordinate values, and long-term concerns are facilitated, making moral outcomes more likely. To be clear, although our term ‘perspective’ builds on some process assumptions of earlier approaches, such as construal level theory (e.g., Liberman & Trope, 2008) and the affect-dependent structure hypothesis (Gervey, Igou & Trope, 2005; Trope et al., 2006), we believe that the term perspective is most inclusive and precise in describing the processes that we propose (for more details see the General Discussion in this chapter).

To summarize, whether or not people are committed to morality, as reflected in moral judgments and behaviors, depends in part on which fulfillment-perspective mindset has been induced by exogenous positive emotions. We predict that an unfulfilled, global perspective (i.e., consisting out of a collective and future orientation) mindset—‘carrying over’ from the emotion to an unrelated moral context—is more likely to lead to moral outcomes, compared to a fulfilled, specific perspective mindset. This approach to emotions and morality is novel, it allows for the classification of positive emotions into a fulfillment-perspective framework, and allows for predictions on how exogenous positive emotions influence morality.

Positive emotions and mindsets. A first look at the emotion literature seems to suggest that positive emotions differ with regard to which particular fulfillment-perspective mindset they induce. Based on this literature, we identified 14 positive emotions that are distinct from each other and predicted which fulfillment-perspective mindset they would induce. Pride and optimism would induce a relative global perspective as they consider the perspective of other people or the future (e.g., Liberman, Trope, & Stephan, 2007; Peterson, 2006). Furthermore, pride would be higher on fulfillment compared to optimism as pride relates to personal achievements (Smith & Ellsworth, 1985), and is experienced when one succeeds at something socially
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important (e.g., Shiota, Keltner, Campos, & Hertenstein, 2004). Gratitude would lead to an unfulfilled, global perspective mindset as gratitude is associated with seeing the ‘bigger picture’ (e.g., Solomon, 2004), thinking broadly (e.g., Fredrickson, 1998), and with indebtedness and the motivation to ‘return’ (e.g., Cohen, 2006). Inspiration and compassion would induce an unfulfilled, global perspective mindset as inspiration gives feelings of transcendence and emerges after encountering a higher possibility (Thrash & Elliott, 2004) and compassion is other-oriented (Batson, Klein, Highbarger, & Shaw, 1995; Goetz, Keltner, & Simon-Thomas, 2010) and motivates to intervene. The positive emotions relief and satisfaction are likely to induce a fulfilled, global perspective mindset as relief consists of letting go of a specific fear and induces low action readiness and a lack of motivation (Frijda, Kuipers, & Ter Schure, 1989) and satisfaction relates to the fulfillment of multiple personal needs and motivations (Kiviniemi, Snyder, & Omoto, 2002). Flow, however, would induce a relatively unfulfilled and specific perspective mindset as it occurs when one sets themselves challenging goals and causes absolute absorption in a specific task or activity (Csikszentmihalyi, 1990; Keller & Blomann, 2008). Also energetic and alert would induce an unfulfilled, specific perspective mindset as they function as driving force towards a specific target or activity (Kruglanski et al., 2012). Feeling horny is likely to induce an unfulfilled, specific perspective mindset as well as it comes with a motivation to fulfill one’s desire and it involves a particular social target (e.g., Panksepp, 1998). Also love, relaxation and amusement would lead to specific perspectives as love relates to the self and a specific other person (Steck, Levitan, McLane, & Kelley, 1982), relaxation increases self-focus as the lack of need for action turns thoughts towards the self (e.g., Green & Sedikides, 1999; Panayiotou, Brown, & Vrana, 2007), and amusement is caused by contemplation of some target (specific) and is a mental form of play (e.g., Shiota et al., 2004; see Table 1 for a complete overview).
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Although it is debatable whether all these positive emotions meet the standards to be labeled as ‘basic emotions’ (Ekman, 1994), each of the above mentioned states has been identified as an emotion by previous research (e.g., Fox, 2008; Gray, Braver, & Raichle, 2002; Luke, Sedikides, & Carnelley, 2012; Panayiotou et al., 2007; Parrott, 2001; Watson, Clark, & Tellegen, 1988). Furthermore, it seems better to be over inclusive than to be too restrictive (for a similar rationale see Algoe & Haidt, 2009, and Scherer, 1994).

Overview and Predictions

We pose that positive emotions differ in the mindsets that they induce, and that these mindsets ‘carry over’ to unrelated moral situations and thereby influence moral judgments and behaviors. Specifically, we predict that exogenous positive emotions that induce a sense of fulfillment (vs. unfulfillment) reduce moral judgments and behaviors, and that exogenous positive emotions that induce a global (vs. specific) perspective increase the likelihood of moral outcomes.

To test our predictions on how positive emotions influence morality we adopted a stepwise approach (e.g., Spencer, Zanna, & Fong, 2005). First, we examined how various positive emotions influence the ‘fulfillment-perspective’ mindsets (Studies 1, 2, and 3). Then we tested the predicted effects of six exogenous positive emotions on moral judgments and behaviors (Studies 4, 5 and 6). Finally, in order to further examine the proposed process, we assessed moral judgments after manipulating the proposed mindsets (Studies 7 and 8).²

Study 1: Clustering Positive Emotions

Study 1 was designed to provide a basis for predicting how individual positive emotions influence moral outcomes. To this end, we examined which fulfillment-perspective mindsets are induced by various positive emotions. Specifically, 14 positive emotions (i.e., love, pride, relaxation, relief, optimism, satisfaction, flow, amusement,
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horney, inspiration, alert, compassion, energetic, gratitude) were selected to have a sufficient range to test the different effects of positive emotions on mindsets. Based on the emotion literature in the introduction (see also Table 1), we roughly categorized each of the positive emotions into 1 of the 4 clusters that follow the rationale of a 2 (goal-fulfillment: unfulfilled vs. fulfilled) x 2 (perspective: specific vs. global) factorial design. We categorized love, relaxation, and amusement as high in goal-fulfillment and specific in people’s perspective. Pride, relief, and satisfaction were categorized as high in goal-fulfillment and global in perspective. Horny, energetic, flow, and alert were categorized as low in goal-fulfillment (i.e., unfulfillment) with a specific perspective. Finally, optimism, gratitude, inspiration, and compassion were categorized as low in goal-fulfillment (i.e., unfulfillment) and global in perspective.

Method

Participants and design. Twenty-two undergraduate students (13 women, 9 men; $M_{age} = 20.00, SD_{age} = 4.05$) participated in exchange for course credit. In a within-subjects design, participants were asked to recall each individual emotion. After each emotion recall, participants rated the experience along the proposed mindset components (i.e., fulfillment and perspective). One participant failed to fill out multiple emotion manipulation tasks and was therefore excluded from further analyses. After this exclusion, the final sample consisted of 21 participants (12 women, 9 men; $M_{age} = 20.05, SD_{age} = 4.14$).

Materials and procedure. After participants gave their informed consent, they worked on the computer based questionnaire in the research lab. The computer program MediaLab (Jarvis, 2008) randomly selected the first emotion (e.g., relief). Participants were instructed to thoroughly recall a situation in which they experienced the particular emotion. After the recall exercise, participants were asked to answer the following six open-ended questions—adopted from Smith and Ellsworth (1985)—to increase the
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vividness of the experience of the emotion. ‘Please describe this past relief situation.
What was it like to feel relief in this situation?’, ‘What happened in this situation to
make you feel relief?’; ‘Why did these things make you feel relief?’; ‘How did you know
that you felt relief in this situation?’, ‘What did it feel like for you to feel relief in this
situation?’, and ‘What did you do in this situation where you felt relief?’. These are
examples of the ‘relief’ condition; the questions were adjusted for each emotion.
Participants were asked to answer these questions to ensure that they thoroughly
engaged in the recall task and that they re-experienced the emotion.

Afterwards, participants answered 11 questions relating to perceived goal-
fulfillment and perspective, using an 11-point scale from 1 (not at all) to 11 (very
much). Specifically, 5 questions were designed to measure perceived goal-fulfillment
(e.g., “When you were feeling 'relief', to what extent did you feel that your goals were
fulfilled?”), and 6 questions were designed to measure the globality (vs. specificity) of
participants’ perspective (e.g., “When you were feeling 'relief', to what extent did you
focus on life in general?”; “When you were feeling 'relief', to what extent did you live in
the moment?”). The same procedure was applied to all 14 positive emotions. Afterwards
participants were thanked and debriefed.

Results and Discussion

After combining the fulfillment items ($\alpha = .89$) and the perspective items ($\alpha = .90$), we determined the location of the 14 positive emotions on our proposed mindset
components (see Figure 1). As predicted, the positive emotions love, amusement,
relaxation, pride, relief, and satisfaction ($M = 8.02$, $SD = 1.31$) induced a higher level of
perceived goal-fulfillment compared to the emotions optimism, flow, horny, inspiration,
alert, compassion, energetic, and gratitude ($M = 5.85$, $SD = 1.03$), $t(20) = 7.72$, $p < .001$,
$d = 1.84$. Furthermore, on the perspective scale, we found that the emotions pride, relief,
satisfaction, optimism, inspiration, compassion, and gratitude ($M = 5.57$, $SD = 1.00$)
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induced a more global perspective compared to the emotions love, amusement, relaxation, flow, horny, alert, and energetic ($M = 4.42, SD = 0.87$), $t(20) = 7.33, p < .001, d = 1.23$.

All emotions were placed relatively high on perceived goal-fulfillment. This is perhaps not surprising as positive emotions are likely to be associated with some form of goal-fulfillment (e.g., the goal to feel good). However, more important here is the relative difference between the induced goal-fulfillment. The placement of these positive emotions on the fulfillment and perspective mindset components was consistent with our hypotheses. Further, clustering these positive emotions was an important step for further examinations.

In a number of our studies below, we planned to test a pair of positive emotions against each other in order to examine their effects on the fulfillment-perspective mindset and moral outcomes. As a first check for the predicted difference of emotions with regard to fulfillment and perspective, we further compared love to optimism. As predicted, love ($M = 8.49, SD = 1.94$) scored higher compared to optimism ($M = 6.69, SD = 1.74$) on perceived goal-fulfillment, $t(20) = 4.01, p = .001, d = 0.98$. Additionally, love ($M = 3.40, SD = 1.45$) scored lower compared to optimism ($M = 5.65, SD = 1.54$) on (global) perspective, $t(20) = 6.50, p < .001, d = 1.50$. This implies that love induced a more fulfilled, specific perspective (vs. unfulfilled, global perspective) mindset compared to optimism. Studies 2-3 further examined the differences of love versus optimism with regard to the mindset components, and Studies 4-5 tested the relative impact of these two emotions on moral outcomes.

**Study 2: Love Versus Optimism on Mindset**

To further examine the different effects of positive emotions on mindset components, we selected one positive emotion from the unfulfilled, global perspective mindset cluster and one positive emotion from the fulfilled, specific perspective mindset
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cluster. From the unfulfilled, global perspective mindset cluster—consisting out of optimism, inspiration, gratitude, and compassion—we selected optimism. Consistent with our findings in Study 1, literature suggests that optimism induces an unfulfilled (e.g., Scheier, Weintraub, & Carver, 1986), global perspective (e.g., Carroll, Sweeney, & Sheppard, 2006; Peterson, 2006; Strathman, Gleicher, Boninger, & Edwards, 1994) mindset. Furthermore, to our knowledge, optimism—in contrast to other emotions in this cluster—has not been associated with morality, and was therefore an interesting emotion to select to test our hypothesis.¹

Study 1 already suggested that love induces a fulfilled, specific perspective mindset, and literature supports this finding as it is argued that love leads to fulfillment of the need to ‘belong’ and one’s wishes and personal needs (e.g., Baumeister & Leary, 1995; Roseman, 1984). Furthermore, love relates to the self and to one’s pleasures and desires (Steck et al., 1982). We selected love because it was furthest away from optimism on the proposed mindset components, and has rarely been examined in relation to morality (cf. Guéguen & Lamy, 2011).

Additionally, Study 2 consisted of a second phase, which was added to rule out that the difference between love and optimism was due to differences in valence or arousal. Past research has often explained the different effects of affect by underlying differences in valence and arousal (e.g., Lewis, Critchley, Rotshtein, & Dolan, 2007; Russell, 1980). To rule out this alternative explanation, we included a measurement of valence and arousal that has often been used in affect research (e.g., Russell, Weiss, & Mendelsohn, 1989). We did not expect to find a difference in valence nor arousal between love and optimism. However, consistent with the preliminary findings of Study 1, we predicted that love (vs. optimism) would induce a fulfilled, specific perspective mindset.
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Method

Participants and design. One hundred and fifty-four undergraduate and postgraduate students (100 women, 47 men, 7 undisclosed; $M_{age} = 23.78$, $SD_{age} = 7.79$) participated in this online questionnaire on a voluntary basis. Each participant was randomly assigned to one of two emotion conditions (love vs. optimism; 77 and 77 participants per cell respectively).

Materials and procedure. Undergraduate and postgraduate students from different academic backgrounds were contacted via email, asking them to fill out a 5 to 10 minute study. One hundred and seventeen participants completed the questionnaire online, and 37 participants completed the questionnaire in the lab. Participants gave their informed consents by clicking on the link to the questionnaire. First, love or optimism was manipulated by means of an autobiographical memory recall task, a common procedure in emotion research (e.g., Rubin, 2006). The instructions for participants in the love [optimism] condition were: “Please think about a situation when you had an intense feeling of love [optimism]. Remember, there are no right or wrong answers as it is about your personal experience. Use the box below to describe the experience of love [optimism] and try to reexperience it with as much real feeling and intensity as when it first actually happened. Try to relive the experience of love [optimism].” To avoid that an emotion manipulation check would dilute or change the effects on the mindset, we assessed the effectiveness of our emotion manipulations by having independent raters evaluate the recalled information afterwards.

Directly after the emotion manipulation, participants were presented with 13 questions about the mindset they were in (fulfilled vs. unfulfilled or specific vs. global perspective) when they recalled the emotion (e.g., When I experienced love[optimism], I was only enjoying the feeling and not thinking about tomorrow; When I experienced love[optimism], I felt good about myself, but I was still motivated to do better) and were
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asked to rate their agreement with these statements, using a seven-point scale from 1 (not at all) to 7 (very much).

For practical reasons, the measure of valence and arousal was limited to the 37 participants who were in the lab (phase 2). Directly after the emotion manipulation, participants received a sheet with an affect grid to measure induced valence and arousal (see Russell et al., 1989) on nine-point scales from 1 (unpleasant feelings; sleepiness) to 9 (pleasant feelings; high arousal). Afterwards the participants were thanked and debriefed.

Results

Manipulation check. The stories that participants wrote about either love or optimism were rated by two independent raters who were blind to the emotion condition. Raters were told to imagine being the author of the story, and were then asked to answer the questions ‘By imagining this, do you feel love?’ and ‘By imagining this, do you feel optimism?’ on seven-point scales from 1 (not at all) to 7 (very much). Raters’ answers were combined into one score representing the experience of love ($r = .86, p < .001$) and one score representing the experience of optimism ($r = .61, p < .001$). Both emotion manipulations were successful as there was a higher rating of love experience in the love condition ($M = 5.26, SD = 1.27$) compared to the optimism condition ($M = 1.23, SD = 0.55$), $t(102.27) = 25.40, p < .001, d = 4.12$, and a higher rating of optimism experience in the optimism condition ($M = 4.53, SD = 1.30$) compared to the love condition ($M = 1.72, SD = 0.85$), $t(131.34) = 15.80, p < .001, d = 2.97$.

Fulfillment and perspective. Participants induced with love agreed more ($M = 4.01, SD = 1.08$) with statements relating to a fulfillment (vs. unfulfillment) state ($\alpha = .66$), compared to participants induced with optimism ($M = 3.12, SD = 0.84$), $t(151) = 5.65, p < .001, d = 0.92$. Additionally, love led to less agreement ($M = 3.32, SD = 1.08$)
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with statements indicating a global (vs. specific) perspective mindset ($\alpha = .80$) compared to optimism ($M = 4.37, SD = 1.28, t(151) = 5.45, p < .001, d = 0.89$). There were no differences between the sample of participants who filled in the questionnaire online and those who worked on it in the lab (fulfillment, $t[151] = 1.32, p = .19, d = 0.27$; perspective, $t < 1$).

**Affect grid.** As expected, for participants in phase 2, there was no difference in valence between love ($M = 7.63, SD = 1.74$) and optimism ($M = 7.65, SD = 0.93; t < 1$), nor a difference in arousal between love ($M = 6.37, SD = 2.03$) and optimism ($M = 6.65, SD = 1.62; t < 1$).

**Discussion**

Consistent with Study 1, Study 2 showed that love is stronger related to a fulfilled, specific perspective (vs. unfulfilled, global perspective) mindset compared to optimism. Furthermore, there was no difference in valence or arousal between love and optimism, ruling out this alternative explanation. Also, it is important to mention that participants’ stories varied greatly. For example, love stories varied from love for one’s partner (passionate or committed), family, friend, or pet. Furthermore, participants wrote about optimism towards test results, sport games, career opportunities, disease progression, and so on. This gives an indication that not one particular kind of love or optimism was induced. Study 3 tested the effects of love versus optimism on people’s time perspective specifically.

**Study 3: Love Versus Optimism on Temporal Distance**

In Studies 1 and 2, the effects of positive emotions on time perspective were tested as subpart of globality of perspective. Time perspective is a crucial part of the predicted effects on morality; however, the literature on love does not provide strong support for our claim that love induces a short-term perspective (e.g., Förster, Özelsel, & Epstude, 2010). Therefore, Study 3 was designed to further test the difference
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between love and optimism on time perspectives. An existing measure of temporal
distance as indicator of time perspective (i.e., a greater temporal distance indicates a
long-term perspective) was used. Also, our previous measures of ‘time perspective’
were rather explicit, whereas the temporal distance measure in this study is implicit. We
predicted that optimism would induce a greater implicit temporal distance compared to
love.

Method

Participants and design. Forty-one undergraduate psychology students (25
women, 16 men; $M_{\text{age}} = 20.28$, $SD_{\text{age}} = 5.33$) participated in this study in return for
course credit. Each participant was randomly assigned to one of two emotion conditions
(love vs. optimism; 21 and 20 participants per cell respectively).

Materials and procedure. After participants gave their informed consent, their
affective states (love or optimism) were manipulated by an autobiographical memory
recall task. Time perspective was measured by an existing temporal distance measure
(see Maglio & Trope, 2011). That is, participants were presented with a curvy line
representing a hypothetical road trip. Then they were asked to give a time judgment,
when they thought this road trip would happen. Specifically, they were asked to place a
vertical dash on a 10-cm horizontal line, labeled by ‘very soon’ on the left and ‘very far
from now’ on the right. Afterwards, participants were thanked and debriefed.

Results and Discussion

Manipulation check. Emotion stories were rated in the same manner as in
Study 2. Raters’ answers were combined into one score representing the experience of
love ($r = .82, p < .001$) and one score representing the experience of optimism ($r = .76,$
$p < .001$). Both emotion manipulations were successful as there was a higher rating of
love experience in the love condition ($M = 4.82$, $SD = 1.49$) compared to the optimism
condition ($M = 1.00$, $SD = 0.00$), $t(18.00) = 11.14$, $p < .001$, $d = 3.63$, and a higher
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rating of optimism experience in the optimism condition ($M = 4.97, SD = 1.23$) compared to the love condition ($M = 2.03, SD = 1.10$), $t(33) = 10.20, p < .001, d = 2.52$.

**Temporal distance.** As predicted, participants in the optimism condition ($M = 4.66, SD = 2.70$) indicated their road trip to be further away compared to participants in the love condition ($M = 2.63, SD = 2.15$), $t(36) = 2.58, p = .01, d = 0.83$. This difference in temporal distance suggests that optimism causes people to take events into account that appear further away (indicating a future perspective) compared to love. The effects of these two positive emotions on morality were tested in Studies 4 and 5.

**Study 4: Love Versus Optimism on Moral Behavior**

Studies 1-3 examined the effects of emotions on mindset components crucial for morality. Next, we tested the hypothesis that love leads to less moral behavior compared to optimism. Also, in order to be able to conclude whether particular positive emotions facilitate or impede moral outcomes, their effects were examined in relation to a neutral affect condition.

**Method**

**Participants and design.** Thirty-seven undergraduate students (30 women, 7 men; $M_{age} = 19.49, SD_{age} = 2.58$) participated in this computer study in return for course credit. Participants were randomly assigned to one of three emotion conditions (love vs. optimism vs. neutral; 12, 12, and 13 participants per cell respectively).

**Materials and procedure.** After participants gave their informed consent, their affective states (i.e., love, optimism, or neutral) were manipulated by an autobiographical memory recall task. As emotion manipulation check, participants were asked to rate their agreement to six statements referring to their experiences; Two statements referred to love, two statements to optimism, and two to positive affect in general. For each affective state one question referred to feelings (e.g., ‘Recalling this situation made me feel strong, positive feelings towards other person’ to measure love;
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‘Recalling this situation made me feel good about my life’ to measure positive affect) and one question referred to thoughts (e.g., ‘Recalling love made me think about another person in a very positive way’ to measure love; ‘Recalling optimism made me think that things will improve in the future’ to measure optimism). Participants rated their agreement on seven-point scales ranging from 1 (not at all) to 7 (very much).

Afterwards, we measured dishonest behavior by cheating behavior on a math task (developed by Teper, Inzlicht, and Page-Gould, 2011). In this task participants had the chance to—ostensibly undetectable— cheat on a tedious math task. Participants were told there was a glitch in the computer program, which would cause the math solution to appear if they pressed space bar. They were asked to refrain from pressing space bar as we would not be able to see whether they did or not, and it would therefore distort the research results. Also, we thanked them for their honesty (for a more detailed description of the materials see Teper et al., 2011). Afterwards participants were thanked and debriefed.

Results

Manipulation check. Indices of both ‘love’ questions (r = .88, p = .001), both ‘optimism’ questions (r = .66, p = .001), and both ‘positive affect’ questions (r = .52, p = .001) were created. As intended, in the love condition (M = 6.13, SD = 0.80) there was more experience of love than in the optimism condition (M = 4.63, SD = 1.69), t(34) = 2.23, p = .03, d = 1.13. Consistently, more optimism was experienced in the optimism condition (M = 6.13, SD = 0.68) than in the love condition (M = 5.33, SD = 0.94), t(34) = 2.16, p = .04, d = 0.98. Furthermore, the optimism (M = 5.83, SD = 0.94) and love (M = 5.42, SD = 1.24) conditions did not differ from each other on the positive affect measure, t < 1, however in the neutral condition (M = 4.62, SD = 1.50) there was less experience of positive affect compared to the two positive emotion conditions (M =
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5.63, SD = 1.10), t(34) = 2.33, p = .03, d = 0.77. These results demonstrated the effectiveness of the emotion manipulation.

To further validate our emotion manipulation, emotion stories were rated in the same manner as in Study 2. Raters’ answers were combined into one score representing the experience of love (r = .90, p < .001) and one score representing the experience of optimism (r = .83, p < .001). Consistent with earlier studies, the love manipulation was successful as there was a higher rating of love experience in the love condition (M = 5.88, SD = 0.53) compared to the optimism condition (M = 1.42, SD = 0.60), t(34) = 24.10, p < .001, d = 7.88, and compared to the neutral condition (M = 1.00, SD = 0.00), t(34) = 26.88, p < .001, d = 13.02. Furthermore, the optimism manipulation was successful as there was a higher rating of optimism experience in the optimism condition (M = 5.54, SD = 0.66) compared to the love condition (M = 1.83, SD = 0.81), t(34) = 11.00, p < .001, d = 5.02, and compared to the neutral condition (M = 1.27, SD = 0.97), t(34) = 12.92, p < .001, d = 5.15.

**Cheating.** To analyze the effects on cheating behavior, a dichotomous item was created as indication of whether or not the participant had cheated. A Chi Square test showed that emotions differed in how they influenced cheating behavior, \( \chi^2(2, N = 37) = 6.29, p = .04, V = .41 \). Specifically, the emotion love (66.7%) led to more cheating compared to the emotion optimism (25.0%), \( \chi^2(1, N = 24) = 4.20, p = .04, \Phi = .42 \). Furthermore, in a love state more participants cheated compared to a neutral state (23.1%), \( \chi^2(1, N = 25) = 4.81, p = .03, \Phi = .44 \). However, there was no difference in cheating between the optimism and neutral conditions, \( \chi^2(1, N = 25) = 0.01, p = .91, \Phi = .02 \).
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Discussion

Study 4 provided support for our hypothesis that love leads to more dishonest behavior compared to optimism. Furthermore, we explored how these emotions influenced moral behavior compared to a neutral state, and found that optimism did not necessarily have a positive influence, but that love had a negative influence on moral behavior. We tested for the generalizability of these effects in Study 5.

Study 5: Love Versus Optimism on Moral Judgments

Study 5 was designed to test the effects of love versus optimism on moral judgment with an established moral values measure: the moral foundations questionnaire (MFQ; Graham et al., 2011). The MFQ measures individuals’ endorsement of five moral values, namely, the harm/care, fairness/reciprocity, ingroup/loyalty, authority/respect, and purity/sanctity values. We focused on the harm/care and fairness/reciprocity moral values because they are more widely endorsed (i.e., they are endorsed by people with various political ideologies, whereas the ingroup/loyalty, authority/respect, and purity/sanctity values are only endorsed by a part of the population; Haidt & Graham, 2007). Based on our full-perspective hypothesis and the results from Study 4, we predicted that love would reduce endorsement of harm/care and fairness/reciprocity moral values compared to optimism or a neutral state.

Method

Participants and design. Sixty-seven undergraduate and postgraduate students (46 women, 16 men, 5 undisclosed; $M_{\text{age}} = 19.70$, $SD_{\text{age}} = 4.64$) took part in this study on voluntary basis. Participants were randomly assigned to one of three emotion conditions (love vs. optimism vs. neutral; 23, 22, and 22 participants per cell respectively). Nine participants were extreme outliers and thus excluded from further analysis (see Tabachnick & Fidell, 2000). After this exclusion, the final sample consisted of 58 participants (41 women, 14 men, 3 undisclosed; $M_{\text{age}} = 19.85$, $SD_{\text{age}} = 4.64$).
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4.96), of which 20 were in the love condition, 18 in the optimism condition, and 20 in the neutral condition.

Materials and procedure. Participants were students in the university library, who were asked by the experimenter if they wanted to participate in a short study. After participants gave their informed consent, they worked on the main questionnaire.

First, affective states (i.e., love, optimism, or neutral) were manipulated by autobiographical memory recall, then participants filled out the MFQ. In the first part, participants read “When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking?” They were then presented with 15 moral considerations, representing the five moral values, and rated them on six-point scales from 0 (not at all relevant) to 5 (extremely relevant). In the second part participants read “Please read the following sentences and indicate your agreement or disagreement” They were then presented with 15 moral statements, again representing the five moral values, and rated them on six-point scales from 0 (strongly disagree) to 5 (strongly agree). Afterwards participants were thanked and debriefed.

Results

Manipulation check. Emotion stories were rated in the same manner as in Study 2. Raters’ answers were combined into one score representing the experience of love ($r = .91, p < .001$) and one score representing the experience of optimism ($r = .79, p < .001$). The love manipulation was successful given that there was a higher rating of love experience in the love condition ($M = 5.79, SD = 0.82$) compared to the optimism condition ($M = 1.38, SD = 0.86$), $t(59) = 19.73, p < .001, d = 5.25$, and compared to the neutral condition ($M = 1.18, SD = 0.37$), $t(59) = 20.40, p < .001, d = 7.25$. Furthermore, the optimism manipulation was successful as there was a higher rating of optimism experience in the optimism condition ($M = 4.46, SD = 0.99$) compared to the love
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condition ($M = 1.69, SD = 0.70$), $t(59) = 13.52, p < .001, d = 3.23$, and compared to the neutral condition ($M = 1.03, SD = 0.11$), $t(59) = 16.36, p < .001, d = 4.87$.

Moral values. Our main research objective was to examine the effects of positive emotions on endorsement of more widely endorsed moral values (i.e., the harm/care and fairness/reciprocity moral values) and not to distinguish between the five separate moral values, therefore, we combined all harm/care and fairness/reciprocity items into an index of endorsement of moral values ($\alpha = .69$). For simplicity of presentation purposes, from now on—when we refer to the harm/care and fairness/reciprocity moral values—we will use the more general term ‘moral values’.

A one-way ANOVA showed an overall effect of the emotion condition on the extent to which participants endorsed the moral values, $F(2, 55) = 4.21, p = .02, \eta^2 = .13$. Specifically, a contrast analysis showed that the emotion love ($M = 4.14, SD = 0.43$) led to less endorsement of moral values compared to optimism ($M = 4.38, SD = 0.27$), $t(55) = 2.12, p = .04, d = 0.67$, but not compared to a neutral state ($M = 4.06, SD = 0.34; t < 1$). Furthermore, optimism led to more endorsement of moral value compared to a neutral state, $t(55) = 2.80, p = .01, d = 1.04$.

Discussion

Study 5 showed that in addition to influencing moral behaviors differently, love also led to less endorsement of moral values compared to optimism. Note that in this study neutral affect led to less endorsement of moral values compared to optimism, but not to a different level of endorsement compared to love. This inconsistency will be further discussed in the general discussion, but first we tested the predictions on the effects of other positive emotions in Study 6.
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Study 6: Amusement & Relaxation Versus Compassion & Inspiration on Moral Judgments

After showing that various positive emotions differed in the fulfillment-perspective mindsets they induce (Studies 1, 2, and 3), and that these mindsets predicted how love versus optimism influence moral judgment (Study 5) and behavior (Study 4), we extended the predictions of our full-perspective hypothesis to the effects of four additional emotions. In Study 6, we examined the effects of two emotions that induced a fulfilled, specific perspective mindset (i.e., amusement and relaxation) and two emotions that induced an unfulfilled, global perspective mindset (i.e., inspiration and compassion). Consistent with our hypothesis and findings in Study 1, we predicted that amusement and relaxation would lead to less endorsement of moral values compared to inspiration and compassion.

Method

Participants and design. Sixty-seven participants from the United States of America (38 women, 29 men; \( M_{\text{age}} = 35.27, SD_{\text{age}} = 12.73 \)) took part in this online study in exchange for $0.50 on Amazon’s Mturk (www.MTurk.com). Participants were randomly assigned to one of four emotion conditions (amusement vs. relaxation vs. compassion vs. inspiration; 18, 17, 17, and 15 participants per cell respectively). Sixteen participants failed to fill out the MFQ and could therefore not be included in the analyses. After this exclusion, the final sample consisted of 51 participants (28 women, 23 men; \( M_{\text{age}} = 34.96, SD_{\text{age}} = 11.10 \)), with 12 participants in the amusement, 13 participants in the relaxation, 14 participants in the compassion, and 12 participants in the inspiration condition.

Materials and procedure. Participants were recruited through Amazon’s mechanical turk (for an evaluation of the quality of data obtained through Mturk workers see Buhrmester, Kwang, & Gosling, 2011). As in previous studies,
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participants’ emotions were manipulated by means of an autobiographical memory recall task, however—as we included new emotions—the effectiveness of the manipulation needed to be pretested in a pilot study first.

**Pilot study.** This pilot study was conducted to check for the effectiveness of the emotion manipulation and to further examine the differences between the emotions on the fulfillment-perspective mindsets. Eight positive emotions were included in this pilot study. Based on Study 1, we predicted that the emotions relaxation, amusement, relief, and pride would induce a higher fulfillment mindset compared to the emotions alert, energetic, inspiration, and compassion. Furthermore, the emotions relief, pride, inspiration, and compassion were predicted to induce a more global perspective compared to relaxation, amusement, alert, and energetic.\(^5\)

Two hundred and seven undergraduate and postgraduate students (107 women, 94 men, 6 undisclosed; \(M_{age} = 20.27, \ SD_{age} = 3.95\)) participated in return for course credit or 4 Euros, and were randomly assigned to an emotion condition (amusement vs. relaxation vs. alert vs. energetic vs. relief vs. pride vs. compassion vs. inspiration; each cell contained 26 participants, except for the amusement condition which consisted of 25 participants). Participants recalled a situation in which they experienced the emotion, wrote down the feelings they experienced, and—as manipulation check—rated their agreement to statements that referred to their experiences during the recall. For each emotion, there was a statement referring to how it made them feel (e.g., ‘Recalling relaxation made me feel chilled out and calm.’) and a statement referring to how it made them think (e.g., ‘Recalling relief made me think about something unpleasant that stopped or ended up not happening.’). Participants rated their agreement on seven-point scales from 1 (not at all) to 7 (very much). Afterwards, participants rated their experienced fulfillment and perspective (see Study 1).
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For each emotion, both items were combined into an index measuring the experience of the emotion (all r’s > .22, all ps < .002, except for the ‘relief’ items which were, therefore, analyzed separately). As can be seen in Table 2, each manipulated emotion had the highest mean score on the measurement of that particular emotion (except for Item 1 measuring ‘relief’). Furthermore, contrast analyses showed that the experience of each particular emotion was significantly different for the manipulated emotion compared to all other emotions (except for Item 1 measuring ‘relief’; see Table 3).6

Consistent with Study 1, the emotions relaxation, amusement, relief, and pride (M = 5.54, SD = 1.47) induced more fulfillment (α = .63) compared to the emotions alert, energetic, inspiration, and compassion (M = 5.12, SD = 1.49), t(200) = 2.03, p = .04, d = 0.28. Furthermore, the emotions relief, pride, inspiration, and compassion (M = 4.88, SD = 1.34) induced a more global perspective (α = .61) compared to relaxation, amusement, alert, and energetic (M = 4.21, SD = 1.50), t(200) = 3.36, p = .001, d = 0.47.

Overall, these results demonstrated the effectiveness of the procedure as on only one of 16 items (one of the two ‘relief’ items) the results were different than expected. Two emotions inducing a fulfilled, specific perspective mindset (i.e., amusement, relaxation) and two emotions inducing an unfulfilled, global perspective mindset (i.e., inspiration, compassion) were selected for the main study.

Main study. Participants were recruited through Amazon’s Mturk. After reading a short introduction, participants gave their informed consent and worked on the main questionnaire. First, we manipulated participants’ emotions (amusement vs. relaxation vs. compassion vs. inspiration) by means of the autobiographical memory recall task as described above, then they filled out the MFQ (see Study 5), and the fulfillment and perspective items (see Study 1).
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Results

A contrast analysis showed that the emotions compassion ($M = 3.85$, $SD = 0.66$) and inspiration ($M = 3.97$, $SD = 0.44$)—associated with an unfulfilled, global perspective mindset—led to more endorsement of moral values ($\alpha = .71$) compared to the emotions amusement ($M = 3.57$, $SD = 0.53$) and relaxation ($M = 3.54$, $SD = 0.60$)—associated with a fulfilled, specific perspective mindset, $t(47) = 2.21$, $p = .03$, $d = 0.63$.

As in Study 1 and in the pilot study, the emotions relaxation and amusement ($M = 5.98$, $SD = 1.61$) induced a higher sense of fulfillment ($\alpha = .75$) compared to inspiration and compassion ($M = 4.74$, $SD = 1.74$), $t(47) = 2.54$, $p = .01$, $d = 0.74$.

Furthermore, inspiration, and compassion ($M = 4.78$, $SD = 0.97$) induced a more global perspective ($\alpha = .64$) compared to relaxation and amusement ($M = 3.89$, $SD = 1.49$), $t(47) = 2.59$, $p = .01$, $d = 0.71^7$.

Discussion

First, the pilot of Study 6 replicated the different effects of 8 positive emotions on the fulfillment-perspective mindsets. More importantly, however, Study 6 supported the predictive value of our full-perspective hypothesis as it showed that it did not only predict the effects of love versus optimism on morality, but the effects of four additional emotions (i.e., inspiration, compassion, amusement, and relaxation) as well.

Specifically, it showed that compassion and inspiration—inducing an unfulfilled, global perspective mindset—led to more moral judgments compared to amusement and relaxation—inducing a fulfilled, specific perspective mindset. After establishing the effects of six positive emotions on the proposed mindsets and on moral judgments and behavior, Studies 7 and 8 were designed to further examine the underlying process.

Study 7: Fulfillment on Moral Judgments

The differences between positive emotions on the fulfillment and perspective mindset components (Studies 1, 2, and 3) have shown to be predictive of how positive
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emotions influence moral judgments and behavior (Studies 4, 5, and 6). Studies 7 and 8 were designed to provide further support for our full-perspective hypothesis by directly testing the effects of the mindset components on moral judgments. Considering that the proposed importance of ‘globality of perspective’ for morality has already been reported in the literature (e.g., Eyal et al., 2008), we first focused on ‘perceived goal-fulfillment’ separately in Study 7. We predicted that perceived goal-fulfillment would lead to less endorsement of moral values compared to unfulfillment.

Method

Participants and design. Fifty-one undergraduate and postgraduate students (17 women, 33 men, 1 undisclosed; $M_{age} = 20.54$, $SD_{age} = 2.55$) took part in this study on a voluntary basis. Participants were randomly assigned to one of two fulfillment conditions (fulfilled vs. unfulfilled; 28 and 23 participants per cell respectively). Two participants failed to fill out the fulfillment manipulation and were therefore excluded from further analyses. After this exclusion, the final sample consisted of 49 participants (16 women, 32 men, 1 undisclosed; $M_{age} = 20.57$, $SD_{age} = 2.60$), with 26 participants in the fulfilled and 23 participants in the unfulfilled condition.

Materials and procedure. Participants were recruited on the university campus. Volunteers gave their informed consent and worked on the main questionnaire. First, perceived goal-fulfillment (i.e., fulfilled vs. unfulfilled) was manipulated by asking participants to think about an important need or goal that they had fulfilled (vs. not fulfilled yet) and to write about this need or goal. Then participants filled out the MFQ (see Study 5), followed by our fulfillment measure (Study 1) as manipulation check. Afterwards participants were thanked and debriefed.

Results and Discussion

Perceived goal-fulfillment. The 5 items measuring perceived goal-fulfillment were combined ($\alpha = .73$), and as expected, perceived goal-fulfillment was higher in the
fulfillment ($M = 5.18$, $SD = 1.49$) than in the unfulfillment condition ($M = 3.34$, $SD = 1.14$), $t(47) = 4.08$, $p = .001$, $d = 1.39$.

**Moral values.** As in Studies 5 and 6, we combined the harm/care, fairness/reciprocity items into an index of endorsement of moral values ($\alpha = .63$). As predicted, we found that an unfulfillment state led to a higher endorsement of moral values ($M = 3.97$, $SD = 0.40$) compared to a fulfillment state ($M = 3.70$, $SD = 0.50$), $t(47) = 2.08$, $p = .04$, $d = 1.35$. This is additional support for our full-perspective hypothesis as it shows that perceived goal-fulfillment reduces people’s moral considerations. The underlying processes for both mindset components were further examined in Study 8.

**Study 8: Striving to Fulfill & Perspective on Moral Judgments**

After showing that an unfulfillment state led to more endorsement of moral values compared to a fulfillment state (Study 7), Study 8 was designed to test two additional aspects of our full-perspective hypothesis. First, we tested the argument that unfulfillment is a ‘motivational’ factor influencing morality. Second, we tested if a global (vs. specific) perspective leads to more consideration of superordinate goals, such as moral values.

We predicted that unfulfillment would only lead to more endorsement of moral values if people were still striving to reach goal-fulfillment (i.e., they were still motivated). Furthermore, we expected that a global (vs. specific) perspective would lead to more endorsement of moral values. Given that our hypothesis predicted that motivation and perspective both influence moral judgments independently, we did not expect to find an interaction effect between these two independent variables.

**Method**

**Participants and design.** Seventy-eight participants from 13 different countries (33 women, 45 men; $M_{age} = 34.14$, $SD_{age} = 11.98$) took part in this online study in
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exchange for $0.50 on Amazon’s Mturk. Participants were randomly assigned to one of four conditions of a 2 (unfulfillment: striving to fulfill vs. not striving to fulfill; 39 and 39 participants per cell respectively) x 2 (perspective: specific vs. global; 40 and 38 participants per cell respectively) factorial design. Three participants failed to complete the MFQ and could therefore not be included in the analyses. After this exclusion, the final sample consisted of 75 participants (33 women, 42 men; $M_{age} = 34.53, SD_{age} = 12.05$), with 37 participants in the striving to fulfill and 38 participants in the not striving to fulfill condition, and with 39 participants in the specific and 36 in the global condition.

**Materials and procedure.** After reading a short introduction, participants gave their informed consent and worked on the main questionnaire.

**Unfulfillment manipulation.** After filling out demographic information, participants’ experience of an unfulfillment state was manipulated. Following our argument that ‘motivation’ is the underlying factor of unfulfillment that explains its effects on morality, we manipulated motivation within the experience of unfulfillment. We did this by asking participants to either recall an important need or goal that they were still striving to fulfill, or to recall an important need or goal that they missed to fulfill. Both recall conditions induced the experience of unfulfillment; however, the motivational component of ‘striving’ was directly included in the first condition whereas ‘striving’ was excluded in the latter condition.

**Perspective manipulation.** Perspective was manipulated within the experience of unfulfillment. Freitas, Gollwitzer, and Trope (2004) have shown that ‘why’ questions induce an abstract, high-level mindset, whereas ‘how’ questions induce a concrete, low-level mindset. Following this rationale, in the specific perspective condition we asked participants *how they were trying to fulfill this need or goal*, and in the global
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perspective condition we asked participants why they were trying to fulfill this need or goal.

Then—as a measurement of moral judgment—participants filled out the MFQ (see Study 5). To ensure that participants in both unfulfillment conditions experienced the same degree of unfulfillment, we had them fill out the 5 fulfillment questions (see Study 1). Afterwards participants were thanked and debriefed.

Results

Perceived goal-fulfillment. An independent samples t-test confirmed that there was no difference in perceived goal-fulfillment ($\alpha = .67$) between the ‘striving to fulfill’ ($M = 3.42, SD = 1.32$) and the ‘missed to fulfill’ ($M = 3.18, SD = 1.47$) conditions ($t < 1$).

Moral values. The items measuring endorsement of the harm/care and fairness/reciprocity moral values were combined into an index of endorsement of moral values ($\alpha = .79$). A two-way ANOVA revealed a significant main effect of the unfulfillment conditions, $F(1, 71) = 4.57, p = .04, \eta^2 = .06$, a significant main effect of the perspective conditions, $F(1, 71) = 4.42, p = .04, \eta^2 = .06$, however—as expected—no interaction between both conditions ($F < 1$). Specifically, participants in the ‘striving to fulfill’ unfulfillment condition ($M = 3.63, SD = 0.65$) endorsed moral values to a greater degree than participants in the ‘missed to fulfill’ unfulfillment condition ($M = 3.31, SD = 0.72$). Furthermore, inducing an global perspective ($M = 3.63, SD = 0.51$) caused participants to endorse moral values more compared to inducing a more specific perspective ($M = 3.31, SD = 0.81$; see Figure 2).$^{10}$

Discussion

Study 8 makes three important contributions to support our full-perspective hypothesis. First, it shows that it was not merely feeling unfulfilled that made people make more moral judgments, but it rather was the ‘motivational’ factor that underlies
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the unfulfillment state that caused this effect. Second, it shows that a global (vs. specific) perspective leads to more endorsement of moral values. This finding supports our hypothesis and it further adds to the notion that global versus specific perspectives affect morality. The third contribution was that the effects of ‘the motivation to fulfill’ and ‘perspective’ on moral judgments were independent from each other as they both had a main effect, but there was no interaction between the two conditions. This finding is crucial for our full-perspective hypothesis as it shows that both mindset components have effects on morality independently from each other, and can thus separately and in combination predict moral outcomes.

General discussion

We pose that moral judgments and behaviors are influenced by positive emotions. Specifically, we argue that positive emotions differ in the ways they influence these moral outcomes, and that particular mindsets induced by positive emotions are ‘carried over’ to the moral situation, explaining how each positive emotion influences moral judgments and behaviors.

Study 1 placed 14 positive emotions on the fulfillment-perspective mindsets. Based on the location of each emotion on these mindsets, we contrasted emotions that induce a fulfilled, specific perspective mindset (e.g., love) to emotions that induce an unfulfilled, global perspective mindset (e.g., optimism). Studies 2 and 3 supported the finding of Study 1 that love induces a relative fulfilled, specific perspective mindset compared to optimism. Additionally, Study 2 showed that love and optimism do not differ in experienced valence or arousal. Study 4 confirmed our main prediction that emotions that induce a fulfilled, specific perspective mindset (i.e., love) lead to less moral behavior compared to emotions inducing a relative unfulfilled, global perspective mindset (i.e., optimism). Study 5 showed similar effects of love versus optimism on moral judgment. Then, the pilot of Study 6 consistently showed the different effects of
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eight positive emotions on the fulfillment-perspective mindsets, and the main study extended the support of the predictive value of our full-perspective hypothesis by showing that amusement and relaxation lead to less moral judgments compared to inspiration and compassion. These findings are consistent with Study 1, which showed that amusement and relaxation lead to a fulfilled, specific perspective mindset and that inspiration and compassion lead to a relatively unfulfilled, global perspective mindset. Study 7 showed that directly manipulating a fulfillment (vs. unfulfillment) mindset causes people to endorse moral values less. Finally, Study 8 supported our claim that it is the ‘motivational factor’ of an unfulfillment state that influences morality. Furthermore, it showed that a global (vs. specific) perspective leads to more moral judgments as well, independent of the motivational state.

Most importantly, these findings support our assumptions that exogenous positive emotions lead to different moral outcomes and that these effects are rooted in the different mindsets that these emotions induce. Considering that morality is often associated with overcoming short-term benefits, and values and principles, it is safe to assume that people’s motivational state matters. A state in which one’s goals are perceived as unfulfilled is likely to put people in a motivational state that facilitates moral outcomes. In addition, as moral considerations are associated with collective and long-term consequences, a global perspective is expected to lead to more focus on moral concerns than a specific perspective. Therefore, positive emotions that induce a fulfilled, specific perspective mindset (e.g., love, amusement, relaxation) cause people to make less moral judgments and behaviors compared to emotions that induce a relative unfulfilled, global perspective mindset (e.g., optimism, inspiration, compassion).

We tested our meditational model in a causal chain (e.g., Spencer et al., 2005) by showing that the independent variable (i.e., positive emotions) influences the
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proposed mediator (i.e., fulfillment-perspective mindsets; Studies 1, 2, 3, and 6), that the proposed mediator influences the dependent variable (i.e., moral judgments; Studies 7 and 8), and that the independent variable influences the dependent variable (i.e., moral judgments and behaviors; Studies 4, 5, and 6).

Positive Emotions and Morality: Contribution, Limitations, & Future Research

Historically, most research examining affective influences on morality has focused on the effects of positive or negative affect in general, or on the effects of negative emotions. Although it is understandable that most of the emotion research has focused on how negative emotions influence morality—given that moral dilemmas are more likely to bring along negative than positive emotions—it is also important to consider the effects of positive emotions as they influence morality as well. Fredrickson (1998) argued that positive emotions differ from negative emotions because positive emotions broaden one’s awareness and build skills and resources. We go beyond this claim by focusing on the difference between various positive emotions. In general, positive affect may broaden one’s awareness, however not all positive emotions ‘broaden’ to the same extent and some may even induce a relative specific perspective.

We add to the existing emotion and morality literature by testing the effects of exogenous positive emotions, some of which (e.g., optimism) have not been examined in relation to morality. More importantly, we provide a theoretical framework to explain the incidental effects of a wide variety of positive emotions. We have shown that our theoretical framework predicts the effects of six positive emotions (i.e., love, optimism, relaxation, amusement, compassion, and inspiration) on morality, however, our full-perspective hypothesis allows for predictions for an even wider variety of positive emotions.

Based on emotion literature, 14 prototypical positive emotions that we expected to differ from each other in which mindsets they would induce, were selected. So far,
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these 14 positive emotions have been placed on the fulfillment and perspective mindset components, allowing for predictions of incidental effects on morality. For example, considering that gratitude induces a relative unfulfilled, global perspective mindset compared to amusement, gratitude would be predicted to lead to more moral outcomes. Consistent with this prediction, Bartlett and DeSteno (2006) showed that gratitude leads to more helping compared to amusement. However, the incidental effects of many positive emotions still have to be tested, and Study 1—combined with our full-perspective hypothesis—allows for predictions with regard to the 14 positive emotions. Future research should consider expanding the approach by including additional positive emotions (e.g., contentment, enthusiasm, euphoria, joy).

Previous research has touched on the relevance of both goal-fulfillment and people’s perspectives for the explanation of moral outcomes (e.g., Conway & Peetz, 2012). However, our research is the first that links these mindset components to emotions, allowing for predictions of exogenous positive emotions on moral outcomes. Additionally, to justify the importance of both components as separate entities that touch on distinct processes, we gave 122 participants a full-perspective grid (i.e., the original affect grid adjusted to the fulfillment and perspective components; Appendix A) to indicate their current state. Based on an absence of a correlation between the experienced fulfillment and perspective mindset components ($r = -.13, p = .15$), we can conclude that these two components function independently from each other (see also Study 8). To further validate the full-perspective hypothesis, future research should attempt to manipulate the two mindset components independently from each other within emotions (e.g., fulfilled vs. unfulfilled love) to further explore the importance of both components for explaining the effects that positive emotions have on moral outcomes.
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We acknowledge similarities of our process framework with research on appraisal tendencies (e.g., Lerner & Keltner, 2000; Smith & Ellsworth, 1985); however, the previously identified appraisals do not appear to be particularly related to morality, and are therefore not instrumental for this current research. Furthermore, whereas appraisal theory focuses on the interpretation of the situation as cause of the emotion, we focus directly on the cognitive and motivational consequences (i.e., mindset) that are linked to morality. Certainly, our approach is not an alternative to appraisal approaches, but rather a specific appraisal approach, focusing on the mindsets that develop from people’s emotional experiences.

Better or worse than neutral affect? The effects of positive emotions compared to a neutral affective state need to be further explored. We have made a start by examining how love and optimism influence morality compared to a neutral state, however, the results are not entirely conclusive in this regard. When moral outcomes were measured on a measurement of moral judgment in which the negative implications for another person were quite explicit (e.g., Whether or not someone suffered emotionally), we found that a neutral state led to the same level of moral judgments as love, but less moral judgments than optimism. However, when moral outcomes were measured with regard to moral behavior in which the negative implications for another person were more implicit (e.g., cheating on a math task), we found that a neutral state led to the same level of moral behavior as optimism and more moral behavior than love. This suggests that the relative effects of love and optimism compared to a neutral state might depend on the particular morality measure used (e.g., personal vs. impersonal moral violations; values vs. behavior). Future research should further examine the effects of positive emotions in comparison to a neutral affective state in various moral situations. Importantly, however, the relationship between love and optimism with
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regard to morality was stable across all studies, which speaks for our theoretical framework on positive emotions.

Endogenous positive emotions. Our full-perspective hypothesis does not make predictions about the effects of endogenous positive emotions on moral outcomes. When an emotion is endogenous to a moral dilemma, the relationship between the situation and the emotion can cause the emotions to have different—even opposite—effects than if the emotion is exogenous (e.g., endogenous vs. exogenous guilt; De Hooge, Nelissen, Breugelmans, & Zeelenberg, 2011). This explains seemingly inconsistent results of positive effects of endogenous love on pro-social behavior (Guéguen & Lamy, 2011). Furthermore, if the moral dilemma is likely to induce endogenous negative emotions—for example, when the moral dilemma entails a personal moral violation (e.g., Greene & Haidt, 2002)—these endogenous negative emotions may override the effects of exogenous positive emotions.

Fulfillment. In addition to adding to the emotion literature, this research also adds to the literature on morality. By testing how moral judgments can be influenced by particular mindsets, we show which mindsets facilitate (vs. impede) moral outcomes. Specifically, we showed that perceived goal-unfulfillment—inducing a motivation to reach a desired state—increases endorsement of moral values, and that this effect of unfulfillment is due to the influence it has on a person’s motivational state. To our knowledge, the relationship between perceived goal-fulfillment (of non-moral goals) and moral judgments has not been shown before.

Perspective. Our research extends research on positive affect and self-regulation, and the importance of superordinate and long-term goals. Trope and colleagues (2006; Gervey et al., 2005; Raghunathan & Trope, 2002) have shown that positive mood increases action in accordance with superordinate, long-term goals. Our research adds to this notion by showing that attunement to superordinate, long-term
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goals (i.e., a global perspective) also facilitates moral outcomes. Our approach differs, however, by showing that some positive affective states (e.g., love) induce a rather specific perspective.

Furthermore, research on construal level theory (e.g., Liberman & Trope, 2008) has shown that values and principle —such as moral values and principles —are more predictive of behavioral intentions for distant future (i.e., long-term) than for near future (i.e., short-term) situations (e.g., Eyal, Sagristano, Trope, Liberman, & Chaiken, 2009). Our research supports this association as we show that a global (i.e., broad, long-term) perspective leads to more endorsement of moral values (i.e., high-level values) than a specific (i.e., narrow, short-term) perspective. However, whereas construal level theory argues that effects of psychological distance (e.g., temporal distance) on outcomes (e.g., choice) are mediated by construal levels (e.g., for high-level construals a focus on global goals) we do not make this causal assumption and simply argue that two perspective types associated with emotions—time perspective (short- vs. long-term) and globality (specific, self vs. broad, collective)—are crucially related to moral outcomes.

It should be noted that our approach is consistent with the notion of many of the earlier research on affect and cognition and on mental construals. However, our full-perspective hypothesis is an integrative approach that accounts for diverse effects of various positive emotions, and our approach extends earlier approaches by conceptualizing two mindset components: goal-fulfillment and perspective.

Conclusions

Morality matters. It matters as it influences whether a brave whistle blower gets rewarded versus punished, whether journalists lie to promote their own political agenda, whether rape is considered a crime, and whether people abuse their power. But also in smaller instances—in everyday life—morality matters. It influences whether people help each other, whether people cheat in games, exams, or relationships, whether people
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recycle, buy free range eggs, or a Hummer, whether taxes are being paid, whether people lie to their loved ones, and whether people pay for the delicious red cherries at the unmanned French farmer’s stall.

Morality is reflected in people’s judgments and behaviors, therefore, it is important to increase our understanding of how it is influenced by factors such as emotions. Our full-perspective hypothesis explains how exogenous positive emotions influence moral outcomes. In addition to a theoretical contribution of how positive emotions influence morality, there are also more practical implications of our research. By increasing our knowledge on which positive emotions facilitate moral considerations, moral decisions and behaviors can be optimized when moral outcomes are important. Also, by identifying mindsets that promote moral considerations, we can say with some certainty that encouraging particular ways of thinking can contribute to decisions and behaviors that have positive outcomes for the collective and in the long-term. To conclude, rather than discouraging the experience of some positive emotions (e.g., love, relaxation, or amusement), we would like to encourage the promotion of other positive emotions (e.g., optimism, compassion, and inspiration). So maybe the French farmer does not need to disturb the relaxing country road with loud, aggressive dogs, but rather find a way to make the people passing by feel optimistic, compassionate, or inspired.
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Spencer, S. J., Zanna, M., & Fong, G. T. (2005). Establishing a causal chain: Why experiments are often more effective than mediational analyses in examining
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Footnotes

1 Optimism is a positive emotion (e.g., Parrott, 2001; Peterson, 2006; Plutchik, 2001) which can also be a trait, attitude, or explanatory style; however, in this research we focus on the emotional experience of optimism.

2 Some studies (i.e., 4 and 6) have a rather small sample size, however, despite the small sample sizes, the effects still reach significance. As argued by Twenge and colleagues (2007, p. 57), this is not a problem as “consistent replication with small samples is a statistically more conservative test than is significance in one large sample.” In the discussion of this dissertation, the differences in sample sizes will be discussed and post hoc power analyses will be conducted.

3 The emotion ‘alert’ induced a more global perspective than predicted. This is mainly due to a very low score on the item ‘to what extent did you feel like the outside world didn't seem to exist?'; measuring a specific perspective. Although the other items indicate that alert leads to a specific mindset, this item indicates that it does not cause people to forget about the outside world.

4 Although no specific predictions were made, for exploratory purposes, we also examined the effects of the emotion conditions on endorsement of the conservative moral values (α = .68). Seventeen participants were extreme outliers and thus excluded from further analysis (see Tabachnick & Fidell, 2000). Contrast analyses showed no difference in endorsement of conservative moral values between the optimism (M = 2.68, SD = 0.43) and love (M = 2.83, SD = 0.34) conditions (t < 1), between the optimism and neutral (M = 2.78, SD = 0.54) conditions (t < 1), nor between the love and neutral conditions (t < 1).

5 To form a basis for exploring the effects of multiple positive emotions, more emotions were included in this pilot study than that would be tested in the main study.
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For simplicity of representation purposes, not all 28 contrasts between all separate emotions were reported. However, further details can be provided upon request.

Consistent with Study 5, contrast analyses showed that there was no difference in endorsement of conservative moral values ($\alpha = .94$) between the amusement, relaxation ($M = 2.48, SD = 0.80$) and the inspiration, compassion ($M = 2.57, SD = 1.20$) conditions ($t < 1$).

To ensure that the fulfillment manipulation did not influence participants’ perspective, we analyzed the effects on the perspective items as well and found that none of the perspective items were influenced by the fulfillment manipulation (all $t$s < 1).

Contrast analyses showed no difference in endorsement of conservative moral values ($\alpha = .72$) between the fulfillment ($M = 2.65, SD = 0.49$) and unfulfillment ($M = 2.70, SD = 0.64$) conditions ($t < 1$).

Consistent with Studies 5, 6, and 7, a two-way ANOVA with the unfulfillment and perspective conditions as independent variables, and endorsement of conservative moral values ($\alpha = .92$) as dependent variable revealed no main effect of the unfulfillment conditions, $F(1, 71) = 1.99, p = .16, \eta^2 = .03$, no main effect of the perspective conditions ($F < 1$), nor an interaction between both conditions ($F < 1$).
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#### Table 1

*Predictions on the Location of Positive Emotions in the Fulfillment and Perspective Clusters (Study 1).*

<table>
<thead>
<tr>
<th></th>
<th><strong>Specific Perspective</strong></th>
<th><strong>Global Perspective</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fulfilled</strong></td>
<td>Love (Baumeister &amp; Leary, 1995; Steck et al., 1982)</td>
<td>Pride (Liberman et al., 2007; Shiota et al., 2004; Smith &amp; Ellsworth, 1985; Tangney, 1999)</td>
</tr>
<tr>
<td></td>
<td>Relaxation (Panayiotou et al., 2007; Riva et al., 2007)</td>
<td>Relief (Frijda et al., 1989; Nawrat &amp; Dolinski, 2007; Roseman, Spindel, &amp; Jose, 1990)</td>
</tr>
<tr>
<td></td>
<td>Amusement (Algoe &amp; Haidt, 2009; Panayiotou et al., 2007; Shiota et al., 2004)</td>
<td>Satisfaction (Kiviniemi et al., 2002; Le, 2011)</td>
</tr>
<tr>
<td><strong>Unfulfilled</strong></td>
<td>Horny (Förster et al., 2010; Frommer, 2006; Panksepp, 1998)</td>
<td>Optimism (Liberman et al., 2007; Smith &amp; Ellsworth, 1985; Strathman et al., 1994; Tiger, 1979)</td>
</tr>
<tr>
<td></td>
<td>Energetic (Kruglanski et al., 2012)</td>
<td>Gratitude (Bartlett &amp; DeSteno, 2006; Cohen, 2006; Fredrickson, 1998; Roberts, 2004; Solomon, 2004)</td>
</tr>
<tr>
<td></td>
<td>Alert (Fox, 2008)</td>
<td>Inspiration (Algoe &amp; Haidt, 2009; Tacey, 2010; Thrash &amp; Elliott, 2004)</td>
</tr>
<tr>
<td></td>
<td>Flow (Csikszentmihalyi, 1990; Fox, 2008; Keller &amp; Blomann, 2008)</td>
<td>Compassion (Batson et al., 1995; Goetz et al., 2010; Weiner, 1986)</td>
</tr>
</tbody>
</table>
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Table 2

*Emotion Manipulation Check as a Function of Manipulated Positive Emotions (Pilot of Study 6).*

<table>
<thead>
<tr>
<th>Manipulated Emotion</th>
<th>Alert</th>
<th>Amusement</th>
<th>Compassion</th>
<th>Energetic</th>
<th>Inspiration</th>
<th>Pride</th>
<th>Relaxation</th>
<th>Relief</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement of</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Alert</td>
<td>5.62</td>
<td>1.12</td>
<td>3.88</td>
<td>1.24</td>
<td>3.76</td>
<td>1.45</td>
<td>4.54</td>
<td>1.23</td>
</tr>
<tr>
<td>Amusement</td>
<td>3.79</td>
<td>1.46</td>
<td><strong>6.14</strong></td>
<td>0.76</td>
<td>3.56</td>
<td>1.87</td>
<td>5.63</td>
<td>0.83</td>
</tr>
<tr>
<td>Compassion</td>
<td>3.98</td>
<td>1.16</td>
<td>3.98</td>
<td>1.14</td>
<td><strong>4.94</strong></td>
<td>1.29</td>
<td>3.67</td>
<td>1.46</td>
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<tr>
<td>Energetic</td>
<td>5.31</td>
<td>1.41</td>
<td>4.84</td>
<td>1.37</td>
<td>4.44</td>
<td>1.24</td>
<td><strong>6.10</strong></td>
<td>1.01</td>
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<tr>
<td>Inspiration</td>
<td>4.98</td>
<td>1.40</td>
<td>4.64</td>
<td>1.39</td>
<td>4.76</td>
<td>0.99</td>
<td>5.37</td>
<td>1.14</td>
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<tr>
<td>Pride</td>
<td>5.04</td>
<td>1.36</td>
<td>5.04</td>
<td>1.18</td>
<td>4.28</td>
<td>1.49</td>
<td>5.33</td>
<td>1.36</td>
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<td>Relaxation</td>
<td>3.02</td>
<td>1.35</td>
<td>4.94</td>
<td>1.55</td>
<td>3.52</td>
<td>1.50</td>
<td>4.10</td>
<td>1.51</td>
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<td>Relief Item 1</td>
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<td>1.52</td>
<td>5.40</td>
<td>1.22</td>
<td>4.21</td>
<td>1.67</td>
<td>5.12</td>
<td>1.53</td>
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<tr>
<td>Relief Item 2</td>
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<td>1.96</td>
<td>2.56</td>
<td>1.50</td>
<td>3.12</td>
<td>1.92</td>
<td>2.50</td>
<td>1.75</td>
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</table>

*Note:* Highest score on each emotion manipulation measure is indicated by a **bold** letter type.
### Table 3

*Experience of Emotions as a Function of Manipulated Positive Emotions (Pilot of Study 6)*

<table>
<thead>
<tr>
<th>Manipulated Emotion</th>
<th>Target Emotion</th>
<th>Other Emotions</th>
<th>Measurement of</th>
<th>M (a)</th>
<th>SD (a)</th>
<th>M (b)</th>
<th>SD (b)</th>
<th>t</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert</td>
<td>5.62&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.12&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.00&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.34&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6.04***</td>
<td>1.31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amusement</td>
<td>6.14</td>
<td>0.76</td>
<td>4.76</td>
<td>1.47</td>
<td>5.35***</td>
<td>1.18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compassion</td>
<td>4.94</td>
<td>1.29</td>
<td>4.10</td>
<td>1.25</td>
<td>3.17**</td>
<td>0.66</td>
<td></td>
<td></td>
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<tr>
<td>Energetic</td>
<td>6.10</td>
<td>1.01</td>
<td>5.01</td>
<td>1.42</td>
<td>4.13***</td>
<td>0.88</td>
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<td>Inspiration</td>
<td>5.79</td>
<td>1.29</td>
<td>4.92</td>
<td>1.29</td>
<td>3.33***</td>
<td>0.67</td>
<td></td>
<td></td>
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<tr>
<td>Pride</td>
<td>5.85</td>
<td>1.10</td>
<td>4.85</td>
<td>1.41</td>
<td>3.51***</td>
<td>0.79</td>
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<td>4.05</td>
<td>1.44</td>
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<td>1.70†</td>
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<tr>
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<td>2.64</td>
<td>1.61</td>
<td>4.56***</td>
<td>0.89</td>
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</tr>
</tbody>
</table>

*Note:* Target Emotion = The manipulated emotion that was targeted to be measured by the particular emotion manipulation check (see<sup>a</sup> as example); Other Emotions = All emotions that were not targeted to be measured by the particular emotion manipulation check (see<sup>b</sup> as example).<sup>a</sup> The mean score and standard deviation for the measurement of ‘alert’ when ‘alert’ was manipulated.<sup>b</sup> The mean score and standard deviation of the measurement on ‘alert’ when ‘alert’ was not manipulated (i.e., the scores in the amusement, compassion, energetic, inspiration, pride, relaxation, and relief conditions).<sup>†</sup> p ≤ .10; ** p ≤ .01; *** p ≤ .001
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Figure 1: Fulfillment-Perspective Mindsets Induced by 14 Positive Emotions (Study 1).

Note: Mindset Components are measured on 11-point scales.
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Figure 2: Endorsement of Moral Values as a Function of Motivation and Perspective
(Study 8).
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Appendix A

Fulfillment x perspective grid

This matrix is designed to represent people’s current state. The axes of the matrix are labeled to represent your current state (see explanation below).

The horizontal axis:
Represents whether you live in the moment and focus on specific things (left), or focus on the future and ‘the bigger picture’ (right)

The vertical axis:
Represents how much you feel like your needs and goals are fulfilled: Unfulfilled (bottom) to fulfilled (top)

Write an ‘X’ in a location in the Grid that best represents your current state.
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Chapter 3: Love Versus Optimism on Social Dilemmas

“The individual benefits as an individual from his ability to deny the truth even though society as a whole, of which he is part, suffers” (Hardin, 1968, p. 1244)

Abstract

Based on the notion that various emotions influence judgments and decisions differently, we argue that positive emotions differ in the extent to which these judgments and decisions reflect collective or private interests. Specifically, we suggest that positive emotions associated with fulfilled motivational states and specific perspectives (e.g., love) lead to less judgments and decisions that serve the collective (vs. private) interest than emotions that are associated with unfulfilled motivational states and rather global perspectives (e.g., optimism). Based on this distinction, we tested in the context of social interdependence whether love would lead to less judgments and decisions that serve the collective (vs. private) interest than optimism. As predicted, love led to less judgments and decisions that serve the collective (vs. private) interest compared to optimism in economic common good dilemmas (Studies 1 and 6), in a modified prisoner’s dilemma (Study 2), in situations where environmentally damaging decisions conflicted with private benefits (Studies 3 & 6), and in third-party punishment dilemma situations (Studies 4 & 5). These findings support our general assumption that positive emotions differ in their effects on judgments and decisions serving the collective versus private interest.

Keywords: Moral Decision Making, Emotions and Judgments and Decision Making, Emotions and Social Dilemmas, Love, Optimism
In everyday life, people experience a variety of positive emotions. One might feel optimistic about writing a high-quality manuscript or experience love when glancing at a new date’s profile picture on Facebook. Imagine that when experiencing either of these emotions you are faced with an unrelated situation, one in which your private interest conflicts with the collective interest. Would different positive emotions influence you in diverse ways? And how could others’ positive emotions influence your private outcomes? For example, your housemate and you share the food in a fridge, but while you are cycling to the university, she opens the fridge, spots the jar with the big, juicy Spanish olives, and is tempted to eat all of them, including your share. Would it matter whether your housemate experienced optimism about her work or love towards her new date when opening the fridge? Our research aims to explain how positive emotions differ in their effects on decisions affecting collective (vs. private) interests in situations like these.

**Behavior in Line With Collective Interests Overlaps With What is Called ‘Moral Behavior’**

Decisions are regarded immoral if they violate the impartial consideration of each individual’s interests, without being backed up by good reasons (e.g., Rachels & Rachels, 2010). For example, selfish, unfair, and egoistic decisions are usually considered immoral (e.g., Agerström & Björklund, 2009; Batson et al., 1999; Caruso, 2010; Cubitt, Drouvelis, Gächter, & Kabalin, 2011; Lynn & Oldenquist, 1986). Social dilemmas—exemplars of social interdependence situations in which each individuals’ outcomes rely on each other’s actions (Deutsch, 1949)—are frequently used as measures of moral decision making (e.g., Joireman, Van Lange, Kuhlman, Van Vugt, &
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Shelley, 1997; Mulder, 2008) as they capture a core component of moral problems: the conflict between private and collective interests.

Usually, the immediate payoff for an individual is higher if he or she acts purely based on private interest, however, pursuit of one’s private interest can have disastrous effects for the collective interest (e.g., Kerr, 1983). Therefore, decisions based on the collective (vs. private) interest are often considered more moral (vs. immoral; Cubitt et al., 2011). In general, it is beneficial in the long-term for multiple people, if an individual’s behavior serves the collective interest. For the individual, this poses a conflict between the more global (collective, long-term) consequences and the rather specific (individual, short-term) consequences of his or her actions. In such situations, resisting the pursuit of one’s private interests requires that the individual is attuned to the global consequences and it often requires effort to forego one’s interest in exchange for interests of many. What is the role of positive emotions when private and collective interests are conflicting? Which positive emotions will enhance (vs. decrease) judgments and decisions serving collective interests in interdependence situations? That is, which positive emotions will enhance versus decrease moral judgments and decisions?

Affect and Morality

Research on emotions and morality has shown that the same specific emotion can have different influences depending on whether it is endogenous or exogenous to the moral situation (e.g., Zeelenberg, Nelissen, Breugelmans, & Pieters, 2008), that is, whether an emotion is integral to the situation (i.e., endogenous emotions) or whether the emotion is invoked by a factor unrelated to the situation (i.e., exogenous emotions). This indicates that people’s thoughts and decisions can be influenced by affective states in many different ways. Therefore, it is important to specify which particular affective
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states are involved, which judgments and decisions are affected, and which processes explain the consequences of these states.

Our research focuses on the moral consequences of different positive emotions. Generally, a positive affective state has been associated with pro-social behavior (e.g., Isen, Shalker, Clark, & Karp, 1978) and with an increased likelihood of appropriate moral judgments (e.g., in the footbridge dilemma; ValdeSolo & DeSteno, 2006).

Recently, the differential effects of various specific emotions on moral decision making have received more attention (e.g., Haidt, 2001); however, the focus has mainly been on specific negative emotions (e.g., shame, guilt, disgust) and on situations in which the emotions are endogenous. Extensive research on the effects of emotions on behavior serving the collective (vs. private) interest in social dilemma situations indicates that cooperation can be influenced by communicated endogenous emotions (e.g., Wubben, de Cremer, & van Dijk, 2011), experienced endogenous emotions (e.g., Ketelaar & Au, 2003), and exogenous negative emotions (e.g., De Hooge, Nelissen, Breugelmans, & Zeelenberg, 2011; Martínez, Zeelenberg, & Rijsman, 2011).

The question of how different exogenous positive emotions lead to differences in judgments and decisions serving collective (vs. private) interests has thus far rarely been examined. Bartlett and DeSteno (2006) showed that exogenous gratitude leads to more helping compared to exogenous amusement. Also, a number of studies showed that exogenous elevation leads to more altruistic behaviors than general positive affect (Schnall, Roper, & Fessler, 2010), less permissiveness for deontological moral violations than mirth (Strohminger, Lewis, & Meyer, 2011), stronger moral motivations than joy or amusement (Algoe & Haidt, 2009), and it increases nursing and hugging of infants by breastfeeding women (Silvers & Haidt, 2008). This literature suggests that positive exogenous emotions can have very different effects on morality, that a wide
range of positive emotions still needs to be examined, and that theoretical frameworks need to be further developed to explain these effects.

In sum, the literature suggests that affective states are important to understand morality in judgments and decisions. However, the specific effects of different exogenous positive emotions on judgment and decisions serving collective (vs. private) interests have thus far not been systematically examined.

Distinguishing Positive Emotions: The Roles of Perspectives and Fulfillment

Our current research extends the research on affective influences on moral outcomes by examining the effects of exogenous positive emotions on judgments and decisions favoring collective (vs. private) interests. We argue that positive emotions are associated with particular mindset components that, in turn, influence moral outcomes (e.g., judgments and decisions serving collective interests). In particular, we argue that people’s perspectives and their experienced goal-fulfillment result from these emotional experiences and affect moral behavior in situations that are not directly related to the emotion.

Given that moral principles are strongly associated with long-term consequences and the benefits of the collective rather than an individual (e.g., Agerström & Björklund, 2009; Haidt & Joseph, 2004), attunement to moral principles and collective interests increases if people adopt global perspectives. Consistent with construal level theory (e.g., Liberman & Trope, 2008), we pose that people’s goals change flexibly as a function of global versus specific perspectives that they adopt. Further, combined with the notion that affective states can change goal representations that are associated with such perspectives (e.g., Trope, Igou, & Burke, 2006), we argue that positive emotions associated with specific perspectives lead to less moral outcomes than positive emotions associated with global perspectives.
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Besides people’s perspectives and the effects on the goals that they hold, it is important to consider factors that further fuel people’s motivation (e.g., Young, Tiedens, Jung, & Tsai, 2011). This is especially important for moral outcomes as behavior serving the collective interest often requires disciplined actions and rather effortful self-control (Baumeister & Exline, 1999) to forego non-moral action opportunities and to remain committed to the long-term goals and principles of morality. The literature suggests that motivated behavior depends in part on a discrepancy between a current state and a desired state (e.g., Carver & Scheier, 1998) and on the degree to which goals seem fulfilled (Förster, Liberman, & Higgins, 2005; Zeigarnik, 1927). Therefore, we pose that the effect of an emotion on moral outcomes depends in part on the degree of perceived goal-fulfillment that ‘carries over’ from the emotional experience to the unrelated moral dilemma situation. Taking these findings together, we argue that positive emotions that are associated with goal-fulfillment lead to less moral outcomes than those associated with non-fulfillment of goals.

In short, we pose that some positive emotions lead to judgments and decisions that serve collective interests more than other positive emotions. We argue that this is the case because some positive emotions are associated with global perspectives and a state where goals seem unfulfilled whereas others are more associated with specific perspectives and/or a state of relative goal-fulfillment. Which positive emotions could then be compared to each other in order to test these predicted effects with regard to collective versus private interests?

Love Versus Optimism

To test our hypothesis that positive emotions differ in the degree to which they serve the collective versus the private interest, we contrasted two distinct positive emotions for which we expected a pronounced difference because they are typically associated with differences in perspective and fulfillment. Specifically, based on the
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existing literature, we selected love and optimism. Further, supported by first empirical findings (Van Dongen & Igou, 2013a), love seemed more related to a specific, ‘here and now’ perspective and fulfillment of goals compared to optimism. Below we will describe these differences in more detail.

**Love.** The importance of love is not only reflected in tremendous amounts of songs, movies, plays, books, but also stressed by social scientists (e.g., Fehr & Russell, 1991). It has even been argued that love is “one of the most defining qualities of life” (Hendrick & Hendrick, 2005, p. 472) and that love fulfills the fundamental human need to ‘belong’ (e.g., Baumeister & Leary, 1995). Love seems to have many positive effects ("One word frees us of all the weight and pain in life. That word is love"; Sophocles, Greek tragic dramatist, 496 BC - 406 BC) on forming social bonds (e.g., Shaver, Hazan, & Bradshaw, 1988), self-esteem (e.g., Aron, Paris, & Aron, 1995), well-being, fulfillment of one’s wishes and personal needs (Roseman, 1984; Seyfried, 1977), emotional satisfaction, fulfilling insights (e.g., Fromm, 1956), and—of course—on securing offspring that shares our genes.

Unfortunately, love does not necessarily make us more moral beings. It is known to have potential negative influences on the person who experiences it (e.g., distress, erratic behavior, incomprehension, emotional interdependence, vulnerability, uncertainty, humiliation, and obsession; Aron, Aron, Tudor, & Nelson, 1991; Baumeister, Wotman, & Stillwell, 1993; Hendrick & Hendrick, 1986) and even on the object of affection (e.g., feelings of guilt, discomfort, or distress if the feeling is not mutual, or being the victim of manipulative, deceptive, or overcontrolling behavior, depending on the lover’s love style; Baumeister et al., 1993; Hendrick & Hendrick, 1986).

Although love does—in most cases—relate to another person, the ‘need’ to love relates much to the self and to one’s pleasures and desires (Steck, Levitan, McLane, &
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Kelley, 1982), and it can even blind a person to the experience of the ‘love object’ (Baumeister et al., 1993). Also, love can have direct negative interpersonal consequences. Specifically, Leo and Maner (2012) show that priming love (versus desire or versus a neutral affective state) can trigger violent vigilance towards perceived relationship rivals (i.e., attractive same-sex targets). Further, fiction often describes love as a state where “there was no time and no tomorrow” (Martine Leavitt, Keturah and Lord Death) and that “time would stand still” (Kelly Long, Lilly's Wedding Quilt).

We are aware of distinctions between particular kinds of love (e.g., romantic love, passionate love, committed love) and that these distinctions could induce various perspectives. For example, it is not unlikely that committed love induces to a more long-term perspective compared to passionate love or that unrequited love leads to less perceived fulfillment compared to requited love (we examined this in more detail elsewhere; Van Dongen & Igou, 2013b). However, in the current research we examine the generality among these kinds of love rather than distinguishing between different types or looking at one particular kind of love. Certainly, some kinds of love (e.g., love for humanity) would induce a rather global (vs. specific) perspective, however, typically, love is associated with a focus on one specific target.

In sum, love usually gives people a feeling of fulfillment. The experience of love also seems to prioritize self-relevant goals, relating to specific people rather than to many other people, and it causes people to live in the moment. Put differently, the experience of love is—overall—associated with goal-fulfillment and rather specific perspectives.

Optimism. In this research we focus on the emotional experience of optimism in line with the conceptualization of optimism as a discrete positive emotion (e.g., Parrott, 2001; Peterson, 2006; Plutchik, 2001). The experience of optimism seems to depend on the consideration of future (vs. present) events (e.g., Carroll, Sweeney, & Sheppard,
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2006; Peterson, 2006; Strathman, Gleicher, Boninger, & Edwards, 1994). Furthermore, optimism leads to a broadened attentional focus (e.g., Basso, Schefft, Ris, & Dember, 1996; Fredrickson, 1998) and relates to more general (vs. specific) outcomes (e.g., Bryant & Cvengros, 2004; Wong & Lim, 2002). This global perspective is also reflected in everyday-life understandings of optimism as “confidence about the future or successful outcome of something” (The Oxford Dictionary, 2012) and as exemplifying “a lifeview where one looks upon the world as a positive place” (Webster’s Online Dictionary, 2012).

Although some of the literature suggests that optimism can be related to cognitive biases, risky health behavior (e.g., Dillard, Midboe, & Klein, 2009), and pursuit of the unattainable (Metcalfe, 1998), the experience of optimism has mainly been shown to lead to many positive effects, such as a reduction of anxiety and depression (e.g., Taylor, 1989). Tiger (1979) defined optimism as one of the most adaptive characteristics of human beings. Some of the positive outcomes that optimism is associated with are, for example, good morale, achievement, active (problem-focused) coping, perseverance, good choice of goals, fostering appropriate action plans, approach of problems and challenges, resilience in case of negative outcomes, and delay of gratification (e.g., Carver & Scheier, 2005; Peterson, 2000). In short, optimism makes people think about the future in positive ways and causes them to consider the long-term consequences of their actions (e.g., Strathman et al., 1994). Furthermore, as optimism promotes pursuing goals that are not fulfilled yet (e.g., Scheier, Weintraub, & Carver, 1986), the current state is likely experienced as unfulfilled.

Taken together, the literature suggests that love is related to specific perspectives, and a state in which one’s goals seem relatively fulfilled. In contrast, optimism is related to global perspectives, and an impression that one’s goals are not fulfilled yet. Based on these differences and the association of these mindsets with
morality, we predicted that love would lead to less moral judgments and decisions than optimism in situations of social interdependence where private interests conflict with collective interests. That means if your housemate is in love with her new date, you would be more likely to find an empty olive jar at the end of your busy work day, than if she feels optimistic about her work. Considering that the proposed difference between the effects of love versus optimism is entirely novel, replication of the effects across various measures is of particular importance. Therefore, we tested the hypothesis that love leads to less moral judgments and decisions than optimism in a series of six studies using different scenarios that followed the rationale of social interdependence paradigms (i.e., common good dilemmas, the prisoner’s dilemma, and third-party punishment dilemmas).\textsuperscript{1}

**Study 1**

In Study 1 we tested the difference between love and optimism on decision making in the context of economic interdependence. We predicted that love would lead to more profiting from economic common goods compared to optimism, at the disadvantage of other depending parties.

**Method**

**Participants and design.** Thirty-seven students at the University of Limerick (19 women, 18 men; $M_{age} = 20.46$, $SD_{age} = 2.87$) took part in this study on a voluntary basis. Participants were randomly assigned to one of the emotion conditions (love vs. optimism; 20 and 17 participants per cell respectively). Twelve participants failed to fill out the emotion manipulation and were therefore excluded from further analyses. After this exclusion, the final sample consisted of 25 participants (15 women, 10 men; $M_{age} = 19.96$, $SD_{age} = 2.72$), with 14 participants in the love and 9 participants in the optimism condition.
Materials and procedure. We manipulated participants’ emotions by means of an autobiographical memory recall task, a common procedure in emotion research (e.g., Rubin, 2006). To prevent a possible dilution of the effect of the emotion manipulation on the dependent variable, we did not include an emotion manipulation check immediately after the manipulation, but tested the effectiveness separately.

Pilot study. To check for the effectiveness of this emotion manipulation we pretested the materials. Forty-four undergraduate and postgraduate students at the University of Limerick (22 women, 19 men, 3 undisclosed; \( M_{\text{age}} = 20.34, SD_{\text{age}} = 3.10 \)) were randomly assigned to an emotion condition (love vs. optimism; 22 and 22 participants per cell respectively). Participants read ‘Please think about a situation when you had an intense feeling of love [optimism]. Remember, there are no right or wrong answers as it is about your personal experience. Use the box below to describe the experience of love [optimism] and try to reexperience it with as much real feeling and intensity as when it first actually happened’. As manipulation check we asked participants to rate their agreement to statements referring to their experiences (e.g., Roseman, Wiest, & Swartz, 1994). Four statements referred to the manipulated emotions, stating the influence of the emotion on feelings and thoughts (e.g., ‘Recalling love made me feel strong, positive feelings towards another person’; ‘Recalling optimism made me think that there are good things ahead of me’), and two statements were designed to measure positive affect in general (e.g., Recalling happiness made me feel good about my life’). Participants rated their agreement on seven-point scales ranging from 1 (not at all) to 7 (very much).

We created indices of both ‘love’ questions \((r = .80, p < .001)\) and both ‘optimism’ questions \((r = .54, p < .001)\). As predicted, the love induction led to more experience of love \((M = 6.16, SD = 0.98)\) than the optimism induction \((M = 5.09, SD = 1.55), t(35.53) = 2.73, p = .010, d = 0.83\). Consistently, the optimism induction led to
more optimism ($M = 6.09$, $SD = 0.67$) than the love induction ($M = 5.14$, $SD = 1.42$), $t(29.77) = 2.85,$ $p = .008,$ $d = 0.86$. Furthermore, on both items measuring positive affect in general, the optimism ($M = 5.91$, $SD = 0.87$; $M = 5.41$, $SD = 1.10$) and love ($M = 5.50$, $SD = 1.37$; $M = 5.59$, $SD = 1.65$) conditions did not differ from each other (all $ps > .244$). These results demonstrated the effectiveness of the procedure that we then used in the main study.

Considering that we aimed to induce a general kind of love and optimism (vs. one particular kind), it is important to note that there was a wide variation in participants’ stories. Specifically, in the love condition, participants wrote about love towards their lover (passionate and/or committed), family members, friends, or pets. Also, in the optimism condition, participants wrote about feeling optimistic about sport results, exams, life, health test results, and etcetera. Based on the variety of stories, we argue that not one particular kind of love or optimism was induced by this manipulation.

**Main study.** Students in the library of the University of Limerick participated in this study. After volunteers gave their informed consent, we manipulated their emotions by means of the autobiographical memory recall task as described above. Then, participants worked on an ostensibly unrelated task consisting of two different measures of economic judgment. The first measure consisted of four different scenarios on profiting from an economic common good (i.e., evading taxes; illegitimately claiming social welfare; claiming insurance money one is not entitled to; eating your roommate’s food). Each of the scenarios entailed a conflict between private interests (i.e., more money or food for oneself) and collective interests (i.e., contributing to—vs. profiting from—a common good). After each scenario participants were asked to list at least one positive and one negative aspect of the behavior examples to ensure that they considered the dilemma. Thereafter, they indicated how much they would consider to
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perform this behavior, using seven-point scales ranging from 1 (not at all) to 7 (very much).

The second measure related to the financial crisis, with participants imagining that they were a top manager of an established Irish insurance company, which recently collapsed but was bailed-out by the Irish government. The top manager was offered a €250,000 bonus despite the financial disaster. Participants were asked to indicate how likely they were to accept the bonus, and how likely they were to return the bonus using a seven-point scale ranging from 1 (very unlikely) to 7 (very likely). Afterwards participants were thanked and debriefed.

Results and Discussion

Manipulation check. To ensure the success of the emotion manipulation, the emotion stories—written by participants to manipulate either love or optimism—were rated by two independent raters who were blind to the emotion condition. Raters were told to imagine being the author of the emotion stories and were asked, per story, to answer the questions ‘By imagining this, do you feel love?’ and ‘By imagining this, do you feel optimism?’ on seven-point scales from 1 (not at all) to 7 (very much). Although there was only a weak correlation between the ratings of the two raters ($r = .36, p = .012$), the correlation was significant, and therefore, the ratings were combined. Both emotion manipulations were successful as there was a higher rating of love experience in the love condition ($M = 2.69, SD = 1.52$) compared to the optimism condition ($M = 1.59, SD = 0.77$), $t(18.33) = 2.29, p = .034, d = 0.91$, and a higher rating of optimism experience in the optimism condition ($M = 3.05, SD = 1.13$) compared to the love condition ($M = 1.62, SD = 0.58$), $t(22) = 4.00, p = .001, d = 1.59$.

The economic decisions index. The first measure was based on an index of the items used in the four scenarios ($\alpha = .80$). As predicted, positive emotions influenced decision making differently, $t(23) = 2.65, p = .014, d = 1.10$. Specifically, love ($M =
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3.72, \(SD = 1.78\) led to higher levels of consideration to profit from economic goods compared to optimism \((M = 2.11, SD = 1.05)\).

The financial crisis scenario. As predicted, positive emotions also influenced decisions on the financial crisis scenario: Love \((M = 5.79, SD = 1.89)\) led to a greater likelihood of taking the bonus compared to optimism \((M = 3.73, SD = 2.15), t(23) = 2.55, p = .018, d = 1.02)\). Furthermore, optimism \((M = 4.00, SD = 2.16)\) led to a greater likelihood of returning the bonus after receiving it compared to love \((M = 1.93, SD = 1.14), t(7.72) = 2.38, p = .046, d = 1.20\). These results confirmed our prediction that love leads to more decisions that serve the private (vs. collective) interest than optimism.

Study 2

Study 2 was designed to demonstrate the effects of love versus optimism using a different measure of decision making in an economic interdependence situation. We were inspired by prisoner dilemmas because earlier research has used it as a measurement of moral (i.e., cooperating) and immoral (e.g., dejecting) decisions (e.g., Wildschut, Pinter, Vevea, Insko, & Schopler, 2003). The prisoner’s dilemma (PD) is a classic example of a social dilemma with a conflict between private and collective interests (e.g., Wolf, Insko, Kirchner, & Wildschut, 2008). We modified the prisoner’s dilemma in two ways. We framed it as a game show, and we modified the payoffs in order to have a more precise measure of selflessness. In the classic prisoner’s dilemma the increase of the other player’s outcome implies a decrease in one’s own outcome, with outcomes that are good or bad for all players. Therefore, cooperation (i.e., to share the money) is not solely a result of collective interest motives, but is also consistent with choosing the optimal strategy to maximize one’s private benefits in the long run (e.g., Wolf et al., 2008). For that reason, the cooperative choice cannot exclusively be interpreted as ‘moral’. We modified the scenario in a way that keeping the money does
not entail risks. Even if both players decide to ‘keep’, then both would still get the same amount as if they both ‘shared’. Therefore, cooperation (i.e., to share the money) cannot be explained by strategic self-interest, but only as ‘collective interest based decision making’.

Given that both love and optimism are argued to influence self-efficacy (e.g., Aron et al., 1995; Chemers, Watson, & May, 2000), and self-efficacy is positively associated with pro-social behavior (e.g., Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003), one could argue that any difference between the effects of the two emotions is due to differences in self-efficacy. To ensure that the effects of these emotions could not simply be explained by differences in self-efficacy, we added a self-efficacy measure to control for the potential effects.

**Method**

**Participants and design.** Fifty-three students at the University of Limerick (33 women, 19 men, 1 undisclosed; $M_{age} = 20.33$, $SD_{age} = 3.80$) participated in this study in return for course credit. Each participant was randomly assigned to an emotion condition (love vs. optimism; 25 and 28 participants per cell respectively). Three participants did not understand the rules of the game and were, therefore, excluded from further analyses. After this exclusion, the final sample consisted of 50 participants (32 women, 17 men, 1 undisclosed; $M_{age} = 19.92$, $SD_{age} = 3.46$), with 23 participants in the love and 27 participants in the optimism condition.

**Materials and procedure.** After giving informed consent, participants worked on the materials. First, the ‘game show’ instructions were given, the rules were explained, and an overview of the potential outcomes was provided. In this scenario, 4 different situations were possible. If both players decided to share, then each would get €10,000. If both players decided to keep, then each would get €10,000 as well. If, however, one player decided to keep the prize and the other player decided to share the
prize, then the players who decided to keep would get the €20,000, while the other player would receive €0. After the instructions were given, participants had to answer questions about the game in order for us to check whether they understood the rules.

Following the game show instructions, emotions were manipulated by autobiographical memory recall (see Study 1), framed as an independent filler task. After the emotion manipulation, participants worked on the game scenario. Participants were asked how likely they were to share the prize, and how likely they were to keep the prize, indicating their preferences on seven-point scales ranging from 1 (very unlikely) to 7 (very likely), followed by a forced-choice decision (share vs. keep).

After the dependent variable, participants worked on the general self-efficacy scale (Jerusalem & Schwarzer, 1992), which consisted of 10 statements concerning self-efficacy (e.g., ‘I am confident that I could deal efficiently with unexpected events’; ‘I can usually handle whatever comes my way’). Participants reported how ‘true’ the statements were about them, using four-point scales ranging from 1 (not at all true) to 4 (exactly true).

Results

Manipulation check. Emotion stories were rated in the same manner as in Study 1. First, as the inter-rater reliability was sufficiently high ($r = .91, p < .001$), the ratings were combined. Both emotion manipulations were successful as there was a higher rating of love experience in the love condition ($M = 4.62, SD = 1.54$) compared to the optimism condition ($M = 1.20, SD = 0.76$), $t(34.46) = 10.00, p < .001, d = 2.82$, and a higher rating of optimism experience in the optimism condition ($M = 4.85, SD = 1.47$) compared to the love condition ($M = 1.30, SD = 0.91$), $t(43.97) = 10.57, p < .001, d = 2.90$.

Game show measure. The item ‘likelihood of keeping’ was reverse coded and combined with the item ‘likelihood of sharing’ into a selflessness index ($r = .85, p <$
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An independent samples t-test confirmed that positive emotions influenced decision making, $t(48) = 3.26, p = .002, d = 0.92$. Specifically, the emotion love ($M = 2.39, SD = 2.18$) led to less decisions favoring the collective interest (i.e., less sharing) compared to the emotion optimism ($M = 4.22, SD = 1.79$).

A Chi Square test indicated that there is an effect of positive emotions on the decision that is made in the game show, $X^2(1, N = 50) = 4.92, p = .027, \Phi = .31$. Specifically, fewer participants in the love condition (39.1%) decided to share compared to participants in the optimism condition (70.4%).

We conducted an ANCOVA with self-efficacy as the covariate ($\alpha = .83$). As predicted, the influence of emotions on the likelihood of sharing remained significant after controlling for self-efficacy, $F(1, 47) = 10.33, p = .002, \eta^2 = .18$, while there was no effect of self-efficacy on likelihood of sharing when controlled for emotions ($F < 1$).

Discussion

Study 2 demonstrated that love led to decisions serving the private (vs. collective) interest more compared to optimism in a modified prisoner's dilemma. Specifically, people experiencing love were more likely to keep the won prize to oneself, rather than sharing it with the other person, compared to people experiencing optimism. We designed the study in a way so that the incentives were higher to defect than to cooperate, in order to rule out that cooperation would reflect strategic profit maximization rather than moral decision making. Interestingly, we found a high level of cooperation, especially when participants experienced optimism while confronted with the task. Additionally, we found support for our claim that the different effects of emotions on decisions that serve the collective (vs. private) interest could not simply be explained by differences in self-efficacy, ruling out this alternative explanation for the effects.
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Study 3

After establishing the different effects of love versus optimism on decisions that serve the collective (vs. private) interest in economic interdependence situations, Study 3 was conducted to test these effects in the context of environmental interdependence. We predicted that love would lead to more environmentally damaging decisions compared to optimism.

Method

Participants and design. Thirty-two students at the University of Limerick (18 women, 14 men; \( M_{age} = 26.13, SD_{age} = 5.97 \)) participated in this study on a voluntary basis. Participants were randomly assigned to one of two emotion conditions (love vs. optimism; 17 and 15 participants per cell respectively). Five participants failed to fill out the emotion manipulation and were therefore excluded from further analyses. After this exclusion, the final sample consisted of 27 participants (18 women, 9 men; \( M_{age} = 26.67, SD_{age} = 6.22 \)), with 14 participants in the love and 13 participants in the optimism condition.

Materials and procedure. The experimenter approached students in the university library, asking them whether they would fill out a brief questionnaire. After participants gave their informed consent, they worked on the study. First, emotions were manipulated by autobiographical memory recall (see Study 1), then, in an ostensibly unrelated task, decision making in an environmental context was measured. The measurement of decisions concerning the environment was a variation of the economic common good measure in Study 1, adjusted to the environmental context. It consisted of 3 different scenarios on behaviors that directly or indirectly damage the environment (i.e., buying a heavily polluting, but cheap car; working for a well paying, but heavily polluting company; littering). Each of the scenarios entailed a conflict between private interests (i.e., spending less money, making more money, ease) and collective interests
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(i.e., not further damaging the environment). They were then asked to indicate how much they would consider performing this behavior, how likely they were to perform this behavior, and if they could justify this behavior. For all items we used seven-point scales ranging from 1 (not at all) to 7 (very much). Afterwards the participants were thanked and debriefed.

Results and Discussion

Manipulation check. Emotion stories were rated in the same manner as in Study 1. First, as the inter-rater reliability was sufficiently high ($r = .90, p < .001$), the ratings were combined. Both emotion manipulations were successful as there was a higher rating of love experience in the love condition ($M = 4.17, SD = 1.63$) compared to the optimism condition ($M = 1.04, SD = 0.14$), $t(11.15) = 6.63, p < .001, d = 2.71$, and a higher rating of optimism experience in the optimism condition ($M = 4.85, SD = 1.39$) compared to the love condition ($M = 1.33, SD = 0.49$), $t(15.18) = 8.55, p < .001, d = 3.38$.

Environmentally damaging decisions. We created an index of environmentally damaging decisions by comprising all measures regarding the three scenarios ($\alpha = .88$). An independent samples $t$-test confirmed that positive emotions had different effects on environmentally damaging decisions, $t(25) = 3.19, p = .004, d = 1.23$. Specifically, the emotion love ($M = 3.57, SD = 1.28$) led to a greater likelihood of environmental unfriendly judgments and decisions compared to the emotion optimism ($M = 2.19, SD = 0.93$).

Study 3 demonstrated the effects of love versus optimism on decisions that serve the collective (vs. private) interest in the environmental context of social interdependence. People experiencing love were more likely to make decisions that damage the environment compared to people experiencing optimism, suggesting that the effects of love versus optimism are independent of the particular moral context (i.e.,
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economic or environmental context). In both contexts, optimism led to judgments more in line with collective (vs. private) interests than love did.

**Study 4**

Studies 1 to 3 show that love leads to judgments and decisions favoring the private (vs. collective) interest more compared to optimism across different types of scenarios. As a further extension, Study 4 was designed to examine whether optimism (vs. love) would lead to stronger negative reactions to violations of the collective interest.

A commonly used measure of moral judgment is the third-party punishment dilemma (TPP; e.g., Fehr & Fischbacher, 2003; Mulder, 2008). It consists of three players: an allocator, a recipient, and an observer. The recipient does not receive an endowment and the allocator is endowed with 100 units (representing money). The allocator decides how many of the units—if any—to transfer to the recipient. The recipient has no influence on this transfer. After the allocator’s decision, the observer—who is endowed with 50 units—gets to decide how to spend these units. The observer can either decide to maximize own outcomes by keeping the 50 units, or to use the units to punish the allocator (i.e., every unit of punishment decreases the allocator’s endowment by 3 units). Independent of the allocator’s decision, the observer should keep his or her endowment if the observer wants to maximize own private benefits. However, if the observer thinks that the allocator has made an unfair decision, the observer has the chance to sacrifice his or her endowment to penalize the allocator (i.e., punishment-based altruism; Boyd & Richerson, 1992). The literature shows that if the observer regards the behavior of the allocator as morally wrong, then the observer is likely to punish the allocator as a means to enforce fairness norms (e.g., Fehr & Fischbacher, 2004; Mulder, 2008). Given that punishment reflects moral judgment in
this scenario, we predicted that love would lead to less punishment compared to optimism.

Method

Participants and design. Fifty-four students at the University of Limerick (36 women, 18 men; $M_{age}=19.06, SD_{age}=1.84$) participated in this study in exchange for course credit. Participants were randomly assigned to one of the two emotion conditions (love vs. optimism; 26 and 28 participants per cell respectively). Six participants were outliers (i.e., more than 1.5 inter-quartile ranges away from the other scores on the dependent variables) and thus excluded from further analysis. After this exclusion, the final sample consisted of 48 participants (30 women, 18 men; $M_{age}=19.10, SD_{age}=1.93$), with 26 participants in the love and 22 participants in the optimism condition.

Materials and procedure. After participants gave informed consent, they were given instructions for the third-party punishment dilemma, and an example of a potential outcome was provided. Emotions were manipulated by means of autobiographical memory recall (see Study 1), framed as an unrelated filler task, before participants worked on the third-party punishment dilemma. After, participants were reminded again of the endowment of each player. They were then presented with different scenarios of how much the allocator could transfer to the receiver (i.e., 40 unit, 30 units, 20 units, 10 units, 0 units), and asked per scenario how many of their 50 units they would use to punish the allocator.

Results and Discussion

Manipulation check. Emotion stories were rated in the same manner as in Study 1. First, as the inter-rater reliability was sufficiently high ($r=.84, p<.001$), the ratings were combined. Both emotion manipulations were successful as there was a higher rating of love experience in the love condition ($M=5.18, SD=1.36$) compared to the optimism condition ($M=1.30, SD=0.66$), $t(34.74)=12.82, p<.001, d=3.63$, 132
and a higher rating of optimism experience in the optimism condition ($M = 5.06, SD = 1.11$) compared to the love condition ($M = 1.38, SD = 0.53$), $t(43.97) = 14.96, p < .001$, $d = 4.23$.

**Punishment.** For ease of interpretation purposes, the individual punishment scores were transformed into natural logarithm scores and combined into one punishment score ($\alpha = .91$). An independent samples $t$-test showed that the emotion love ($M = 1.65, SD = 1.15$) led to less punishment (i.e., less self-sacrifice to enforce fairness norms) compared to the emotion optimism ($M = 2.59, SD = 0.42$), $t(32.91) = 3.86, p < .001$, $d = 1.09$. This showed that love leads to more judgments and decisions that serve the private (vs. collective) interest compared to optimism in yet another economic dilemma. People experiencing love were less likely to sacrifice their own outcomes in order to enforce fairness norms compared to people experiencing optimism.

**Study 5**

Study 4 shows the effects of positive emotions in a third-party punishment context. Study 5 was designed to demonstrate these effects of emotions on a behavioral measure of the third-party punishment dilemma. In this study, two independent third-party punishment rounds were played, in which the allocator transferred either 20% or 30% of his or her own endowment to the receiver (the order was varied as the first transfer could influence the interpretation of fairness of the second transfer). In this study, participants played with real money. We selected two transfer rounds (20% and 30%) that are not extreme in immorality or morality but are still considered unfair towards the receiver.

Consistent with the results from Study 4, we predicted that love would lead to less punishment compared to optimism. To remain consistent with other research examining how discrete emotions influence morality, a neutral affect control condition
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was added to the design to explore how the positive emotions affect behavior in relation to a neutral affective state.

Method

Participants and design. Forty-two students at the University of Limerick (31 women, 11 men; $M_{age} = 20.67$, $SD_{age} = 5.89$) participated in this computer study. Participants were randomly assigned to one of the conditions of a 3 (affective state: love vs. optimism vs. neutral; 13, 15, and 14 participants per cell respectively) x 2 (order of allocator’s transfer: 20% of the units first, 30% of the units second vs. 30% of the units first, 20% of the units second; 25 and 17 participants per cell respectively) design. Two participants were outliers (i.e., more than 1.5 inter-quartile ranges away from the other scores on the dependent variables) and thus excluded from further analysis. After this exclusion, the final sample consisted of 40 participants (29 women, 11 men; $M_{age} = 20.78$, $SD_{age} = 6.02$), with 13 participants in the love, 13 participants in the optimism, and 14 participants in the neutral condition, of which 24 were in the 20% first and 16 in the 30% first condition.

Materials and procedure. Participants took part in an experiment session for either course credit or €4. After giving informed consent, participants started with the current computer experiment.

Similar as in Study 4, the instructions of the third-party punishment dilemma were given and an example of a potential outcome was provided. Afterwards, we asked questions about the game in order to check for the understanding of the task. Participants were told that their computer was linked to the computers of the other participants. We explained that participants were randomly assigned a role (allocator vs. receiver vs. observer) and that they would play two independent rounds of the game. The allocator would start each round with €4 Euros, the receiver with €0, and the
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observer with €2. The instructions implied that they would play with different participants in each round.

Before the game started, participants were told that the other participants were not ready yet to play the game and therefore they would continue with another study in the meantime. In this part of the study we induced emotions via an autobiographical memory recall task (see Study 1). In the neutral condition, participants were instructed to recall an everyday life event, which was defined as ‘a situation that you experience on an every day basis. It is typically a non-special, normal situation. It is neither a positive nor a negative experience, but rather neutral’. Afterwards, participants were informed that the other participants were ready to continue the game. Each participant was assigned the observer’s role in both rounds and would witness a fictional allocator transferring 20% of his or her units to the receiver in the first round, and another fictional allocator transferring 30% of his or her units in the second round (or vice versa, depending on the order condition participants were assigned to). After each round, participants would decide how many cents of their €2—per round—they would use to punish the allocator. After the study session, participants were thanked, debriefed, and paid according to their decisions in the game.

Results

Manipulation check. Emotion stories were rated in the same manner as in Study 1. First, as the inter-rater reliability was sufficiently high ($r = .91, p < .001$), the ratings were combined. The love manipulation was successful as there was a higher rating of love experience in the love condition ($M = 5.58, SD = 0.81$) compared to the optimism condition ($M = 1.36, SD = 0.86$), $t(36) = 11.17, p < .001, d = 5.05$, and compared to the neutral condition ($M = 1.50, SD = 1.24$), $t(36) = 10.38, p < .001, d = 3.90$. Also, there was no difference in love experience between the optimism and neutral conditions ($t < 1$).
Furthermore, the optimism manipulation was successful as there was a higher rating of optimism experience in the optimism condition \((M = 4.39, SD = 1.40)\) compared to the love condition \((M = 1.35, SD = 0.55)\), \(t(36) = 8.77, p < .001, d = 2.86\), and compared to the neutral condition \((M = 1.00, SD = 0.00)\), \(t(36) = 9.56, p < .001, d = 3.43\). Further, there was no difference in optimism experience between the love and neutral conditions \((t < 1)\).

**Third-party punishment.** There was no difference between participants’ punishments in the ‘20% transfer’ and ‘30% transfer’ rounds \((t < 1)\), therefore, the individual punishment scores of both rounds were transformed into natural logarithm scores and combined into one punishment score \((r = .63, p < .001)\).

A one-way ANOVA showed a marginally significant effect of the emotion conditions on punishment, \(F(2, 37) = 3.03, p = .060, \eta^2 = .14\). Specifically, as reflected in Figure 1, a contrast analysis showed that optimism \((M = 3.89, SD = 0.62)\) led to more punishment compared to love \((M = 2.70, SD = 1.97)\), \(t(37) = 2.05, p = .047, d = 0.81\), and compared to a neutral affect state \((M = 2.63, SD = 1.51)\), \(t(37) = 2.22, p = .033, d = 1.09\). However, there was no difference in punishment between the neutral and love conditions \((t < 1)\).

**Discussion**

Consistent with Study 4, Study 5 showed that love led to less punishment-based altruism compared to optimism. The effect emerged in a context in which the decision had real life consequences for the financial outcome. These effects show that, in addition to judgments and decisions in scenario studies, also behavior that influences real financial outcomes is influenced in different ways by various positive emotions. Study 5 also suggested that optimism increases moral behaviors compared to a neutral affect state. Study 6 was designed to further explore the effects of love and optimism.
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compared to a neutral state, and to control for the potential effects of valence and arousal.

Study 6

In Studies 1 and 3 we already showed the effects of love versus optimism on economic and environmental common good decisions, Study 6 examined similar domains, but also had two additional aims. First, in addition to love and optimism, a neutral affective state was induced as control condition to further explore the effects of love and optimism in comparison to a neutral state. Second, a major point of this study was to control for ‘valence’ and ‘arousal’. Affect influences are often explained by differences in valence and arousal (e.g., Lewis, Critchley, Rotshtein, & Dolan, 2007; Russell, 1980), therefore, we include a frequently used measurement of valence and arousal (e.g., Russell, Weiss, & Mendelsohn, 1989), to ensure that it was not merely a difference in arousal or valence that explained the different effects of positive emotions on judgments and decisions that serve the collective (vs. private) interest. We predicted that love would lead to more profiting judgments and decisions compared to optimism, and that this effect could not be explained by differences in valence or arousal.

Method

Participants and design. Forty-three undergraduate students at the University of Limerick (30 women, 13 men; \( M_{\text{age}} = 19.95, SD_{\text{age}} = 2.42 \)) participated in this study in return for course credit. Each participant was randomly assigned to one of three emotion conditions (love vs. optimism vs. neutral; 15, 14 and 14 participants per cell respectively).

Materials and procedure. Participants signed an informed consent, their affective states (i.e., love, optimism, or neutral) were manipulated by an autobiographical memory recall task (see Study 5), followed by an affect grid designed to measure induced valence and arousal (see Russell et al., 1989) on nine-point scales
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from 1 (unpleasant feelings; sleepiness) to 9 (pleasant feelings; high arousal).

Thereafter, in an ostensibly independent study, decision making was measured by the economic common good scale (see Study 1) and the environmental common good scale (see Study 3), provided in counterbalanced order. Afterwards participants were thanked and debriefed.

Results

Manipulation check. Emotion stories were rated in the same manner as in Study 1. First, as the inter-rater reliability was sufficiently high ($r = .88, p < .001$), the ratings were combined. The love manipulation was successful as there was a higher rating of love experience in the love condition ($M = 3.71, SD = 1.89$) compared to the optimism condition ($M = 1.50, SD = 1.47$), $t(37) = 4.05, p < .001, d = 1.31$, and compared to the neutral condition ($M = 1.29, SD = 0.55$), $t(37) = 4.44, p < .001, d = 1.74$. Also, there was no difference in love experience between the optimism and neutral conditions ($t < 1$).

Furthermore, the optimism manipulation was successful as there was a higher rating of optimism experience in the optimism condition ($M = 4.61, SD = 1.86$) compared to the love condition ($M = 1.38, SD = 0.48$), $t(37) = 6.14, p < .001, d = 2.38$, and compared to the neutral condition ($M = 1.39, SD = 1.20$), $t(37) = 5.43, p < .001, d = 2.06$. Further, there was no difference in optimism experience between the love and neutral conditions ($t < 1$).

Affect grid. Although a one-way ANOVA showed an effect of the emotion condition on valence, $F(2, 40) = 6.07, p = .005, \eta^2 = .23$, and arousal, $F(2, 40) = 4.94, p = .012, \eta^2 = .20$, there was no difference in valence between love ($M = 8.27, SD = 0.88$) and optimism ($M = 7.79, SD = 1.37; t < 1$), nor a difference in arousal between love ($M = 6.07, SD = 1.58$) and optimism ($M = 6.71, SD = 1.98; t < 1$). As expected, neutral ($M = 6.50, SD = 1.83$) was lower on positive valence compared to love, $t(40) = 3.39, p =$
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.002, $d = 1.23$, and optimism, $t(40) = 2.42, p = .020, d = 0.80$. Similarly, neutral ($M = 4.57, SD = 1.99$) was lower on arousal compared to love, $t(40) = 2.17, p = .036, d = 0.83$, and optimism, $t(40) = 3.06, p = .004, d = 1.08$.

**Common good measures.** Before the effects of emotions on collective (vs. private) interest serving decisions were analyzed, the items of each individual scale were combined per scale ($\alpha_{\text{economic decisions scale}} = .79; \alpha_{\text{environmental decisions scale}} = .68$), transformed into z-scores, and combined into one composite score of immorality ($r = .50, p = .001$). A one-way ANOVA showed that emotions differed in how they influenced immorality, $F(2, 40) = 3.20, p = .051, \eta^2 = .14$. Specifically, as reflected in Table 1, the emotion love ($M = 0.35, SD = 1.11$) led to a greater likelihood of selfish economical decisions compared to the emotion optimism ($M = -0.32, SD = 0.44$), $t(40) = 2.34, p = .025, d = 0.79$. Furthermore, in a love state participants were more likely to make decisions serving the private (vs. collective) interest compared to a neutral state ($M = -0.22, SD = 0.57$), $t(40) = 1.98, p = .054, d = 0.65$. However, there was no difference in decisions between an optimistic state and a neutral affective state ($t < 1$).

We conducted an ANCOVA with valence and arousal as covariates. As predicted, the influence of emotions on immorality remained significant after controlling for valence and arousal, $F(2, 38) = 4.06, p = .025, \eta^2 = .18$, while there was no significant effect of valence, $F(1, 38) = 1.90, p = .176, \eta^2 = .05$, or of arousal, $F(1, 38) = 2.03, p = .162, \eta^2 = .05$, when controlled for emotions. Further, to ensure valence and arousal couldn’t explain the different effects of love versus optimism—regardless of the neutral condition—we conducted another ANCOVA without the neutral condition. Consistently, the influence of love versus optimism on immorality remained significant after controlling for valence and arousal, $F(1, 25) = 5.90, p = .023, \eta^2 = .19$, while there was no significant effect of valence, $F(1, 25) = 1.84, p = .188, \eta^2 = .07$, nor of arousal ($F < 1$) when controlled for emotions.
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Discussion

First, we found that love led to judgments less in line with collective interests than optimism. Importantly, the different effects of love versus optimism could not be explained by differences in valence or arousal between the two positive emotions. Furthermore, differently from Study 5, we found that love reduced judgments and decisions that serve the collective (vs. private) interest compared to a neutral state. Although the tendency of optimism (vs. neutral affect) to lead to more judgments and decisions that serve the collective (vs. private) interest was similar to the results of Study 5, the difference was not significant. This will be further discussed in the general discussion.

General Discussion

Positive emotions (e.g., love, optimism) vary on mindsets that are important for morality, therefore, they differ in their effects on judgments and decisions that serve the collective (vs. private) interest. Specifically, based on differences between emotions with regard to their relatedness to (global) perspectives and perceived goal-fulfillment, we predicted that love is more likely to lead to judgments and decisions serving the private (vs. collective) interest compared to optimism.

In a series of six studies we examined the differences between love and optimism in their influences on judgments and decisions in interdependence situations where private interests conflicted with the collective interest of all people involved. Study 1 established the predicted effect of love versus optimism on decision making in economic common good dilemmas. Specifically, love led to a greater likelihood of profiting from economic common goods compared to optimism. Study 2 demonstrated this effect on a different measure of ‘collective interest based decision making’ in a modified prisoner’s dilemma. Study 3 showed the same effects of love versus optimism on decision making in environmental social dilemmas. Study 4 demonstrated these
effects in a third-party punishment game, that is, love led to less self-sacrificing
decisions to enforce fairness norms compared to optimism. Study 5 supported the
results of Study 4 using a behavioral measure with real life consequences regarding the
financial outcome, and showed—in addition—that optimism, compared to a neutral
affect state, increases self-sacrificing behavior. Finally, Study 6 showed that love leads
to more economical selfish decisions compared to optimism and a neutral affective
state, and that these effects are not due to differences in valence or arousal. Taken
together, these studies show that these effects are consistent over different economic
contexts (Study 1, 2, 4, 5, and 6) and an environmental context (Studies 3 and 6).

The findings are consistent with our general assumption that love is less likely to
lead to moral outcomes than optimism. A person experiencing love is more occupied
with the here and now, and is usually focused on particular targets, which can be
described as a relatively specific perspective. Further, love is associated with a
relatively fulfilled motivational state. In contrast, optimism induces a broader
perspective focused on long-term consequences of actions (i.e., a global perspective).
Also, optimism is inherently related to something that is not yet fulfilled. It is this
mindset—when people feel optimistic—that facilitates moral outcomes more than the
mindset when people experience love.

Effects of Emotions on Morality: Contribution, Limitations, & Future Research

Most research on the effects of emotions on decisions in social interdependence
situations has focused on endogenous negative emotions (cf. De Hooge et al., 2011;
Martinez et al., 2011). Our research goes beyond by looking at the influences of
exogenous positive emotions on decisions in social dilemmas. More generally, our
findings add to the literature on the effect of positive affect on moral decision making
by differentiating between positive emotions and showing that love leads to judgments
and decisions serving the collective (vs. private) interest less compared to optimism.
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The predictions of our proposed emotion hypothesis could be extended by examining the different effects of additional positive emotions (e.g., amusement, relief, compassion).

Surprisingly, Study 5 suggested that optimism increases moral outcomes compared to love and neutral affect, but that there is no difference between love and neutral affect, whereas Study 6 suggested that love reduces moral outcomes compared to optimism and neutral affect, but did not show a difference between optimism and neutral affect. Although this suggests that optimism may increase, and love may decrease the likelihood of moral outcomes, the addition of a neutral condition was explorative and not fully conclusive. We believe that the question of morality of each of these emotions relative to a neutral state still needs to be examined more systematically.

Moral values. In this article, moral judgments and decisions have been conceptualized with regard to the social dilemma literature on morality. In terms of the Moral Foundations Theory (e.g., Haidt & Graham, 2007), this research touches in particular on the harm/care and fairness/reciprocity moral values as they are often reflected in pro-social behavior. Put differently, our proposed effects on moral judgments and decisions seem to be associated with these moral values. Future research should thus test the effects of positive emotions on other moral outcomes that are related to these values and other moral values.

Emotions and mindset. The effects of positive emotions on private versus collective outcomes are explained by associated mindset components. Although there are similarities between this approach and research on the association between emotions and particular appraisal tendencies (e.g., Lerner & Keltner, 2000; Smith & Ellsworth, 1985), there are important differences that justify the use of a different term. First, appraisal theory explains the occurrence of an emotion based on the interpretation (i.e., appraisal) of a situation, whereas our research focuses on the cognitive and motivational
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consequences of an emotion. Second, the mindset components ‘fulfillment’ and
‘perspective’ are specifically selected based on their relationship to morality, whereas
the previously identified appraisals appear unrelated to morality.

**Globality of perspective.** Differences between the effects of love versus
optimism are partly explained by their differences in induced globality of perspective.
That positive emotions affect globality of people’s perspectives has been proposed by
earlier research (e.g., Fredrickson, 1998; Trope, Igou, & Burke, 2006). Our approach is
similar to this research as we argue that globality of perspective is crucially influenced
by affect states, however, our approach differs as we argue that positive emotions differ
in the perspectives they induce.

**Perceived goal-fulfillment.** In addition to ‘globality of perspective’, we
predicted ‘perceived goal-fulfillment’ to be a crucial mindset component for predicting
moral outcomes. Previous research has already shown that the experience of particular
emotions is associated with a person’s evaluation of the ‘goal/need significance’ of the
emotion stimulus (e.g., Leventhal & Scherer, 1987; Scherer, 1984). Similarly, we argue
that the experience of a particular emotion, signals information about one’s goals, which
then influences a person’s mindset. However, rather than taking ‘goal/need significance’
as a whole, we focus on the sub-aspect that is expected to be most relevant for morality:
perceived goal-fulfillment.

**Situational or individual differences.** Although we argue that certain
perspectives (i.e., global) lead to more moral outcomes, this relationship may change
depending on extreme situational or individual differences. For example, whenever non-
moral goals are more important to an individual than moral principles, then emotions
that facilitate abstract, global representations—high-level construals—could enforce
these goals, leading to effects contrary to what we report (for a similar rationale see
Eyal, Sagristano, Trope, Liberman, & Chaiken, 2009). Future research should thus
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account for individual and situational differences with regard to the importance of moral goals.

Endogenous negative emotions. We focused on how experienced exogenous positive emotions influence the outcome of a collective versus private interest conflict. However, this conflict itself can induce endogenous negative emotions (Haidt, 2001). When the conflict involves a ‘personal’ moral violation an increased activity of expected negative emotions is produced (Greene & Haidt, 2002). These negative emotions triggered by the moral conflict (e.g., anger, disgust, guilt; Greene & Haidt, 2002) may override the initial positive emotions. Therefore, it may be that exogenous positive emotions only have the proposed effects on decisions in collective vs. private interest conflicts if the moral violation is impersonal (i.e., when it fails to meet the criteria of a personal moral violation).

Love and optimism. We chose to compare love versus optimism for two reasons. Most importantly, as these two emotions differ in the mindsets that they induce, they allowed us to test the predictive validity of our hypothesis on the proposed ‘carry-over’ effects of exogenous positive emotions on moral judgments and decisions. Furthermore, exploring the effects of these emotions was interesting as they have rarely been examined in relation to morality (cf. Guéguen & Lamy, 2011).

Differences within an emotion. Interestingly, there can also be differences within a concept that represents an emotion. For example, in our studies we focused on love as a generic concept including various components (e.g., intimacy, passion, commitment; Sternberg, 1986), however, particular facets of love could cause various responses. At first sight, it appears that a study by Förster, Özsel, and Epstude (2010) slightly deviates from our research. Specifically, the authors found that love induced more global processing than lust or a neutral state. One could then suggest that love would be more associated with morality than lust or a neutral state. A closer look at the
study of Förster and colleagues leads us to believe that there is no contradiction to our results. The authors seem to focus on a particular kind of love, resembling ‘committed love’, which would be more associated with global perspectives thus potentially leading to moral outcomes. Future research could examine more closely the different facets of love with regard to moral outcomes, while some facets of love may be more similar to the effects of other emotions than other facets of love. Also, the proposed mindset components (i.e., fulfillment and perspective) could be manipulated within an emotion experience (e.g., fulfilled vs. unfulfilled love) to further validate our emotion hypothesis. Importantly, however, optimism appears to lead to more global perspectives compared to the general concept of love, explaining our results with regard to moral judgments and decisions.

**Real life implications.** Economic judgments and decisions made by individuals—whether these individuals are company managers, politicians, or consumers—have wider, long-term consequences for societies as a whole. Decisions based on short-term or private pleasures or interests have led to outcomes such as the housing bubble, the financial crisis, extinction of many species, holes in the ozone layer, and so on. If awareness of collective, long-term consequences of decisions could be promoted, consumers may be less likely to spend money on environmentally damaging products, managers may think twice before accepting ridiculously high bonuses, banks would only give out mortgages that house buyers can afford, and politicians would make decisions that serve the whole country versus decisions that only favor their personal popularity. Insights in how positive emotions influence these judgments and decisions may provide an important tool in promoting outcomes that serve more long-term, collective interests.
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Conclusion

We can now conclude with relative certainty that if your housemate is in love, you would be better off eating your share of olives before leaving for work. The different effects of love and optimism contribute to the evidence that positive emotions differ in their effects on collective (vs. private) interest serving judgments and decisions. By increasing the understanding of how discrete positive emotions, such as love and optimism, influence these judgments and decisions, we can contribute to knowledge on how judgments and decisions favoring collective interests can be optimized. Our studies examine two specific contexts that are especially relevant for society these days, namely, the economic and the environmental context. Decisions that were based on short-term rather than long-term outcomes have led to disastrous situations such as today’s economic crisis and global warming. Possibly, optimism, more than other positive emotions, could induce global perspectives and give people the necessary motivation to act in the interest of the greater good.
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Footnotes

1 Some studies have a small sample size; however, the effects still reach significance. As argued by Twenge and colleagues (2007, p. 57) “consistent replication with small samples is a statistically more conservative test than is significance in one large sample”. Considering that the effects of love versus optimism are replicated across six studies, the small sample sizes are not problematic.

2 As a first step to explore the proposed underlying process, after the emotions manipulation, we measured the proposed psychological process with an item that represented both perspective and goal-fulfillment (i.e., ‘I didn't lose myself in the moment, but thought about things I could accomplish in the future’). Bootstrapping analyses (see Preacher & Hayes, 2008) showed that the direct effect of love versus optimism on punishment became non-significant when the mediator item was included in the mediation model ($B = .27, \ SE = 0.29, \ p = .359$). Furthermore the direct path of love versus optimism on the mediator ‘mindset’ ($B = .77, \ SE = 0.32, \ p = .025$) and the direct effect of the mediator ‘mindset’ on punishment ($B = .43, \ SE = 0.16, \ p = .016$) remained significant. The indirect effect of the proposed mediator showed that the item mediated the effect of love versus optimism on punishment, $0.03 < B_{95} < 0.82, \ S_e = 0.21$ (5,000 bootstraps). Although this is initial support for the mediating effects of the perspective-fulfillment mindset, we are hesitant with the interpretation of this found mediation. Specially, perspective and fulfillment were measured by one double-barreled item, and we would recommend for future research to measure the perspective-fulfillment mindset with multiple items touching on each mindset component separately.
Table 1

*Selfish Economical Decision Making as a Function of Positive Emotions (Study 6).*

<table>
<thead>
<tr>
<th>Emotion</th>
<th>( n )</th>
<th>( M )</th>
<th>( SD )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Love</td>
<td>15</td>
<td>0.35</td>
<td>1.11</td>
</tr>
<tr>
<td>Neutral</td>
<td>14</td>
<td>-0.22</td>
<td>0.57</td>
</tr>
<tr>
<td>Optimism</td>
<td>14</td>
<td>-0.32</td>
<td>0.44</td>
</tr>
</tbody>
</table>
Figure 1: Altruistic Behavior in the Third-Party Punishment Dilemma as a Function of Positive Emotions (Study 5).

Note: Higher scores indicate more punishment (i.e., more altruistic behavior).
Chapter 4: Detrimental Consequences of Love for Morality

“To the world you may be one person, but to one person you may be the world” (Heather Darling-Cortes, 2008)

This chapter is based on: Van Dongen, F., & Igou, E. R. (2013). When love hurts unrelated others: On the effects of exogenous love on moral outcomes. Manuscript under review.
Chapter 4 - Detrimental Consequences of Love for Morality

Abstract

We tested the idea that love has a negative effect on moral judgments and decisions towards other people or the environment. Specifically, we focused here on experiences of love that are unrelated to the moral context in question (i.e., exogenous love). This prediction was tested in a series of seven studies. Consistently, we found that a love induction led to less moral decisions compared to a neutral affective state (Study 1), independent of whether love was experienced towards a partner, friend, or family member (Study 2). Also, the negative effect of love on moral decisions seemed to be due to the ‘specific perspective’ love induces (Studies 3 and 4). In addition, ‘fulfilled’ love led to less moral decisions compared to ‘unfulfilled’ love (Study 5) and that there was a negative correlation between ‘being in love’ and moral decision making, but only for people whose love seemed fulfilled (Study 6). Finally, love only has a negative effect on moral decisions towards exogenous targets; endogenous love has the opposite effect (Study 7). These results are consistent with our assumption that love, an experience that is relatively specific and fulfilling, results in less moral judgments and decisions towards unrelated others.

Keywords: Love, Exogenous, Moral Decisions, Moral Values, Fulfillment, Perspective
Chapter 4 - Detrimental Consequences of Love for Morality

The importance of love is reflected in a tremendous amount of songs, movies, plays, books, and in research by social scientists (e.g., Fehr & Russell, 1991; Hendrick & Hendrick, 1986; Sternberg, 1986). It is even argued that ‘nothing is more important’ than love (Hendrick & Hendrick, 2005) and that love fulfills the fundamental human ‘need to belong’ (e.g., Baumeister & Leary, 1995). Love changes the way people see themselves, the way they see the world and it can make people act against normal standards and common sense (e.g., Baumeister, Wotman, & Stillmann, 1993). Given that love seems to have such a tremendous influence on a person’s feelings, thoughts, and actions, it is likely to have implications for the object of affection (i.e., the love target), but—indirectly—for other people and the outside world as well. Much of the past research has focused on the direct influences of love on the person who is experiencing love (e.g., Aron, Aron, Tudor, & Nelson, 1991; Schneiderman, Zilberstein-Kra, Leckman, & Feldman, 2011) and on the person who is loved by another (e.g., Baumeister et al., 1993; Steck, Levitan, McLane, Kelley, 1982). The aim of the current research is to examine how love affects decisions in moral situations that are entirely unrelated to the love experience (i.e., exogenous love). We argue that love then has negative consequences for unrelated others. In order to explain our reasoning, we will first briefly review the literature on love.

Influences of Love on the Person Experiencing Love and the Love Target

Most research on love has focused on its positive effects. Love promotes well-being and health, as it buffers against autonomic stress, facilitates emotion regulation (Schneiderman et al., 2011), promotes the formation of social bonds (e.g., Shaver, Hazan, & Bradshaw, 1988), increases self-esteem (e.g., Aron, Paris, & Aron, 1995), and reduces psychological stress (Schneiderman et al., 2011). Furthermore, it leads to
fulfillment of one’s wishes and personal needs (Roseman, 1984; Seyfried, 1977; Winch, 1958), and giving love has been associated with self-realization, emotional satisfaction, and fulfilling insights (e.g., Fromm, 1956). Unfortunately—as most of us know well—the experience of love is not always pleasant, as reflected in an utterance by the actress Joan Crawford: "Love is a fire. But whether it is going to warm your heart or burn down your house, you can never tell" (as cited in Deloyski, 2007, p. 1). Some examples of the negative effects love can have are distress, erratic behavior, incomprehension, emotional interdependence, vulnerability, uncertainty, humiliation, and obsession (Aron et al., 1991; Baumeister et al., 1993; Hendrick & Hendrick, 1986).

Given that the experience of love has such major impact on the person experiencing love, it is likely to influence the loved person as well. Although it is commonly pleasant to be loved (e.g., it increases self-worth and feelings of security; Murray, Holmes, & Collins, 2006), this is not always the case. Love sometimes comes with feelings of need for the other person, which may reflect an egocentric orientation in which the other functions as a reward system (e.g., Steck et al., 1982). This can lead to a self-orientation in which the love target is used as merely a mean to the pleasures and desired goals of the person in love, and the experience of the love target him- or herself is neglected (e.g., Baumeister et al., 1993). Furthermore, the love target can be a victim of manipulative, deceptive, or over-controlling behavior or—if the feeling is not mutual—can experience feelings of guilt, discomfort, or distress (Baumeister et al., 1993; Hendrick & Hendrick, 1986).

In sum, the experience of love influences both the experiencer and the target, and this influence can be positive or negative, although most of the literature on love has focused on the positive consequences of love. But how may love experiences affect behaviors towards unrelated others?
Influences of Love on Moral Behavior

Above we have focused on the direct positive and negative influences of love on the experiencer and the target. However, when examining the literature on how love influences others, the answer to how love influences moral behavior remains inconclusive. Some research seems to indicate that love increases donating and helping behaviors (e.g., Guéguen & Lamy, 2011; Lamy, Fischer-Lokou, & Guéguen, 2008), whereas other research has shown that love can increase aggressive behaviors towards others (e.g., Hahn-Bolbrook, Holt-Lunstad, Holbrook, Coyne, & Lawson, 2011; Leo & Maner, 2012).

In addition, research on parochial altruism (e.g., De Dreu et al., 2010; De Dreu, Greeg, Van Kleef, Shalvi, & Handgraaf, 2011) shows that oxytocin (which has frequently been associated with love; e.g., Floyd, Pauley, & Hesse, 2010; Magon & Kalra, 2011; Ortigue, Bianchi-Demicheli, Patel, Frum, & Lewis, 2010; Tarlaci, 2012; Tufan & Yaluğ, 2010) leads to human ethnocentrism. Given that human ethnocentrism is characterized by ‘ingroup-love’ (i.e., self-sacrificing to benefit one’s own group) and by ‘outgroup-hate’ (i.e., hurting or sabotaging outgroups; e.g., De Dreu et al., 2010), it impedes universalistic altruism or universalistic moral outcomes (i.e., outcomes that are good for both ingroups and outgroups; e.g., Bernhard, Fischbacher, & Fehr, 2006; De Dreu et al., 2011). This suggests that, although love might lead to moral behaviors towards the ingroup (e.g., the love target), the opposite effect could be expected in behaviors towards others.

We argue that whether or not love leads to moral behavior depends on if the target of the (im)moral behavior also becomes the target of the love experience. Therefore, to further understand the love effects on morality, it is important to distinguish between endogenous and exogenous love influences. We speak of ‘endogenous love’ when the love experience is relevant for the current judgment or
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decisions (e.g., behavior towards the love target), and ‘exogenous love’ when this is not
the case (cf. Zeelenberg & Pieters, 2006). Our current research investigates the impact
of exogenous love on moral judgments and decisions towards others. That is, whether
others, who are unrelated to the experience (e.g., other people, the environment), will be
treated more or less morally by the person who experiences love.

How Exogenous Love Influences Morality

Our predictions for how exogenous love influences moral judgments and
decisions are based on a general model of how positive emotions influence moral
outcomes. We will briefly describe this general full-perspective hypothesis (Van
Dongen & Igou, 2012a) in order to explain our predictions with regard to exogenous
love.

Positive emotions and moral judgments and decisions. Our full-perspective
hypothesis suggests that the way exogenous positive emotions influence moral
outcomes depends on the mindset they induce. The two proposed mindset components
that link positive emotions to morality are perceived goal-fulfillment and globality of
perspective.

People are more likely motivated to reach the desired standard (e.g., moral
standard) when there is a discrepancy between the current and desired state (e.g., Carver
& Scheier, 1998), which we refer to as an unfulfilled state. This means that when such a
discrepancy exists, people are likely to perceive their goals as unfulfilled, which in turn
motivates them to engage in behavior that reduces the discrepancy. We argue that
perceived goal-fulfillment, and the motivated state that stems from it, is important for
moral outcomes because moral behavior is often associated with sacrifices, requiring
self-control (e.g., Baumeister & Exline, 1999). Importantly, we argue that this
motivational state can be influenced by an emotion (here: love) and transferred over to
an unrelated context (here: moral context). In this sense, a motivated state induced by an
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emotion is more likely to facilitate moral judgments and decisions than an unmotivated state induced by an emotion.

Furthermore, as moral principles are strongly related to long-term consequences and benefits of the collective rather than an individual (e.g., Haidt & Joseph, 2004), attunement to moral principles and moral behavior increases if people adopt global perspectives (e.g., Agerström & Björklund, 2009). Given that these mindsets can transfer from an emotion to an unrelated moral dilemma, we predicted that positive emotions that are associated with goal-fulfillment, and a specific perspective, are less likely to lead to moral outcomes compared to emotions associated with an experience of unfulfillment, and a global perspective.

Love and fulfillment. Were the Beatles right when they sang “All you need is love”? This is probably an exaggeration, but social psychologists also argue that love gives people a feeling of fulfillment (e.g., Baumeister & Leary, 1995; Fromm, 1956; Roseman, 1984; Seyfried, 1977; Winch, 1958), a fulfillment of one’s wishes and personal needs (Roseman, 1984; Seyfried, 1977), a fulfillment of the fundamental human need to ‘belong’ (e.g., Baumeister & Leary, 1995), and can lead to emotional satisfaction and fulfilling insights (e.g., Fromm, 1956). We predict that when love induces fulfillment, people will be less motivated to engage in moral behavior.

The experience of love, we argue, is generally a state of satisfaction and fulfillment. That does not mean, however, that love is always associated with fulfillment. Indeed, love can be unfulfilled (e.g., as Charlie Brown says, “Nothing takes the taste out of peanut butter like unrequited love”). If love is unfulfilled the effects on morality should, of course, be different. In that case love does not induce fulfillment, which should have a more motivating effect on pursuing moral goals compared to when love is fulfilled. We now turn to the second important mindset component: perspective.
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**Love and perspective.** The literature on love suggests that love prioritizes self-relevant goals regarding the specific target over other (e.g., moral) goals (e.g., Leo & Manner, 2012; Steck et al., 1982), and love may even cause people to lose sight of other’s needs or experiences (e.g., Baumeister et al., 1993; Steck et al., 1982). Therefore we argue that the experience of love induces a relatively specific (vs. global) perspective. In turn, the specific perspective is not compatible with the rather abstract, global features of morality. We thus conclude that a specific perspective, induced by love, does not result in moral goals and behaviors. Based on the argument that perceived goal-fulfillment and a specific perspective reduce moral outcomes, we predict that love is more likely to hinder (vs. facilitate) moral decision making.

We tested the influence of love on moral judgments and decisions in a series of seven studies. Specifically, we predicted that love would reduce moral judgments and decisions compared to a neutral affective state. First, we tested the effects of love versus a neutral state on moral decision making (Study 1). Then, we further tested how different love experiences influenced moral decision making by examining the effects of different love targets (Study 2), manipulating globality of perspective within the love experience (Studies 3 and 4), manipulating perceived fulfillment within the love experience (Study 5), correlating ‘being in love’ with moral decision making (Study 6), and finally by testing the effects of love towards endogenous versus exogenous targets (Study 7).

**Study 1**

In Study 1 we manipulated love versus a neutral affective state and measured moral decision making in an environmental context. We predicted that love would lead to more environmentally damaging decisions than a neutral affective state.
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Method

Participants and design. Fifty students at the University of Limerick (38 women, 10 men, 2 undisclosed; $M_{age} = 19.04$, $SD_{age} = 2.77$) took part in this study in return for course credit or four Euros. Participants were randomly assigned to one of two emotion conditions (neutral vs. love; 25 and 25 participants per cell respectively). One participant failed to fill out the morality measures and could therefore not be included in the analyses. After this exclusion, the final sample consisted of 49 participants (37 women, 10 men, 1 undisclosed; $M_{age} = 19.04$, $SD_{age} = 2.80$), of which 24 were in the neutral condition and 25 were in the love condition.

Materials and procedure. We manipulated participants’ experience of love by means of an autobiographical memory recall task (e.g., Rubin, 2006). Specifically, in the ‘love’ recall condition, we explained to participants that this could be love towards a friend, family member, or partner. The purpose of this instruction was to make sure that participants could chose any of these targets and that they did not understand our instructions as a request to imagine ‘romantic’ love. In the neutral condition, participants were asked to recall a neutral (i.e., not positive nor negative) everyday life event.

Manipulation check. The effectiveness of the love manipulation was measured by two items. Specifically, participants rated their agreement on a seven-point scale from 1 (completely disagree) to 7 (completely agree) with regard to the statements ‘Recalling love/the everyday life event made me feel strong, positive feelings towards 1 specific person’ and ‘Recalling love/the everyday life event made me think about 1 specific person in a very positive way’.

Morality measure. Environmentally damaging decisions were measured in relation to three scenarios. Specifically, participant were presented with examples of behaviors that would directly or indirectly damage the environment: buying a cheap, but
heavily polluting car; working for a high-paying, heavily polluting company; littering. Each of the scenarios entailed a conflict between self-interest (i.e., more money for the self, ease) and common interest (i.e., not further damaging the environment). For each scenario, participants were asked to list at least one positive and one negative aspect of performing the environmentally damaging behavior (to ensure engagement with the task), and to indicate how much they would consider performing this behavior, how likely they were to perform this behavior, and if they could justify this behavior, using scales ranging from 1 (not at all) to 7 (very much). Afterwards the participants were thanked and debriefed.

Results and Discussion

Manipulation check. The two love items were combined into an index of love experience ($r = .86, p < .001$). An independent samples $t$-test confirmed the effectiveness of our love manipulation. Compared to a neutral state ($M = 3.12, SD = 2.11$), the love induction led to more experience of love ($M = 6.54, SD = 0.52$), $t(27.16) = 7.86, p < .001, d = 2.23$.

Environmentally unfriendly decisions. An index of environmentally damaging decisions was created by combining all measures regarding the three scenarios ($\alpha = .75$). An independent samples $t$-test showed that love led to more environmentally damaging decisions ($M = 3.84, SD = 0.84$) compared to a neutral affective state ($M = 3.30, SD = 0.94$), $t(47) = 2.12, p = .04, d = 0.61$. This finding confirmed our hypothesis that love (vs. neutral affect) reduces moral decisions, here with regard to the environment.

Study 2

Study 2 was designed to demonstrate the effects of love (vs. neutral affect) on moral judgments and decisions in an economic context. In addition, we experimentally varied the target of love to introduce more generalizability of the findings. As in Study
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1, we predicted that love would reduce moral judgments and decisions compared to a neutral affective state.

Method

Participants and design. One hundred and twenty-three students at the University of Limerick (81 women, 36 men, 6 undisclosed; \( M_{\text{age}} = 20.34, SD_{\text{age}} = 4.45 \)) took part in this study in return for course credit or on a voluntary basis. Participants were randomly assigned to one of four emotion conditions (neutral vs. love towards a friend vs. love towards a family member vs. love towards a partner; 29, 32, 29, and 33 participants per cell respectively). One participant failed to fill out the emotion manipulation and was therefore excluded from further analyses. After this exclusion, the final sample consisted of 122 participants (81 women, 35 men, 6 undisclosed; \( M_{\text{age}} = 20.35, SD_{\text{age}} = 4.47 \)), with 29 participants in the neutral, 32 participants in the love towards a friend, 29 participants in the love towards a family members, and 32 participants in the love towards a partner condition.

Materials and procedure. Both the emotion manipulation and emotion manipulation check were similar to Study 1 with the exception that we varied the target of love (friend vs. family member vs. partner). Moral decision making in the economic context was measured by a financial crisis scenario. Participants were asked to imagine being the top manager of an Irish insurance company, which had recently collapsed due to the financial crisis, but was financially saved by the Irish government. Then they were asked how they would respond to an offer of a €250,000 bonus. Specifically, they were asked how likely they were to accept the bonus, how likely they were to return the bonus, and how likely they were to protest against a 95% reduction of the bonus, using scales ranging from 1 (very unlikely) to 7 (very likely). Afterwards participants were thanked and debriefed.
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Results

Manipulation check. After creating the love index based on the two love measures \((r = .67, p < .001)\), we tested for the effects of the emotion manipulation using an independent samples \(t\)-test. Specifically, independent of whether participants recalled love towards a friend \((M = 6.02, SD = 0.72)\), family member \((M = 6.16, SD = 0.69)\) or partner \((M = 6.00, SD = 1.06)\), they experienced more love compared participants in the neutral affect condition \((M = 4.28, SD = 1.61)\), all \(ps < .001\). Furthermore, there was no difference in the experience of love between the different love conditions (all \(ts < 1\)).

Financial crisis scenario. To analyze the effects of the love conditions on economic immorality, the item ‘likelihood of returning the bonus’ was reverse coded and all three items were combined into an index of economic immoral decision making \((\alpha = .68)\). There was no difference in the effects between any of the love conditions (all \(ts < 1\)), therefore, we collapsed these conditions into one love condition and compared it to the neutral affect condition. As predicted, love led to more immoral economic decision making \((M = 4.30, SD = 1.50)\) compared to a neutral affective state \((M = 3.68, SD = 1.34)\), \(t(118) = 2.00, p = .048, d = 0.44\) (see Table 1).

Discussion

Study 2 replicated the effect of love on moral decision making in the economic context, showing that love led to less moral economic decisions compared to a neutral affective state. Importantly, there was no difference in the effects of love on morality between different love targets, increasing the generalizability of our findings. After replicating the effects of love (vs. neutral affect) on morality across different love targets, we examined more closely the proposed underlying process in Studies 3, 4, and 5.
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Study 3

Study 3 was designed to directly examine the influence of ‘perspective’, as we propose that the ‘specific perspective’ adopted when people experience love partly accounts for the negative effects of love on morality. Importantly, love is typically related to specific targets, and is only sometimes related to a range of targets. We can thus differentiate between the prototypical specific love and the less typical global love. Based on our general assumption that ‘specificity’ leads to less moral behavior, we predicted that if the experience of love is more ‘global’ (e.g., love towards multiple people), it is less likely to lead to immoral decisions compared to when the focus is on one particular person (i.e., specific perspective).

Method

Participants and design. Sixty-nine participants from the USA (41 women, 27 men, 1 undisclosed; \(M_{\text{age}} = 33.31, SD_{\text{age}} = 12.36\)) took part in this online study in exchange for a payment of $0.30. Participants were randomly assigned to one of two perspective conditions (global vs. specific; 32 and 37 participants per cell respectively). Two participants failed to fill out the emotion manipulation and were therefore excluded from further analyses. After this exclusion, the final sample consisted of 67 participants (40 women, 27 men; \(M_{\text{age}} = 33.42, SD_{\text{age}} = 12.42\)), of which 30 were in the global condition and 37 were in the specific condition.

Materials and procedure. Participants were recruited through Amazon’s Mturk (for research on the quality of data obtained through Mturk see Buhrmester, Kwang, & Gosling, 2011). Participants read a short introduction, gave their informed consent, and then worked on the main questionnaire.

To manipulate globality of perspective within the experience of love, participants were asked to list either one person (specific condition) or five people (global condition) that they love, and to describe each person individually in one
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sentence. Thereafter we gave participants the financial crisis scenario (see Study 2). As a manipulation check, we then asked participants “To what extent did you focus on 1 specific aspect of your life?”; rated on a scale ranging from 1 (not at all) to 9 (very much). Afterwards, participants were thanked and debriefed.

Results and Discussion

Manipulation check. The induction of specific versus global perspective within the love experience was successful as participants in the specific love condition indicated a higher agreement that they had focused on a specific aspect ($M = 6.70$, $SD = 2.36$) than those in the global love condition ($M = 5.30$, $SD = 2.63$), $t(65) = 2.30, p = .03, d = 0.56$.

Financial crisis scenario. An index of immoral economic decision making was created by combining the three financial crisis items ($\alpha = .70$). Then, an independent samples $t$-test showed that immoral economic decisions were less likely for participants in the global love condition ($M = 3.39$, $SD = 1.34$) compared to participants in the specific love condition ($M = 4.17$, $SD = 1.68$), $t(65) = 2.08, p = .04, d = 0.51$.

These results supports our hypothesis that it is not the mere experience of love, but rather the specific perspective, that causes the negative effects of love on moral decision making. Also, it shows that the globality of perspective can vary depending on the particular love manipulation. This could account for the apparent discrepancy between our results and those of Förster and colleagues (2010). They showed that a prime of ‘a walk with a beloved partner’ as future event induces a global processing style in participants in a stable, long-term relationship. It could be that this particular prime (i.e., a walk with a long-term partner as a future event) induced the experience of love associated with a more long-term (i.e., global) perspective. That is, Förster and colleagues may have induced a state that is comparable to what we refer to as ‘global love’.
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Study 4

The design of Study 4 was similar to Study 3, but to test whether a global perspective eliminates the negative effect of love on moral decisions, a neutral affective state condition was included. Further, to ensure that the difference between the specific and global conditions in Study 3 was not due to participants describing different love targets across conditions, participants were asked to recall love with regard to one standard category (a friend). Furthermore, to test for the robustness of the effects, a different moral decision measure was used than in Study 3. We predicted that ‘a specific perspective’ inducing love would lead to less moral decisions compared to a neutral affective state, but that this effect would disappear when love induces a more global perspective.

Method

Participants and design. Seventy-eight participants from the USA (50 women, 28 men; $M_{age} = 30.55$, $SD_{age} = 10.28$) took part in this online study in exchange for $0.30 on Amazon’s Mturk. Participants were randomly assigned to one of three emotion conditions (global love vs. specific love vs. neutral affect; 27, 28 and 23 participants per cell respectively). Eleven participants did not complete the questionnaire and could therefore not be included in the analyses. After this exclusion, the final sample consisted of 67 participants (44 women, 23 men; $M_{age} = 30.42$, $SD_{age} = 10.15$), of which 23 were in the global love, 24 in the specific love, and 20 in the neutral condition.

Materials and procedure. Materials and procedure were similar to Study 3, with a few small changes. First, a neutral affect condition was included, in which participants were asked to describe their usual method of transportation. Also, as we wanted to ensure that the described love target did not vary across love conditions, we controlled the chosen love target. Specifically, we asked participants to describe either 1 friend they loved (specific condition) or 5 friends they loved (global condition). As this
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study also had a neutral condition, we added an additional manipulation check by asking ‘How much love did you feel?’ on a scale ranging from 1 (no love) to 9 (a lot of love).

Moral decision making was measured via reactions to a scenario, borrowed from Aquino and colleagues (2009). Specifically, participants were asked to imagine being the brand manager for a breakfast cereal company, who had to decide whether the company would donate 25 cents per product purchased to the American Cancer Society as part of a cause-related marketing program. However, initiating the program would decrease the chances of earning a year-end bonus. Then they were asked ‘What is the percentage chance (0 to 100%) that you would choose to initiate the cause-related marketing program?’ and ‘How likely are you to initiate the cause-related program?’ on a scale ranging from 1 (extremely unlikely) to 9 (extremely likely).

Results

Manipulation checks. The love manipulation was successful as participants reported experiencing less love in the neutral condition ($M = 4.20, SD = 2.67$) compared to the global love condition ($M = 7.13, SD = 2.30$), $t(64) = 3.92, p < .001, d = 1.18$, and compared to the specific love condition ($M = 6.79, SD = 2.38$), $t(64) = 3.51, p = .001, d = 1.02$. There was no difference in love experience between the global and specific love conditions ($t < 1$).

Furthermore, the induction of specific versus global perspective within the love experience was successful as participants in the specific love condition ($M = 6.83, SD = 1.93$) agreed more to the specificity of the experience than participants in the global love condition ($M = 4.35, SD = 2.52$), $t(64) = 3.77, p < .001, d = 1.10$, and than those in the neutral affect condition ($M = 5.40, SD = 2.33$), $t(64) = 2.09, p = .04, d = 0.67$. There was no difference in perspective between the global love and neutral conditions, $t(64) = 1.52, p = .13, d = 0.43$. 

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**Donating.** An index of moral decisions was created by combining the z-scores of both donating items ($r = .80$, $p < .001$). A one-way ANOVA showed an overall effect of the emotion condition on donating decisions, $F(2, 64) = 3.53$, $p = .04$, $\eta^2 = .10$. Specifically, as reflected in Table 2, a contrast analysis showed that specific love ($M = -.39$, $SD = 0.80$) led to less donating compared to global love ($M = 0.16$, $SD = 1.08$), $t(64) = 2.08$, $p = .04$, $d = 0.58$, and compared to a neutral state ($M = 0.28$, $SD = 0.84$), $t(64) = 2.44$, $p = .02$, $d = 0.82$. Importantly, there was no difference in donating between the global love and neutral conditions ($t < 1$).

**Discussion**

Consistent with the results of Study 3, the findings of Study 4 demonstrate the importance of ‘perspective’ within the love experience. Specifically, when love induces a specific perspective, it reduces moral decisions compared to neutral affect; however, this negative effect disappears when love induces a more global perspective. Furthermore, this effect is robust across different measures of moral decisions, and when the love target remains constant.

We manipulated love perspective by asking participants to describe 1 (i.e., specific) or 5 (i.e., global) people they love. One could perhaps argue that it is more difficult to describe more people. We believe it is more time consuming but not necessarily more difficult to describe several people that one loves. But, more importantly, even if this was at times more difficult, it is unclear how this would increase morality. After having found support for the importance of the ‘perspective’ mindset component, Study 5 explored the importance of the other mindset component: ‘fulfillment’.

**Study 5**

Study 5 was designed to further examine the proposed underlying process. Specifically, we examined the influence of ‘fulfillment’ as we propose that
fulfillment—induced by the experience of love—partly accounts for the negative effect of love on morality. To this end, we manipulated perceived ‘fulfillment’ within the experience of ‘romantic love’ (i.e., love towards a romantic partner), and predicted that fulfilled love would lead to less moral decisions compared to unfulfilled love.

Method

Participants and design. Thirty-five students at the University of Limerick (13 women, 21 men, 1 undisclosed; \( M_{\text{age}} = 21.91, SD_{\text{age}} = 4.43 \)) took part in this study in return for course credit, four Euros, or on a voluntary basis. Participants were randomly assigned to one of two fulfillment conditions (fulfilled vs. unfulfilled love; 18 and 17 participants per cell respectively).

Materials and procedure. To manipulate fulfillment within the experience of love, participants were asked to imagine either ‘being in a committed and close relationship’ (fulfillment condition) or to imagine ‘desiring to be in a committed and close relationship’ (unfulfillment condition) and to write down their experience, feelings and thoughts. As manipulation check, we asked participants to report how imagining these situations made them feel (i.e., ‘Imagining this moment gave me the sense that something important is fulfilled’; ‘Imagining this moment gave me the sense that my relationship needs are fulfilled’) and to rate their experience on scales ranging from 1 (unfulfilled) to 7 (fulfilled). Participants then worked on the same financial crisis scenario (see Study 2), and were thanked and debriefed afterwards.

Results & Discussion

Manipulation check. An index of experienced fulfillment was created by combining the two fulfillment items \((r = .56, p < .001)\). An independent samples \(t\)-test showed that our manipulation was successful by confirming that participants in the fulfilled love condition \((M = 5.25, SD = 1.05)\) experienced more fulfillment compared
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to participants in the unfulfilled love condition \( (M = 4.21, SD = 1.86), t(24.88) = 2.03, p = .047, d = 0.69. \)

Financial crisis scenario. After combining the financial crisis items into an
index of immoral economic decision making \( (\alpha = .71) \), an independent samples \( t \)-test
showed that participants who imagined fulfilled love \( (M = 4.20, SD = 1.55) \) made more
immoral economic decisions compared to participants who imagined a situation of
unfulfilled love \( (M = 3.20, SD = 1.31), t(33) = 2.07, p = .046, d = 0.70. \) This result
supports our hypothesis that it is not the mere experience of love, but rather the
perceived fulfillment mindset, that causes the negative effect of love on moral decision
making.

Study 6

After manipulating different types and experiences of love in Studies 1-5, Study
6 was designed to examine the natural, ‘non-manipulated’ experience of being in love
and its relationship to morality. Importantly, this study also allowed us to test for the
role of ‘fulfillment’. We asked people—on Valentine’s Day— how much they were in
love and whether or not they were in a relationship. In line with our hypothesis, we
predicted a positive relationship between ‘being in love’ and immoral decisions, but
only for those participants who were in a relationship, as an important indicator for
fulfilled love.

Method

Participants and design. Ninety-seven students at the University of Limerick
(40 women, 50 men, 7 undisclosed; \( M_{\text{age}} = 22.59, SD_{\text{age}} = 5.23 \)) were approached in the
university library to participate in this study on voluntary basis. The study had a
correlational design including measurements of being in love, whether or not
participants were in a relationship, and immorality. One participant was excluded from
further analysis as her questionnaire was filled out by multiple people. After this
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exclusion, the final sample consisted of 96 participants (40 women, 50 men, 6 undisclosed; $M_{age} = 22.59$, $SD_{age} = 5.23$).

**Materials and procedure.** After giving informed consent and filling out demographic details, participants worked on the main questionnaire. Participants answered the questions ‘Are you in love?’ on a scale ranging from 1 (*not at all*) to 7 (*very much*), and ‘Are you in a relationship?’ (*yes* versus *no*). Thereafter, they filled out the ‘environmental decisions scale’ (see Study 1), ‘the financial crisis scale’ (see Study 2), and the ‘economic decisions scale’. The ‘economic decisions scale’ was similar to the ‘environmental decisions scale’, except that it consisted of examples of behaviors that related to *economic* moral dilemmas (i.e., evading taxes; illegitimately claiming social welfare; claiming insurance money you are not entitled to; eating your roommate’s food). Afterwards, participants were thanked and debriefed.

**Results and Discussion**

First, we created an index of immoral economical decision making by computing the average score of all scales ($\alpha = .76$). There was no effect of being in a relationship on immoral decisions ($t < 1$), and no correlation between being in love and immoral decisions ($r = .04, p = .72$). However, consistent with our predictions, if people were in a relationship ($n = 43$), there was a positive correlation between being in love and immoral decisions ($r = .31, p = .04$). Furthermore, if people were not in a relationship ($n = 52$), there was no correlation between being in love and immoral decisions ($r = .03, p = .84$).¹ One participant failed to fill out whether she was in a relationship and was, therefore, excluded from these analyses.

To conclude, being in love was only related to immoral decisions, if the experience of love was fulfilled (i.e., the person was in a relationship). If the love experience was unfulfilled (i.e., the person was not in a relationship), then being in love was unrelated to immoral decisions. These findings support our assumption that it is not...
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the mere feeling of love, but rather the fulfillment associated with love that explains the negative effects of love on moral decision making.

Study 7

Although we argue that love leads to less moral decisions towards others that are unrelated to the love experience (i.e., exogenous targets), we do not expect this to happen in relation to the love target (i.e., endogenous targets). Study 7 was designed to test this assumption. Love can lead to the inclusion of the other (i.e., the love target) in the self (e.g., Aron et al., 1991), therefore, the selfish decisions we have found to be caused by love, are not expected to occur towards the love target. We predicted that people would treat a person better when they love this person, but that this comes at the cost of moral decisions towards a target that is unrelated to the love experience.

Method

Participants and design. Seventy-eight American participants (44 women, 34 men; \( M_{\text{age}} = 33.33, SD_{\text{age}} = 11.80 \)) took part in this online study in exchange for a $0.30 payment. Participants were randomly assigned to one of two love conditions (love vs. acquaintance; 36 and 42 participants per cell respectively). Twenty-seven participants did not continue the questionnaire after filling out their demographics and could therefore not be included in further analyses. After this exclusion, the final sample consisted of 51 participants (25 women, 26 men; \( M_{\text{age}} = 31.51, SD_{\text{age}} = 11.34 \)), of which 26 were in the love condition and 25 were in the acquaintance condition.

Materials and procedure. Participants were recruited through Amazon’s Mturk. Participants read a short introduction, gave their informed consent, and then worked on the main questionnaire. To test the effects of love on moral decisions affecting endogenous versus exogenous targets, we created materials similar to those of De Hooge and colleagues (2011) on the effects of endogenous versus exogenous guilt. To manipulate feelings of love, participants were asked to write a story either about
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someone they love or about an acquaintance they vaguely know. To check if the love manipulation was successful, participants were asked to answer the question ‘When you wrote the short story, how much love did you feel?’ on a scale ranging from 1 (no love) to 9 (a lot of love). Then, participants were told to divide 50 US Dollars between themselves, a charity for flood victims in Africa, and a birthday party present for the person they just described. Afterwards, participants were thanked and debriefed.

Results and Discussion

Manipulation check. Our love manipulation was successful as participants in the love condition \((M = 8.00, SD = 1.39)\) reported more experienced love compared to participants in the acquaintance condition \((M = 3.24, SD = 2.18)\), \(t(40.36) = 9.25, p < .001, d = 2.60\).

Money division. Participants in the love condition kept less money to themselves \((M = 3.88, SD = 7.37)\) compared to participants in the acquaintance condition \((M = 20.20, SD = 14.82)\), \(t(34.88) = 4.95, p < .001, d = 1.39\). Also, as predicted, participants in the ‘loved person’ condition decided to spend more money on a birthday present for this person \((M = 38.27, SD = 11.13)\) compared to the money that was spend in the acquaintance condition \((M = 12.20, SD = 10.32)\), \(t(49) = 8.67, p < .001, d = 2.44\). However, most importantly, participants in the love condition decided to give less money to charity \((M = 7.46, SD = 8.15)\) compared to participants in the acquaintance condition \((M = 17.60, SD = 11.38)\), \(t(49) = 3.67, p = .001, d = 1.02\) (see Figure 1).

Study 7 showed that love causes people to behave more morally towards the person they love; however, this comes at the cost of moral decisions towards others (e.g., charity). In first instance it appears that love causes people to be more moral as they keep less money to themselves. However, a closer inspection of the results indicates that this is only the case because they self-sacrifice for their partner (who is
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included in the dyad of self and beloved) but not for others with whom no direct relationship exists (e.g., charity). These results support our claim that although endogenous love increases moral outcomes, love has negative implications for moral judgments and decisions towards exogenous targets.

General discussion

We predicted that exogenous love would reduce moral judgments and decisions. Specifically, we posed that love (vs. a neutral affective state) would lead to less moral decisions in situations that are unrelated to the love experience. Additionally, this effect was predicted to be due to perceived fulfillment, and people’s perspective associated with the feeling of love.

In a series of studies we tested the effect of love, and different experiences of love, on moral economic and environmental decision making situations that were unrelated to the love experience. Study 1 established the predicted effect of exogenous love on moral decision making. Specifically, we found that love (vs. a neutral affective state) led to less moral decisions in an environmental context. Study 2 replicated this finding in an economic context. Furthermore, whereas the particular love experience was not manipulated in Study 1, Study 2 showed that love towards different targets (i.e., partner vs. friend vs. family) led to similar levels of moral decisions. Study 3 revealed the importance of ‘perspective’ as it showed that specific love (i.e., love towards one person) led to more immoral economic decisions compared to global love (i.e., love towards 5 people). Furthermore, when a global perspective was induced in the love experience, the negative effect of love on moral decisions was eliminated (Study 4). Study 5 further supported our hypothesis on the process by showing that the manipulation of ‘perceived unfulfillment’ within love (i.e., unrequited love) led to more moral economic decisions compared to fulfilled love (i.e., requited love). In Study 6, love was measured rather than manipulated to examine the effects of a more natural
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experience of love. Again, our hypothesis was supported as there was a positive correlation between ‘being in love’ and immoral economical decisions—across economic and environmental measures—but only for fulfilled love (i.e., for people in a relationship). Finally, Study 7 showed that although endogenous love has a positive effect on moral decisions, love towards exogenous targets has—as predicted—the opposite effect.

These findings are consistent with our assumption that love—if unrelated to the moral situation—reduces moral judgments and decisions. Given that love causes people to lose themselves in the moment, focus on themselves and one particular other person, and reduces people’s motivation as they experience fulfillment, they are less likely to consider long-term, collective consequences, and less likely to make the effort to reach a desired (e.g., moral) standard—as the desired standard is already fulfilled. We found support for this hypothesis across seven studies with various designs and procedures, including five different measurements of moral judgments and decisions, which speaks for the reliability of the effects.

Although the aim of this paper was to test love versus a neutral state, note that this paper is part of a broad research program, in which we have found that love leads to less moral outcomes compared to other positive emotions (e.g., optimism; Van Dongen & Igou, 2012a; Van Dongen & Igou, 2012b).

Love and Morality: Contribution, Limitations, & Future Research

To our knowledge, there is very little known about the effects of love in relation to morality. Some research seems to indicate that love increases moral behaviors as a love prime (i.e., donating = loving) cause people to donate more money to humanitarian aid (Guéguen & Lamy, 2011) and a love memory increases helping a stranger of the opposite sex—but not of the same sex (Lamy et al., 2008). However, research also shows that attractive same-sex targets are more likely to be a victim of violent vigilance
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after people are primed with love for their partners (versus desire or versus a neutral affective state; Leo & Maner, 2012). Furthermore, research on maternal aggression has shown that breast-feeding (human) mothers (vs. women who had never been pregnant) behave more aggressively towards an unrelated woman (Hahn-Bolbrook et al., 2011).

We argue that whether or not love leads to moral behavior depends on if the love experience is ‘spread’ to the target of the (im)moral behavior. This is consistent with research showing that oxytocin leads to human ethnocentrism (i.e., ingroup-love and outgroup-hate; e.g., De Dreu et al., 2010; De Dreu et al., 2011).

Anecdotally, this is also perfectly reflected in Meat Loaf’s ‘I’d lie for you’ lyrics, in which he promises moral behavior towards the love target (“I'd never tell you one lie”), but immoral behavior towards other, non-love targets (“I'd lie for you and that's the truth, do anything you ask me to, I'd even sell my soul for you”; Warren, 1995). We were interested in examining the effects of exogenous love, therefore, it was important to design our studies in a manner in which the likelihood of a potential ‘spread’ of love towards the target of the (im)moral decision was minimized. We measured the effects of exogenous love on moral decision making in contexts in which the negative implications for another person were quite implicit (e.g., not recycling a glass bottle). This is the first time that the exogenous effects of different experiences of love (i.e., fulfillment vs. unfulfillment and global vs. specific perspective) and love towards various targets (i.e., partner, family, friend) on moral judgments and decision making has been systematically examined.

In addition to establishing that exogenous love can have negative implications for moral outcomes, our research also shows the importance of ‘fulfillment’ and ‘perspective’ as part of the love experience. Consistent with our full-perspective hypothesis, we argued that the effects of exogenous love on morality partly depend on whether love is experienced as fulfilled or unfulfilled. Specifically, as living up to one’s
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moral standards requires effort, and fulfillment signals that the desired standard has been reached already, we argued that the negative effect of love on morality would be most pronounced when love was experienced as fulfilled. The finding that both the manipulation of fulfilled (vs. unfulfilled) love and the experience of requited (vs. unrequited) love led to less moral decisions, strongly supports our argument that the perceived fulfillment of love is an important factor to take into consideration when the effects of love are examined in future research.

Furthermore, we argue that the effects of exogenous love depend on the particular perspective that is induced by the love experience. Although love usually seems to induce a specific perspective (e.g., Baumeister et al., 1993; Leo & Manner, 2012; Steck et al., 1982), by redirecting the focus towards multiple people, love can induce a more global perspective. Importantly, when love induces a more global perspective, the negative implications for moral outcomes are reduced. These results are consistent with our process assumption and they indicate an important boundary of the proposed effect.

The idea that the experience of particular emotions influences people’s perspective is not new; however, often it is argued that love—being a positive emotion—broadens people’s perspectives (Fredrickson, 1998) or leads to a global processing style (e.g., Förster, Özelsel, & Epstude, 2010). We argue that the induced perspective or processing style can be a product of the particular love manipulation, but that in general love seems to induce a focus on one specific aspect of one’s life, and therefore a rather specific (vs. global) perspective. Would the type of love matter?

Psychologists have come up with various definitions of love based on different love components (e.g., intimacy, passion, commitment; e.g., Sternberg, 1986), love styles (e.g., Eros, Agape, Ludus; e.g., Hendrick & Hendrick, 1986), or prototypical subtypes (e.g., maternal love, friendship, sexual love, puppy love, affection love; e.g.,
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Fehr & Russell, 1991). We approached our topic from a broad perspective by not distinguishing love types, styles, and subtypes with regard to their impact on morality. Indeed, we left it up to the participants to ‘define’ what they understood under love. However, we systematically checked as to whether or not love towards different targets had a different influence, and it did not. Considering that love towards different targets is associated with different kinds of love, we can assume that different kinds of love do not have different effects on moral outcomes. Further, it would go beyond the scope of our manuscript to test for all the love types and styles reported in the literature. However, our novel and for some people probably somewhat surprising results that love impedes morality is likely to lead to follow-up studies regarding the moderations of the effects by particular love types and styles. We would certainly welcome such follow-up research.

The moral judgments and decisions measured in our studies mainly included self versus other (e.g., society, roommate, environment, charity) conflict situations, reflecting the fairness/equality moral value. That means, the immoral judgments and decisions in these situations benefitted the self, but put others on a larger scale at a disadvantage. We examined the effect of exogenous love on these self versus other moral conflicts in a rather particular context—that is, in a context in which the negative implications of the immoral decision for another person were rather implicit. We selected this context to reduce the likelihood of a spread of love onto the moral dilemma target. It is important to note, that the effects of love seem particularly robust in this context. However, future research needs to examine other moral contexts—with various degrees of how personal or explicit the moral violation is—and situations reflecting other moral values (e.g., harm/care) to increase the generalizability of the effects.

Furthermore, it could be expected that the effect of exogenous love will hold in non-moral self versus other trade off situations.
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Love can be experienced in a wide variety of ways (e.g., Hendrick & Hendrick, 1986; Reis & Shaver, 1988; Sternberg, 1986). In the current research we have shown that love towards various targets (i.e., partner, family, friend) leads to immoral decision making, but also that the experienced ‘fulfillment’ of love and the particular induced ‘perspective’ hold different effects for morality. However, there are many more variations in the experience of love that could be examined. It would be interesting to examine whether different love styles (i.e., Eros, Ludus, Stroge, Pragma, Mania, Agape) lead to different degrees of moral behavior. For example, would agape—the self-sacrificing love—lead to more self-sacrifice towards the love target at the cost of other people? Furthermore, would fulfilled love have different influences depending on whether the intimacy, passion, or commitment love components are fulfilled? Overall, in addition to increasing our knowledge on how exogenous love influences morality, the current research encourages further research on the effects of love in various moral contexts, and across different experiences of love.

Conclusions

By no means do we want to conclude this article by arguing that love is bad. Without love we would fail to fulfill our need to belong, our favorite songs, movies, poems, or books would be meaningless, and at least some of us would never have been born if it had not been for love. However, just because love has so many positive implications, does not mean we should be blind to the potential negative consequences of the experience of love, especially when we consider moral behavior to unrelated others.
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Footnotes

1 There was no interaction between being in love and being in a relationship on immoral decisions ($F < 1$).
Table 1

*Economic Immoral Decision Making as a Function of Love Towards Different Targets (Study 2).*

<table>
<thead>
<tr>
<th>Love Target</th>
<th>Economic Immoral Decisions</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>29</td>
</tr>
<tr>
<td>Love Towards Friend</td>
<td>32</td>
</tr>
<tr>
<td>Love Towards Family</td>
<td>29</td>
</tr>
<tr>
<td>Love Towards Partner</td>
<td>32</td>
</tr>
</tbody>
</table>
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Table 2

Decision to Donate to Charity as a Function of Love Perspective (Study 4).

<table>
<thead>
<tr>
<th>Love Perspective</th>
<th>Decision to Donate to Charity</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Neutral</td>
<td>20</td>
<td>0.28</td>
<td>0.84</td>
</tr>
<tr>
<td>Global Love</td>
<td>23</td>
<td>0.16</td>
<td>1.08</td>
</tr>
<tr>
<td>Specific Love</td>
<td>24</td>
<td>-0.39</td>
<td>0.80</td>
</tr>
</tbody>
</table>
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*Figure 1:* Money Division as a Function of Love (Study 7).
Chapter 5: Beneficial Consequences of Optimism for Morality

“Optimism is the true moral courage” (Ernest Shackleton [1874-1922] as cited in Johnson, 2012, p. 80)

This chapter is based on: Van Dongen, F., & Igou, E. R. (2013). All we need is optimism? On the effects of trait and state optimism on morality. Manuscript under review.
Chapter 5 - Beneficial Consequences of Optimism for Morality

Abstract

Optimism has been associated with many positive, and a few negative consequences. However, very little is known about the effects of optimism on morality. We tested the hypothesis that optimism increases the endorsement of moral values and moral decision making. Consistently, we found that trait optimism was negatively associated with immoral economic and environmental decisions (Study 1) and that state optimism increased the endorsement of moral values (Study 2). These results are consistent with our assumption that optimism is positively associated with morality. This indicates that besides the widely documented positive consequences of optimism for individuals, optimism also has positive consequences for an important basis of human relationships: morality.

Keywords: Optimism, Morality, Moral Values, Motivation
Chapter 5: Beneficial Consequences of Optimism for Morality

Optimism can be defined as “a mood or attitude associated with the expectation of a desirable, advantageous, or pleasurable future” (Peterson, 2006, p. 134). In addition to being a mood or attitude, optimism is also frequently studied as a personality trait, or explanatory style, and is argued to have cognitive, emotional, and motivational components (e.g., Carver & Scheier, 1990; Peterson, 2006). Irrespective of the particular characterization, optimism has been associated with a pattern of consequences. Although, optimism may sometimes be dysfunctional or unrealistic (e.g., Dillard, Midboe, & Klein, 2009; Freud, 1928; Jahoda, 1958; Weinstein, 1989), much of the literature suggests that it has positive consequences for individuals (e.g., Peterson, 2000; Taylor & Brown, 1988; Tiger, 1979) and interpersonal relationships (e.g., Assad, Donnellan, & Conger, 2007; Räikkönen, Matthews, Flory, Owens, & Gump, 1999; Srivastava, McGonigal, Richards, Butler, & Gross, 2006). Importantly, to our knowledge, no prior research has directly examined whether and how optimism influences people’s moral values and decisions. Our research was designed to fill this void. Before explaining our approach, we will briefly describe some of the most important consequences of optimism that have been documented in the literature.

Consequences of Optimism

A bulk of research suggests that being optimistic has a variety of benefits for an individual. For example, optimism functions as a powerful coping strategy and a motivating force (e.g., Peterson, 2006; Tiger, 1979) as it increases perseverance (e.g., Peterson, 2006; Schulman, 1999), people’s self-control (e.g., Carver & Scheier, 1985; Zhang & Fishbach, 2010), and the ability to overcome obstacles (e.g., Schulman, 1999). These strategies or motivations are likely to be part of the explanation of the positive impact of optimism on performance in the sports (e.g., Seligman, Nolen-Hoeksema,
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Thornton, & Thornton, 1990), academic (e.g., Schulman, 1999; Seligman, 1991), and work (e.g., McColl-Kennedy & Anderson, 2002; Schulman, 1999) domains. In addition to success, optimism also seems to increase quality of life as it is negatively related to depression (e.g., Carver & Gaines, 1987; Scheier, Carver, & Bridges, 1994) and positively related to adjustment to life transitions (e.g., Aspinwall & Taylor, 1992), self-esteem (e.g., Mäkikangas, Kinnunen, & Feldt, 2004), and psychological and physical well-being (e.g., Aspinwall & MacNamara, 2005; Carver et al., 1993; Friedman et al., 1992; Lench, 2011; Nadelhoffer & Matveeva, 2009; Stanton & Snider, 1993; Taylor et al., 1992; Taylor & Brown, 1994). Many researchers thus agree that optimism is a quality that should be promoted in individuals (e.g., DeRubeis et al., 1990; Fredrickson, 2000; Gillham & Reivich, 2004; Seligman et al., 1988; Seligman, Reivich, Jaycox, & Gillham, 1995).

In addition to research on the overwhelmingly positive consequences of optimism, some findings suggest that sometimes optimism is associated with negative outcomes. Too much optimism could lead to an overestimation of one’s skills and abilities (e.g., Baumeister, 1989; Van der Pligt, Otten, Richard, & Van der Velde, 1992), and therefore cause people to ignore (health) threats and engage in risky behaviors (e.g., Dillard et al., 2009; Goodman, Chesney, & Tipton, 1995; Radcliffe & Klein, 2002; Satterfield & Seligman, 1994). Specifically, unrealistic optimism (i.e., a bias in absolute judgments; Radcliffe & Klein, 2002) has frequently been shown to lead to negative health outcomes (e.g., smoking; Weinstein, Moser, & Marcus, 2005; Weinstein, Slovic, & Gibson, 2004). Although, extreme or unrealistic optimism can have serious negative consequences, overall the research on optimism suggests much more positive than negative consequences for an individual.

Some studies examined the broader—interpersonal—consequences of optimism. Optimism appears to be a beneficial resource for interpersonal relationships.
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Specifically, optimists report higher relationship satisfaction (e.g., Srivastava et al., 2006), perceive more social support (e.g., Abend & Williamson, 2002; Trunzo & Pinto, 2003), and optimism is negatively related to being a burden on one’s caregivers (e.g., Ruiz, Matthews, Scheier, & Schulz, 2006) and it facilitates social interactions (e.g., Räikkönen et al., 1999). These effects could potentially be explained by that optimists are easier to like (Carver, Scheier, & Segerstrom, 2010), that someone expressing positive outlooks is more likely to be accepted (vs. rejected; e.g., Carver, Kus, & Scheier, 1994; Helweg-Larsen, Sadeghian, & Webb, 2002), or by optimists working harder to make relationships work (e.g., Srivastava et al., 2006) and engaging in more cooperative problem solving (e.g., Assad et al., 2007). These findings show that optimism is beneficial for interpersonal relationships, which may be an indication that optimism increases people’s moral judgments and behaviors. We thus examined more directly, whether and how optimism affects morality.

**Optimism and Moral Outcomes**

Some literature has theoretically linked optimism to moral aspects (e.g., trust, moral development; Garbarino, 2011; Uslaner, 2002); however, empirical support for this link has not been reported yet. We argue that optimism is positively linked to moral outcomes due to two inherent characteristics of optimism: a global, future perspective, and a perception that goals are currently unfulfilled.

**Future and global perspective.** Given that morality is facilitated by a long-term perspective (e.g., Agerström & Björklund, 2009; Caruso, 2010; Ebreo & Vining, 2001; Kortenkamp & Moore, 2006) and that the association between optimism and a future orientation is well documented (e.g., Aspinwall & Leaf, 2002; Carroll, Sweeney, & Sheppard, 2006; Peterson, 2006; Strathman, Gleicher, Boninger, & Edwards, 1994), there is reason to believe that optimism positively affects morality.
Moral values are often superordinate and benefit the collective (vs. the private) interest (i.e., respecting others, sharing; Hardisty & Weber, 2009; Kant, 1785/1996), requiring a broad and global perspective on issues. Optimism is known to increase engagement with high priority goals (e.g., Geers, Wellman, & Lassiter, 2009), to broaden attentional focus (e.g., Basso, Scheffit, Ris, & Dember, 1996; Fredrickson, 1998), and to relate to more general (vs. specific) outcomes (e.g., Bryant & Cvengros, 2004; Wong & Lim, 2009). This suggests that optimism facilitates a rather global (vs. specific) perspective, attuning people to collective goals and superordinate—moral—values.

**Unfulfilled state.** In addition, acting morally requires some level of effort or will-power (e.g., Baumeister & Exline, 1999; Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009). We thus give additional consideration to processes that may underlie this motivational state. In particular, we focus on the state of ‘unfulfillment’ that is associated with optimism. More precisely, optimism is typically a state that promotes pursuing unfulfilled goals (e.g., Scheier, Weintraub, & Carver, 1986). This perceived goal-unfulfillment is likely to increase motivation as a discrepancy between the current state (i.e., unfulfilled goals) and the desired state (i.e., fulfilled goals) motivates people to close this gap (e.g., Carver, 2004).

We focus here on optimism as an experience that carries over to unrelated situations where morality matters. That is, as optimism—whether a trait or a state—induces a mindset of future orientation, the importance of high-level goals, and unfulfillment, it is predicted to positively affect the endorsement of moral values and moral decisions, even in situations unrelated to optimism.

We tested the relationship between optimism and moral outcomes in two studies, predicting that optimism would be associated with higher levels of moral values and decisions. Specifically, in Study 1, we examined the relationship between trait
optimism and economical moral decisions. Furthermore, in Study 2, we tested the effect of an induced state of optimism on moral values.

Study 1

In Study 1, we measured trait optimism and moral decision making in economic and environmental contexts. Specifically, we tested whether optimism is associated with contributing to (vs. profiting from) economic and environmental common goods. Given that acting purely on one’s private interest can have disastrous effects for the collective interest (e.g., Kerr, 1983), profiting from (vs. contributing to) common goods, is considered—across philosophical (e.g., Hardin, 1968), psychological (e.g., Batson et al., 1999; Beggan, Messick, & Allison, 1988), and economical (e.g., Velasquez, 1992) disciplines—as immoral. We predicted that higher levels of optimism would be associated with less profiting from common goods.

Method

Participants and design. Sixty-two students at the University of Limerick (46 women, 15 men, 1 undisclosed; $M_{\text{age}} = 20.07, SD_{\text{age}} = 4.17$) took part in this study in return for course credit or on a voluntary basis. The study had a correlational design including measurements of trait optimism and economical immoral decision making.

Materials and procedure. Participants were asked to fill out a series of seemingly unrelated questionnaires. First, trait optimism was measured by the commonly used ‘life orientation test-revised’ (Scheier et al., 1994). Thereafter, immoral decision making in economic and environmental contexts was examined by two measures, provided in random order.

The first measurement of immoral economical decision making was an economic decisions scale. It supplied the participant with four different scenarios about profiting from a common good (i.e., evading taxes; illegitimately claiming social welfare; claiming money from the insurance company, which one was not entitled to;
eating your roommate’s food). After each scenario participants were asked to list at least one positive and one negative side to the example of the behavior to ensure that they considered the dilemma. Thereafter, they indicated on a seven-point scale from 1 (not at all) to 7 (very much) how much they would consider performing this behavior.

The measurement of environmental decision making was similar to that of economic decision making. It supplied participants with three different scenarios about behavior that would directly or indirectly damage the environment (i.e., buying a cheap, but heavily polluting car; working for a well-paying, but heavily polluting company; littering). After each scenario, participants were asked to list at least one positive and one negative side to performing the behavior, and to indicate how much they would consider performing this behavior, how likely they were to perform this behavior, and if they could justify this behavior, using seven-point scales from 1 (not at all) to 7 (very much).

In addition, we explored whether trait optimism was positively associated with a motivational state, that is, one in which people strive to improve the situation. To this end, participants rated their agreement to a statement about how they usually feel—‘I feel good about myself, but I am still motivated to do better’—on a seven-point scale ranging from 1 (completely disagree) to 7 (completely agree). Afterwards participants were thanked and debriefed.

**Results and Discussion**

Before the association between optimism and immoral decision making was analyzed, the three items measuring pessimism were reversed, and the then six items measuring optimism were combined into an index of trait optimism (α = .82). Also, the items of each individual immorality scale were combined per scale (α_{economic} = .60; α_{environmental} = .88), transformed into z-scores, and combined into one composite score of immorality (r = .52, p < .001). Trait optimism was positively associated with a
motivation to improve \( r = .35, p = .007 \), reflecting a crucial element of the mindset that more (vs. less) optimistic people hold. Most importantly, as predicted, participants with high levels of trait optimism, were less likely to profit from common goods \( r = - .33, p = .02 \).

**Study 2**

Study 2 was designed to test the causal relationship between optimism and morality, by experimentally inducing optimism. Additionally, we further explored the motivational nature of the optimism experience.

**Method**

**Participants and design.** One hundred and eighteen participants from the United States of America (72 women, 46 men; \( M_{age} = 37.80, SD_{age} = 13.53 \)) took part in this online study in exchange for a payment of $0.50 on Amazon’s Mturk (www.MTurk.com). Participants were randomly assigned to one of two optimism conditions (no optimism vs. optimism; 60 and 58 participants per cell respectively). Twenty-one participants did not continue the questionnaire after filling out their demographics and could therefore not be included in further analyses. After this exclusion, the final sample consisted of 97 participants (62 women, 35 men; \( M_{age} = 37.49, SD_{age} = 12.75 \)), of which 51 were in the no optimism condition and 46 were in the optimism condition.

**Materials and procedure.** Participants were recruited through Amazon’s mechanical turk (for support of the high quality of data obtained through Mturk workers see Buhrmester, Kwang, & Gosling, 2011). After participants gave their informed consent and filled out demographic information, state optimism was manipulated by an imagination and writing task. Specifically, participants read ‘Imagine you are taking part in a table quiz, and you are randomly placed in 1 of the 10 groups that partake. Please use the box below to explain why your group is (not likely vs. very likely;
Depending on the optimism condition, participants were asked to answer the questions ‘how likely is your group to win?’ and ‘how optimistic do you feel?’ on seven-point scales, ranging from 1 (not likely; not optimistic) to 7 (very likely; very optimistic). To further explore the motivational state that is part of the optimism experience, we asked participants to indicate on a seven-point scale from 1 (I wouldn’t prepare) to 7 (I would prepare a lot) how much they would prepare for the table quiz.

Next—in a seemingly unrelated study—moral values were measured by an established moral values measure: the moral foundations questionnaire (MFQ; for the full questionnaire see Graham et al., 2011). This questionnaire consists of measures of endorsement of harm/care, fairness/reciprocity, ingroup/loyalty, authority/respect, and purity/sanctity values. However, in this study, we decided to only focus on the most widely endorsed moral values (i.e., the harm/care and fairness/reciprocity moral values), as the other values are considered to be moral values by only certain subgroups (e.g., Haidt & Graham, 2007). In the first part of the MFQ, participants were given 15 moral considerations (three per moral value) and indicated to which extent these considerations were relevant for morality on six-point scales ranging from 0 (not at all relevant) to 5 (extremely relevant). For the second part of the MFQ, participants read 15 moral statements (again three per moral value) and rated their agreement to these statements on six-point scales ranging from 0 (strongly disagree) to 5 (strongly agree).

After filling out the MFQ, participants were thanked and debriefed.
Chapter 5 - Beneficial Consequences of Optimism for Morality

Results

Manipulation check. The optimism manipulation was shown to be successful as participants in the ‘optimism’ condition (M = 5.59, SD = 1.09) predicted their likelihood of winning higher compared to participants in the ‘no optimism’ condition (M = 3.02, SD = 1.70), t(85.90) = 8.94, p < .001, d = 1.80. Also, experienced optimism was higher in the ‘optimism’ condition (M = 5.98, SD = 0.88) compared to the ‘no optimism’ condition. (M = 4.04, SD = 1.64), t(78.34) = 7.36, p < .001, d = 1.47. Further, the ‘optimism’ condition resulted in a more motivational state than the ‘no optimism’ condition. Specifically, participants in the ‘optimism’ condition indicated to prepare more for the table quiz compared to those in the ‘no optimism’ condition (M = 5.98, SD = 1.37 vs. M = 5.04, SD = 1.89), t(95) = 2.01, p = .047, d = 0.57.

Moral values. All harm/care and fairness/reciprocity items were combined into an index of endorsement of moral values (α = .74). An independent samples t-test showed that optimism (M = 3.84, SD = 0.61) led to more endorsement of moral values compared to no optimism (M = 3.60, SD = 0.57), t(95) = 2.01, p = .047, d = 0.41.¹

Discussion

Study 2 showed that—in addition to trait optimism—optimism as temporal state leads to more moral outcomes. Specifically, when optimism was manipulated in an unrelated context (i.e., winning in a table quiz), it increased the endorsement of moral values. Furthermore, as in Study 1, optimism seems to be associated with a motivational state, one that drives people to improve a situation.

General discussion

We predicted that optimism would be positively associated with moral outcomes. Specifically, we posed that trait optimism would be positively associated with moral outcomes and that induced state optimism would increase moral outcomes.
Chapter 5 - Beneficial Consequences of Optimism for Morality

Study 1 established the predicted association between optimism and moral outcomes as trait optimism was negatively associated with immoral decisions in economic and environmental contexts. Then, Study 2 established the proposed causal link between optimism and moral outcomes by showing that induced optimism—in an unrelated situation—led to more endorsement of moral values. In both studies, we found additional support that optimism increases the focus on an unfulfilled state and what needs to be done in order to improve a situation (reflected in a motivational state).

These findings are consistent with our assumption that optimism—in addition to leading to beneficial physical and psychological outcomes for the self—leads to advantageous outcomes for others as well. Furthermore, this positive effect of optimism on moral outcomes is independent of whether it is a personality trait or an induced temporal state.

Optimism and Morality: Contribution, Limitations, & Future Research

The relationship between optimism and moral outcomes has not directly been examined before. Many positive effects of optimism have been examined, and although some of these outcomes (e.g., optimism is associated with effort, self-control, and motivation; Carver & Scheier, 1985; Peterson, 2006; Schulman, 1999; Tiger, 1979) suggested that there could be a positive association between optimism and morality, other research (e.g., optimism leads to more risky behavior; Dillard et al., 2009; Goodman et al., 1995; Radcliffe & Klein, 2002) suggested the opposite.

Research in the area of positive psychology has already extensively examined the benefits of optimism for the optimistic person (e.g., Aspinwall & MacNamara, 2005; Aspinwall & Taylor, 1992; Seligman, 1991; Seligman et al., 1990; Taylor et al., 1992), and encourages the promotion of optimism (e.g., DeRubeis et al., 1990; Fredrickson, 2000; Gillham & Reivich, 2004; Seligman et al., 1988; Seligman et al., 1995). Our research contributes to these findings by showing that optimism does not
only lead to positive outcomes for individuals who experience optimism, but for others as well. Specifically, this relationship holds independent of whether optimism is measured as a trait or induced as temporal state. These findings are consistent with research on the positive effects of optimism on relationship quality (e.g., Assad et al., 2007; Ruiz et al., 2006; Srivastava et al., 2006). However, future research should examine the link between optimism, morality, and relationship quality more closely.

Importantly, our research suggests that the experience of optimism carries over to unrelated situations. That is, people are not simply optimistic about the particular moral situation in question. They can be optimistic as a person or optimistic with regard to a particular event (e.g., table quiz), but the experience of being optimistic—a motivational state with a focus on the future—carries over to the unrelated situation, thus facilitating the endorsement of moral values and moral decisions. This notion is not only consistent with our results; it is also in line with previous literature on optimism and goal pursuit (e.g., Carver & Scheier, 1985; Geers et al., 2009).

Although optimism has mainly been associated with positive outcomes, some research has shown that optimism does not always have this effect. That is, particularly unrealistic optimism—a bias in absolute judgments—has been associated with less adaptive processes (e.g., Puri & Robinson, 2007; Radcliffe & Klein, 2002; Weinstein et al., 2004; Weinstein et al., 2005; Yang, Markoczy, & Qi, 2007). Our first study measured trait optimism and our second study manipulated comparative optimism (i.e., the belief that one’s chances for positive outcomes are above average; Radcliffe & Klein, 2002). Given that each participant’s actual chances of winning the table quiz weren’t measured, we cannot conclude if there was a bias in absolute judgments—only in comparative judgments. Therefore, we cannot rule out the possibility that unrealistic optimism would not hold the same positive relationship to moral outcomes.
Chapter 5 - Beneficial Consequences of Optimism for Morality

The relationship between optimism and moral outcomes was measured in a particular moral context (i.e., social dilemmas), reflecting mainly the fairness/reciprocity moral values. This context was selected as these values are more widely endorsed as moral values compared to other values (i.e., ingroup/loyalty, authority/respect, purity/sanctity; Haidt & Graham, 2007). However, it would be interesting for future research to examine other moral contexts—reflecting various moral values—to test the generalizability of the effects.

Conclusions

Our current research indicates that optimism is positively associated with moral judgments and decisions. Optimism is not only a pleasant feeling which holds beneficial outcomes for the self, but it also leads to positive outcomes for others, even when the moral situation is entirely unrelated to the optimism experience. That is, optimism causes people to endorse moral values more and make less selfish, more moral decisions: Decisions that are good for the collective and in the long-term, both economically and environmentally. It seems important for society as a whole to promote optimism as a way to reduce selfish, immoral behaviors.
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Footnotes

1 We made no specific predictions for if and how optimism would influence conservative (i.e., ingroup/loyalty, authority/respect, purity/sanctity) values. However, out of curiosity, we combined the conservative items into a measurement of endorsement of conservative values (α = .92), and examined the potential influence of optimism. An independent samples t-test showed no difference in endorsement of conservative values between the ‘no optimism’ (M = 2.65, SD = 0.99), and ‘optimism’ conditions (M = 2.67, SD = 0.96; t < 1).
Chapter 6: Discussion
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Research on the effects of discrete positive emotions on moral outcomes has been scarce. Only the effects of a handful of positive emotions (i.e., elevation, gratitude, amusement, mirth, joy, sympathy) have been examined and a general framework to explain the effects of multiple positive emotions was missing. However, given that the few studies that empirically examined the effects of positive emotions have shown that positive emotions differ in how they influence morality (e.g., Algoe & Haidt, 2009; Bartlett & DeSteno, 2006; Batson, Klein, Highberger, & Shaw, 1995; Freeman, Aquino, & McFerran, 2009; Schnall, Roper, & Fessler, 2010; Strohminger, Lewis, & Meyer, 2011), it seemed relevant to distinguish between the moral effects of various positive emotions. With this goal in mind, my aim was to develop a framework that would allow for predictions of the effects of multiple positive emotions on moral outcomes, to contrast the effects of multiple positive emotions against each other, and to examine the underlying processes.

Overview of Main Findings

Chapter 2: Full-perspective hypothesis. The full-perspective hypothesis poses that the different effects of exogenous positive emotions on morality can be predicted based on underlying differences in two mindset components: Perceived goal-fulfillment and globality of perspective. Specifically, when an emotion induces a mindset in which one’s goals are perceived to be relatively unfulfilled (vs. fulfilled), moral outcomes are more likely. Similarly, when an emotion induces a relative global (vs. specific) perspective mindset, the likelihood of moral outcomes is increased.

In Chapter 2, the predictive value of the full-perspective hypothesis was tested. First, the effects of 14 positive emotions on the fulfillment-perspective mindset were established. Based on these differences in associated mindsets, the incidental effects of
positive emotions on moral outcomes were predicted. As expected, emotions that induce a fulfilled, specific perspective mindset (i.e., love, amusement, relaxation) led to less moral outcomes compared to emotions that induce a relatively unfulfilled, global perspective mindset (i.e., optimism, compassion, inspiration). In addition, a direct manipulation of the fulfillment and the perspective mindset components had the predicted effect on moral judgments. Specifically, fulfillment (vs. unfulfillment) and a specific (vs. global) perspective led to less endorsement of moral values.

These findings provide a general framework to predict the effects of exogenous positive emotions on moral judgments and behaviors and demonstrate the importance of the proposed mindset components for predicting moral outcomes. Specifically, fulfillment and globality of perspective help predicting the effects of positive emotions on morality, but are also directly predictive of endorsement of moral values, giving further insight into when moral outcomes are most likely to occur. When a positive emotion induces a motivation to pursue unfulfilled goals, and attunes people to long-term and broad consequences, people experiencing this emotion are more likely to endorse and act according to moral values. In addition to adding to knowledge on how exogenous positive emotions influence morality, this framework provides predictions on the effects of multiple positive emotions. In this chapter, the groundwork for predictions regarding the effects of 14 positive emotions on morality was presented; however, this framework could be extended to additional positive emotions. Positive emotions that have not (e.g., optimism) or seldom (e.g., love) been examined in relation to morality have been tested against each other, providing knowledge on the moral effects of six positive emotions. Among other findings, Chapter 2 provided the initial finding that love leads to less moral outcomes compared to optimism, which was more closely examined in socially relevant contexts in Chapter 3.
Chapter 6 - Discussion

Chapter 3: Love versus optimism on social dilemmas. Building upon Chapter 2, Chapter 3 tested the predicted effects of love versus optimism in a social dilemma context (i.e., a context in which the collective interest is at odds with the private interest). I examined this context as collective (vs. private) interest based decisions are reflective of morality (e.g., Batson et al., 1999; Beggan, Messick, & Allison, 1988) and social dilemma outcomes in economic and environmental domains are highly relevant for society (e.g., Kerr, 1983). Moral outcomes in the social dilemma context were measured by judgments and decisions serving the collective (vs. private) interest across multiple social dilemma measures in economic and environmental contexts, consistently demonstrating that love leads to less moral outcomes compared to optimism. Also, I found indications that compared to a neutral affect state, love might impede, whereas optimism might facilitate the likelihood of moral decisions. Whereas other research has explained affect influences by underlying differences in valence and/or arousal (e.g., Lewis, Critchley, Rotshtein, & Dolan, 2007; Russell, 1980), Chapter 3 ruled out this alternative explanation by showing that the different effects of love versus optimism on moral outcomes could not be explained by differences in valence or arousal.

The proposed effect of love versus optimism on moral outcomes was reliably demonstrated across six studies. This clearly indicates that the negative effect of love (vs. optimism) on moral judgments and decisions is robust. Further, I showed this effect in contexts that are highly relevant for society as a whole: economic and environmental contexts. In addition to adding to knowledge on how these two positive emotions influence social dilemma outcomes, based on the findings, I suggest that optimism could play an important role in increasing people’s long-term considerations and thereby reducing today’s devastating situations such as the financial crisis and global warming. In addition to reliably showing that love leads to less moral outcomes compared to optimism, Chapters 2 and 3 raised the question whether love impedes and
optimism facilitates moral outcomes compared to a neutral affect state. Another remaining question was: What are the particular aspects of love that cause its effect on morality?

Chapter 4: Detrimental consequences of love for morality. Although research has examined how love influences the love experiencer (e.g., Aron, Aron, Tudor, & Nelson, 1991; Aron, Paris, & Aron, 1995; Baumeister, Wotman, & Stillmann, 1993; Hendrick & Hendrick, 1986; Shaver, Hazan, & Bradshaw, 1988) and the love target (e.g., Baumeister et al., 1993; Hendrick & Hendrick, 1986; Murray, Holmes, & Collins, 2006), little research has been done on how love influences moral judgments and behaviors towards unrelated others (cf., Guéguen & Lamy, 2011; Lamy, Fischer-Lokou, & Guéguen, 2008). Based on indications that love induces a relative fulfilled, specific perspective mindset (e.g., Baumeister & Leary, 1995; Steck, Levitan, McLane, & Kelley, 1982; see also Chapter 2), it was expected that love would impede moral outcomes.

After finding initial support for the prediction that love could reduce the likelihood of moral outcomes (Chapters 2 and 3), and that it is the fulfilled, specific perspective mindset associated with love that might be responsible for this effect (Chapter 2), Chapter 4 further tested the different experiences of love and its effects on morality. Specifically, love (towards various targets) was repeatedly compared to a neutral affective state and the proposed underlying process was tested by manipulating the mindset components within the love experience to test their importance. Consistently, love (irrespective of the particular love target) reduced moral outcomes compared to a neutral affective state, and—as predicted—unfulfilled (vs. fulfilled) love and global (vs. specific) perspective love reduced the detrimental consequences of love for moral outcomes. Additionally, ‘being in love’ was demonstrated to be related to less moral decision making by people who are in a relationship (i.e., fulfilled love), but not
for people who were not in a relationship (i.e., unfulfilled love). This provides additional support for the importance of the ‘unfulfillment’ mindset to facilitate morality. Also, it indicates that the effect of love is robust irrespective of whether the love experience is manipulated or not manipulated (i.e., measured as natural occurrence). Finally, exogenous love reduces moral outcomes, whereas endogenous love was found to have the opposite effect. This means that although love targets are treated more morally, other—unrelated—people get the shorter end of the stick as they are being treated less morally by the person experiencing love.

This chapter holds important insights into how different love experiences can lead to different moral outcomes. The negative effect of exogenous love on morality was demonstrated repeatedly across various measures, strongly supporting the prediction and initial finding that exogenous love reduces the likelihood of moral outcomes. The relationship between exogenous love and morality has not before been examined this extensively (cf. Guéguen & Lamy, 2011; Lamy et al., 2008). The findings clearly indicate that it is the fulfilled, specific perspective mindset induced by love that is—at least partly—responsible for this effect. Interestingly, this also shows that although a positive emotion (e.g., love) typically induces a particular mindset (e.g., fulfilled, specific perspective mindset), different experiences of the same emotion can influence the mindset differently, thereby leading to different moral outcomes.

These findings support the importance of fulfillment and globality of perspective for predicting moral outcomes. In addition, it demonstrates the importance of making a distinction between the exogenous and endogenous effects of emotions on judgments and decision making as their effects may be opposing. After gaining insights in the underlying processes of the effect of love on moral outcomes, the effect of optimism was examined more closely in Chapter 5.
Chapter 6 - Discussion

Chapter 5: Beneficial consequences of optimism for morality. The beneficial consequences of optimism for the optimist have frequently been shown (e.g., Carver & Gaines, 1987; Lench, 2011; Scheier, Carver, & Bridges, 1994; Taylor & Brown, 1988); however, the literature remains silent on how optimism influences morality. Given that optimism induces a relative unfulfilled, global perspective mindset (e.g., Liberman, Trope, & Stephan, 2007; Strathman, Gleicher, Boninger, & Edwards, 1994; Tiger, 1979; see also Chapter 2), it is expected to facilitate (vs. impede) moral outcomes. Chapters 2 and 3 found first indications in support for this prediction. Chapter 5 examined the predicted positive relationship between optimism and morality more closely, and tested whether this relationship holds for both trait and state optimism. This was done by measuring trait optimism and manipulating state optimism (vs. a neutral state) and measuring their relationship with moral judgments and decision making. Trait optimism was found to be negatively associated with immoral judgments and decisions in social dilemmas. Also, a manipulation of state optimism, in a context that was entirely unrelated to moral concerns, led to more endorsement of moral values. Also, additional support was found that optimism directly induces a motivational state.

The many benefits of optimism for the optimistic individual have frequently been shown. Although, there has been some research showing the positive effects of optimism on interpersonal relations, the relationship between optimism and morality has not been empirically examined before. Chapter 5 establishes the predicted positive relationship between optimism and morality, and—in addition—shows that the effect occurs irrespective of whether optimism is experienced as trait or state. This supports the argument that optimism should be promoted as it does not only entail positive outcomes for individuals experiencing optimism, but also for society as a whole.
Contributions to Existing Research

**Emotions and mindsets.** In this line of research, mindsets—defined by their cognitive and motivational components—are argued to explain the different effects of positive emotions on moral outcomes. I recognize that this approach of studying the effects of discrete emotions, and explaining their effects by the emotions’ cognitive and motivational associations, has similarities with research on appraisals (e.g., Lerner & Keltner, 2000; Smith & Ellsworth, 1985) and action tendencies (e.g., Frijda, 1987). It could be that appraisals and action tendencies are part of the processes through which positive emotions influence moral outcomes. For example, it could be that the interpretation (i.e., appraisal) of the situation feeds into people’s fulfillment-perspective mindset, and that the outcomes of the mindset are in line with the action tendency of the emotion. However, the more general term ‘mindset’ seems to capture both the cognitive and motivational consequences of multiple emotions best, irrespective of the particular interpretation of the source eliciting each individual emotional experience, or each emotion’s specific action tendency.

The current approach differs from the appraisal approach as the mindset components ‘fulfillment’ and ‘perspective’ were selected based on their predicted relevance for morality. Put differently, whereas other research has taken the characteristics of emotions as starting point for determining their effects, in the current research, the outcome variable (i.e., morality) was the basis to identify the relevant cognitive and motivational components. Therefore, my mindset approach can be seen as a particular appraisal approach that focuses on the moral consequences of emotions.

**Fulfillment.** That emotions differ in their relationship to goals or needs has previously been established by the component process model (CPM; Scherer, 1984). According to the component process model, the onset of a particular emotion partly depends on how one’s goals or needs are perceived. To be more specific, the
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significance of the emotion stimulus is evaluated in relation to its relevance, expectancy, conduciveness, and urgency to one’s goals or needs. Closest to ‘perceived goal-(un)fulfillment’ is the expectancy evaluation. This evaluation refers to the extent to which the current state of one’s goals or needs is consistent or discrepant from the expected state (Leventhal & Scherer, 1987). Considering that this evaluation has consequences for which particular emotion is experienced, it is expected that the experience of an emotion informs a person about the discrepancy (i.e., unfulfillment) from one’s goals or needs. In this regard my research is similar to Scherer’s (1984) component process model.

However, there are differences too. My primary aim was to examine the relationship between emotions and morality; therefore, I singled out emotion aspects that appeared most instrumental to this goal. Based on the apparent relationship between goal-fulfillment, motivation, and morality (e.g., Baumeister & Exline, 1999; Conway & Peetz, 2012; Effron, Cameron, & Monin, 2009; Förster, Liberman, & Friedman, 2007; Monin & Miller, 2001; Sachdeva, Iliev, & Medin, 2009), I selected one sub-evaluation of one’s goals and needs to focus on: perceived goal-fulfillment. An additional way in which my approach diverts is that its focus is on the consequences of perceived goal-fulfillment. In particular, my research shows that the perception of goal-fulfillment carries over to situations that are unrelated to the emotion stimulus and influences moral judgments and behaviors in these unrelated situations. This way, my research contributes to the component process model. The component process model shows that the (goal-related) evaluation of a stimulus results in the experience of particular emotions. I add to this notion by showing that the effect also works vice versa. Specifically, the experience of a particular emotion results in different (goal-related) evaluations, and these evaluations have widespread consequences for unrelated judgments and behaviors.
Globality. The idea that positive emotions influence the globality of people’s perspective is not new. Other social psychologists have argued and shown that positive (vs. negative) affect broadens people’s perspective (e.g., Fredrickson, 1998) and that it activates long-term superordinate goals (e.g., Trope, Igou, & Burke, 2006). The current approach is similar in its argument that affective states influence the globality (i.e., collective and long-term vs. specific and short-term) of one’s perspective, however, where it differs is that it differentiates between positive affect states. Specifically, rather than arguing that all positive emotions induce a global (vs. specific) perspective, I pose that positive emotions differ in which perspective they induce. Moreover, although some positive emotions (e.g., optimism, compassion) induce a global perspective, other positive emotions (e.g., love, relaxation) do not have this effect, and even induce a specific perspective. Therefore, the current approach supports previous approaches (i.e., broaden and build theory; affect-dependent structure hypothesis) by showing that affect influences globality of perspective, and it goes beyond these approaches by differentiating the effects on globality between various positive emotions.

Construal level theory. The characterization of ‘globality of perspective’ shares similarities with construal level theory (CLT; e.g., Liberman & Trope, 2008). Specifically, the terms ‘global perspective’ and ‘high-level construal’, and ‘time perspective’ and ‘temporal distance’ seem to be relatively similar. Using these terms, construal level theory argues—consistent with the full-perspective hypothesis—that psychological distance (i.e., spatial, temporal, social, and hypothetically) determines people’s level of construal (from concrete to abstract), which, in turn, influences the outcome (e.g., moral outcome).

The current approach differs on two levels. First, as the mindset components that I studied were selected based on their relevance for morality, I primarily focus on the effect of temporal distance (i.e., future, long-term perspective), as it has been shown to
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be related to morality (e.g., Agerström & Björklund, 2009a; Agerström & Björklund, 2009b; Agerström, Björklund, & Allwood, 2010; Agerström, Björklund, & Carlsson, 2012; Eyal, Liberman, & Trope, 2008). The second distinction is that whereas construal level theory argues that psychological distance (e.g., temporal distance) influences construal level (i.e., level of abstractness), leading to different—moral—outcomes, the current approach assumes that both time perspective (short- vs. long-term) and globality (specific, narrow vs. global, broad) are part of people’s perspective, influencing moral outcomes. Put differently, whereas construal level theory assumes a causal relationship between psychological distance and globality, the full-perspective approach argues that it’s not necessarily time perspective influencing globality, but rather that they are two perspective types both associated with emotions and morality.

Despite these differences, my findings extend the notion from construal level research by showing that a global (vs. specific) perspective increases endorsement of moral values. Specifically, construal level research has shown that values—such as moral values—are more predictive of behavioral intentions for distant future (i.e., long-term) than for near future (i.e., short-term) situations (e.g., Eyal, Sagristano, Trope, Liberman, & Chaiken, 2009). Furthermore, when a high-level (i.e., long-term, global) construal is activated, people evaluate temptations less positively (e.g., Fujita, Trope, Liberman, & Levin-Sagi, 2006). The current research supports these findings as I show that a global (i.e., collective, long-term) perspective leads to more endorsement of moral values (i.e., high-level values) than a specific (i.e., narrow, short-term) perspective. In addition to linking globality of perspective to moral outcomes, I also showed how various positive emotions influence this perspective.

Affect and morality. Given that affective states seem to greatly influence morality in judgments and decision making, the effects of different mood states (i.e., positive vs. negative vs. neutral affect) and many negative emotions (e.g., guilt, shame,
disgust, anger) on morality have been examined extensively. However, there is a wide
gap when it comes to our knowledge on how various positive emotions influence moral
outcomes differently. The current approach contributes to closing this gap by providing
a general framework that explains the moral effects of multiple positive emotions—and
potentially other affective states as well.

**Positive emotions and morality.** Previous research has examined the moral
effects of a small number of positive emotions. Specifically, research suggests that
elevation and gratitude increase morality, whereas amusement, mirth, and joy seem
to impede moral outcomes (e.g., Algoe & Haidt, 2009; Bartlett & DeSteno, 2006;
Freeman et al., 2009; Schnall et al., 2010; Silvers & Haidt, 2008; Strohminger et
al., 2011). The current research adds to this list by showing that—relatively—
compassion, inspiration, and optimism increase morality, in contrast to love,
amusement, and relaxation. The effects of these positive emotions—except for
amusement—were unknown up to now, which means that our knowledge on the
effects of positive emotions on moral outcomes is increased by five positive
emotions.

For the reason that the differences between the effects of love versus neutral
affect and optimism versus neutral affect were not significant in every study, I
conducted two basic meta-analyses to further examine these effects. The meta-analyses
compared the standardized difference between two means based on the fixed-effect
model. For the love versus neutral meta-analysis, Study 5 of Chapter 2, Studies 5 and 6
of Chapter 3, and Studies 1, 2, and 7 of Chapter 4 were included. The meta-analysis
(total: 325 participants) showed an average effect size (mean $d$) of .51 with a 95%
confidence interval of [0.28, 0.75]. A z-test showed that, across the six studies, there
was a significant difference in the effect of love compared to a neutral state, $z = 4.26, p
< .001$. Then, for the optimism versus neutral meta-analysis, Study 5 of Chapter 2,
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Studies 5 and 6 of Chapter 3, and Study 2 of Chapter 5 were included. The meta-analysis (total: 196 participants) showed an average effect size (mean $d$) of .60 with a 95% confidence interval of [0.31, 0.89]. A $z$-test showed that, across the four studies, there was a significant difference in the effect of optimism compared to a neutral state, $z = 4.06, p < .001$. These two meta-analyses indicate that compared to a neutral affect state, love impedes, whereas optimism facilitates moral outcomes.

*Exogenous positive emotions and morality.* In addition to providing knowledge on the moral effects of six—five previously untested—positive emotions, my research provided findings on which fulfillment-perspective mindsets are induced by 14 exogenous positive emotions. Based on these findings, predictions on the moral effects of these 14 exogenous positive emotions can be made. Predictions based on the proposed framework are—in addition to being consistent with my findings on the moral effects of six positive emotions—consistent with other researchers’ findings on positive emotions’ influences on moral outcomes (e.g., gratitude facilitates moral outcomes compared to amusement; Bartlett & DeSteno, 2006). Importantly, the current approach is integrative as it uses general mindset components—on which positive emotions can be similar or different—to explain the incidental effects of multiple positive emotions (vs. examining each particular emotion’s specific function). In addition to contributing to the knowledge on how positive emotions influence moral outcomes, my research also deepens our understanding of antecedents of moral outcomes.

*Morality literature.* By examining which positive emotions and mindsets facilitate (vs. impede) moral outcomes, the current research adds to the morality literature by providing insights into antecedents of moral judgments, decisions, and behaviors. Importantly, my findings show that moral outcomes are more likely when people adopt an unfulfilled, global perspective (vs. a fulfilled, specific perspective) mindset. The idea that a focus on long-term and collective outcomes facilitates morality
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is not new (for examples see Agerström & Björklund, 2009b; Caruso, 2010; Ebreo & Vining, 2001; Kortenkamp & Moore, 2006; Schwartz, 1970), however, the direct link between (un)fulfillment and morality has not been made before.

Fulfillment and morality. One could argue that the indirect link between fulfillment and morality has been shown as unfulfillment is related to motivation (e.g., Carver, 2004; Carver & Scheier, 1999; Förster et al., 2007) and there are indications that a motivated state would increase the likelihood of moral outcomes (e.g., Baumeister & Exline, 1999; Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009). However, research has not shown before that there is a direct link between fulfillment and morality. The current research adds to the knowledge on morality by showing that both perceived unfulfillment and a motivated state independently increase endorsement of moral values.

Moral credits. The proposed link between goal-fulfillment and morality is consistent with the literature on moral credentials. When people are made aware of their own moral behavior—thereby fulfilling their moral goals—they are less likely to behave morally on the next occasion, just like morally questionable behavior is more likely after moral goals have been fulfilled (e.g., Baumeister, Stillwell, & Heatherton, 1994; Effron et al., 2009; Jordan, Mullen, & Murnighan, 2011; Miller & Effron, 2010; Monin & Miller, 2001; Sachdeva et al., 2009; Zhong & Liljenquist, 2006; Zhong, Liljenquist, & Cain, 2009). This line of research shows that people treat their past moral behaviors as ‘moral credits’. It is important for people to see themselves, and to be seen as moral (e.g., Crocker & Wolfe, 2001; Haidt & Kesebir, 2010; Leach, Bilali, & Pagliaro, in press; Rodriguez Mosquera, Manstead, & Fischer, 2002; Scheff, 2000; Tafarodi & Swann, 2001), however, once they have build up the moral credits, indicating that their moral goals are fulfilled, these credits allow them to decrease their motivation to behave morally. This suggests that in order for people to regulate their
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actions and behave morally, it’s important that their (moral) goals are perceived as unfulfilled. The findings of my dissertation support this line of research by showing that ‘fulfillment’ impedes moral outcomes and the findings go beyond the moral credit research as the effect of goal-fulfillment on morality even occurs in relation to fulfillment versus unfulfillment of non-moral goals.

Moral foundations. It was beyond the scope of the current research to compare different moral values, however, some interesting differences between the effects on the—so called—liberal (i.e., harm/care, fairness/equality) versus conservative (i.e., ingroup/loyalty, authority/respect, purity/sanctity) moral values were unveiled. It was found that unfulfilled, global perspective mindset emotions led to more endorsement of liberal moral values compared to fulfilled, specific perspective mindset emotions. Consistently, unfulfillment (vs. fulfillment), a motivated (vs. unmotivated) state, and global (vs. specific) perspective increased endorsement of liberal moral values. However, across all studies, none of the emotion or mindset component manipulations had an influence on endorsement of conservative moral value.

These findings give further insights into antecedents of particular moral values. It appears that the harm/care and fairness/reciprocity values are typically related to certain mindsets. Specifically, an unfulfilled, motivated state and a consideration of long-term, broad, and global consequences seem to directly feed into valuing particularly liberal moral values. Interestingly, however, these particular mindset components seem to be entirely unrelated to conservative moral values. It is already known that these moral values are endorsed differently by people with different political backgrounds (e.g., Haidt & Graham, 2007), and now it also appears that these values differ in associated mindsets, increasing our understanding of the different mental processes underlying endorsement of these values.
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Post Hoc Power Analyses

This dissertation consists out of a large amount of empirical studies (i.e., 26). Across these many studies, there was some variance in the sample sizes. The varying sample sizes will be addressed in this paragraph and the implications will be evaluated by means of post hoc power analyses.

Sample sizes. The variance in sample sizes across studies is due to two main factors. The first factor is data collection method. I used a wide range of data collection methods (e.g., participants took part in exchange for course credit, participants were recruited on campus to take part in the study in the lab in exchange for money, participants were approached in the library and took part on voluntary basis, participants were invited to take part by email, participants were recruited through Mturk in exchange for a small sum of money). It appears that participants recruited through certain data collection methods (e.g., volunteers in the library, Mturk workers) were less likely to complete the questionnaire (e.g., did not fill out the dependent variable measure, did not fill out the manipulation, or dropped out after only filling out the demographic information) compared to participants recruited through other methods (e.g., participation in exchange for course credit). Due to this difference in dropout rate, the final sample size varies across studies and was sometimes smaller than was planned a priori.

There is a second factor that explains some of the variance in sample sizes. During the period when the data for the current research project was collected (i.e., 2008 – 2012), a shift in the field has taken place. At the start of this research project, it was common practice in experimental social psychology to have relatively small sample sizes (e.g., an analysis of sample sizes of studies published in four APA journals [e.g., Journal of Experimental Psychology] in 2006 shows a mean sample size of 26; Marszalek, Barber, Kohlhart, & Holmes, 2011). However, more recently, the
importance of powerful tests with larger sample sizes has been stressed (e.g., Schimmack, 2012). Therefore, the a priori planned same sizes of studies that were conducted later on in the research project were greater than of the studies that were conducted at the start of the research project. Given the differences in sample sizes across studies, the statistical power across studies is expected to vary as well. To determine the statistical power of each individual study, post hoc power analyses were conducted.

**Post hoc power analyses results.** To determine the statistical power of the studies included in this dissertation (i.e., how likely the studies were to detect a statistically significant effect at a .05 alpha level), the program G*Power3.1.7 (Faul, Erdfelder, Buchner, & Lang, 2009; Faul, Erdfelder, Lange, & Buchner, 2009) was used to conduct 32 post hoc power analyses, following the procedure of recently reported post hoc power analyses (e.g., Francis, 2012; LaMarre, Landreville, & Beam, 2009; Lightsey & Barnes, 2007; Schimmack, 2012; Smeets, Leppink, Jelicic, & Merckelbach, 2009). As can be seen in Tables 1 to 4, some of the studies were underpowered; however, the majority of studies had a very strong statistical power (e.g., 10 analyses had a statistical power greater than .98). Given that all studies directly or indirectly tested the full-perspective hypothesis, I calculated the power across the studies. The average power across the analyses was .77, which is in close approximation to the desirable power of .80.

**Limitations and Future Research**

The current research adds to the literature on emotions, morality, and increases our knowledge on how positive emotions influence moral outcomes. This new way of looking at how positive emotions influence morality and the underlying mechanisms, inspires ideas for a wide variety of new studies and potentially allows for future
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research projects. In the following paragraphs, I will discuss additional study ideas and how these studies can address the limitations of the current research program.

**Emotion manipulation.** In most of my studies, I manipulated emotions by means of autobiographical memory recall: Participants had to recall and vividly relive the experience of a particular emotion. One could argue that this type of manipulation taps into the cognitive aspect of emotions in particular, and in a lesser degree into the affective experience of emotions. This could partly explain the large effect I find of the emotion manipulation on people’s cognitive mindsets. Perhaps, for other less cognitive procedures, the effects on mindsets may be less pronounced. However, my studies in which the emotion experience was measured instead of manipulated (i.e., Study 6 of Chapter 4 and Study 1 of Chapter 5) and a study in which optimism was induced by an alternative manipulation (Study 2 of Chapter 5) show consistent effects on morality.

Although these studies indicate that the effects are not solely due to the particular manipulation, the potential different effects of other types of emotion manipulations remain a valid concern which should be systematically tested by future research. Unfortunately, there are very few validated manipulations of discrete positive emotions available. Therefore, it would be highly valuable if future research developed alternative positive emotion manipulations, with a particular focus on ‘affective’ type of manipulations.

**Other positive emotions.** To date, the full-perspective hypothesis has added to research on how positive emotions influence moral outcomes (e.g., Algoe & Haidt, 2009; Bartlett & DeSteno, 2006; Batson et al., 1995; Freeman et al., 2009; Schnall et al., 2010; Strohminger et al., 2011) by showing the incidental effects of six positive emotions on moral judgments, decisions, and behaviors. The moral effects of more positive emotions need to be examined, and the current research is an important step in that direction by providing a general framework. Specifically, by presenting predictions
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on how 14 positive emotions would influence moral outcomes, great potential for additional studies is given. Also, the full-perspective hypothesis could be applied to even more positive emotions (e.g., euphoria, joy, enthusiasm, hope, contentment) by examining how they influence the fulfillment-perspective mindset, providing predictions on how these emotions would influence morality.

**Fulfilled, global perspective, and unfulfilled, specific perspective mindsets.**

As most direct test of the full-perspective hypothesis, emotions that were expected to have the most extreme effects on morality were contrasted against each other. This means that, emotions inducing either a fulfilled, specific perspective (both components expecting to impede morality) mindset or an unfulfilled, global perspective (both components expecting to facilitate morality) mindset were selected to be tested. Given that both mindset components appear to be highly relevant for moral outcomes (e.g., Agerström & Björklund, 2009a; Agerström & Björklund, 2009b; Caruso, 2010; Conway & Peetz, 2012; Ebreo & Vining, 2001; Effron et al., 2009; Kortenkamp & Moore, 2006; Monin & Miller, 2001; Schwartz, 1970), the full-perspective hypothesis would predict that positive emotions associated with a fulfilled, global perspective mindset or an unfulfilled, specific perspective mindset would lead to more moral outcomes compared to emotions associated with a fulfilled, specific perspective mindset, and to less moral outcomes compared to emotions associated with an unfulfilled, global perspective mindset. However, future research would need to test this by further examining the moral effects of emotions from the unfulfilled, specific perspective (e.g., horniness) and emotions from the fulfilled, global perspective (e.g., pride, satisfaction) mindsets.

**Mindset components within emotions.** To test the full-perspective hypothesis and the importance of the fulfillment and perspective mindset components, the differences between positive emotions, and the direct effects of the mindset components on morality were examined. However, to further examine the importance of fulfillment...
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and perspective and to further validate the full-perspective hypothesis, future research should attempt to manipulate the proposed mindset components within emotions. I applied this approach already by taking an emotion that is typically fulfilling and a specific perspective inducing (i.e., love), and then manipulating both fulfillment and perspective within this experience (see Chapter 4), showing that unfulfilled (vs. fulfilled) love and global (vs. specific) love lead to more moral outcomes. It would be interesting for future research to also manipulate fulfillment and perspective within other emotions. For example, would specific optimism lead to less moral outcomes compared to global optimism? Future research could find creative ways to manipulate fulfillment and/or perspective within the emotional experience, and thereby further testing the proposed mechanisms.

Neutral affective state. The aim of the current research was to compare various positive emotions with each other in how they influence moral outcomes, and I have accomplished this for six different positive emotions. However, to be able to conclude whether each of these emotions impede or facilitate moral outcomes, they will need to be compared to a neutral affective state (e.g., Bartlett & DeSteno, 2006; Freeman et al., 2009; Schnall et al., 2010). A start has been made by comparing the effects of love and optimism to a neutral affective state, suggesting that love impedes, whereas optimism facilitates moral outcomes. Future research would have to examine whether this is the case for different kinds of moral outcomes (e.g., impersonal vs. personal moral violations; e.g., Greene & Haidt, 2002). In addition, the effects of the other positive emotions need to be examined in comparison to a neutral affective state. The few studies that have studied this show that elevation and gratitude both lead to more moral outcomes compared to a neutral state (e.g., Bartlett & DeSteno, 2006; Freeman et al., 2009; Schnall et al., 2010), however, the morality effects of all the remaining positive emotions, compared to a neutral affect state, remain untested. This indicates that there is
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still much research to be done in this area, which provides the opportunity to uncover many exciting morality effects.

**Negative emotions influencing mindsets.** Now support is found for the importance of the fulfillment and perspective mindset components for predicting the incidental effects of positive emotions on morality, the incidental effects of negative emotions could be revisited (e.g., anger, shame, guilt, contempt, disgust; e.g., Averill, 1983; De Hooge, Breugelmans, & Zeelenberg, 2008; De Hooge, Nelissen, Breugelmans, & Zeelenberg, 2011; Fischer & Roseman, 2007; Gausel & Leach, 2011; Haidt, Koller, & Dias, 1993; Hofmann & Baumert, 2010). For example, could induced fulfillment-perspective mindsets also predict the incidental effect of negative emotions on moral outcomes? As a first step, research could examine which fulfillment-perspective mindsets are induced by various negative emotions. This could easily be done by using the method I used for positive emotions (see Chapter 2) and apply it to various negative emotions.

**Negative versus positive emotion influences on mindsets and morality.** Once the effects of negative emotions on the fulfillment-perspective mindsets have been established, it can be examined if these mindset components are also predictive of the effects of exogenous negative emotions on morality (e.g., does unfulfillment play a role in predicting why guilt increases moral outcomes?). Furthermore, it could be tested if positive and negative emotions that induce the same fulfillment-perspective mindset would have similar effects on moral judgments, decisions, and behaviors.

**Alternative mindset components.** Consistent with the full-perspective hypothesis, the proposed mindset components ‘perceived goal-fulfillment’ and ‘globality of perspective’ have been shown to be relevant for morality. However, this list of mindset components, that are predictive of how exogenous positive emotions influence morality, is unlikely to be exhaustive. Positive emotions may affect alternative
mindset components, which could potentially influence morality as well (e.g., uncertainty, control, challenge, novelty, perceived self-other similarity, virtue, skill; e.g., Algoe & Haidt, 2009; Lerner & Keltner, 2000; Lerner & Keltner, 2001; Oveis, Horberg, & Keltner, 2010; Silvia, 2005; Skinner & Brewer, 2002; Smith & Ellsworth, 1985). It would be interesting to identify more mindset components that precede moral outcomes, and to link these mindset components with (positive) emotions. Along this line of reasoning, the ‘motivational state’ that is argued to increase moral outcomes, could potentially be influenced by other factors, in addition to ‘unfulfillment’. The full-perspective approach (i.e., identifying antecedents of moral outcomes to predict emotion effects) provides a useful method for future research to proceed forward.

**Moral behaviors.** A wide variety of measurements of morality were used. Specifically, measurements of moral, immoral, prosocial, and altruistic outcomes, measurement of values, judgments, decisions, and behaviors, and measurement in charity, economic, environmental, and academic contexts. Although some behavioral measures were used, the majority of measures were hypothetical. Using these measures was valuable to get a first indication of how positive emotions influence morality. Based on these findings, future research should use more behavioral measures (e.g., actual littering behavior) to examine how positive emotions can be used to change actual everyday life behaviors.

**Personal moral violation.** Despite the wide variety of morality measures, most moral situations that were tested could be considered as ‘impersonal moral violations’. A moral violation is considered to be ‘personal’ if it is “(i) likely to cause serious bodily harm, (ii) to a particular person, (iii) in such a way that the harm does not result from the deflection of an existing threat onto a different party” (cited from Greene & Haidt, 2002, p. 519), and ‘impersonal’ if it does not need these conditions. Although each measured immoral outcome implied negative consequences for others, the moral
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violation can be considered ‘impersonal’ as none of the measures implied serious bodily harm. Exogenous positive emotions may have different effects on ‘personal moral violations’ than on ‘impersonal moral violations’ for two reasons.

First, fMRI and decision making studies have shown that people come to different moral judgments and decisions for personal (vs. impersonal) moral violations, and that these judgments and decisions are made in emotionally different ways (e.g., Ciaramelli, Muccioli, Ládavas, & Di Pellegrino, 2007; Greene & Haidt, 2002; Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008; Greene, Nystrom, Engell, Darley, & Cohen, 2004; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Killgore et al., 2007; Koenigs et al., 2007). Importantly, it has been shown that (positive) affect manipulations do not affect judgments of personal moral violations the same as impersonal ones (e.g., Valdesolo & DeSteno, 2006). Therefore, it is possible that there is a different interaction between positive emotions with situations entailing personal moral violations than impersonal ones.

Second, personal moral violations are known to induce negative emotions (Greene & Haidt, 2002). These negative emotions (e.g., anger, disgust, guilt, shame) are moral emotions triggered by the personal moral violation. If these trigged (endogenous) negative emotions are strong enough, they may override the initially experienced (exogenous) positive emotion. Therefore, the effects of exogenous positive emotions may be less strong for personal moral violation situations compared to impersonal ones. Future research should address this by comparing the effects of positive emotions on people’s reactions towards personal versus impersonal moral violations (e.g., the footbridge vs. trolley dilemma).

Conservative moral values. The current research on positive emotion influences on moral outcomes focuses on a particular set of moral outcomes. Specifically, the moral judgments, decisions, and behaviors examined were...
representative of the widely endorsed ‘harm/care’ and ‘fairness/reciprocity’ moral values. These values were chosen as they are—by most people—accepted as moral values (e.g., Haidt & Graham, 2007). However, there is a large subgroup of people (e.g., people with a conservative political orientation) who also recognizes other values as moral values (i.e., ingroup/loyalty, authority/respect, purity/sanctity values; Haidt & Graham, 2007). Although my main aim was to examine the most widely endorsed moral values, I also analyzed the effects of positive emotions and the mindset components on endorsement of conservative moral values. Interestingly, I found—consistent across all studies—no emotion or mindset effects on these particular moral values. This could be due to that these values represent something different (moral, non-moral, or even immoral) for different people, which likely could have distorted the effects. Or, alternatively, possibly the mindset components fulfillment and perspective are in particular related to harm/care and fairness/reciprocity values, but have no relation to ingroup/loyalty, authority/respect, and purity/sanctity values.

It would be interesting to further test the effects of positive emotions, fulfillment, and perspective on judgments, decisions, and behaviors in situations representing the ingroup/loyalty, authority/respect, or purity/sanctity values. Then, by measuring people’s political ideology, it could be examined whether positive emotions and mindset components interact differently with various moral values for people from different political backgrounds. Finally, it would be interestingly to study—as conservative values seem to be unrelated to the fulfillment and perspective mindset components—if there are other mindset components that could predict the endorsement of conservative values.

*Unfulfillment of morality-discordant goals.* Perceived goal-unfulfillment is predicted to increase moral outcomes. This prediction is largely based on the idea that an unfulfillment mindset causes people to be more attuned to goals, and that the
motivational state helps people to fulfill these goals (e.g., Carver & Scheier, 1999; Förster et al., 2007; Taylor, 1991; Vallacher & Wegner, 1987; Zeigarnik, 1927). This means, when people have this unfulfillment mindset, and they are then confronted with a moral dilemma situation, they are likely to judge and behave according to their moral goals. That unfulfillment increases morality-congruent judgments and behaviors is the most probable outcome as moral goals are for most people highly important and desirable (e.g., Anderson, 1968; Bandura, 2004; Schwartz & Howard, 1982; Van Lange & Sedikides, 1998). However, there are exceptions to this effect. When moral goals, in a particular situation, are in conflict with a person’s currently primary goal, then the opposite effect could manifest. For example, if a person’s primary goal at present is to become rich, and this goal is currently unfulfilled, then when this person is confronted with a charity donation campaign, they would be less likely to make this charity donation compared to when their goal to be rich would be fulfilled. Therefore, to refine the predictions on the effect of unfulfillment, it would be insightful to take into account which particular goals are unfulfilled and how they relate to the current moral situation.

**Non-moral decision making.** The fulfillment and perspective mindset components were selected as they were predicted to be associated with moral outcomes. However, it may very well be that these mindset components are also related to other self-control situations that are unrelated to morality. Given that exercising self-control or self-regulation requires motivation and is facilitated by a focus on long-term, superordinate goals (vs. short-term pleasures; e.g., Baumeister, Schmeichel, & Vohs, 2007; Kruglanski et al., 2002; Kuhl, 2000; Trope et al., 2006; Zimmerman, 1989), an unfulfilled, global perspective (vs. a fulfilled, specific perspective) mindset can be expected to increase self-control and self-regulation—irrespective of whether it concerns a ‘moral’ situation. Therefore, my findings on the effects of positive emotions on the fulfillment-perspective mindset may have even broader implications. For
example, certain positive emotions (e.g., optimism, inspiration, compassion) and a certain mindset (i.e., the unfulfilled, global perspective mindset) can help people to exercise self-control and self-regulation, and thereby facilitate beneficial outcomes for individuals and society (e.g., reduced criminal behaviors, impulsive purchasing, psychopathology, binge eating, alcohol abuse, smoking; increased quality of life, grade point average, self-esteem, relationship quality, interpersonal skills; Baumeister, 2002; Evans, Cullen, Burton, Dunaway, & Benson, 1997; Perri, Richards, & Schultheis, 1977; Tangney, Baumeister, & Boone, 2004).

Conclusions

Previous research has mainly focused on mood effects and the effects of negative emotions on moral outcomes. For a long time, the effects of positive emotions on morality have gone unexamined. Only recently, research has started to pick up on the moral effects of positive emotions. The research, presented in this dissertation, greatly contributes to this novel line of research: It shows the incidental effects of no less than six positive emotions—most of which have never been examined in relation to morality—on moral outcomes, it provides a theoretical framework explaining the underlying processes of the effects, which supplies predictions on the incidental moral effects of potentially all positive emotions, and it gives further insights into the relevance of fulfillment and globality of perspective for moral outcomes. Specifically, positive emotions that cause people to adopt a fulfilled, specific perspective mindset (i.e., love, amusement, relaxation) impede morality, whereas positive emotions that lead to an unfulfilled, global perspective mindset (i.e., optimism, inspiration, compassion) have beneficial consequences for moral outcomes.

Ultimately, all positive emotions may be pleasant to experience. Unfortunately, not every positive emotion makes you treat others morally. Promote optimism, inspiration, and compassion in yourself and others as, in addition to them being a
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positive experience, they also make people more moral. Enjoy the delicious experience of love, amusement, and relaxation, but do not lose sight of how your judgments, decision, and behaviors influence others in the long-term.
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Footnotes

1 Two studies in which love and neutral affect were manipulated were not included in the meta-analysis on the different influences of love versus neutral affect on moral outcomes. Study 4 of Chapter 2 was not included as the meta-analysis compared the standardized difference between two means, and the findings of Study 4 were frequencies, not means, and were therefore not suitable for this analysis. Also, Study 4 of Chapter 4 was not included as particular love experiences (i.e., specific and global love) were manipulated.

2 Study 4 of Chapter 2 was also not included for the meta-analysis of optimism versus neutral affect as the results of this study consisted of frequencies (vs. means).

3 Across all the measurements I used, only one item of the MFQ could potentially be considered to entail a personal moral violation (i.e., It can never be right to kill a human being).
Table 1

*Post Hoc Power Analyses of Studies in Chapter 2 (The Full-Perspective Hypothesis)*.

<table>
<thead>
<tr>
<th>IV</th>
<th>DV</th>
<th>Analysis</th>
<th>N</th>
<th>Effect size</th>
<th>1 - β</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Emotions low vs. high on fulfillment</td>
<td>Fulfillment</td>
<td>t-test (w)</td>
<td>21</td>
<td>(d = 1.84)</td>
</tr>
<tr>
<td>2</td>
<td>Emotions low vs. high on perspective</td>
<td>Perspective</td>
<td>t-test (w)</td>
<td>21</td>
<td>(d = 1.23)</td>
</tr>
<tr>
<td>3</td>
<td>Love vs. Optimism</td>
<td>Fulfillment</td>
<td>t-test (w)</td>
<td>21</td>
<td>(d = 0.98)</td>
</tr>
<tr>
<td>4</td>
<td>Love vs. Optimism</td>
<td>Perspective</td>
<td>t-test (w)</td>
<td>21</td>
<td>(d = 1.50)</td>
</tr>
<tr>
<td>5</td>
<td>Love vs. Optimism</td>
<td>Fulfillment</td>
<td>t-test (b)</td>
<td>154</td>
<td>(d = 0.92)</td>
</tr>
<tr>
<td>6</td>
<td>Love vs. Optimism</td>
<td>Perspective</td>
<td>t-test (b)</td>
<td>154</td>
<td>(d = 0.89)</td>
</tr>
<tr>
<td>7</td>
<td>Love vs. Optimism vs. Neutral</td>
<td>Temporal Distance</td>
<td>t-test (b)</td>
<td>41</td>
<td>(d = 0.83)</td>
</tr>
<tr>
<td>8</td>
<td>Love vs. Optimism vs. Neutral</td>
<td>Cheating</td>
<td>Chi Square</td>
<td>37</td>
<td>(w = .41)</td>
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<tr>
<td>9</td>
<td>Love vs. Optimism vs. Neutral</td>
<td>MFQ</td>
<td>ANOVA</td>
<td>67</td>
<td>(f = .39)</td>
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<tr>
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<td>Love vs. Optimism vs. Neutral</td>
<td>MFQ</td>
<td>ANOVA</td>
<td>67</td>
<td>(f = .39)</td>
</tr>
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<td>Love vs. Optimism vs. Neutral</td>
<td>MFQ</td>
<td>ANOVA</td>
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<td>(f = .39)</td>
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<tr>
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<td>MFQ</td>
<td>ANOVA</td>
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<td>13</td>
<td>Love vs. Optimism vs. Neutral</td>
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<td>ANOVA</td>
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<td>14</td>
<td>Love vs. Optimism vs. Neutral</td>
<td>MFQ</td>
<td>ANOVA</td>
<td>67</td>
<td>(f = .39)</td>
</tr>
</tbody>
</table>

*Note: Power is calculated based on an alpha level of .05.*
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Table 2

*Post Hoc Power Analyses of Studies in Chapter 3 (Love Versus Optimism on Social Dilemmas).*

<table>
<thead>
<tr>
<th></th>
<th>IV</th>
<th>DV</th>
<th>Analysis</th>
<th>N</th>
<th>Effect size</th>
<th>$1 - \beta$</th>
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</thead>
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<td>$d = 1.10$</td>
<td>.69</td>
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<td></td>
<td>Love vs. Optimism</td>
<td>Financial Crisis 1</td>
<td>t-test (b)</td>
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<td>$d = 1.02$</td>
<td>.62</td>
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<tr>
<td></td>
<td>Love vs. Optimism</td>
<td>Financial Crisis 2</td>
<td>t-test (b)</td>
<td>25</td>
<td>$d = 1.20$</td>
<td>.76</td>
</tr>
<tr>
<td>2</td>
<td>Love vs. Optimism</td>
<td>PD</td>
<td>t-test (b)</td>
<td>50</td>
<td>$d = 0.92$</td>
<td>.89</td>
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<tr>
<td></td>
<td>Love vs. Optimism</td>
<td>PD</td>
<td>Chi Square</td>
<td>50</td>
<td>$w = 0.31$</td>
<td>.59</td>
</tr>
<tr>
<td>3</td>
<td>Love vs. Optimism</td>
<td>Environmental Common Good</td>
<td>t-test (b)</td>
<td>27</td>
<td>$d = 1.23$</td>
<td>.87</td>
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<tr>
<td>4</td>
<td>Love vs. Optimism</td>
<td>TPP scenario</td>
<td>t-test (b)</td>
<td>54</td>
<td>$d = 1.09$</td>
<td>.98</td>
</tr>
<tr>
<td>5</td>
<td>Love vs. Optimism</td>
<td>TPP behavioral vs. Neutral</td>
<td>ANOVA</td>
<td>40</td>
<td>$f = .40$</td>
<td>.58</td>
</tr>
<tr>
<td>6</td>
<td>Love vs. Optimism</td>
<td>Economic vs. Neutral</td>
<td>ANOVA</td>
<td>43</td>
<td>$f = .40$</td>
<td>.61</td>
</tr>
</tbody>
</table>

*Note:* Power is calculated based on an alpha level of .05.
Table 3

Post Hoc Power Analyses of Studies in Chapter 4 (Detrimental Consequences of Love for Morality).

<table>
<thead>
<tr>
<th>IV</th>
<th>DV</th>
<th>Analysis</th>
<th>N</th>
<th>Effect size</th>
<th>1 - β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Love vs. Neutral</td>
<td>Environmental Common Good</td>
<td>t-test (b)</td>
<td>49</td>
<td>d = 0.61</td>
<td>.55</td>
</tr>
<tr>
<td>Love vs. Neutral</td>
<td>Financial Crisis</td>
<td>t-test (b)</td>
<td>122</td>
<td>d = 0.44</td>
<td>.54</td>
</tr>
<tr>
<td>Specific vs. Global Love</td>
<td>Financial Crisis</td>
<td>t-test (b)</td>
<td>67</td>
<td>d = 0.51</td>
<td>.53</td>
</tr>
<tr>
<td>Specific vs. Global Love</td>
<td>Donating</td>
<td>ANOVA</td>
<td>67</td>
<td>f = .33</td>
<td>.65</td>
</tr>
<tr>
<td>Fulfilled vs. Unfulfilled Love</td>
<td>Financial Crisis</td>
<td>t-test (b)</td>
<td>35</td>
<td>d = 0.70</td>
<td>.52</td>
</tr>
<tr>
<td>Being in Love (fulfilled)</td>
<td>Economic and Environmental Common Goods</td>
<td>Correlation</td>
<td>43</td>
<td>r = .31</td>
<td>.55</td>
</tr>
<tr>
<td>Lover vs. Acquaintance</td>
<td>Money division (endogenous)</td>
<td>t-test (b)</td>
<td>51</td>
<td>d = 2.44</td>
<td>&gt;.99</td>
</tr>
<tr>
<td>Lover vs. Acquaintance</td>
<td>Money division (exogenous)</td>
<td>t-test (b)</td>
<td>51</td>
<td>d = 1.02</td>
<td>.95</td>
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</table>

*Note:* Power is calculated based on an alpha level of .05.
Table 4

Post Hoc Power Analyses of Studies in Chapter 5 (Beneficial Consequences of Optimism for Morality).

<table>
<thead>
<tr>
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<th>IV</th>
<th>DV</th>
<th>Analysis</th>
<th>N</th>
<th>Effect size</th>
<th>1 – β</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dispositional Optimism</td>
<td>Economic and Environmental Common Goods</td>
<td>Correlation</td>
<td>62</td>
<td>$r = .33$</td>
<td>.77</td>
</tr>
<tr>
<td>2</td>
<td>No Optimism vs. Optimism</td>
<td>MFQ</td>
<td>t-test (b)</td>
<td>97</td>
<td>$d = 2.01$</td>
<td>&gt; .99</td>
</tr>
</tbody>
</table>

*Note:* Power is calculated based on an alpha level of .05.