Emotions in negotiations. The role of communicated anger and disappointment

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The role of communicated anger and disappointment

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Chapter 1

General Introduction

Chapter 1

No childhood passes without being reprimanded by parents for things done wrong. We all know what it felt like when one of our parents was angry about something we did. Also, hardly anyone is a stranger to what a disappointed parent feels like. Often people feel worse after their parents say they are disappointed in them, than after they express anger. You might remember the thought of sitting across the kitchen table from your parents, hearing your parents say that they are not angry with you, but "just" disappointed. That they expected more from you and that you are capable of so much more. Indeed, the expression "I am not angry with you, I'm just disappointed" is often used to make people feel bad about what they have done, in hopes of changing their behavior.

But is it true that communicating disappointment is better than communicating anger when you desire behavioral change in others? And if so, why is this the case? This dissertation answers these questions, by pitting the interpersonal effects of anger against the interpersonal effects of disappointment. Anger and disappointment may on the one hand elicit behavioral change in others in favor of the expresser of the emotion. On the other hand, anger and disappointment may also elicit a tendency in others to act in a self-interested manner, which may lead them to continue their current course of action. This dissertation will demonstrate why and under what conditions the communication of anger and disappointment is advantageous or detrimental. The studies are situated within competitive bargaining contexts, because such contexts are ideal for investigating how and why communicating anger and disappointment affect interpersonal outcomes.

The social functions of emotions

Although the purpose of the present dissertation is to investigate the effects of communicated emotions, it may first be relevant to understand what constitutes an emotion. Unfortunately, there is no conclusive answer to this question. Although research has made progress in trying to conceptualize emotions, there is still no definition that every emotion researcher would agree on. Most theorists hold that emotions are the result of an evaluation (an appraisal) of some event relevant to a particular concern or goal (Frijda, 1986). These evaluations can be positive or negative. Emotional phenomena are often described in terms of affect, mood, and/or emotion. The general label *affect* is used to

describe evaluative feelings, such as feeling good or bad (Parkinson, Totterdell, Briner, & Reynolds, 1996). These subjective feelings may include *moods* or *emotions*. Emotions differ from moods in that they are always about something, whereas moods "simply are" (Frijda, 1994). Emotions are directed toward a specific person, object or event, whereas moods are less specific. Moods are also often less intense and longer lasting than emotions are (Ekman, 1984). Furthermore, emotions are characterized by distinct subjective experiences, physiological reactions, and action tendencies (Ekman, 1993; Levenson, Ekman, & Friesen, 1990; Parkinson, Fischer & Manstead, 2005). Discrete emotions are therefore often more informative than diffuse moods, both to the individual experiencing them and to observers.

Until recently, emotions were regarded as detrimental or disruptive forces that interfere with rational decision-making, instead of as social tools that facilitate decision-making. It was better to suppress your emotions, and keep a poker face during social interactions with others than to let your emotions influence your own or others' behavior. Increasingly, however, this thought has made way for a functional approach to emotions (Frijda, 1986). This approach emphasizes that emotions are not just distractions, but instrumental means that help prioritize goals and prepare individuals to respond to changes in the environment (Keltner & Haidt, 1999; Van Kleef, De Dreu, & Manstead, 2010).

Most emotion research has focused on the *intra*personal effects of emotions. This research has focused on the functions of emotions for one's own thoughts, behavior and intentions. Examples of questions that have been answered in this area of research are how one's feelings of envy affect product evaluation (Van de Ven, Zeelenberg, & Pieters, 2010), whether angry bargainers are more competitive in negotiations than happy bargainers (Forgas, 1998), and how fear influences judgments of certainty and risk (Lerner & Keltner, 2001). Many of these intrapersonal effects of emotions may involve social situations.

In this dissertation, I take a different approach by not only considering the effects of emotions in a social context, but actually investigating how emotions affect other people. In this dissertation, I investigate the social functions of emotions. According to social-functional analyses of emotions (Elfenbein, 2007; Keltner & Haidt, 1999; Morris & Keltner, 2000; Parkinson, 1996; Van Kleef et al., 2010), emotions contain valuable information about the feelings and intentions of the sender of the emotion. This information, in turn,

can have consequences for the behavior of the receiver of the emotion. Besides having an impact on one's own behavior, thoughts, and feelings, emotions may thus also have *inter*personal effects, such that the communication of emotions may affect others' behavior, thoughts, intentions, and/or feelings.

To enhance understanding of these interpersonal effects of emotions, I draw on the Emotion as Social Information (EASI) model by Van Kleef et al. (2010) (see also Van Kleef, 2009; Van Kleef, Van Doorn, Heerdink, & Koning, 2011). The EASI model extends the general notion that emotions affect others' behavior and intentions, by specifying two processes through which emotions may influence the behavior of others. Emotions affect others not only by providing relevant information about the intentions and/or feelings of the sender (the inferential path of the model), but also by affecting the emotions of others (the affective path of the model).

First, as noted above, expressed emotions may have informational value. Different emotions arise in response to different situations and different behaviors of others (Frijda, 1986; Lazarus, 1991). Discrete emotions thus communicate different information to observers. Happiness, for instance, may signal that one is happy with the current situation, which may lead others to continue their current course of action. Similarly, sadness signals a loss, which may lead others to offer help. In a classic demonstration of these inferential processes (Sorce, Emde, Campos, & Klinnert, 1985), infants had to decide whether or not to cross a visual cliff to reach a toy. On the other side of the cliff, their mother either expressed fear or anger, or joy or interest. Results revealed that infants were more likely to cross the visual cliff when their mother was showing a positive emotion (joy or interest), compared to when their mother showed a negative emotion (fear or anger).

Besides this informational value of emotions, emotions may also wield interpersonal influence by eliciting affective reactions in others (Barsade, 2002; Dimberg & Öhman, 1996; Friedman et al., 2004; Lelieveld, Van Dijk, Van Beest, & Van Kleef, 2012; Van Kleef et al., 2010), which can influence subsequent behavior. Displays of contempt, for instance, evoke shame in others (Gilbert & Andrews, 1998), which may elicit withdraw or avoidance behavior. Similarly, anger has been shown to evoke fear in others (Dimberg & Öhman, 1996), which may elicit a tendency to avoid the angry person. One way emotions can affect the emotions of others, is via *emotional contagion* (Hatfield, Cacioppo, & Rapson, 1994; see also Anderson, Keltner, & John, 2003; Hess & Blairy, 2001; Neumann & Strack, 2000; Wild, Erb, & Bartels, 2001). Emotional contagion refers to the process whereby

emotions spread directly from expresser to observer via processes of mimicry and afferent feedback. A person's happiness, for instance, can be "caught", which leads others to become happy themselves. Emotions can also influence others' behavior by eliciting complementary emotions in them, which may influence subsequent behavior (Van Kleef et al., 2008). In this situation a person's emotions evoke different but corresponding emotions in others (Van Kleef et al., 2008). Displays of anger, for instance, can elicit fear-related responses (Dimberg & Öhman, 1996). In Chapter 2, I will return to this issue by explaining how and when emotions (i.e., anger and disappointment) may affect others' behavior via emotional reciprocity and how and when emotions may affect others' behavior via emotional complementarity.

The EASI model converges with other social functional approaches to emotion when it comes to the notion that the interpersonal effects of emotions cannot be explained simply in terms of their valence (i.e., whether the emotional expression is positive or negative). They should instead be understood in terms of the unique social information that they convey. The findings in this dissertation are in correspondence with the EASI model, because I focus on inferential as well as affective reactions to emotions of others, and I show that anger and disappointment (two negative emotions) have specific and distinct effects on others. The findings in this dissertation can, however, also be seen as an extension of the EASI model, by 1) showing that this difference between inferential and affective processes is not always that clear (Chapter 2 and 4), by 2) focusing on the underlying neural mechanisms of the interpersonal effects of emotions (Chapter 3), and by 3) solving an apparent inconsistency that exists in social functional analyses of emotions (Chapter 5).

As noted above, I situate my studies within bargaining contexts. These contexts are perfect to study the interpersonal effects of emotions, because they lend themselves to different responses to different emotions. That is, negotiation settings are mixed-motive, such that people in these situations can cooperate to receive high joint outcomes, but also compete to satisfy personal concerns (Schelling, 1960). Emotion displays can play an important role in bargainers' decisions to either cooperate or compete. Secondly, in negotiations both parties are highly dependent on one another for their outcomes. Specific information (e.g., via communicated emotions) from or about one's opponent is thus very valuable. Previous research has indeed shown that in negotiations individuals are highly motivated to process emotions of others, and that they adjust their behavior accordingly

(Van Kleef, De Dreu, & Manstead, 2004a, b). Finally, negotiation settings are perfect settings to vary relational and situational aspects that may influence how emotional expressions affect others. The interpersonal effects of emotions may be dependent on the relation between the expresser and the observer of the emotion. For instance, an emotional expression from an in-group member may have different effects on one's behavior than an emotional expression from an out-group member (see Chapter 5). Situational aspects may also determine how a communicated emotion affects others. For instance, whether the target of an emotional expression negotiates for his/herself or for a constituency may determine whether an emotional expression elicits positive or negative outcomes (see Chapter 5). Negotiation settings allow researchers to vary those relational and situational aspects quite easily, while at the same time keeping experimental control. For these reasons, the studies reported in this dissertation are situated in bargaining contexts. Now, I will first review relevant literature on the effects of emotions in negotiations.

Emotions in negotiations

A negotiation is "a discussion between two or more parties with the apparent aim of resolving a divergence of interests" (Pruitt & Carnevale, 1993, p. 2). It is often a heated and highly emotional process. In the last decades, researchers have indeed shown that emotions play a significant role in negotiations.

Intrapersonal effects of emotions

Initially, research in this area focused on the intrapersonal effects of emotions. Most of these studies found that bargainers experiencing negative emotions tend to act more competitively (with exceptions, see Ketelaar & Au, 2003), whereas bargainers experiencing positive emotions tend to act more cooperatively.

One of the first studies on the role of affect in negotiations focused on the effects of positive affect (Carnevale & Isen, 1986). Subjects in this study negotiated as buyers and sellers of appliances, and positive affect was either induced or not. Positive affect was induced by instructing participants to sort funny cartoons in two piles. The findings showed that positive affect reduced contentious tactics and increased joint benefit. Accordingly, other work has also shown that positive affect increases concession making

(Baron, 1990) and cooperative negotiation strategies (Baron, Fortin, Frei, Hauver, & Shack, 1990).

Later work on the effects of negative affect has shown different yet compatible results regarding the effects of negative emotions. Allred, Mallozzi, Matsui, and Raia (1997) examined the effects of feeling angry and feeling compassion. Their participants performed a computer-mediated negotiation and negotiated about four different issues. Results showed that experiencing high levels of anger and low levels of compassion posed several disadvantages. Angry participants had less desire to work with their opponent in the future, achieved fewer joint gains and were more competitive. Other work also showed that negative affect decreases initial offers (Baron et al., 1990) and increases rejection of ultimatum offers (Pillutla & Murnighan, 1996).

One set of studies directly compared the experience of positive and negative affect in negotiations, and showed compatible results (Forgas, 1998). Subjects either learned that they had performed well on a test (which induced positive affect), or poorly (which induced negative affect). In both interpersonal and intergroup negotiations, negative affect led people to become more competitive, whereas positive affect led people to adopt a more cooperative bargaining strategy.

Positive emotions thus seem to have a more beneficial influence on the bargaining process than negative emotions. However, as noted above, it is also important to look beyond valence and study the effects of discrete emotions in negotiations. Recently, research has started to compare the effects of different negative emotions in negotiations. Nelissen, Leliveld, Van Dijk, and Zeelenberg (2011) compared the effects of the experience of fear and guilt. They found that both emotions led people to offer more, but for different reasons. Fearful bargainers made higher offers to avoid rejection, whereas guilty people made higher offers because they were concerned with their opponent's outcomes (see also De Hooge, Zeelenberg, & Breugelmans, 2007; Ketelaar & Au, 2003).

Another set of recent studies compared the effects of disappointment and regret in a bargaining game. Regret and disappointment were either induced by autobiographical recall or by imagined scenarios. Results showed that regret increased offers in a bargaining game, whereas disappointment caused bargainers to make less generous offers (Martinez, Zeelenberg, & Rijsman, 2011).

As is clear from all these studies focusing on the intrapersonal effects of emotions in bargaining, there is now a considerable body of literature that has addressed how the

experience of specific emotions differentially affects one's bargaining behavior. Although initial evidence showed that negative emotions lead bargainers to act more competitively, later research investigating discrete emotions showed that not all negative emotions have similar effects on people. As we shall see below, there has only recently been a shift in the literature from only addressing the intrapersonal effects of emotions in negotiations, to also studying the interpersonal effects of emotions.

Interpersonal effects of emotions

Research on the interpersonal effects of emotions in negotiation began with a series of studies by Van Kleef et al. (2004a). Participants in their studies bargained with simulated opponents in a computer mediated negotiation. In several rounds of offers and counteroffers, participants received either angry or happy emotional expressions from their opponent. Negotiators with a happy opponent inferred that their opponent was lenient and easy to get. This led participants to make little concessions. Angry emotional expressions, however, signaled toughness and high limits. When a bargainer is perceived to have high limits, opponents do not expect that he/she will give in much during the negotiation. This may lead opponents to give in themselves, to not let the negotiation end in impasse. Indeed, Van Kleef et al. (2004a) showed that participants who were faced with angry bargainers made higher concessions than participants who were faced with a neutral or happy bargainer. This first study thus showed that it is better to express anger than to express happiness in a negotiation. In line with the inferential path of the EASI model, bargainers used the information that anger and happiness conveyed as input for their decisions.

Later, the same authors (Van Kleef et al., 2004b) provided more direct support for this notion. In three studies they showed that participants were only affected by the information that anger and happiness conveyed if they were motivated to consider the information. Participants negotiated in the same negotiation paradigm as in Van Kleef et al. (2004a). The authors showed that when participants had a low need for cognitive closure, a lot of time to make their decisions, and low power (all indicators of a high motivation/ability to process information), they used the information that anger and happiness conveyed as input for their decisions. This led participants to concede more to angry than to happy bargainers. However, when participants had a high need for cognitive closure, little time to make their decision, and high power (all indicators of a low

motivation/ability to process information), they were less affected by the information that the emotions conveyed.

In line with findings by Van Kleef et al (2004a, b), Sinaceur and Tiedens (2006) showed that communicating anger elicited higher offers than not communicating any emotion. In a scenario study and a face-to-face negotiation study where one participant was trained to communicate anger, the authors manipulated whether participants had poor alternatives or good alternatives. They showed that participants gave in more to angry opponents than to opponents not communicating any emotion, but only when they had poor alternatives. This was explained by the finding that anger signals toughness. When bargainers have poor alternatives, they have to give in to their tough negotiator, to avoid impasse.

This first line of studies thus showed that communicating emotions may affect the bargaining behavior of opponents. However, as I have stressed before, it is important to consider the effects of specific emotions and to not only investigate emotions that differ in valence, such as anger and happiness. Few studies have considered the interpersonal effects of different negative or different positive emotions in negotiations. One study that did investigate the interpersonal effects of different negative emotions, compared the effects of the appeasement emotions guilt and regret with the effects of the supplication emotions disappointment and worry (Van Kleef, De Dreu, & Manstead, 2006a). Appeasement emotions may arise when bargainers claim too much in a negotiation, and are subsequently willing to compensate for that. This may lead opponents to stand firm and act competitively. Supplication emotions, on the other hand, serve as a call for help, which may elicit support. The authors indeed showed that when participants faced an opponent that communicated appeasement emotions, they made low offers. However, when participants faced an opponent that communicated supplication emotions, participants made more generous offers.

This work was an important first step in investigating the interpersonal effects of different negative emotions in negotiations. It showed that it is important to look beyond the valence of an emotion to see how it affects others, and treat each emotion as a distinct predictor of behavior in negotiations. Based on this work and previous work that also emphasized that it is important to acknowledge that specific emotions have differential effects (e.g., Lerner & Keltner, 2000; Tiedens & Linton, 2001; Van Kleef et al., 2010), this

dissertation focuses on comparing the interpersonal effects of discrete negative emotions. More specifically, I focus on the two negative emotions anger and disappointment.

Anger and disappointment

This dissertation specifically focuses on anger and disappointment, because they are two of the most often communicated emotions (Van Dijk & Zeelenberg, 2002b). From a practical perspective it is thus highly relevant to study the effects of the communication of these emotions. From a theoretical perspective it is also relevant to study the interpersonal effects of these two emotions. Anger and disappointment are both emotions that are reactions to undesirable behavior of others, and at the same time desire behavioral change of others (Van Dijk & Zeelenberg, 2002b). The goal of communicating both emotions is thus to change the behavior of others. Because anger and disappointment have the goal to influence others and change others' behavior, it is important to investigate how these two emotions operate and under which conditions they achieve that goal. At first site, anger and disappointment are two very similar emotions. Both emotions are negative and are reactions to undesirable outcomes (Frijda, Kuipers, & Ter Schure, 1989). However, when taking a closer look, both emotions are very distinct in terms of their underlying appraisal patterns (Frijda et al., 1989). Below I will review previous literature that shows how these two negative emotions differ from each other. First, I will discuss the emotion anger, including its intra- and interpersonal effects and then the emotion disappointment with its intra- and interpersonal effects.

What do we know about anger?

Anger arises when a person's goals are frustrated (Berkowitz, 1993; Carver & Harmon-Jones, 2009; Dollard, Doob, Miller, Mowrer, & Sears, 1939; Lewis, Alessandri, & Sullivan, 1990). It can be caused by the absence of a positive outcome, as well as by the presence of a negative outcome (Van Dijk, Zeelenberg, & Van der Pligt, 1999). Anger mostly arises when others are blamed for the goal blockage (Roseman, Antoniou, & Jose, 1996). It may, for instance, arise in an individual when he/she is intentionally hurt by another person.

With regard to the intrapersonal effects of anger, research has shown that it is associated with a tendency to aggress against the person (or object) seen as responsible for the goal blockage (Averill, 1982; Fischer & Roseman, 2007; Van Kleef et al., 2010). It is

an emotion that elicits approach tendencies (Carver & Harmon-Jones, 2009; Harmon-Jones, 2004) and feelings of control (Roseman et al., 1996). As I noted above, in negotiations feelings of anger fuel competitiveness. Moreover, anger has been shown to increase the rejection of offers (Pillutla & Murnighan, 1996) and to decrease joint gains and the desire to work together in the future (Allred et al., 1997).

Research on the interpersonal effects of anger, has shown that anger communicates power (Tiedens, 2001). Angry individuals are perceived to have a higher status and a higher salary than individuals expressing other negative emotions, such as sadness. Furthermore, whereas the first series of studies by Van Kleef and colleagues on the interpersonal effects of anger showed that communicating anger pays in negotiations, because it signals toughness and high limits, later research has shown that anger may also backfire. When anger is communicated by a low-power negotiator (Van Dijk, Van Kleef, Steinel, & Van Beest, 2008; Van Kleef, De Dreu, Pietroni, & Manstead, 2006b), anger elicits less generous offers. Similarly, Van Kleef and Côté (2007) showed that when anger is communicated in an inappropriate manner, it may backfire. The authors showed that when there is no norm prohibiting the expression of anger (i.e., when anger is communicated appropriately), anger elicits high offers from others. However, when there is a norm prohibiting expressions of anger (i.e., when it is communicated inappropriately), anger elicits low offers because inappropriate expressions of anger elicit negative affective reactions and retaliatory tendencies. Moreover, a study on multiparty negotiations showed that angry bargainers are often excluded from coalitions because expressions of anger undermine liking (Van Beest, Van Kleef, & Van Dijk, 2008). The authors showed that communicating anger only elicited high offers in targets in the rare occasion that targets chose to form a coalition with the angry bargainer or when they had no other choice than to form a coalition with the angry opponent. In short, expressions of anger can have positive effects in bargaining situations because they signal power, toughness, and ambitious limits, but they may also backfire because they elicit negative affective reactions and retaliatory responses from targets.

What do we know about disappointment?

Disappointment arises when progress towards a goal is below expectations (Carver & Scheier, 1990; Van Kleef & Van Lange, 2008) and/or when a desired outcome is not achieved (Bell, 1985; Frijda, 1986; Van Dijk & Van der Pligt, 1997). It is less caused by

the presence of a negative outcome, and more by an absence of a positive outcome (Van Dijk et al., 1999). It involves feelings of powerlessness, a tendency to turn away from an event, and wanting to do nothing (Zeelenberg, Van Dijk, Manstead, & Van der Pligt, 1998a). Van Dijk and Zeelenberg (2002a, b) also showed that disappointment is associated with appraisals of unexpectedness, wanting something pleasurable, and thinking that one was morally right. According to disappointment theory (Loomes & Sugden, 1986), before people make a decision, they are able to anticipate their post-decisional disappointment. This anticipated disappointment is taken into account when people make decisions (see also Zeelenberg et al., 1998b). Disappointment is thus associated with the process of counterfactual thinking (i.e., people compare the actual situation to the "what could have been" situation; Roese, 1997).

With regard to the intrapersonal effects of disappointment, research has focused on the effect of the experience of disappointment on people's behavior in the trust game (Tzieropoulos, Grave de Peralta, Bossaerts, & Gonzalez Andino, 2011). The results showed that the experience of disappointment led individuals to trust the other person less and to expect less from the other person. Also, as noted above, one study investigating the effects of disappointment in negotiations showed that the experience of disappointment decreases prosocial behavior and increases competitiveness (Martinez et al., 2011). In line with disappointment theory, Van Dijk, Zeelenberg, and Van der Pligt (2003) demonstrated that people's behavior is also affected by the anticipation of disappointment. They showed that, to regulate disappointment, people lowered their expectations about obtaining a certain outcome on a test. However, people only did this when the test was self-relevant (and not when it was only relevant for other people) and when they received feedback on the test immediately (instead of after a delay).

It is disappointing how little is known about the interpersonal effects of disappointment. Research on the interpersonal effects of disappointment in social dilemma's has shown that communicating disappointment increases cooperation in others (Wubben, De Cremer, & Van Dijk, 2009). Disappointed individuals were perceived as forgiving, and the targets of disappointment were not only cooperative in the first interaction, but this also carried over to future cooperative decisions with the same interaction partner. In line with these results, Van Doorn, Heerdink, and Van Kleef (2012) showed that expressions of disappointment also lead observers to perceive the *situation* as more cooperative, instead of the person. Finally, as described earlier, in negotiations

supplication emotions (including disappointment) elicit generous offers from opponents (Van Kleef et al., 2006a). Van Kleef and Van Lange (2008) demonstrated that people do so to satisfy the disappointed person's needs.

There are thus indications that, although anger and disappointment have some similarities, these two emotions have distinct effects. Little, however, is known about the underlying mechanisms responsible for the differential effects of anger and disappointment. In this dissertation, I compare the interpersonal effects of anger and disappointment in negotiations, and show that in certain situations they affect the behavior of opponents in the same way - but via different mechanisms - and in certain situations they affect the behavior of opponents in different or even opposite ways. I investigate the underlying mechanisms in terms of behavior (Chapters 2, 4, and 5), but also in terms of brain activation (Chapter 3). That is, besides showing that expressions of anger and disappointment influence others by providing information and/or evoking emotions in others, I also show that they activate different brain regions in others.

fMRI research on emotions and negotiation

Research on the interpersonal effects of emotions has focused primarily on the affective, cognitive, and behavioral effects of communicated emotions. Moreover, investigations of the underlying mechanisms that explain why targets of communicated emotions show certain behavior have relied only on self-reported perceptions, thoughts, emotions, and/or motivations. Although such self-report measures are good predictors of behavior, they are only a proxy of how people really experience emotions of others. First of all, self-report measures may sometimes suffer from social desirability issues, so that participants may not report their true thoughts, emotions, and/or motivations correctly because they give socially desirable answers. Second, self-reports are not assessed during emotional expressions of others, but instead afterwards.

To reduce social desirability and to measure people's responses *during* the emotional expressions, I turn to functional magnetic resonance imaging (fMRI). fMRI is a procedure that looks at blood flow in the brain to detect areas of activity. When there is more activation in a certain part of the brain, this region uses more oxygen. fMRI detects which regions use high levels of oxygen, thus identifying which brain regions are activated during a certain task. In this way, fMRI can be used to assess emotion (and cognitive)

processing as it unfolds over time, and it enables researchers to investigate the underlying neural mechanisms that are associated with observable behavior.

Another important contribution of fMRI is that it can show that there are processes that rely on the same underlying neural systems, which cannot be identified based on behavioral data. Eisenberger, Lieberman, and Williams (2003), for instance, showed that the social pain associated with being socially excluded produces activity in a similar network of brain regions as the experience of physical pain (see also DeWall et al., 2010; Lelieveld, Gunther Moor, Crone, Karremans, & Van Beest, 2012; Peyron, Laurent, & Garcia-Larrea, 2000). In this dissertation I did not only use fMRI to investigate *differences* between the interpersonal effects of anger and disappointment, I also used the technique to investigate whether the effects of the two emotions also rely on *similar* underlying processes. The latter was done by comparing the effects of anger and disappointment to the effects of a positive emotion: happiness. For these reasons, in Chapter 3, I use fMRI to investigate the underlying neural mechanisms of the interpersonal effects of anger and disappointment.

In this dissertation, I focus on the communication of anger and disappointment within a social context. Although previous work does focus on how the emotions of other people activate different brain regions, they tend to lack social context (Fischer & Van Kleef, 2010). Prior neuroimaging studies on emotion communication have mainly focused on the understanding of the neural mechanisms that support the processing of emotional faces (for an overview see Fusar-Poli et al., 2009; Sabatinelli et al., 2011; Vuilleumier, & Pourtois, 2007; Wager, Luan Phan, Liberzon, & Taylor, 2003). These studies have reported activation of the amygdala when individuals view emotional facial expressions, mostly in the case of negative emotions such as fear and anger (Breiter et al., 1996; Hariri, Tessitore, Mattay, Fera, & Weinberger, 2002; Morris et al., 1996; Sato, Yoshikawa, Kochiyama, & Matsumura, 2004). These findings are very interesting and add to the literature of the interpersonal effects of emotions. However, to discover how our brains and our behavior are affected by others it is important to create a social context, where emotions are communicated based on earlier behavior within that social context.

Emotions play a pivotal role in negotiations, but few neuroimaging studies have taken emotions into account while studying motivated bargaining behavior. Previous neuroimaging studies on negotiation behavior only focused on behavior in simple bargaining games, without having information about the feelings and emotions of others.

These studies, for instance, showed that receiving unfair proposals is associated with increased activation in the insula, anterior cingulate cortex (ACC) and dorsolateral prefrontal cortex (DLPFC) (see Rilling & Sanfey, 2011; Sanfey, 2007 for reviews). It is unclear, however, how this relates to specific emotions like anger and disappointment.

Taken together, previous neuroimaging studies have either focused on the communication of emotions without taking the social context into account, or on negotiation behavior in economic games, without taking communicated emotions into account. In Chapter 3 of this dissertation, I aim to fill this gap in the literature by investigating how the communication of anger and disappointment differentially affects opponent's behavior and whether this is associated with activation in different brain networks in a bargaining setting.

Overview of the present dissertation

In the present dissertation, studies are reported that were designed to investigate the interpersonal behavioral and neural effects of anger and disappointment in negotiation settings. The four chapters are based on individual papers that have been published or have been submitted for publication. Each chapter can therefore be read separately. The consequence is that there may exist some overlap between the chapters.

The first empirical chapter (Chapter 2) focuses on the affective reactions to anger and disappointment in negotiations. Whereas previous research focused mainly on the information that anger and disappointment communicate to others, the studies reported in Chapter 2 investigate which emotions are evoked by anger and disappointment and how these evoked emotions predict subsequent behavior. Anger and disappointment can evoke reciprocal emotions (i.e., anger can evoke anger in others, and disappointment can evoke disappointment), but they can also evoke different, but corresponding emotions (i.e., complementary emotions) in others (see Van Kleef et al., 2008). In Chapter 2, the findings show that power is a key determinant of whether reciprocal or complementary emotions are evoked. As described earlier, previous research has shown that anger may backfire when it is communicated by a low-power bargainer (Van Dijk et al., 2008; Van Kleef et al., 2006b). In Chapter 2, the power position of the person expressing anger or disappointment is manipulated in an ultimatum bargaining setting. The findings indeed show that power is a crucial determinant of whether the communication of anger pays or backfires. The findings indicate that anger evokes a complementary emotion (fear) in

targets when it is communicated by a high-power bargainer, but it evokes a reciprocal emotion (anger) when communicated by a low-power bargainer. The reciprocal anger leads targets to offer less, whereas the complementary fear leads targets to offer more. The effects of disappointment, on the other hand, are not dependent on the expresser's power position. The findings show that disappointment evokes guilt in opponents, which leads these opponents to offer more. Communicating disappointment may thus be more advisable than communicating anger, because anger only elicits high offers when it is communicated by high-power bargainers, whereas disappointment elicits high offers when communicated by high- as well as low-power bargainers.

In line with the findings of Chapter 2, the results of Chapter 3 show that it is better to communicate disappointment than to communicate anger in a negotiation setting. In Chapter 3, the neural mechanisms involved in the interpersonal effects of anger and disappointment are investigated and compared to the interpersonal effects of happiness. Whereas previous research focused only on the neural mechanisms associated with emotions without a social context, or on bargaining settings without having any information about opponents or their emotions, Chapter 3 combines these lines of research and focuses on the effects of communicated emotions in a bargaining setting. First, the effects of valence are investigated by comparing the neural regions associated with receiving negative emotional reactions (i.e., anger and disappointment) to neural regions associated with a receiving positive emotional reactions (happiness). Furthermore, Chapter 3 zooms in on the different negative emotions, to see whether anger and disappointment affect other's brain regions differently. The results show that anger elicits more self-serving offers in opponents than happiness or disappointment. When comparing the positive emotion happiness to the negative emotions anger and disappointment, results show increased activation in regions associated with perspective taking (the temporoparietal junction). When zooming in on the two negative emotions, findings show that compared to disappointment, expressions of anger increase activation in regions associated with self-referential thinking (i.e., thinking about others' actions in terms of how these can affect the self) and (emotional) conflict. These regions are the anterior medial prefrontal cortex and the ACC.

So, is it always better to communicate disappointment than to communicate anger in negotiations? Chapter 4 aims to answer this question, and shows that disappointment does not always pay. As described earlier, whether the communication of certain emotions

pays or not, may critically depend on how the emotion is communicated. Previous behavior has, for instance, shown that communicating anger inappropriately may backfire and result in lower offers (Van Kleef & Côté, 2007). In Chapter 4, it is proposed that behavioral effects are dependent on the target of the emotion, that is, whether emotions are directed at the offer or the person. Results show that the two negative emotions anger and disappointment have opposing effects in negotiations: anger pays when it is directed at the offer, but disappointment pays when it is directed at the person. Offer-directed anger elicits higher offers than person-directed anger, because people infer higher limits from opponents who communicate offer-directed anger. Person-directed disappointment elicits higher offers in others than offer-directed disappointment, because it evokes higher feelings of guilt.

Finally, Chapter 5 combines the research of the first three empirical chapters, by showing why and under what conditions communicating disappointment pays and backfires. One of the most striking differences between the intrapersonal effects of anger and disappointment is the level of experienced power associated with each emotion. As noted above, previous research has shown that whereas anger is associated with feelings of power (e.g., Roseman et al., 1996), disappointment is associated with feelings of weakness and powerlessness (Van Dijk and Zeelenberg, 2002a, b; Zeelenberg, Van Dijk, Manstead, & Van der Pligt, 1998a). The findings of Chapter 5 show that disappointment also communicates weakness to others. The results of three experiments demonstrate that the interpersonal effects of disappointment depend highly on 1) whether the expresser is an in- or an out-group member, and 2) the type of negotiation (i.e., whether it is an individual versus a representative negotiation), because these factors determine whether expressions of disappointment elicit feelings of guilt in targets. When disappointment does not evoke guilt (i.e., when the expresser is an out-group member or in representative negotiations), the communicated weakness elicits a tendency to act in a self-interested way. When disappointment does evoke guilt (i.e., when the expresser is an in-group member or in individual negotiations), the weakness that disappointment communicates elicits a tendency to act pro-socially. These findings resolve the question of why and under what conditions communicating disappointment backfires and extend the literature on communicated power/weakness.

Finally, Chapter 6 integrates the empirical results discussed in this dissertation. I will discuss how the findings presented in this dissertation contribute to, but also extend

social functional accounts of emotions. Furthermore, I discuss the general implications of the findings presented in this dissertation and present directions for future research.

Chapter 2

Affective reactions to anger and disappointment

This chapter is based on: Lelieveld, G. -J., Van Dijk, E., Van Beest, I., & Van Kleef, G. A. (2012). Why anger and disappointment affect other's bargaining behavior differently: The moderating role of power and the mediating role of reciprocal and complementary emotions. *Personality and Social Psychology Bulletin, 38*, 1209-1221.

Chapter 2

When making decisions we are often dependent on others. Conflicts that arise in such situations are often resolved by negotiation, "a discussion between two or more parties with the apparent aim of resolving a divergence of interests" (Pruitt & Carnevale, 1993, p.2). This definition, however, does not capture the fact that negotiations are often highly emotional. In this article, we examine how negotiators respond to their opponent's emotions. We focus on the effects of two common emotions in negotiation, anger and disappointment (Van Dijk & Zeelenberg, 2002b), and examine how angry versus disappointed reactions shape a target's negotiation behavior by eliciting reciprocal and/or complementary emotions.

The social functions of emotions

Emotions have long been regarded as disruptive forces that interfere with rational decision-making. Increasingly, researchers have come to acknowledge the functional aspects of emotions (Van Kleef, De Dreu, & Manstead, 2010). According to social-functional perspectives (Keltner & Haidt, 1999; Morris & Keltner, 2000; Parkinson, 1996; Van Kleef et al., 2010), emotions contain crucial information about feelings and intentions of the expresser, which can have behavioral consequences for observers. Moreover, emotion displays can evoke complementary or reciprocal emotions in others that help to respond to social events (Keltner & Haidt, 1999; Van Kleef, De Dreu, & Manstead, 2004a). Emotions may thus affect others via two processes: by providing information that others may use as input to their decisions and by eliciting affective reactions (Van Kleef et al., 2010).

Previous research on negotiations has focused mainly on how bargainers make informational inferences following opponents' emotions. Although anger and disappointment are both reactions to undesirable outcomes, they communicate different information (Bell, 1985; Frijda, Kuipers, & Ter Schure, 1989; Van Dijk & Zeelenberg, 2002b). Earlier findings showed that because angry bargainers are seen as tough negotiators who do not want to give in (e.g., Clark, Pataki, & Carver, 1996; Sinaceur & Tiedens, 2006, Van Kleef, De Dreu, & Manstead, 2004b), their limits (i.e., their minimal acceptable offer) are perceived to be high. Anger may therefore alert opponents to

negative consequences (e.g., conflict escalation), which may lead them to concede to avoid impasse.

Disappointment, on the other hand, is thought to have a "supplication" function (Van Kleef, De Dreu, & Manstead, 2006a). Supplication emotions serve as a call for help (Clark et al., 1996; Timmers, Fischer, & Manstead, 1998). Previous research found that negotiators with disappointed opponents inferred that the other had received too little (Van Kleef & Van Lange, 2008) and was hoping for more (Thompson, Valley, & Kramer, 1995). Consequently, disappointment led opponents to make concessions to satisfy the other's needs.

Affective reactions towards anger and disappointment

In addition to the informational value of anger and disappointment, emotional expressions can also wield interpersonal influence by eliciting *affective* reactions in observers (Barsade, 2002; Dimberg & Öhman, 1996; Friedman et al., 2004; Van Kleef et al., 2010). The anger or disappointment communicated by opponents may elicit emotions in negotiators that subsequently influence their negotiation behavior. In the current article, we set out to investigate this affective link. We argue that emotional reactions may influence negotiators' emotions and subsequent behavior in two ways: via emotional reciprocity and/or via emotional complementarity.

Emotional reciprocity refers to the process by which one individual comes to feel the emotions of another (e.g., via emotional convergence or emotional contagion; see Hatfield, Cacioppo, & Rapson, 1994; Hess & Blairy, 2001). In the current context emotional reciprocity means that if one negotiator is angry, the other negotiator comes to experience anger as well. Likewise, if one negotiator is disappointed, the other also feels disappointed.

A second way by which one person's emotions influence others' emotions has been termed *emotional complementarity*. Emotional complementarity refers to "the situation where one person's emotions evoke different but corresponding emotions in others" (Van Kleef et al., 2008, p.1315). One of the presumed social functions of complementary emotional responses is to reduce the intensity of others' emotions and to promote well-adjusted personal relationships (Keltner & Haidt, 1999). For instance, displays of contempt evoke shame in others (Gilbert & Andrews, 1998), which in turn may reduce the intensity of the contempt and thereby improve the interpersonal relation. By reducing the intensity of other's emotions, complementary emotions thus regulate social

interaction and create social stability (Morris & Keltner, 2000; see also Tiedens & Fragale, 2003).

The complementary emotion that is most consistently associated with anger is fear (Dimberg & Öhman, 1996; Van Kleef et al., 2004a), which makes sense considering that anger is typically associated with aggression (Averill, 1982) and thus poses a threat to observers (Sinaceur & Tiedens, 2006). Indeed, empirical work has demonstrated that both verbal and nonverbal expressions of anger can evoke fear in observers (e.g., Dimberg & Öhman, 1996; Moody, McIntosh, Mann, & Weisser, 2007; Van Dijk, Van Kleef, Steinel, & Van Beest, 2008; Van Kleef et al., 2004a).

Unlike anger, disappointment does not evoke fear in others. Instead, we argue that disappointment evokes the complementary emotion of guilt. Previous work has associated disappointment with feelings of weakness (Van Dijk & Zeelenberg, 2002b). It therefore does not communicate a potential threat, which makes it unlikely to evoke fear in others. Previous research showed that disappointment communicates that one has received too little and was hoping for more (Thompson et al., 1995; Van Kleef & Van Lange, 2008). This may evoke a sense of social responsibility in others, which is a key antecedent of guilt (Baumeister, Stillwell, & Heatherton, 1994; Mallett & Swim, 2007). Guilt arises when individuals feel they have violated some expectation or norm (Leith & Baumeister, 1998). Expressions of guilt can help repair relationships because they signal that the "victim" is important to the "transgressor". Guilt may thus hold a promise of better treatment in the future (Baumeister et al., 1994; Van Kleef et al., 2006a). In accordance with this reasoning, Lelieveld, Van Dijk, Van Beest, Steinel and Van Kleef (2011) showed that expressions of disappointment may evoke guilt in others, which elicits a concern for the other.

In short, in this article, we study how affective reactions to other's emotions subsequently affect behavior. This complements prior approaches that concentrated on the informational inferences (e.g., the inference that anger may communicate high limits). By doing so, we do not claim that affective reactions are not based on inferences. Our analysis acknowledges that other's emotions may instigate a direct emotional reaction, but may also partly be based on inferential processes (e.g., when we infer from other's disappointment that he/she had expected more from us, and consequently feel guilty). Based on prior theorizing and research, anger and disappointment can be expected to have differential effects on observers' reciprocal and complementary emotional reactions. Whereas anger may evoke the reciprocal emotion anger and the complementary emotion

fear, disappointment may evoke the reciprocal emotion disappointment and the complementary emotion guilt.

Behavioral consequences and the role of power

So what determines whether people reciprocate or complement opponents' emotions? We propose that one key determinant is the relative power of the bargainers. Social power reflects the relative capacity to modify and/or influence other's outcomes (Fiske, 1993; Keltner, Van Kleef, Chen, & Kraus, 2008). We argue that the relative power of the bargainers is more essential for the interpersonal effects of anger and less for disappointment.

When anger is expressed by a person in a relatively high-power position, it entails a threat (Van Dijk et al., 2008). The potential consequences of expressed anger for low-power individuals are severe, because they have limited control over their outcomes. As a result, angry reactions by powerful opponents lead negotiators to fear that their outcomes will be reduced (Sinaceur & Tiedens, 2006; Van Kleef, De Dreu, Pietroni, & Manstead, 2006b). Fear has been shown to render bargainers risk averse (Lerner & Keltner, 2001) and to make them more likely to avoid conflict (Bell & Song, 2005), which leads them to make higher offers.

When a negotiator receives an angry reaction from an opponent in a low-power position, the potential consequences are less likely to be severe. When the opponent has little control over the outcomes, anger poses less of a threat. As a result, bargainers who are confronted with angry reactions of a low-power opponent experience less fear compared to those confronted with the anger of a high-power opponent. In such situations, anger is more likely to evoke reciprocal anger (e.g., Barsade, 2002; Friedman et al., 2004; Kopelman, Rosette, & Thompson, 2006; Van Dijk et al., 2008; Van Kleef & Côté, 2007). Angry reactions by low-power negotiators are thus more likely to backfire. The experience of (reciprocal) anger has been shown to elicit competitiveness (Forgas, 1998; Pillutla & Murnighan, 1996) and a desire for retaliation (Van Kleef & Côté, 2007), which is typically reflected in lower offers. Power may therefore be a key factor that determines whether anger is complemented or reciprocated and thus successful or not. If the consequences for own outcomes are severe (i.e., when anger is reported by a high-power person), anger may pay, and when consequences are mild (i.e., when anger is reported by a low-power person), anger may backfire (see also Van Dijk et al., 2008).

We reasoned that these effects of anger do not generalize to disappointment. Previous research has shown that disappointment evokes a concern for others by evoking guilt, even in competitive settings (Lelieveld et al., 2011). Reactions to disappointment are thus less based on the immediate consequences for own outcomes, and more on a concern for the outcomes of the disappointed other. When the concern about own outcomes is reduced and social responsibility increases, the relative power position of the other person may become less important. Indeed, bargainers can feel a concern for high-power opponents, but research has shown that bargainers also feel social responsibility for low-power opponents (Handgraaf, Van Dijk, Vermunt, Wilke, & De Dreu, 2008). Therefore, we hypothesize that disappointed reactions evoke the complementary emotion guilt in others, in high- as well as low-power positions. Guilt triggers a tendency to improve relationship quality and reduce competition (Baumeister et al., 1994; Leith & Baumeister, 1998). In addition, guilt has been shown to motivate people to make amends (Baumeister et al., 1994) and stimulate concessions (Ketelaar & Au, 2003). Disappointed reactions should therefore elicit generous offers from targets, regardless of the disappointed bargainer's power position.

We investigated our hypotheses in two experiments in which we manipulated the relative power position of the bargainers. To examine the effects of power distributions, we used a bargaining context that is commonly used to investigate motivated bargaining behavior; the ultimatum bargaining context. The *ultimatum bargaining game* (UBG, developed by Güth, Schmittberger, & Schwarze, 1982) models the final phase of bargaining, where bargainers make a "take it or leave it" offer. With its simple structure, the UBG is very suited to studying motivated bargaining behavior and the structural effects of power as well as effects of emotional reactions (see Van Dijk et al., 2008).

Experiment 2.1

In Experiment 2.1 we manipulated the relative power position of the opponent. Half of the participants negotiated with high-power opponents and half with low-power opponents. Both groups received an angry reaction, a disappointed reaction or no reaction (which was the control condition). We propose that anger reported by a high-power opponent elicits higher offers than anger reported by a low-power opponent (see also Van Dijk et al., 2008). We expect this moderating effect of power in the anger conditions to be

mediated by fear. When anger does not pose a threat (in the low-power condition), anger may thus likely backfire because it may not evoke fear. We propose that reporting anger in a low-power position elicits lower offers, in comparison to reporting no emotion. We expect this effect of opponent's emotion in the low-power anger and control conditions to be mediated by reciprocal anger.

We predict that the effects of disappointment are not moderated by power. Regardless of power, we expect participants to report more guilt in the disappointment condition than in the anger and control conditions (see also Lelieveld et al., 2011). Consequently, we do not expect a difference in offers between the high- and low-power disappointment conditions. Feelings of guilt lead participants to offer more to disappointed opponents than to angry or neutral opponents. First, we will focus on the participants with high-power disappointed opponents and test whether they make higher offers because they feel guilty. To do so, we will compare the high-power disappointment condition to the high-power control condition and expect the effect of opponent's emotion to be mediated by guilt. Second, we will investigate whether disappointment reported by a low-power opponent also elicits high offers. We will compare the low-power disappointment condition to the low-power angry and control conditions, to see whether the effect of opponent's emotion in these conditions is mediated by guilt.

In addition, we measured the perceived limits to see whether, in addition to the emotional effects of anger and disappointment, informational inferences also play a role in participant's behavioral reactions. Previous research has shown that anger influences opponents via perceived limits (see Van Kleef et al., 2004a, b), but such effects have not been demonstrated for disappointment. In particular, one might wonder whether people offer more to high-power opponents (reporting anger or disappointment) than to low-power opponents, because they believe that high-power opponents are unlikely to settle for less.

Method

Design and participants

We used a 3 (opponent's emotion: anger vs. disappointment vs. control) × 2 (opponent's power: high vs. low) between-participants design. Participants were 114 students from Leiden University (72 females, 42 males, M_{age} = 21.15, SD = 2.93).

Procedure

Upon arrival, participants were informed that they would participate in a study on bargaining, and that they would be paired with another participant. They learned that members of each dyad were referred to as person X and person Y and that they were assigned the letter X. The rest of the procedure can be divided into four phases.

In phase one, before they received information about the bargaining situation (see phase two), participants produced behavior which supposedly caused the opponent's emotional reaction. Participants read six general statements about bargaining behavior. Participants indicated to what extent they agreed with these statements (cf. Van Dijk et al., 2008). Example statements were "During negotiations strategy plays an important role" and "During negotiations my own outcomes are important". Subsequently, participants learned that their ratings on the statements were sent to Y, so that Y could form an opinion about the person they were dealing with. This was explained by pointing out that in reality people often have some information about the other party.

In phase two, participants received information about the bargaining situation. All participants learned that they, X, would bargain with Y over the distribution of 100 chips. Participants learned that they were assigned the role of allocator and that the chips had different values for the allocator and the recipient. One chip was worth 10 eurocents to them, but only 5 cents to the recipient. Introducing this asymmetry (see also Van Dijk et al., 2008; Van Dijk & Vermunt, 2000) creates some ambiguity about what should be considered a fair allocation, which reduces bargainers' tendency to just propose a 50-50 split of the money (which often happens in ultimatum bargaining; see Camerer & Thaler, 1995). Participants learned that they would make an offer to Y by indicating how they wanted to allocate the chips. If Y agreed, the chips were distributed accordingly.

Next, we manipulated power. In the high-power opponent conditions, participants learned that if the recipient turned down the division, both X and Y would not receive anything. In the low-power opponent conditions, participants learned that if the recipient rejected the division, it would be reduced by 10%. For example, if the allocator proposes an 80-20 distribution and the recipient rejects the offer, both still receive 90% of the chips they would have received (in this case the allocator would receive 72 chips and the recipient 18). It is apparent that in the latter situation, the consequences of rejection are less severe and thus that the relative power of the recipient is weakened (see also Suleiman, 1996; Van Dijk & Vermunt, 2000).

In phase three the manipulation of the recipient's emotion was induced. Participants were led to believe that meanwhile (during the time they received instructions about the bargaining game) the recipient had typed a reaction after reading the participant's answers to the bargaining statements. Participants read that the recipient did not know that the reaction would be sent back to the participant. This was done to ensure that participants believed that the emotional reactions reflected the emotions as experienced by the opponent, and not emotions that were altered for self-presentational or strategic reasons (see Van Kleef et al., 2004a). In the angry opponent condition, participants read: "Now that I've read what X typed, it makes me quite angry. This is unpleasant. I am really annoyed". In the disappointment conditions participants read "Now that I've read what X typed, I feel quite disappointed. This is unpleasant. I am really disappointed". The angry and disappointed emotional statements were adapted from previous research on the effects of emotional communication in negotiations (e.g., Sinaceur & Tiedens, 2006; Van Dijk et al., 2008; Van Kleef et al., 2004a, b, 2006a). In the control condition participants were not told anything about Y's opportunity to give a reaction and also did not receive one (although in phase one, they did learn that their opponent was forming an opinion).

In phase four, participants made their ultimatum offer. Subsequently, they completed a post-negotiation questionnaire with manipulation checks and items designed to measure participants' emotions and the perception of the opponent's limits. All items were answered on 7-point scales.

To check the emotion manipulation, participants were asked to indicate how angry/disappointed they thought their opponent was. The manipulation of recipient's relative power was checked by asking participants about the relative power of X and Y (1 = *X had more power*; 7 = *Y had more power*).

We assessed participant's emotions by asking them how angry/disappointed/guilty/fearful they felt during the negotiation. We measured the perception of the opponent's limits by asking what they thought the opponent's lowest acceptable number of chips would be. In addition, to rule out that a difference in intensity or appropriateness was driving the effects, we asked participants how negative they thought their opponent was and to what extent they thought the emotional reaction was appropriate in the current situation (1 = *not at all negative/appropriate*; 7 = *very*

negative/appropriate). Perceived appropriateness was not assessed in the control condition. Finally, participants were debriefed and received 3 euros.

Results

Manipulation checks

Recipient's emotion. A 3 (opponent's emotion) × 2 (opponent's power) ANOVA on the anger ratings yielded only a main effect of opponent's emotion, $F(2, 108) = 63.33$, $p < .001$, $\eta^2 = .54$. Tukey's tests (*p*s < .001) showed that participants in the angry opponent condition rated their opponent as more angry ($M = 6.16$, $SD = 1.26$) than did participants in the disappointed opponent condition ($M = 3.84$, $SD = 1.93$), who in turn rated their opponent as more angry than did participants in the control condition ($M = 2.08$, $SD = 1.46$).

The 3 × 2 ANOVA on the disappointment ratings only revealed a main effect of opponent's emotion, $F(2, 108) = 61.92$, $p < .001$, $\eta^2 = .53$. Tukey's tests (*p*s < .001) showed that participants in the disappointed opponent condition judged the opponent as more disappointed ($M = 6.16$, $SD = 1.35$) than did participants in the angry opponent condition ($M = 4.63$, $SD = 1.57$), who in turn judged the opponent as more disappointed than participants in the control condition ($M = 2.42$, $SD = 1.50$).

Recipient's power. A 3 × 2 ANOVA revealed only a main effect of opponent's power, $F(1, 108) = 42.60$, $p < .001$, $\eta^2 = .28$, indicating that high-power opponents were perceived to be more powerful ($M = 4.20$, $SD = 1.93$) than low-power opponents ($M = 1.98$, $SD = 1.66$).

These findings suggest that the manipulations of opponent's emotion and opponent's power were successful.

Offer

A 3 × 2 ANOVA yielded main effects of opponent's emotion, $F(2, 108) = 7.47$, $p < .005$, $\eta^2 = .12$, and opponent's power, $F(1, 108) = 13.58$, $p < .001$, $\eta^2 = .11$. More importantly, these main effects were qualified by an interaction, $F(2, 108) = 4.76$, $p < .05$, $\eta^2 = .08$ (see Table 2.1).

Table 2.1. Number of chips offered to the opponent as a function of opponent's emotion and opponent's power (Experiment 2.1)

	Anger		Disappointment		Control	
	M	*SD*	*M*	*SD*	*M*	*SD*
High-power opponent	58.05 ^{ab}	6.64	65.11 ^{b}	6.09	51.11 ^{a}	12.19
Low-power opponent	36.26 ^{c}	22.43	55.68 ^{ab}	15.55	50.80 ^{a}	20.01

Note. Means with different superscripts differ significantly (*p*s <.05, analyzed with simple-effect analyses).

As expected, in the anger condition offers to high-power opponents were higher (M = 58.05, SD = 6.64) than offers to low-power opponents (M = 36.26, SD = 22.43), $F(1, 108) = 19.48$, $p < .001$, $\eta^2 = .15$. This difference between offers to high- and low-power opponents was not significant in the disappointment ($p = .06$) and control conditions ($p = .95$).

Moreover, in the low-power opponent conditions, participants offered fewer chips to angry opponents (M = 36.26, SD = 22.43) than to disappointed opponents (M = 55.68, SD = 15.55, $p < .001$) or opponents from the control condition (M = 50.80, SD = 20.01, $p < .005$). In the high-power opponent conditions participants offered more chips to disappointed opponents (M = 65.11, SD = 6.09) than to opponents from the control condition (M = 51.11, SD = 12.19, $p < .01$), and they offered somewhat more chips to angry opponents (M = 58.05, SD = 6.64) than to opponents from the control condition, although this difference was not significant ($p = .17$).

Participants' emotions

***Anger*.** A 3 × 2 ANOVA yielded only a main effect of opponent's emotion, $F(2, 108) = 16.66$, $p < .001$, $\eta^2 = .24$ (see Table 2.2). As predicted, Tukey's tests (*p*s < .05) showed that participants in the anger conditions were angrier than participants in the disappointment conditions, who in turn were angrier than the participants in the control condition.

Disappointment. A 3 × 2 ANOVA yielded only a main effect of opponent's emotion, $F(2, 108) = 31.93$, $p < .001$, $\eta^2 = .37$ (see Table 2.2). Tukey's tests showed that participants in the anger and disappointment conditions were more disappointed than participants in the control condition. The disappointment ratings from participants in the anger and disappointment conditions did not differ significantly ($p = .73$).

Fear. A 3 × 2 ANOVA revealed a main effect of opponent's power, $F(1, 108) = 4.81$, $p < .05$, $\eta^2 = .04$ (see Table 2.2). More importantly, this main effect was qualified by an interaction effect, $F(2, 108) = 4.28$, $p < .05$, $\eta^2 = .07$. Simple main effects showed that participants were more fearful when they dealt with high-power angry opponents than when they dealt with low-power angry opponents, $F(1, 108) = 13.30$, $p < .001$, $\eta^2 = .11$). This difference between fear ratings in high- and low-power conditions was not found in the disappointment and control conditions ($p = .91$).

Guilt. A 3 × 2 ANOVA yielded only a main effect of opponent's emotion, $F(2, 108) = 52.17$, $p < .001$, $\eta^2 = .49$ (see Table 2.2). As predicted, Tukey's tests ($ps < .001$) showed that participants in the disappointment conditions felt more guilty ($M = 4.16$, $SD = 1.59$) than participants in the anger ($M = 1.47$, $SD = .73$) and control condition ($M = 1.84$, $SD = 1.24$).

Table 2.2. Participant's emotions as a function of opponent's emotion and opponent's power (Experiment 2.1)

	Anger				Disappointment				Control			
	High Power		Low Power		High Power		Low Power		High Power		Low Power	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Participant's Anger	3.26	2.02	4.00	1.60	2.53	2.04	2.84	1.54	1.72	1.45	1.25	.79
Participant's Disappointment	3.89	1.94	4.11	1.85	4.32	1.89	4.26	1.94	1.67	1.28	1.30	.92
Participant's Fear	4.53	2.09	2.37	1.54	3.53	1.31	3.37	2.52	3.33	1.19	3.40	1.90
Participant's Guilt	1.37	.76	1.58	.69	4.42	1.39	3.89	1.76	1.83	1.30	1.85	1.23

Perceived limits

A 3 × 2 ANOVA yielded only a main effect of opponent's emotion, $F(2, 108) = 4.89$, $p < .01$, $\eta^2 = .08$. Tukey's tests showed that participants in the anger conditions judged the limits of opponents to be higher ($M = 58.37$, $SD = 9.17$) than participants in the control condition ($M = 51.18$, $SD = 12.63$). Perceived limits in the disappointment condition ($M = 54.11$, $SD = 7.47$) fell in-between and did not differ from the perceived limits in the anger or control conditions ($ps > 16$).

Mediation analyses

We performed four mediation analyses to investigate how the emotions evoked by anger and disappointment mediated their effects on participants' offers using bootstrapping (Preacher & Hayes, 2004, 2008). A bootstrapped mediation analysis uses re-sampling of raw data to estimate the confidence intervals (CI) of the indirect effects, of which the mediation model consists.[1]

In our first mediation analysis we tested whether the effect of opponent's power on offers in the anger conditions would be mediated by participant's fear, while controlling for the other emotions (we included anger, guilt, and disappointment as covariates). Using 10000 bootstrap re-samples and bias corrected and accelerated intervals (see Preacher & Hayes, 2008), we obtained confidence intervals that did not contain zero at the 99% level (i.e., lower CI = -25.21; upper CI = -1.62), indicating significant mediation.

In our second mediation analysis, we tested whether the effect of opponent's emotion on offers in the low-power anger and control conditions was mediated by participant's anger. While controlling for fear, guilt, disappointment, and also for the appraisal of the opponent's limits, the confidence interval did not contain zero at the 95% level (i.e., lower CI = .80; upper CI = 13.53).

Our third mediation analysis was aimed to investigate whether the effect of opponent's emotion on offers in the high-power disappointment and control conditions was mediated by guilt. While controlling for fear, anger and disappointment, the

[1] We used bootstrapping because our sample size is relatively small. Under such circumstances, bootstrapping offers a good test of mediation effects (cf. Preacher & Hayes, 2004, 2008). Testing for mediation with the procedure described by Baron and Kenny (1986) yielded similar findings: When controlling for the mediators, all eight mediation analyses in Experiments 2.1 and 2.2 showed a significant reduction of the direct effect, as confirmed by Sobel tests (all $ps < .05$).

confidence interval did not contain zero at the 99% level (i.e., lower CI = -15.31; upper CI = -.68).

Participant's offers to disappointed and neutral low-power opponents did not differ significantly. Therefore, in our fourth mediation analysis we could only test whether the effect of opponent's emotion on offers in the low-power disappointed and anger conditions was mediated by guilt. While controlling for fear, anger and disappointment, the confidence interval did not contain zero at the 99% level (i.e., lower CI = 2.27; upper CI = 41.18).

Additional measures

***Intensity of the emotion*.** A 3 × 2 ANOVA showed a main effect of opponent's emotion, $F(2, 108) = 50.06$, $p < .001$, $\eta^2 = .48$. Tukey's tests ($ps < .001$) showed that participants perceived disappointed ($M = 5.37$, $SD = 1.67$) and angry opponents ($M = 5.53$, $SD = 1.37$) to be more negative than opponents from the control condition ($M = 2.42$, $SD = 1.48$). More importantly, we did not detect any differences in intensity between anger and disappointment ($p = .89$).

Appropriateness of the emotion. A 2 (opponent's emotion: anger vs. disappointment) × 2 (opponent's power) ANOVA showed no significant main effects of opponent's emotion ($p = .20$) or power ($p = .80$) and no interaction effect ($p = .52$; overall $M = 5.03$, $SD = 1.77$), indicating that the conditions did not differ with regard to the perceived appropriateness of the emotion.

Discussion

These results indicate that power moderated the effects of anger, but not the effects of disappointment. Anger elicited high offers when it was reported by a high-power bargainer, but low offers when it was reported by a low-power bargainer. Our mediation analyses showed that this difference can be explained by evoked fear. Participants offered more to high-power than to low-power angry opponents, because they were more fearful. Disappointment, on the other hand, resulted in higher offers, regardless of power. In fact, when reported by low-power bargainers, disappointment resulted in higher offers than anger. When reported by high-power bargainers, disappointment evoked higher offers than no emotion. As our mediation analyses showed, evoked guilt can explain these advantageous effects of disappointment.

Based on our findings concerning the perceived intensity and appropriateness of the emotions, we can rule out the possibility that the intensity or appropriateness of the emotion produced our effects. Participants did not perceive the angry reaction to be more intense than the disappointed reaction. Reported anger was also not perceived to be more or less appropriate than reported disappointment (which is in line with research on the appraisal patterns of both emotions; Bell, 1985; Frijda, 1986; Scherer, Schorr, & Johnstone, 2001; Van Dijk & Zeelenberg, 2002b). Finally, the appraisal of the opponent's limits also cannot explain the differences between the effects of anger and disappointment. Limits of bargainers in high- as well as low-power positions were not judged differently. Controlling for these inferential effects in our second mediation analysis also did not change our results. Because we only found a difference between the perceived limits of participants in the anger and control conditions, we decided to only control for perceived limits in the second mediation analysis, which focused on these specific conditions.

Experiment 2.2

In Experiment 2.2, participants played the same bargaining game as in Experiment 2.1. The main difference was that we changed the cause of the emotion. In bargaining people predominantly get emotional because of concrete (bargaining) behavior during the negotiation, and not so much because of their opponent's general view on bargaining (as was the case in Experiment 2.1, following Van Dijk et al., 2008). For this reason, we performed a second experiment, where the emotional reaction was based on concrete bargaining behavior. Participants played a repeated offer UBG and the reported emotion was based on the initial offer. We also ran the same four mediation analyses as we did in Experiment 2.1 to investigate the role of the reciprocal and complementary emotions.

Method

Design and participants

The study used a similar design as in Experiment 2.1. Participants were 143 students from Leiden University (96 females, 47 males, M_{age} = 21.51, SD = 2.93).

Procedure

All instructions and tasks were similar to the ones used in Experiment 2.1, except for the task performed in phase one. Participants in Experiment 2.2 made an initial offer in the UBG. Participants were asked how they would distribute 100 chips between themselves and person Y. Participants had the choice between two distributions of 100 chips. The first option represented a 70-30 distribution in favor of the participant and the second a 30-70 distribution in favor of the other person. We expected most of the participants to choose the option that was in their favor. The altruistic participants that did not (N = 18), were excluded from further analyses, to ensure the credibility of the angry/disappointed reaction (However, retaining these participants yielded a similar pattern of results).

Note that whereas participants in Experiment 2.1 played a single offer UBG, participants in Experiment 2.2 played a repeated offer UBG. In phase one they played the first game where they made a decision between two offers, and in phase four they were free to propose any distribution ranging from 0 to 100 chips. Both parties were made aware of the fact that it was a repeated offer UBG.

After participants made their offer participants completed a similar post-negotiation questionnaire as in Experiment 2.1.[2] Participant's guilt was now measured with four items (e.g., "While making the offer, to what extent did you feel guilty for treating Y unfairly"), which were combined into an index of guilt (α = .92). Participant's fear was measured with three items (e.g., "While making the offer, to what extent were you afraid"), which were also averaged into a reliable scale (α = .77).

Results

Manipulation checks

Recipient's emotion. A 3 × 2 ANOVA on the anger ratings yielded only a main effect of opponent's emotion, $F(2, 119) = 62.01$, $p < .001$, $\eta^2 = .51$. Tukey's tests ($ps < .001$) showed that participants in the anger condition rated their opponent as more angry (M = 5.81, SD = 1.67) than did participants in the disappointment condition (M = 4.42, SD =

[2] Participant's perceived limits ratings were similar to the ratings of Experiment 2.1. Because they also did not have any effects on our mediation analyses, we did not include these results in Experiment 2.2.

1.50), who in turn rated their opponent as more angry than did participants in the control condition (M = 2.23, SD = 1.31).

The 3 × 2 ANOVA on the disappointment ratings only revealed a main effect of opponent's emotion, $F(2, 119) = 62.88$, $p < .001$, $\eta^2 = .51$. Tukey's tests (ps < .001) showed that participants in the disappointment condition judged their opponents to be more disappointed (M = 6.35, SD = 1.12) than did participants in the anger condition (M = 4.88, SD = 1.67). They, in turn, judged their opponents as more disappointed than did participants in the control condition (M = 2.70, SD = 1.64).

Recipient's power. A 3 × 2 ANOVA only revealed a main effect of opponent's power, $F(1, 119) = 91.69$, $p < .001$, $\eta^2 = .44$, indicating that participants in the high-power opponent condition perceived their opponents to be more powerful (M = 4.43, SD = 1.60) than did participants in the low-power opponent condition (M = 1.91, SD = 1.34).

Offer

A 3 × 2 ANOVA yielded main effects of opponent's emotion, $F(2, 119) = 5.07$, $p < .01$, $\eta^2 = .08$, and opponent's power, $F(1, 119) = 12.43$, $p < .005$, $\eta^2 = .10$. More importantly, these main effects were qualified by an interaction, $F(2, 119) = 4.82$, $p < .01$, $\eta^2 = .08$ (see Table 2.3).

Table 2.3. Number of chips offered to the opponent as a function of opponent's emotion and opponent's power (Experiment 2.2)

	Anger		Disappointment		Control	
	M	*SD*	*M*	*SD*	*M*	*SD*
High-power opponent	58.85 ^{ab}	10.02	62.67 ^{b}	8.24	50.50 ^{a}	9.45
Low-power opponent	39.05 ^{c}	22.90	54.58 ^{ab}	18.47	50.48 ^{a}	15.85

Note. Means with different superscripts differ significantly (ps <.05, analyzed with simple-effect analyses).

In the anger condition offers to high-power opponents were higher (M = 58.85, SD = 10.02) than offers to low-power opponents (M = 39.05, SD = 20.90). There were no significant differences in the disappointment (p = .10) and control conditions (p = 1.00).[3]

In the low-power opponent conditions, participants in the anger condition offered fewer chips (M = 39.05, SD = 20.90) than participants in the disappointment (M = 54.58, SD = 18.47, p < .01) or control condition (M = 50.48, SD = 15.85, p < .05). In line with the results from Experiment 2.1, in the high-power opponent conditions participants offered more chips to disappointed opponents (M = 62.67, SD = 8.24) than to opponents in the control condition (M = 50.50, SD = 9.45, p < .05). Also, participants offered more chips to high-power angry opponents (M = 58.85, SD = 10.02) than to high-power opponents in the control condition, although the latter difference was only marginally significant (p = .08).

Participants' emotions

***Anger*.** A 3 × 2 ANOVA yielded only a main effect for opponent's emotion, $F(2, 119) = 60.16$, p < .001, η^2 = .50 (see Table 2.4). Tukey's tests (ps < .001) revealed that participants in the anger condition were angrier than participants in the disappointment condition, who in turn were angrier than the participants in the control condition.

***Disappointment*.** A 3 × 2 ANOVA yielded only a main effect of opponent's emotion, $F(2, 119) = 33.53$, p < .001, η^2 = .36 (see Table 2.4). Tukey's tests (ps <.001) showed that participants in the anger and disappointment conditions were more disappointed than participants in the control condition. Participants in the anger and disappointment condition did not differ significantly (p = .99).

***Fear*.** The 3 × 2 ANOVA showed main effects for opponent's emotion, $F(2, 119)$ = 4.95, p < .01, η^2 = .08, and opponent's power, $F(1, 119) = 17.93$, p < .001, η^2 = .13. More importantly, these main effects were qualified by an interaction effect, $F(2, 119) = 8.80$, p < .001, η^2 = .13 (see Table 2.4). Simple main effects showed that participants were more fearful when they dealt with high-power angry opponents than when they dealt with low-

[3] Suleiman (1996) found that allocators offer less to recipients who have low power. We did not find such a difference in our control condition. In our experiment we emphasized that when offers were sent to the opponent, opponents were forming an opinion of participants. In accordance with research on impression management (Baumeister, 1982; Leary, 1995), participants may have tried to establish and maintain positive impressions, because they were aware that they were being evaluated by others. We ran two extra control conditions, where we did not emphasize that the opponent was forming an opinion. As expected, these results showed a significant difference between the offers in the high- and low-power conditions, such that participants offered significantly more chips to high-power opponents (M = 51.50, SD = 13.29) than to low-power opponents (M = 41.59, SD = 14.42; p < .05).

power angry opponents, $F(1, 119) = 34.01$, $p < .001$, $\eta^2 = .22$). This difference between fear ratings in high- and low-power conditions was not found in the disappointment and control conditions ($p = .78$).

Guilt. We found a significant main effect for opponent's emotion on participant's guilt, $F(2, 119) = 31.25$, $p < .001$, $\eta^2 = .34$ (see Table 2.4). Tukey's tests (ps < .001) showed that participants who were confronted with a disappointed opponent felt guiltier than participants who were confronted with an angry opponent or an opponent from the control condition.

Table 2.4. Participant's emotions as a function of opponent's emotion and opponent's power (Experiment 2.2)

	Anger				Disappointment				Control			
	High Power		Low Power		High Power		Low Power		High Power		Low Power	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Participant's Anger	3.55	1.43	4.00	1.69	2.76	1.00	2.47	1.02	1.20	.41	1.13	.34
Participant's Disappointment	3.25	1.77	3.36	1.84	3.33	1.35	3.21	1.40	1.30	.47	1.17	.39
Participant's Fear	3.53	1.26	1.89	.98	2.30	.48	1.95	.71	2.27	.51	2.19	1.16
Participant's Guilt	2.90	1.29	2.57	1.35	4.25	1.02	4.16	1.20	2.06	.98	2.15	1.45

Mediation analyses

First, as in Experiment 2.1, we tested whether the effect of opponent's power on offers in the anger conditions was mediated by participant's fear. While controlling for anger, guilt and disappointment, the confidence interval did not contain zero at the 99% level (i.e., lower CI = -30.68; upper CI = -4.50), indicating significant mediation.

In the second mediation analysis we investigated whether the effect of opponent's emotion on offers in the low-power anger and control conditions was mediated by

participant's anger. While controlling for fear, guilt and disappointment, the confidence interval did not contain zero at the 95% level (i.e., lower CI = .02; upper CI = 8.75).

In the third mediation analysis we investigated whether the effect of opponent's emotion on offers in the high-power disappointment and control conditions was mediated by guilt. While, controlling for fear, anger and disappointment, the confidence interval did not contain zero at the 99% level (i.e., lower CI = -10.66; upper CI = -.08).

In the final mediation analysis we investigated whether the effect of opponent's emotion on offers in the low-power disappointment and anger conditions was mediated by guilt. While controlling for fear, anger and disappointment, the confidence interval did not contain zero at the 99% level (i.e., lower CI = 1.49; upper CI = 20.68).

Additional measures

Intensity of the emotion. A 3 × 2 ANOVA showed only a main effect of opponent's emotion, $F(2, 119) = 105.72$, $p < .001$, $\eta^2 = .64$. Tukey's tests ($ps < .001$) showed that participants perceived disappointed ($M = 5.35$, $SD = .86$) and angry opponents ($M = 5.38$, $SD = 1.13$) to be more negative than opponents from the control condition ($M = 2.14$, $SD = 1.42$). Again, there were no differences in intensity between anger and disappointment ($p = .99$).

Appropriateness of the emotion. A 2 × 2 ANOVA showed no significant main effects of opponent's emotion ($p = .29$) or opponent's power ($p = .54$) and no interaction effect ($p = .64$; overall $M = 3.68$, $SD = 1.53$), indicating that the conditions did not differ with regard to the perceived appropriateness of the opponent's reaction.

Discussion

Although we changed the procedure of the study, in terms of the apparent cause of the emotion, Experiment 2.2 replicated the results obtained in Experiment 2.1. Power moderated the effects of anger, but not the effects of disappointment. As expected, disappointed reactions evoked guilt in participants. These feelings of guilt led participants with low-power opponents to offer more chips to disappointed than to angry opponents, and participants with high-power opponents to offer more to disappointed opponents than to opponents from the control condition. Moreover, anger elicited higher offers when it was reported by high-power bargainers than when it was reported by low-power

bargainers, because it evoked fear. Because angry reactions on the part of low-power opponents evoked anger, participant's offered fewer chips.

General Discussion

In line with social-functional analyses of emotions (e.g., Keltner & Haidt, 1999; Van Kleef et al., 2010) our findings show that emotional reactions shape both affective and behavioral aspects of the bargaining process. Whereas previous studies primarily focused on the inferences people make when they process opponents' emotions in bargaining, we emphasize the importance of affective reactions to others' emotions and their consequences for behavior. As expected, although they are both negative emotions, our findings demonstrate that anger and disappointment affect counterparts differently. We investigated the moderating influence of power and found that reporting disappointment might be a better alternative than reporting anger.

As our findings indicated, anger and disappointment not only share a negative valence, they also were rated as possessing similar levels of intensity and appropriateness. With these similarities in mind, one might wonder whether both emotions are truly independent, i.e., whether reporting anger may to some extent also communicate that you are disappointed, and vice versa. Our manipulation checks indeed suggest that this may partly be the case. Some overlap may occur, because anger and disappointment are both reactions to undesirable outcomes (e.g., Frijda et al., 1989). It should be noted, however, that in all studies, the most extreme judgments were obtained for the emotions we intended to manipulate. In the anger conditions judgments of anger were higher than judgments of disappointment. Correspondingly, ratings of perceived disappointment exceeded those of perceived anger in the disappointment conditions. More importantly, our results showed that the effects of both reported emotions did not simply differ in terms of extremity. In agreement with previous insights linking anger and disappointment to different appraisals and behaviors (e.g., Frijda et al., 1989), both emotions elicited distinct behaviors, under different circumstances and for different reasons. We showed that reporting anger in high-power positions pays, because the anger is complemented (i.e., it evokes fear). Fear leads bargainers to be more risk averse and focus more on preventing impasse (Lerner & Keltner, 2001), and the only way to avoid impasse is to give in. Indeed, since anger evoked the complementary emotion fear, people offered more chips

in the high-power conditions. Reporting anger in a low-power position, however, backfired because it was reciprocated. Because participants did not feel fearful, their own anger led them to offer fewer chips.

Disappointment affected participants in our studies differently. We showed that high-power opponents received higher offers when they reported disappointment than when they did not report an emotion, and that low-power opponents received higher offers when they reported disappointment than when they reported anger. Participants offered more to disappointed opponents, because disappointment was emotionally complemented. Disappointment evoked guilt, which led opponents to offer more in the high-power conditions, but also in the low-power conditions. Little research so far (see Lelieveld et al., 2011) has acknowledged the causal relation between disappointment and guilt. The current work contributes to the understanding of why reporting disappointment may pay in negotiations.

In the current article, we focused on emotional reactions. As we mentioned in our Introduction, we do not wish to claim that affective reactions are not based on inferential reasoning. Participants' emotional reactions may have been direct reactions to the reported emotions, but also reactions to inferences they made. For instance, in the case of reported anger by a high-power opponent, participants may have felt fearful because they inferred that the angry opponent (with high limits) would reject their offer. Also, in the case of reported disappointment, participants may have felt guilty because they inferred high needs for the disappointed person (see also Van Kleef & Van Lange, 2008). In addition, it should be acknowledged that participants reported their emotions while making their offer. This may have increased the possibility that their reports also reflected their informational inferences. Future research could further try to disentangle the inferential and direct emotional effects to anger and disappointment.

Our results thus suggest that it may be better to report disappointment than to report anger. Whereas anger only elicits high offers when it is reported by high-power bargainers, disappointment elicits high offers when reported by high-, as well as low-power bargainers. Moreover, although both emotions can elicit generous offers, they do so via different processes. Anger elicits higher offers when it evokes fear, whereas disappointment elicits higher offers by evoking guilt. We found similar results across different types of bargaining settings. In Experiment 2, emotions were reactions to participants' offers. In Experiment 1, emotions might have been attributed more to the

person instead of their offer. Our findings indicate that the consequences of the emotions are identical. Future research could investigate whether this is always the case.

Anger thus influenced participant's offers by evoking fear or anger. However, there is also evidence that expressions of anger can elicit sympathy or support (Clark & Brissette, 2003) and even feelings of guilt (Giner-Sorolla & Espinosa, 2011). These results, however, have mainly been found when the two parties are engaged in a close affiliative relationship (Yoo, Clark, Lemay, Salovey, & Monin, 2011) or in non-competitive situations (Giner-Sorolla & Espinosa, 2011). In these situations, anger may not evoke fear and/or anger in others and the effects may not differ from the effects of disappointment.

Our findings can be seen as an extension of the previous research by Van Kleef and Van Lange (2008). They have also compared the interpersonal effects of anger and disappointment and identified social value orientation (SVO) as a moderator of the interpersonal effects of disappointment. This study focused on the informational value of reporting anger and disappointment. By contrast, our two experiments focus on the *affective* reactions to anger and disappointment, their consequences for behavior, and the moderating role of power. Nonetheless, future research could investigate whether SVO also moderates the affective reactions to anger and disappointment. Our findings corroborate the notion that it is essential to distinguish between different types of emotions and to not only consider the valence of emotions. It is important to acknowledge that specific emotions have differential effects on others (e.g., Lerner & Keltner, 2000; Tiedens & Linton, 2001; Van Kleef et al., 2006a, 2010). One should therefore treat each emotion as a distinct predictor of behavior in negotiations.

Broader implications and contributions

The conclusions that stem from our findings resonate with the *Emotion as Social Information* (EASI) model (Van Kleef et al., 2010). This model posits that emotions affect others by providing relevant information about the intentions and/or feelings of the sender (the inferential path of the model), but also by affecting the emotions of others (the affective path of the model). Our study provides some of the first evidence of the role of such affective reactions in bargaining.

According to the EASI model it depends on the cooperative versus competitive nature of the situation whether emotions affect others via the inferential or affective path. The EASI model posits that affective reactions become more predictive of social decisions

to the extent that the situation is perceived as cooperative, whereas strategic inferences take precedence when the situation is perceived as competitive. Our findings show that even in competitive situations (such as the ultimatum settings in our experiments) emotions may affect others' behavior via the affective path. Therefore our findings can be seen as an important contribution to, but also as an extension of the EASI model. Note, however, that although the negotiation setting was competitive, participants showed increased cooperation (i.e., they offered a high number of chips) when dealing with disappointed opponents. Disappointment may have reduced the perceived competitiveness of the situation and may have "transformed" the predominantly competitive bargaining context into a perceived cooperative situation. Future research may investigate how this transforming power of disappointment works and when it predicts opponent's behavior.

In future research, it may also be interesting to broaden the scope by including other determinants of the power-dependency relation between bargainers. In our experiments, we manipulated power by varying the consequences of rejection. Our results showed that retaliatory offers were only made when participants felt their offer could not be fully rejected. Although it is apparent that the power of the recipient is weakened when he/she has less control over the outcomes, it is important to investigate whether our effects hold up under different power manipulations where there is still an opportunity to reject the offer. One could for example manipulate the number or attractiveness of the alternatives that bargainers have at their disposal (see Van Kleef et al., 2006b). The more attractive alternatives are, and the more alternatives bargainers have, the less dependent bargainers are on their opponent (see also Fisher & Ury, 1981; Pinkley, 1995). When people have more (attractive) alternatives, it seems likely that reported anger backfires (Sinaceur & Tiedens, 2006; Van Beest, Van Kleef, & Van Dijk, 2008; Van Kleef & Côté, 2007), but disappointment may not.

That said, power may not be the only factor that determines whether people reciprocate or complement other's emotions. We expect that in situations where emotions, such as anger and disappointment, are reported unjustly or inappropriately, targets may retaliate and reciprocate the emotion (see also Van Kleef and Côté, 2007). Also, when serious conflicts arise between the parties in a negotiation and opponents do not care if the negotiation ends in impasse, opponents may reciprocate irrespective of their power position. Moreover, as stated above, complementary emotions are likely to be evoked

when people are engaged in a close relationship, with the aim of repairing the relationship. Future research could investigate (these) other antecedents of the elicitation of reciprocal and/or complementary emotions.

Chapter 3

Behavioral and neural reactions to emotions of others

This chapter is based on: Lelieveld, G. -J., Van Dijk, E., Güroğlu, B., Van Beest, I., Van Kleef, G. A., Rombouts, S. A. R. B., & Crone, E. A. (in press). Behavioral and neural reactions to emotions of others in the distribution of resources. *Social Neuroscience.*

Chapter 3

Emotions have a significant impact on social interactions (Anderson & Guerrero, 1998; Frijda, 1986; Shaver, Wu, & Schwartz, 1992). According to social functional analyses of emotions (e.g., Keltner & Haidt, 1999; Parkinson, 1996; Van Kleef, De Dreu, & Manstead, 2010), emotions convey crucial information about the sender's feelings and intentions, which can have consequences for the behavior of receivers. Little is known, however, about the underlying neural mechanisms associated with the interpersonal effects of different emotions. In the current article, we explore which brain regions are associated with the interpersonal effects of different emotions. Specifically, we focused on two of the most often expressed negative emotions in social interactions, anger and disappointment (Lelieveld, Van Dijk, Van Beest, Steinel, & Van Kleef, 2011; Lelieveld, Van Dijk, Van Beest, & Van Kleef, 2012) and compared their effects to the most often expressed positive emotion, happiness (Sauter, 2010).

Previous research has often used economic games, such as the Ultimatum Game (Güth, Schmittberger, & Schwarze, 1982), to study the neural mechanisms in social interactions. In this game, two players have to decide on how to distribute a certain amount of chips. One of the players, the allocator, makes a "take it or leave it" offer to the other player, the recipient, by offering a proportion of the chips. If the recipient accepts, the money will be distributed accordingly. If the recipient rejects, both players do not receive anything. Prior fMRI studies showed receiving unfair proposals is associated with increased activation in the insula, anterior cingulate cortex (ACC) and dorsolateral prefrontal cortex (DLPFC) (Sanfey, 2007; Rilling & Sanfey, 2011 for reviews). Ruz and Tudela (2011) used this paradigm to investigate whether angry and happy facial expressions from trustworthy or untrustworthy proposers influenced neural responses in recipients. Consistent with the hypothesis that communicated emotions matter, there was increased activation in the ACC when participants received offers from untrustworthy relative to trustworthy allocators and there was also increased activation in the bilateral insula when the untrustworthy allocators expressed anger. Together, these results show that recipients show elevated activation in neural regions implicated in processing unfairness when interaction partners express negative emotions.

Studies focusing on neural responses in allocators (instead of recipients) indicate that mentalizing about other people's thoughts and actions results in activation in the medial prefrontal cortex (MPFC), such as when considering whether to trust another individual (McCabe, Houser, Ryan, Smith, & Trouard, 2001). Medial prefrontal cortex activation has been associated with strategic bargaining considerations (Rilling & Sanfey, 2011) and with mentalizing about others' intentions (Frith & Frith, 2003, 2006). However, these studies mainly focused on situations where people do not have any information about their interaction partner. To our knowledge, no prior study has examined neural effects of communicated emotions on allocators.

Taken together, expressed emotions may greatly influence neural activation in bargaining. Yet, to date studies focused on either communicated emotions on recipients (Ruz & Tudela, 2011) or on mentalizing about strategic intentions with unknown others (McCabe et al., 2001). No study to date has examined the effects of communicated emotions on allocators using fMRI. The goal of this study was to test these effects in healthy adults using two conditions: (1) the comparison of negative and positive communicated emotions, and (2) the effects of different types of negative emotions (anger versus disappointment).

When comparing the interpersonal effects of negative and positive emotions, previous research has shown that negative emotions, such as anger, arouse strong negative sentiments in targets, hurt interpersonal relations and often lead to conflict (Clark, Pataki, & Carver, 1996; Van Kleef et al., 2010). Since people strive to maintain positive mood states, they tend to avoid others who express negative emotions (Clark & Isen, 1982). Happiness, in contrast, encourages contact and happy people are seen as highly affiliative (Knutson, 1996). Happiness thus leads to more liking, which in turn leads to closeness and increased perspective taking (Frantz & Janoff-Bulman, 2000; Fredrickson, 1998). The first goal is therefore to test for neural effects of angry and happy communicated emotions on allocators.

Besides the general difference of valence in positive vs. negative affect, research has revealed differential effects within the domain of negative emotions (Van Kleef, De Dreu, & Manstead, 2006a). The second goal of the current research was to compare neural responses following anger and disappointment (Lelieveld et al., 2011, 2012). In negotiation settings, anger alerts others to possible negative consequences (e.g., conflict escalation), which may lead these others to concede to avoid impasse (e.g., Sinaceur & Tiedens, 2006,

Van Kleef, De Dreu, & Manstead, 2004a, b). Disappointment, on the other hand, tends to evoke a social responsibility for the other (see Lelieveld et al., 2011, 2012). A key question now concerns whether these different behavioral responses to anger and disappointment are associated with different neural reactions.

To explore whether different communicated emotions would have different effects on mentalizing and emotional conflict areas (such as the MPFC and ACC), participants were allocators in a dictator game (Forsythe, Horowitz, Savin, & Sefton, 1994). The dictator game is similar to the ultimatum game, such that an allocator makes an offer to a recipient. However, in the dictator game, recipients cannot reject the offer, but have to accept any offer. An advantage of using this game is that it allowed us to investigate the effects of specific emotions, without interference of strategic motivations (e.g., participants did not need to consider whether a low offer would be rejected). While playing the dictator game, participants received written comments from the interaction partners on a prior bargaining offer, which could display anger, disappointment or happiness with the prior offer.

Experiment 3.1

Method

Participants

Twenty-six healthy right-handed paid volunteers between ages 18 and 25 (17 female, 9 male [1]; M_{age} = 21.00, SD = 4.72) participated in the fMRI experiment. None of them had any history of neurological or psychiatric disorder and all were medication-free. All procedures were approved by the medical ethical committee of the Leiden University Medical Center (LUMC).

Procedure

Before inviting participants to a scanning session, they first participated in a preliminary study. This study was used to create an interpersonal context for the emotional reaction they later received. Thirty-one participants read a scenario where they

[1] Although there is evidence that suggests that men and women process emotions differently (Lithari et al., 2010; Wager et al., 2003), we observed no significant gender effects in the current study.

negotiated for a company. All participants were told that they would bargain with another person over the distribution of 10 chips, which represented money. Participants could choose between two predetermined distributions to divide the 10 chips. One option represented a 6-4 distribution in favor of the participant and the other option represented a 5-5 distribution. We expected most of the participants to choose the 6-4 distribution. Only these participants (N=26) were invited to participate in the second phase of our experiment, one week later. This was done to ensure the credibility of the angry or disappointed reaction towards this decision (see emotion manipulation) [2].

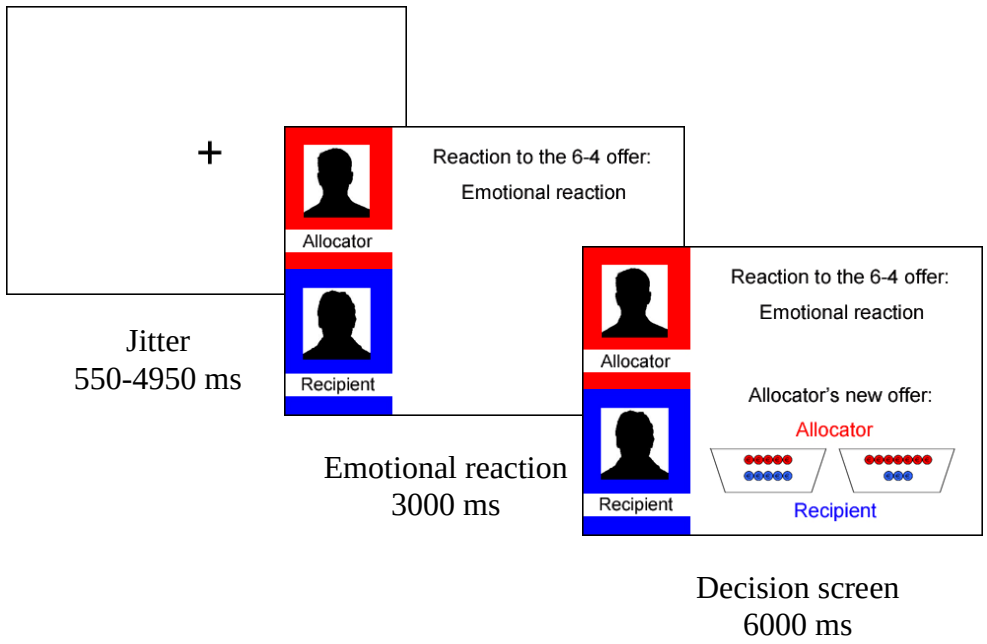
A week after the first phase, the remaining twenty-six participants were invited to a scanning session. They learned that they were going to play a similar game with new anonymous age and gender matched partners. We told participants that their offer (the 6-4 distribution) was shown to sixty new recipients who had given a reaction upon receiving the offer. We emphasized that recipients did not know that this reaction would be sent back to the participant. This was done to ensure that participants trusted the emotional reactions to be non-strategic (i.e., not aimed to influence the participants; see Van Kleef et al., 2004a). In reality, the sixty reactions were pre-programmed (see emotion manipulation). On each trial participants read one of the sixty reactions. Subsequently, they played a version of the dictator game (Forsythe et al., 1994; Güroğlu, Van den Bos, & Crone, 2009), in which participants were allocators and had to divide 10 chips. The participants learned that the recipient had to accept any distribution they would make. Participants could now choose between a 7-3 distribution (i.e., 7 chips for themselves and 3 for the other) and a 5-5 distribution. We did not include a 6-4 distribution, to ensure that a desire to stick with their first offer did not influence our results.

In each trial, participants were paired with a different, anonymous player. Each trial started with a fixation, after which the participants were presented with the

[2] Because we only included participants that chose the 6-4 option and not the 5-5 option, one might wonder whether we thereby may have excluded individuals that have a tendency to act prosocially. However, because we created a business setting where participants were focused on profits and on maximizing the outcomes for the company, even individuals who act prosocially may have chosen the 6-4 option. This is supported by the results from a social value orientation measure, which measured whether participants were prosocials (who maximize joint outcomes and minimize differences in outcomes for the self and another person) or proselfs (who maximize individual outcomes). We assessed participants' social value orientation with the nine-item version of the decomposed games measure (for more information, see Van Lange, De Bruin, Otten, & Joireman, 1997) – a measure that has been demonstrated to have good internal consistency (Liebrand & Van Run, 1985), test-retest reliability (Van Lange & Semin-Goossens, 1998) and construct validity (Parks, 1994). Using the criterion of at least six consistent choices, 12 participants were classified as prosocial (46.2%) and 13 as proself (50.0%). One participant (3.8%) did not make at least six consistent choices and was therefore unclassifiable. These results show that we had an almost equal number of prosocials and proselfs in our experiment.

emotional reaction for a period of 3 seconds. Subsequently, they had 6 seconds to make a decision between the two distributions (see Figure 3.1).

Figure 3.1. Visual display and timing of the events in the scanner task in milliseconds (ms). After a jittered fixation cross, a screen displayed the emotional reaction of the recipient (here 'Emotional reaction') for 3000 ms. We measured activation at the onset of the emotional reaction. Subsequently, the screen displayed two offers each containing red and blue coins, which indicated the share for the allocator and the recipient, respectively (here 5-5 vs. 7-3). The left panel displays the name of the allocator in red (here 'allocator') and the name of the recipient in blue (here 'recipient'). The decision screen was response terminated with a maximum response time of 6000 ms. After the response, the decision screen remained on the screen until 6000 ms after the onset of the decision screen.



The 60 trials were divided over two blocks of 5 minutes each. Trials were presented in pseudo-random order with a jittered inter-stimulus interval (min = .55 sec, max = 4.95 sec, M = 1.54 sec).

Before the task started participants learned that at the end of the experiment the computer would randomly select ten trials. They learned that they would receive the earnings of these trials. Participants also learned that the offers were re-delivered to the recipients and that their earnings would be contingent on the decisions they made (see also Güroğlu, Van den Bos, Rombouts, & Crone, 2010). At the end of the session, participant's pay-off was presented (see also Güroğlu et al., 2009) and participants were paid and probed for suspicion. None of them expressed any doubts concerning the cover story.

Emotion manipulation

The emotion statements were pretested in a pilot study involving 21 participants, none of whom participated in the main study. We created ninety emotional statements that reflected happiness, anger and disappointment. The emotional reactions were adapted from previous research on the effects of emotional communication on negotiation behavior (e.g., Sinaceur & Tiedens, 2006; Van Dijk, Van Kleef, Steinel, & Van Beest, 2008; Van Kleef et al., 2004a, b, 2006a). We tested thirty statements designed to reflect anger, thirty designed to reflect disappointment, and thirty designed to reflect happiness. The order of the statements was randomized across participants. For each statement, participants were asked to indicate on 7-point scales to what extent they felt it reflected anger, disappointment and happiness (1 = *not at all,* 7 = *to a great extent*). We then selected the statements that had the highest scores on the emotion they were intended to reflect and the lowest scores on the emotions that they were not intended to reflect (e.g., the selected angry statements had the highest anger scores and at the same time the lowest disappointment and happiness scores). We selected twenty statements for each emotion, all with different wordings. All selected statements were rated higher on the emotion they were supposed to express than on the emotions they were not supposed to express according to paired-samples *t*-tests ($4.63 < ts < 36.77$, all $ps < .001$). Examples of emotional reactions depicting anger were "I feel really angry after receiving this offer", "The other person really makes me angry", "This annoying person really pisses me off", and "I am starting to get really furious about now". Examples of reactions depicting disappointment were "This really disappoints me", "I expected more from the other person", "The other person really disappoints me, he could have given me more", and "I am really disappointed in the other person". Examples of reactions depicting happiness were "I am really happy

with this offer", "This guy really makes me happy", "The other person made my day", and "This is perfect, I am really satisfied".

fMRI data acquisition

Scanning was performed on a 3.0T Philips Achieva scanner at the LUMC. Functional data were acquired using a T2*-weighted echo-planar imaging (EPI) sequence (echo time/TE = 30 ms, repetition time/TR = 2200 ms, slice-matrix = 80 x 80, slice-thickness = 2.75 mm, slice gap = 0.28mm gap, field of view [FOV] = 220 mm), during two fMRI runs with 150 volumes each. A high-resolution T2-weighted high-resolution anatomical scan (same slice prescription as EPI) was collected at the end of the scan session. Responses were made with the left and right index finger using a response box attached to the upper leg.

fMRI Data Analysis

Data pre-processing and analyses were conducted with SPM5 software (http://www.fil.ion.ucl.ac.uk/spm/software/spm5) implemented in MATLAB (Mathworks, Sherborn, MA). All functional images were realigned and slice-time corrected using the middle slice as reference. Then they were spatially normalized to EPI templates and spatially smoothed with a Gaussian kernel (6mm, full-width at half-maximum). The maximum amount of motion observed was 1.25 mm. To investigate the interpersonal effects of the communicated emotions, we tested a model that investigated the effects of the different emotions when participants received the emotional reaction. For this reason, a canonical haemodynamic response function (HRF) was convolved at the onset of the presentation of the emotional reaction (impulse function: zero duration). The presentation of the emotional reaction could communicate one of three emotions: anger, disappointment, or happiness. The proposed offer could be of two levels: a 7-3 or a 5-5 distribution. These conditions resulted in a 3 (emotion: happiness vs. anger vs. disappointment) x 2 (distribution: 7-3 vs. 5-5) full factorial design. The analyses were carried out using the general linear model in SPM5. Contrast parameter images were computed for each individual. The resulting contrast images were submitted to second-level group analyses. At the group level, whole brain contrasts between conditions were computed by performing one-tailed t-tests on these images, treating participants as a random effect. Results were considered significant at an FDR corrected threshold $p < .01$ or

$p < .05$, or at an uncorrected threshold $p < .001$, both with an extent threshold of ten continuous voxels.

Using the MARSBAR toolbox for SPM5 (Brett, Anton, Valabreque, & Poline, 2002), we extracted parameter estimates from the regions that were identified in the whole brain analyses, to further characterize patterns of activity.

Results

Behavioral results

The dependent variable of interest was the number of times participants chose the 7-3 option after receiving an angry, disappointed or happy emotional reaction. A repeated-measures Analysis of Variance (ANOVA) with emotion (anger vs. disappointment vs. happiness) as a repeated-measures variable and percentage of 7-3 choice as the dependent variable, yielded a main effect of emotion, $F(1, 25) = 324.73$, $p < .001$, $\eta^2 = .93$. Least significant difference (LSD) post hoc tests showed that participants more often chose the 7-3 option when dealing with angry recipients (74.6%, $SD = 6.03$) than when dealing with disappointed (43.7%, $SD = 5.96$, $p < .001$) or happy recipients (50.6%, $SD = 6.35$, $p < .05$). The percentage of 7-3 offers to disappointed or happy recipients did not differ ($p = .44$). Thus, anger elicited lower offers than disappointment or happiness did.

fMRI Results

Reactions to positive versus negative emotions. The first set of analyses investigated regions that showed increased activation when receiving positive relative to negative emotional reactions, by testing the happiness > [anger and disappointment] contrast (on whole brain level). This analysis revealed increased activation in the bilateral temporoparietal junction (TPJ) and dorsolateral prefrontal cortex (DLPFC) (see Table 3.1 and Figure 3.2A). To examine whether this response was different for the happiness relative to the anger or disappointment trials, separate analyses were performed for happiness > anger, and happiness > disappointment. These analyses resulted in similar patterns of activation. We only found increased activation in the visual cortex for the reversed contrast ([anger and disappointment] > happiness).

Table 3.1. Brain regions revealed by whole brain contrasts.

Anatomical Region	L/R	voxels	Z	MNI coordinates			FDR
				x	y	z	
Happiness > [Anger & Disappointment]							
TPJ	L	503	4.48	-51	-60	45	**
			4.47	-45	-72	45	**
			4.39	-54	-45	48	**
	R	538	4.38	60	-54	42	**
			4.38	54	-69	30	**
			4.35	51	-60	45	**
DLPFC	L	129	4.72	-33	21	48	**
			3.82	-24	15	51	*
			3.43	-21	24	60	*
	R	259	4.36	39	18	48	**
			4.14	21	30	54	*
			4.13	27	21	54	*
Precuneus	L/R	201	4.04	9	-72	45	*
			3.90	9	-54	39	*
			3.82	-9	-55	48	*
[Anger & Disappointment] > Happiness							
Visual Cortex	L/R	1418	5.37	-18	-105	3	**
			5.22	-12	-93	-9	**
			4.70	-27	-90	-12	**
Anger > Disappointment							
Anterior MPFC	L/R	105	3.88	6	54	-18	
			3.49	-6	39	-15	
			3.42	-9	57	3	
Anterior Cingulate	L	10	3.32	-9	42	9	
	L	26	4.04	-9	18	21	
Posterior Cingulate	L	18	3.89	-9	-15	42	
Disappointment > Anger							
Visual Cortex	L/R	171	4.65	-18	-105	-3	
				-21	-90	-15	
				-33	-93	-9	

MNI coordinates for main effects, peak voxels reported at $p < .001$ uncorrected, at least 10 continuous voxels (voxels size was 3.0 x 3.0 x 3.0 mm).

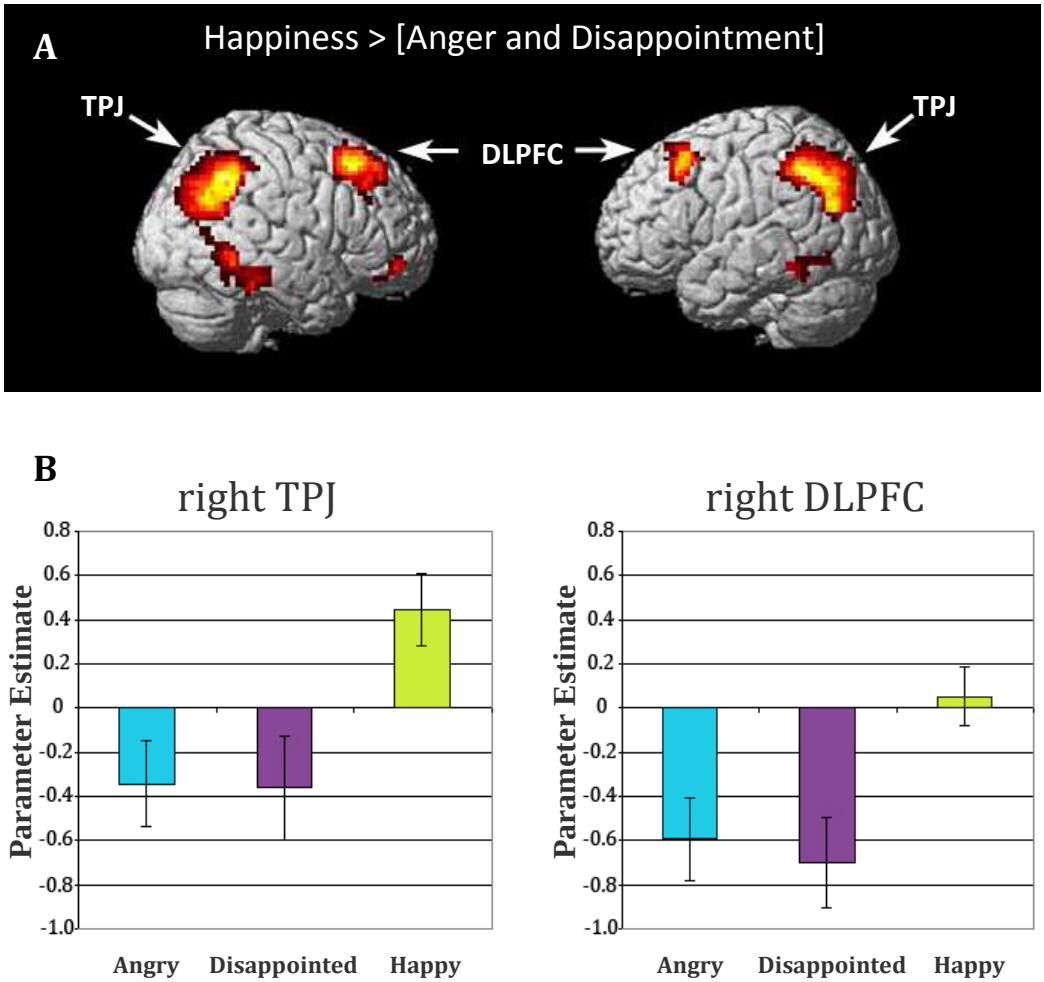
* Results remained significant with an FDR-corrected threshold $p < .05$, with an extent threshold of ten continuous voxels.

** Results remained significant with an FDR-corrected threshold $p < .01$, with an extent threshold of ten continuous voxels.

Figure 3.2.

A: Whole brain results for regions which were active in the happiness > [anger and disappointment] contrast (threshold at $p < .001$, uncorrected). Activation was detected in the bilateral TPJ (MNI coordinates: $x = -51$, $y = -60$, $z = 45$ and $x = 60$, $y = -54$, $z = 42$) and in the bilateral DLPFC (MNI coordinates: $x = -33$, $y = 21$, $z = 48$ and $x = 39$, $y = 18$, $z = 48$).

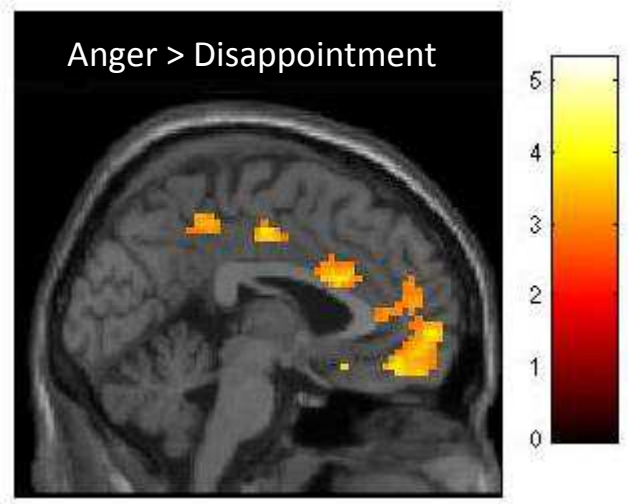
B: Contrast values of activation in right TPJ and right DLPFC for the three emotion conditions.



For illustrational purposes, we displayed ROI patterns (see Figure 3.2B) for activation in the right TPJ and right DLPFC. As can be seen in the Figure, r-TPJ and r-DLPFC activation was higher for receiving happy reactions than for receiving angry or disappointed reactions. Similar patterns of activation were observed for left TPJ and left DLPFC.

Reactions to anger versus disappointment. The second set of analyses examined which regions showed increased activation when receiving angry reactions relative to receiving disappointed reactions, by testing the anger > disappointment contrast at the onset of the emotion expression. This analysis revealed increased activation in the aMPFC and several regions in the ACC and posterior cingulate cortex (PCC) (see Table 3.1 and Figure 3.3). We did not find increased activation for the reversed contrast (disappointment > anger).

Figure 3.3. Whole brain results for regions which were active in the anger > disappointment contrast (based on recommendations from Lieberman & Cunningham [2009], only for illustrational purposes, we chose a threshold at $p < .005$, uncorrected, with a 10 voxel extent threshold), from a sagittal perspective. Activation was detected in the aMPFC (MNI coordinates: $x = 6$, $y = 54$, $z = -18$), two regions of the ACC (MNI coordinates: $x = -9$, $y = 42$, $z = 9$ and $x = -9$, $y = 18$, $z = 21$) and in the PCC (MNI coordinates: $x = -9$, $y = -15$, $z = 42$).



Discussion

The present study investigated the interpersonal effects of emotions in social interactions. Results showed that participants more often chose self-serving offers in the dictator game when interaction partners expressed anger than when they expressed disappointment or happiness. These findings are consistent with previous studies, which have shown that in situations where individuals have more power than their counterpart (such as the dictator game used in our study), people offer less to angry than to happy recipients (see Van Dijk et al., 2008). Moreover, our findings replicate previous results from negotiation studies, which show that people make more generous offers to disappointed than to angry bargainers (Lelieveld et al., 2012).

Positive and negative emotions

Our results showed that happiness activated bilateral TPJ, a region which in prior studies was associated with a variety of social cognitive tasks such as perspective-taking (Ruby & Decety, 2001), action understanding (Kret, Pichon, Grèzes, & De Gelder, 2011; Samson, Apperly, Chiavarino, & Humphreys, 2004) and empathy (Lamm, Batson, & Decety, 2007). It is possible that the recipient's happiness encouraged participants to take the perspective of the recipient. This is in line with behavioral research that showed that happiness encourages contact (Knutson, 1996), and leads to more closeness and increased perspective taking (Frantz & Janoff-Bulman, 2000; Fredrickson, 1998).

Receiving happy reactions was also associated with activation in the DLPFC, an area involved in cognitive control (e.g., Brass, Derrfuss, Forstmann, & Von Cramon, 2005) and the regulation of thought and action (Miller & Cohen, 2001). Moreover, in several economic games, the DLPFC has been associated with the inhibition of selfish impulses (Knoch, Pascual-Leone, Meyer, Treyer, & Fehr, 2006; Rilling et al., 2007). TPJ and DLPFC are also active when individuals receive trust in a trust game (Van den Bos, Van Dijk, Westenberg, Rombouts, & Crone, 2011). Receiving trust and receiving happy reactions possibly activate a similar brain network, but exactly how these regions are associated with positive emotions should be tested further in future research. Possibly, expressions of happiness elicit similar feelings and responses as a trust cue. Indeed, prior behavioral research showed that people displaying happiness are seen as more honest, reliable, and trustworthy (Stouten & De Cremer, 2010).

Anger versus disappointment

We also investigated the difference in neural reactions to anger and disappointment. For receiving angry reactions we found increased activation in the aMPFC in comparison to disappointment, which in previous research has been implicated in strategic bargaining (i.e., maximizing own outcomes and defecting in a trust game, see Van den Bos, Van Dijk, Westenberg, Rombouts, & Crone, 2009, 2011) and making self-relevant decisions (Schmitz & Johnson, 2006; for a review see Northoff et al., 2006). This interpretation is supported by the behavioral results that show that participants more often chose the 7-3 option when the recipient expressed anger than when the recipient expressed disappointment. These results are in line with earlier behavioral research by Lelieveld et al. (2011, 2012), who show that anger evokes a concern for own outcomes, whereas disappointment evokes a concern for the outcomes of others. Although other research has also implicated the aMPFC in mentalizing and the attribution of mental states to other people (e.g., Amodio & Frith, 2006), the current results and previous behavioral results (Lelieveld et al., 2011, 2012) support the importance of the aMPFC in self referential thinking and maximizing own outcomes (see also Denny, Kober, Wager, & Ochsner, 2012). Future research should investigate the relation between processing emotions and mentalizing in economic games (Rilling et al., 2008).

We also found increased activation in several regions of the ACC after participants received angry reactions (relative to disappointed reactions). Especially the rostral ACC, which has been implicated in conflict monitoring (Botvinick, 2007) and emotional conflict (Egner, Etkin, Gale, & Hirsch, 2008; Ochsner, Hughes, Robertson, Cooper, & Gabrieli, 2009; Ruz, & Tudela, 2011), was activated more when recipients expressed anger. Anger may have elicited more (emotional) conflict than disappointment. This accords with behavioral research that has shown that anger evokes more conflict in others (e.g., Barsade, 2002; Friedman et al., 2004; Kopelman, Rosette, & Thompson, 2006; Van Dijk et al., 2008; Van Kleef & Côté, 2007) than disappointment (Lelieveld et al., 2011). Ruz and Tudela (2011) also found that the ACC was involved in observing conflictive emotional displays, which provides further support for its role in the interpersonal effects of emotions.

Note that our results did not reveal brain regions specifically associated with the interpersonal effects of disappointment. Although we expected disappointment to activate brain regions associated with mentalizing and a concern for others, we did not find such effects. Like happiness, disappointment elicited more generous offers, but happiness and

disappointment did not activate similar brain regions. This is interesting in light of the observation that although behavioral responses to these two emotions are similar, the behavior might be associated with different neural mechanisms. TPJ activation seems to be restricted to receiving positive emotional reactions. Future research should try to identify regions that are specifically associated with interpersonal disappointment.

The current research thus investigated how distinct emotions influenced other people in a social interaction. We used the dictator game to examine these interpersonal effects of emotions in the fMRI scanner. Whereas previous studies mainly focused on brain activation of *recipients* in ultimatum and dictator games (see Güroğlu et al., 2010; Rilling, Sanfey, Aronson, Nystrom, & Cohen, 2004; Sanfey, Rilling, Aronson, Nystrom, & Cohen, 2003), the present study is one of the first that investigated brain regions of *allocators*.

Moreover, the (simulated) recipients in the dictator game expressed their emotion by means of typed messages. Previous work on the neural mechanisms associated with the interpersonal effects of emotions, manipulated the emotions by means of pictures of emotional faces (e.g., Ruz & Tudela, 2011). The current study thus not only extends previous research by creating an interpersonal setting where emotions are based on previous behavior, but also by looking at the interpersonal effects of emotions using a different type of emotion manipulation. We do not expect that our results are restricted to verbal emotional reactions. Previous behavioral research has used various settings and different manipulations to compare effects of communicated emotions. Findings obtained with verbal manipulations of emotional expressions (Van Kleef et al., 2004a, b) are similar to findings obtained with nonverbal manipulations by means of pictures (e.g., Pietroni, Van Kleef, De Dreu, & Pagliaro, 2008) and face-to-face interaction (e.g., Sinaceur & Tiedens, 2006).

The present study demonstrated that people respond differently to discrete emotions. By providing a broader and more differentiated view of the behavioral and neural reactions to discrete emotions of others, this work may contribute to a better understanding of how different emotions affect other people.

Acknowledgements

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Chapter 4

Disappointed in you, angry about your offer

This chapter is based on: Lelieveld, G. -J., Van Dijk, E., Van Beest, I., Steinel, W., & Van Kleef, G. A. (2011). Disappointed in you, angry about your offer: Distinct negative emotions induce concessions via different mechanisms. *Journal of Experimental Social Psychology, 47*, 635-641.

Chapter 4

Negotiation is often a heated and highly emotional process. Research suggests that anger and disappointment are two of the most often expressed negative emotions in bargaining (Van Dijk & Zeelenberg, 2002b). According to social-functional analyses of emotions (e.g., Keltner & Haidt, 1999; Parkinson, 1996; Van Kleef, 2009), such emotional expressions convey crucial information about the feelings and intentions of the sender, and this in turn has behavioral consequences for receivers. In negotiations, communicated emotions may therefore affect opponents' behavior. We argue that while anger and disappointment are both negative emotions, they may have markedly different effects on opponents in negotiations.

Although anger and disappointment may both be reactions to undesirable outcomes, research has shown that these emotions have very different appraisal patterns (e.g., Frijda, Kuipers, & Ter Schure, 1989). Anger arises when a person's goals are frustrated and s/he blames someone else for it. It is associated with a tendency to aggress against the person (or object) seen as responsible for the goal blockage (Averill, 1982; Fischer & Roseman, 2007; Van Kleef, De Dreu, & Manstead, 2010). Disappointment, on the other hand, arises when progress towards a goal is below expectations (Carver & Scheier, 1990; Van Kleef & Van Lange, 2008) and/or when a desired outcome is not achieved (Bell, 1985; Frijda, 1986; Van Dijk & Van der Pligt, 1997). Also, Van Dijk and Zeelenberg (2002b) found that the experience of disappointment is associated with feelings of weakness (i.e., disappointed individuals feel like they have little control over the event), more so than the experience of anger (see also Frijda et al., 1989).

Based on these insights, one might expect that in bargaining, anger and disappointment influence opponents via different processes. With respect to the communication of *anger*, previous research has shown clear effects on bargaining behavior. In particular, anger has been shown to communicate toughness and high limits (Clark, Pataki, & Carver, 1996; Karasawa, 2001; Sinaceur, & Tiedens, 2006; Van Kleef, De Dreu, & Manstead, 2004a, b). People with high limits have high demands and are not expected to give in. Anger therefore alerts opponents to possible negative consequences (e.g., conflict escalation), which leads them to concede to avoid costly impasse. But does communicating anger always elicit concessions? In the present paper, we argue that the

effects of anger depend on the target of the emotion, that is, whether it is directed at the bargainer's *offers* or at the bargainer as a *person*. When anger is directed at the offer, participants use the opponent's emotion to assess his or her limits, and concede more. When anger is person-directed and thus not directly connected to the offer, it is less informative about one's limits. As a result, person-directed anger is less seen as being an indication of high limits (Van Kleef, 2009). Accordingly, Steinel, Van Kleef, and Harinck (2008) found that offer-directed anger induced concessions, but person-directed anger did not. People may thus obtain higher outcomes when they communicate offer-directed than person-directed anger.

As noted above, *disappointment* is, relative to anger, more associated with feelings of weakness. Disappointed bargainers may thus not be seen as bargainers with high limits and high demands. Based on this, one might be tempted not to communicate disappointment. In the current paper, however, we argue that it can be an effective bargaining strategy, but primarily when it is person-directed. More specifically, we argue that concessions are most likely to emerge in the case of person-directed disappointment instead of when it is offer-directed, because this type of disappointment is more likely to evoke guilt in others, and thus make them more willing to give in.

It has been demonstrated that disappointment may evoke guilt. Ferguson, Olthof, and Stegge (1997) presented participants with guilt-eliciting scenario's and showed that the victim's anticipated disappointment was highly (positively) correlated with the participant's feelings of guilt. Importantly, however, disappointment may not always evoke guilt. We argue that especially person-directed disappointment is likely to evoke guilt in others.

Our proposition that person-directed disappointment is more likely to evoke guilt (and thus to yield positive effects) connects to previous research by Van Dijk and Zeelenberg (2002b), who distinguished between two types of disappointment: *outcome-related disappointment* and *person-related disappointment*. The authors found that outcome-related disappointment involves feelings and intentions which are more self-focused (outcomes are lower than expected), whereas feelings and intentions involved with person-related disappointment are more other- and relationship focused (the undesirable situation is attributed to another person). In contrast to offer-directed disappointment, person-directed disappointment thus indicates a transgression that threatens the social relationship and makes people feel socially responsible. These are key

antecedents of the experience of guilt. That is, people have been shown to feel guiltier when they have a concern for the other and feel socially responsible (Baumeister, Stillwell, & Heatherton, 1994; Branscombe, Doosje, & McGarty, 2002; Mallett & Swim, 2007). The communication of person-directed disappointment therefore may evoke more guilt in opponents than offer-directed disappointment. Moreover, since guilt motivates people to make amends (Baumeister et al., 1994) and concessions (Ketelaar & Au, 2003), we propose that person-directed disappointment evokes larger concessions than offer-directed disappointment.

In sum, we argue that the interpersonal effects of negative emotions in negotiations depend critically on how they are communicated. Communicated anger elicits higher offers when it is offer-directed, because it affects the participant's appraisals of the opponent's limits. Conversely, communicated disappointment elicits higher offers when it is person-directed, because this triggers more guilt than when it is offer-directed. We conducted two experiments to investigate these propositions.

Experiment 4.1

As a first test of our ideas, we presented participants a brief negotiation scenario where they were asked how they would perceive an opponent who communicated anger or disappointment directed at the offer or at the person. We expected (1) offer-directed anger to elicit more concessions than person-directed anger, mediated by the appraisal of the opponent's limits, and (2) person-directed disappointment to elicit more concessions than offer-directed disappointment, mediated by guilt.

Method

Design and participants

Eighty students from Leiden University (49 females, 31 males, M_{age} = 21.55, SD = 2.83) were randomly assigned to a 2 (opponent's emotion: anger vs. disappointment) × 2 (target: offer-directed vs. person-directed) between-participants design.

Procedure

Depending on condition, participants read a scenario where they negotiated with someone who communicated anger or disappointment, directed at the offer or the person. The scenario read as follows (translated from Dutch):

> *You are negotiating with another person. During the negotiation this person claims to be [angry at/disappointed in] [your offer/you as a person]. Even though you have little information about this person, we want to ask you some questions about this person and how this person comes across.*

Measures

Participants indicated their agreement with a number of statements on 10-point Likert-type scales (1 = *very unlikely*, 10 = *very likely*). We assessed participant's guilt by asking how guilty they would feel, and the appraisal of the opponent's limits by asking how much they thought the opponent would give in during the negotiation. Finally, we asked participants to what extent they would make high demands during the negotiation.

Results

Appraisal of the opponent's limits

We submitted participants' appraisals of the opponent's limits to a 2 (opponent's emotion) × 2 (target) Analysis of Variance (ANOVA), which revealed main effects of emotion, $F(1, 76) = 18.50$, $p < .001$, $\eta^2 = .20$, and target, $F(1, 76) = 10.07$, $p < .005$, $\eta^2 = .12$. These main effects were qualified by an interaction, $F(1, 76) = 10.98$, $p < .005$, $\eta^2 = .13$ (see Table 4.1).

Table 4. 1. Opponent's guilt, appraisal of the opponent's limits and demands as a function of emotion and target (Experiment 4.1)

	Anger				Disappointment			
	Offer-directed		Person-directed		Offer-directed		Person-directed	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Appraisal of the opponent's limits	7.55[a]	1.64	5.25[b]	.91	4.85[b]	1.42	4.90[b]	2.13
Guilt	4.85[a]	2.28	5.20[a]	2.48	4.60[a]	1.14	7.00[b]	1.62
Demands	6.55[a]	1.70	3.25[b]	1.97	4.55[b]	1.15	6.45[a]	1.67

Note. Participants could answer on a 10-point scale, higher scores indicate a higher likelihood of agreement with the item. Means within rows with different superscripts differ significantly (*p*s < .05, analyzed with simple-effects analyses).

Simple-effect analyses revealed that there was no effect of target on the perceived limits ratings in the disappointment conditions ($p = .92$). In the anger conditions there was an effect of target, $F(1, 76) = 21.04$, $p < .001$, $\eta^2 = .22$, such that participants in the offer-directed anger condition judged the limits of opponents to be higher than participants in the person-directed condition. Simple-effect analyses showed that participants in the offer-directed anger condition also perceived their opponent's limits to be higher than participants in the offer- and person-directed disappointment conditions (*p*s < .001).

Participant's guilt

A 2 × 2 ANOVA showed a main effect of target, $F(1, 76) = 9.89$, $p < .005$, $\eta^2 = .12$, which was qualified by a significant interaction effect, $F(1, 76) = 5.50$, $p < .05$, $\eta^2 = .07$ (see Table 4.1). Simple-effect analyses revealed that there was no effect of target in the anger conditions ($p = .57$). In the disappointment conditions, however, there was a significant effect of target, $F(1, 76) = 15.07$, $p < .001$, $\eta^2 = .17$. Participants in the person-directed disappointment condition indicated they would feel guiltier than participants in the offer-directed disappointment condition. Simple-effect analyses revealed that participants in the

person-directed disappointment condition also felt guiltier than participants in both anger conditions (*p*s < .005).

Demands

Finally, a 2 × 2 ANOVA on demands yielded the predicted interaction effect, $F(1, 76) = 49.74$, $p < .001$, $\eta^2 = .40$ (see Table 4.1). Simple-effects analyses revealed that a) offer-directed anger elicited *larger* concessions (lower demands) than person-directed anger, $F(1, 76) = 40.06$, $p < .001$, $\eta^2 = .35$, and b) offer-directed disappointment elicited *smaller* concessions (higher demands) than person-directed disappointment, $F(1, 76) = 13.28$, $p < .001$, $\eta^2 = .15$.

Mediation analyses

We anticipated the effect of target of the emotion on demands in the anger condition to be mediated by participants' appraisals of their opponent's limits, and the effect in the disappointment condition to be mediated by guilt. To test these predictions, we conducted two sets of mediated regression analyses using the procedure described by Baron and Kenny (1986).

In the anger conditions we found a significant effect of target of the emotion on demands, $\beta = -.68$, $p < .001$, and a significant effect of target on the appraisals of the opponent's limits, $\beta = -.67$, $p < .001$. Adding appraisals of the other's limits to the equation produced a significant effect of appraisals, $\beta = .76$, $p < .001$, and reduced the formerly significant effect of target on demands to non-significance, $\beta = -.17$, $p = .11$. A Sobel test revealed that the reduction was significant, $Z = -4.40$, $p < .001$.

In the disappointment conditions we found a significant effect of target on demands, $\beta = .56$, $p < .001$, and a significant effect of target on guilt, $\beta = .66$, $p < .001$. Adding guilt produced a significant effect of guilt, $\beta = .83$, $p < .001$, and reduced the formerly significant effect of target on demands to non-significance, $\beta = .02$, $p = .89$. A Sobel test revealed that the reduction was significant, $Z = 4.30$, $p < .001$.

Discussion

In line with our reasoning, participants indicated they would offer more to opponents who communicated offer-directed anger and person-directed disappointment,

than to opponents who communicated person-directed anger and offer-directed disappointment. Anger pays more when it is offer-directed, because then it is more informative about one's limits. Disappointment, on the other hand, pays more when it is person-directed, because then it evokes more guilt.

Experiment 4.1 provided first evidence that the two negative emotions anger and disappointment can have opposing effects in bargaining. Although the findings support our reasoning, it should be noted that we used a scenario setting in which participants had to imagine a negotiation and report on their behavioral intentions. To extend our findings, we conducted a second experiment in which participants engaged in a more involving negotiation task. This task enabled us to study actual behavior, and to assess additional measures that could further substantiate our claims.

Experiment 4.2

In Experiment 4.2 participants performed a commonly used task to study negotiation behavior (e.g., Pietroni, Van Kleef, De Dreu, & Pagliaro, 2008; Steinel et al., 2008; Van Kleef et al., 2004a, b). In this task participants negotiated as a seller with a potential buyer for six rounds. During the negotiation they received emotional reactions from their opponent. This task allowed us to study actual behavior in an involving negotiation setting and to investigate whether the effects and underlying processes uncovered in Experiment 4.1 can be replicated with a behavioral measure.

In addition to measuring negotiation behavior and the mediating constructs of guilt and inferred limits, we also collected measures to see whether the communication of anger and disappointment differs in other respects as well. In particular, one might wonder whether disappointment may be a less intense form of anger and that that could drive our effects. Also, one might wonder whether both emotions differ in terms of appropriateness (e.g., whether people maybe feel it is less appropriate to communicate anger than disappointment). We therefore assessed the perceived intensity and appropriateness of the emotional reactions.

Method

Design and participants

Ninety-seven students from Leiden University (75 females, 22 males, M_{age} = 20.75, *SD* = 1.90) who participated in a laboratory study for monetary compensation were randomly assigned to the conditions of a 2 (opponent's emotion: anger vs. disappointment) × 2 (target: offer-directed vs. person-directed) between-participants factorial design.

Procedure

Participants were seated in cubicles equipped with a computer that was connected through a network. They learned that they would negotiate via the computer with another participant. The negotiation task was an adapted version of the one used by Van Kleef et al. (2004a, b), which captures the main characteristics of real-life negotiation – that is, multiple issues differing in utility to the negotiator, information about one's own payoffs only, and the typical offer-counteroffer sequence. Participants learned that they were assigned the role of seller of a consignment of mobile phones and that their objective was to negotiate with the buyer about the price, the warranty period, and the duration of the service contract. They were then presented with a payoff chart (see Table 4.2) that showed which outcomes were most favorable to them, and they learned that their objective was to earn as many points as possible.

Table 4.2. Participant's payoff chart (Experiment 4.2)

Level	Price of Phones		Warranty period		Service contract	
	Price	Payoff	Warranty (months)	Payoff	Service (months)	Payoff
1	€ 150	400	1	120	1	240
2	€ 145	350	2	105	2	210
3	€ 140	300	3	90	3	180
4	€ 135	250	4	75	4	150
5	€ 130	200	5	60	5	120
6	€ 125	150	6	45	6	90
7	€ 120	100	7	30	7	60
8	€ 115	50	8	15	8	30
9	€ 110	0	9	0	9	0

To give an example, Level 3 on price, Level 4 on warranty and Level 5 on service, yielded a total of 495 points (300 + 75 + 120). The corresponding payoff table of the other party was not displayed, and participants were told only that it differed from their own.

To enhance involvement, we informed participants that points would be converted to lottery tickets at the end of the experiment and that the more points earned, the more lottery tickets one would obtain and the greater would be one's chance of winning a 30 Euro prize. To emphasize the mixed-motive nature of the negotiation, we told participants that only those who reached agreement would participate in the lottery. There were thus incentives to earn as many points as possible, but at the same time to reach an agreement.

Subsequently, the negotiation started, and the buyer (i.e., the computer) made a first offer. Over the negotiation rounds the buyer proposed the following levels of agreement (for price-warranty-service): 8-7-8 (round 1), 8-7-7 (round 2), 8-6-7 (round 3), 7-6-7 (round 4), 7-6-6 (round 5), and 6-6-6 (round 6). Past research has shown that this preprogrammed strategy has face validity and is seen as intermediate in cooperativeness and competitiveness (De Dreu & Van Lange, 1995). A demand by the participant was accepted if it equaled or exceeded the offer the computer was about to make in the next round. If no agreement was reached by the sixth round, the negotiation was interrupted

(see De Dreu & Van Lange, 1995). Following Tripp and Sondak (1992) and Van Kleef et al. (2004a, b), participants who reached agreement before round 6 (N = 17) were excluded from the analyses. This allowed us to track participants' behavior across the entire negotiation and to compare participants with a similar history. (Retaining these participants yielded a similar pattern of results.)

Emotion manipulation

After the first, third, and fifth negotiation rounds, participants received information about the buyer's intentions. We stressed that the buyer did not know that his/her intentions were revealed to the participant (as in Van Kleef et al., 2004a). The intentions contained the manipulation of the opponent's emotion (anger vs. disappointment) and the emotion's target (offer-directed vs. person-directed). That is, after round one the buyer wrote "I think I will offer 8-7-7", which would indeed be his/her offer. This intention information also contained an emotional statement which constituted the emotion manipulation. Half of the participants read an emotional reaction that was offer-directed and the other half read one directed at the person (see Table 4.3). These and similar statements have been successfully used in previous research (e.g., Steinel et al., 2008; Van Kleef, De Dreu, & Manstead, 2006a; Van Kleef & Van Lange, 2008).

Table 4.3. Statements used for the manipulation of the opponent's emotion (Experiment 4.2)

Opponent's Emotion	Reaction after round 1
Anger	This [offer/person] makes me really angry , I think I will offer 8-7-7
Disappointment	This [offer/person] really disappoints me, I think I will offer 8-7-7
	Reaction after round 3
Anger	This [behavior/person] is really getting on my nerves, I am going to offer 7-6-7
Disappointment	This [behavior/person] is really starting to disappoint me, I am going to offer 7-6-7
	Reaction after round 5
Anger	I am going to offer 6-6-6, 'cos this [negotiation/guy] pisses me off
Disappointment	I am going to offer 6-6-6, 'cos this [negotiation/guy] really disappoints me

Note. Translated from Dutch. Words in brackets before the slash were used in the offer-directed emotion condition. Words in brackets after the slash were used in the person-directed emotion condition. The opponent's intended offer corresponded with the actual offer in the next round.

Dependent measures

We transformed the participants' offers on the three issues into an index revealing the negotiator's total level of demand in each round (i.e., the sum of the number of points asked for each issue; see Table 4.2), and also averaged the demand levels in the six rounds into an index of the negotiator's average demands (see e.g. De Dreu, Carnevale, Emans, & Van de Vliert, 1994).

We asked participants to indicate on a 9-point scale how guilty they felt during the negotiation (1 = *not guilty at all*, 9 = *very guilty*). Participants' estimates of the opponent's limits were measured with six items, two for each issue (e.g., "What do you think was the buyer's lowest acceptable level of agreement on [price/warranty/service]?", see also Steinel et al., 2008), and were averaged into a single index (α = .89). In addition, to assess

the intensity of the emotion and appropriateness of the emotional reaction, we asked participants on a 9-point scale (1 = *not at all*, 9 = *very much so*) how negative they thought the opponent's reaction was, and to what extent they thought the emotional reaction was appropriate in the current situation.

To check the emotion manipulation, we asked participants to what extent they thought their opponent was angry and to what extend he or she was disappointed during the negotiation. To check the manipulation of the target of the emotion, we asked participants to indicate how much they agreed with two statements, namely "The emotions of the buyer were directed at me personally" and "The emotions of the buyer were directed at the offer." We recoded the latter and averaged both ratings into a single index ($\alpha = .80$).

Results

Manipulation checks

We submitted the participants' ratings of their opponent's anger and disappointment to a 2 × 2 ANOVA. Results on the anger ratings only yielded a main effect of emotion, $F(1, 76) = 58.38$, $p < .001$, $\eta^2 = .43$, indicating that participants in the anger condition rated their opponent as angrier ($M = 7.82$, $SD = 1.72$) than participants in the disappointment condition ($M = 4.35$, $SD = 2.26$). Results on the disappointment ratings also only yielded a main effect of opponent's emotion, $F(1, 76) = 14.84$, $p < .001$, $\eta^2 = .16$. Participants in the disappointment condition judged the opponents as more disappointed ($M = 7.35$, $SD = 1.75$) than participants in the anger condition ($M = 5.52$, $SD = 2.39$).

A 2 × 2 ANOVA on the index of person-directedness of the opponent's emotion revealed only a significant main effect of target, $F(1, 76) = 23.98$, $p < .001$, $\eta^2 = .24$, indicating that participants in the offer-directed condition reported less person-directedness ($M = 2.99$, $SD = 1.65$) than did participants in the person-directed emotion condition ($M = 5.31$, $SD = 2.47$).

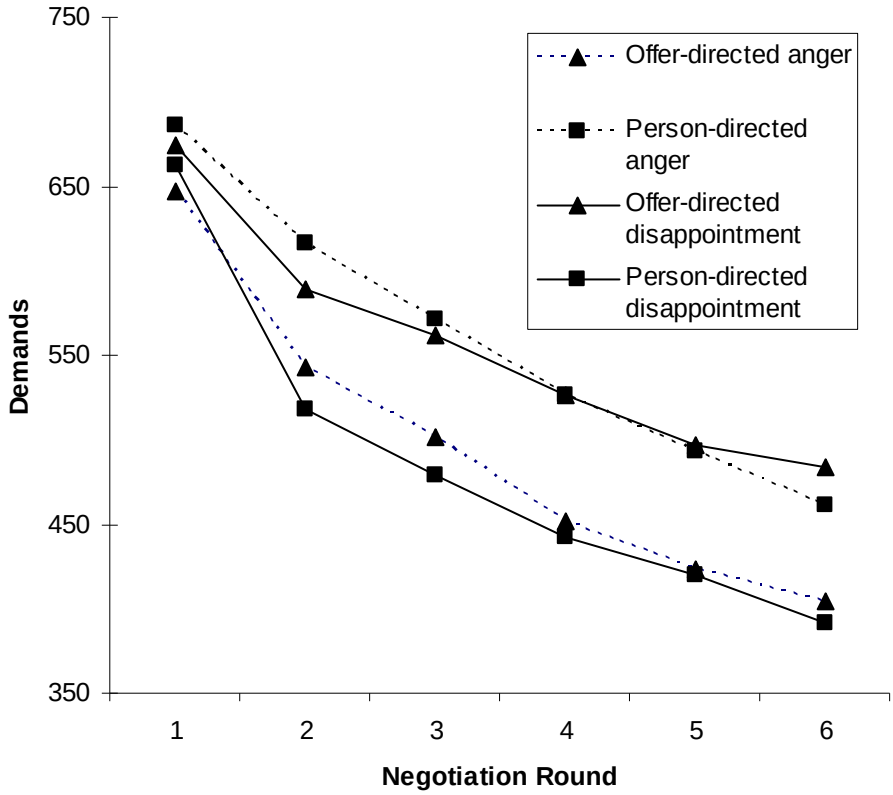
Demands

Demands in rounds 1-6 were submitted to a 2 × 2 mixed-model ANOVA, with emotion and target as between-participants variables and demands in rounds 1-6 as a repeated-measures variable. First of all, the analysis yielded a main effect of round, $F(5,$

380) = 215.15, $p < .001$, $\eta^2 = .74$, indicating that participants' demands declined over time (the average demands in round 1 and 6 were 667.00 and 434.50, respectively).

Secondly, and most important, we obtained a significant three-way interaction between emotion, target and round, $F(5, 380) = 3.14$, $p < .01$, $\eta^2 = .04$, indicating that the interactive effect of emotion and round on participant's demands was moderated by the target of the emotion. This three-way interaction is displayed in Figure 4.1.

Figure 4.1. Demands as a function of opponent's emotion and target of the emotion (Experiment 4.2).



To facilitate mediation analysis (see below) we also analyzed the demand level data by calculating the mean demands over the six rounds, as we explained in the method section (see dependent measures). A 2 × 2 ANOVA on demands yielded the predicted interaction between emotion and target, $F(1, 76) = 12.33$, $p < .001$, $\eta^2 = .14$. Means and

standard deviations are shown in Table 4.4. Simple-effects analyses revealed that a) offer-directed anger elicited *larger* concessions (lower demands) than person-directed anger, $F(1, 76) = 5.62$, $p < .05$, $\eta^2 = .07$, and b) offer-directed disappointment elicited *smaller* concessions (higher demands) than person-directed disappointment, $F(1, 76) = 6.74$, $p < .05$, $\eta^2 = .08$.

Table 4.4. Demands, perceived limits and guilt as a function of the opponent's emotion and the target of the emotion (Experiment 4.2)

	Anger				Disappointment			
	Offer-directed		Person-directed		Offer-directed		Person-directed	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Perceived Limits	5.62[a]	1.34	4.24[b]	.86	4.53[b]	.41	4.44[b]	.52
Guilt	4.14[b]	1.46	4.11[b]	1.63	4.40[b]	1.14	5.95[a]	1.91
Demands	495.23[a]	72.63	559.39[b]	47.61	555.54[b]	114.59	485.38[a]	91.67

Note. Means within rows with different superscripts differ significantly (*p*s < .05, analyzed with simple-effects analyses).

Appraisal of the opponent's limits

A 2 × 2 ANOVA revealed main effects of emotion, $F(1, 76) = 5.19$, $p < .05$, $\eta^2 = .06$, and target, $F(1, 76) = 14.11$, $p < .001$, $\eta^2 = .16$. More important for our reasoning, these main effects were qualified by an interaction, $F(1, 76) = 11.08$, $p < .005$, $\eta^2 = .13$ (see Table 4.4). Simple-effect analyses revealed that there was no effect of target of the perceived limits ratings in the disappointment conditions ($p = .76$). However, as predicted, there was an effect of target in the anger conditions, $F(1, 76) = 25.07$, $p < .001$, $\eta^2 = .25$. Participants in the offer-directed anger condition judged the limits of opponents to be higher than did participants in the person-directed condition. Simple-effect analyses showed that participants in the offer-directed anger condition also perceived their opponent's limits to

be higher than did participants in the offer- and person-directed disappointment conditions (*p*s < .001).

Participant's guilt

A 2 × 2 ANOVA on the guilt ratings also yielded main effects of emotion, $F(1, 76) = 9.11$, $p < .005$, $\eta^2 = .11$, and target, $F(1, 76) = 4.72$, $p < .05$, $\eta^2 = .06$. Again, these were qualified by an interaction, $F(1, 76) = 5.20$, $p < .05$, $\eta^2 = .06$ (see Table 4.4). Simple-effect analyses revealed that there was no effect of target on the guilt ratings in the anger conditions ($p = .94$). However, as predicted, there was an effect of target in the disappointment conditions, $F(1, 76) = 9.92$, $p < .005$, $\eta^2 = .12$, such that participants felt guiltier towards opponents who were disappointed in them as a person than towards opponents who were disappointed in the offer. Simple-effect analyses revealed that participants in the person-directed disappointment condition also felt guiltier than did participants in the offer- and person-directed anger conditions (*p*s < .005).

Mediation analyses

To investigate the mediating role of the appraisal of the opponent's limits in the anger conditions and guilt in the disappointment conditions, we conducted two sets of mediated regressions analyses using the procedure described by Baron and Kenny (1986).

In the anger conditions we found a significant effect of target of the emotion on demands, $\beta = .47$, $p < .005$, and a significant effect of target on the appraisals of the opponent's limits, $\beta = -.53$, $p < .001$. Adding appraisals of the other's limits to the equation produced a significant effect of appraisal, $\beta = -.78$, $p < .001$, and reduced the formerly significant effect of target on demands to non-significance, $\beta = .06$, $p = .62$. A Sobel test revealed that the reduction was significant, $Z = 3.35$, $p < .001$.

In the disappointment conditions we found a significant effect of target on demands, $\beta = -.33$, $p < .05$, and a significant effect of target on guilt, $\beta = .45$, $p < .005$. Adding guilt produced a significant effect of guilt, $\beta = -.41$, $p < .05$, and reduced the formerly significant effect of target on demands to non-significance, $\beta = -.14$, $p = .39$. A Sobel test revealed that the reduction was significant, $Z = -1.99$, $p < .05$.

Additional measures

***Emotion intensity*.** A 2 × 2 ANOVA showed no significant main effects of emotion (p = .88) or target (p = .20) and no interaction effect (p = .55; overall M = 6.45, SD = 1.28), indicating that the opponent's emotion was perceived as equally intense in all conditions.

***Appropriateness of the emotion*.** A 2 × 2 ANOVA showed no significant main effects of emotion (p = .68) or target (p = .42) and no interaction effect (p = .73; overall M = 6.31, SD = 1.43), indicating that the opponent's emotion was perceived as equally appropriate in all conditions.

General Discussion

In line with a social functional analysis of emotions (e.g., Keltner & Haidt, 1999; Van Kleef, 2009), we observe that one should be careful to generalize from one negative emotion to another. Although anger and disappointment are both negative emotions, and although the communication of both may elicit concessions, they do so under different circumstances and for different reasons. Anger elicits concessions when it is offer-directed and not when it is person-directed, because offer-directed anger signals high limits. In contrast, disappointment elicits concessions when it is person-directed and not when it is offer-directed because person-directed disappointment evokes guilt. Put differently, our data suggest that people give in to anger because they fear they would otherwise not reach an agreement and to disappointment because they would otherwise feel uncomfortable with themselves.

If one would assume that all negative emotions have similar effects on others, one might erroneously conclude that disappointment, like anger, communicates high limits and anger, like disappointment, evokes guilt. However, as our results show, disappointment did not communicate high limits and anger did not evoke high levels of guilt. Disappointment is associated with weakness (Frijda, Kuipers, & Ter Schure, 1989; Van Dijk & Zeelenberg, 2002b; Van Kleef et al., 2006a), and disappointed bargainers may thus not be seen as very ambitious and demanding. Instead, their limits may be judged as low, which may elicit low offers when people do not feel guilty (i.e., when it is offer-directed). Anger on the other hand is associated more with dominance (Tiedens, 2001) and previous research has shown that when people do not take their opponent's limits into account (e.g., when it is person-directed), anger is reciprocated (Van Dijk, Van Kleef, Steinel, & Van Beest, 2008).

This suggests that instead of evoking guilt, anger evokes retaliation, especially when directed at the person rather than the offer (see Steinel et al., 2008). Further research may investigate how this difference in communicated weakness between anger and disappointment influences their effect on opponent's bargaining behavior.

The fact that we observed opposing effects fits with the theoretical notion that it is essential to not only consider the valence of emotions (i.e., whether emotions are positive or negative). It is important to distinguish between different types of emotions, and acknowledge that specific emotions convey specific information (e.g., Lerner & Keltner, 2000; Tiedens & Linton, 2001; Van Kleef et al., 2006a, 2010; Zeelenberg & Pieters, 1997). One should therefore treat each emotion as a distinct predictor of behavior in negotiations. Our findings corroborate this notion, and in addition also highlight that when it comes to investigating the interpersonal effects of distinct emotions, it is important to consider the target of the emotion.

As we already noted above, anger is often reciprocated. Our results show that disappointment, on the contrary, evokes the complementary emotion guilt in others. The difference between these concepts is that e*motional reciprocity* refers to the process by which one individual comes to feel the emotions of another, whereas *emotional complementarity* occurs when one person's emotions evoke different but corresponding emotions in others (Van Kleef, Oveis, Van der Löwe, LuoKogan, Goetz, & Keltner, 2008). In this respect, the current findings also add to the literature on emotional contagion (Hatfield et al., 1994; see also Anderson, Keltner, & John, 2003; Hess & Blairy, 2001; Neumann & Strack, 2000; Wild et al., 2001), since different negative emotions emotionally affect others in a different way.

We found similar results across different types of bargaining settings (a computer-mediated bargaining setting in Experiment 4.2 and a scenario setting where people did not have a specific bargaining setting in mind in Experiment 4.1). One may, however, wonder whether similar findings would be obtained in a face-to-face negotiation. As noted before, we made an explicit decision to maintain experimental control, to permit a carefully controlled manipulation of the opponent's emotion. We have no reason to suspect that our findings are restricted to the domain of computer-mediated interaction. Previous research has used various settings to compare effects of communicated emotions. Findings obtained with computer-mediated interactions are similar to findings obtained with different paradigms, including surveys involving full-time workers (e.g., Van Kleef, De Dreu, Pietroni,

& Manstead, 2006b), nonverbal manipulations of emotional expressions by means of pictures (e.g., Pietroni et al., 2008) and face-to-face negotiation (e.g., Sinaceur & Tiedens, 2006). Future research might investigate the generalization of the interpersonal effects of the studied emotions across settings.

In our first study, the emotions may have been interpreted as an attempt to strategically influence the opponents. Although this was not possible in our second study (because participants knew that their opponents did not know that they would read their reaction), it may be interesting to find out if people strategically make use of their emotions in negotiations. One could, for instance, investigate whether people actually choose to communicate their anger at the offer and their disappointment at the person. By providing a broader and more differentiated view of how emotions can affect others, this work helps future researchers to shed new light on the conditions under which emotions are strategically effective.

Chapter 5

When communicating disappointment helps and hurts

This chapter is based on: Lelieveld, G. -J., Van Dijk, E., Van Beest, I., & Van Kleef, G. A. (2013). Does communicating disappointment in negotiations help or hurt? Solving an apparent inconsistency in the social-functional approach to emotions. *Manuscript under review*.

Chapter 5

Bargaining is often a heated, emotional process (Pruitt & Carnevale, 1993). Research has now established that emotions in bargaining are not always detrimental or disruptive forces that interfere with decision-making. Instead, they are considered to be social tools that facilitate social decision-making. Social-functional perspectives on emotions (e.g., Elfenbein, 2007; Keltner & Haidt, 1999; Morris & Keltner, 2000; Parkinson, 1996; Van Kleef, De Dreu, & Manstead, 2010) converge on the notion that emotions do not only influence those who experience them, but also those who observe them. Emotions contain valuable information about the feelings and intentions of the sender of the emotion, which can have consequences for the behavior of the receiver. However, in some cases the social-functional approach gives rise to competing predictions regarding the effects of emotional expressions in negotiations. In this respect disappointment is an interesting case. Disappointment arises when progress towards a goal is below expectations (Carver & Scheier, 1990) and/or when a desired outcome is not achieved (Bell, 1985; Frijda, 1986; Van Dijk & Van der Pligt, 1997). Previous research on the social functions of disappointment has found that negotiators with disappointed opponents tend to infer that the other has received too little (Van Kleef & Van Lange, 2008) and was hoping for more (Thompson, Valley, & Kramer, 1995).

Disappointment thus serves a "supplication" function (Van Kleef, De Dreu, & Manstead, 2006a). A key characteristic of supplication emotions is that they serve as a call for help (Van Kleef et al., 2006a). According to one perspective, this call for help communicates dependency (Eisenberg, 2000), which may signal weakness. In line with this perspective, research has shown that disappointment is often accompanied by passive behavior and a loss of control (Zeelenberg, Van Dijk, Manstead, & Van der Pligt, 1998a), and even feelings of weakness (Van Dijk & Zeelenberg, 2002b), which may in turn be communicated to others. If expressions of disappointment indeed signal weakness, this may be exploited by others (Markowski, Willer, & Patton, 1988; Molm, 1985), especially in competitive situations such as negotiations (Kravitz & Gunto, 1992).

Interestingly, however, expressions of disappointment do not always elicit a tendency amongst targets to act in self-interested ways. According to another perspective, the weakness that supplication emotions communicate may elicit prosocial responses from

targets (Van Kleef et al., 2006a). There is now considerable evidence that emotional calls for help may actually be granted (Clark, Pataki, & Carver, 1996; Timmers, Fischer, & Manstead, 1998), even though such calls may communicate a weak bargaining position. Targets of expressions of disappointment may help the expresser in an attempt to relieve his/her pain, for instance by making concessions (Van Kleef & Van Lange, 2008). According to this perspective, communicating weakness does not elicit a tendency to act in a self-interested way, but it actually elicits a prosocial tendency.

The weakness that disappointment signals may thus have two effects on others in bargaining: It may elicit either selfish or prosocial tendencies in others. Research on power in negotiations has shown evidence for both possibilities. One line of negotiation studies has documented that in general power holders have the tendency to exploit the weak person by making more self-serving offers (De Dreu, 1995; Güth & Huck, 1997; Kagel, Kim, & Moser, 1996; Lawler, 2002; Pillutla & Murnighan, 1995; Suleiman, 1996). In contrast, a different line of studies has shown that power holders may also act in a socially responsible way by cooperating or acting altruistically (Fisher & Nadler, 1974; Frieze & Boneva, 2001; Gardner & Seeley, 2001; Greenberg, 1978; Handgraaf, Van Dijk, Vermunt, Wilke, & De Dreu, 2008; Lee & Tiedens, 2001; Rafaeli & Sutton, 1991). Handgraaf and colleagues (2008) showed that whether bargainers behave in a self-interested or more prosocial manner towards low-power opponents depends on the extent to which strategic versus social responsibility considerations are triggered.

Thus, various perspectives within the social-functional approach to emotions suggest opposite hypotheses regarding the interpersonal effects of disappointment in negotiations. Currently, these perspectives exist separately from each other in the literature. In this paper we aim to reconcile these different perspectives on the interpersonal effects of disappointment, by exploring contingencies of the interpersonal effects of disappointment.

The critical role of guilt

We propose that a crucial determinant of whether disappointment elicits a tendency to act prosocially or a tendency to act in a self-interested way is whether or not it evokes guilt in others. Previous research has already established the association between disappointment and guilt. Ferguson, Olthof, and Stegge (1997) presented participants with

guilt-eliciting scenarios and demonstrated that the victim's anticipated disappointment was highly (positively) correlated with the participants' feelings of guilt. Guilt improves relationship quality, reduces competition, and motivates people to make amends (Baumeister, Stillwell, & Heatherton, 1994; Leith & Baumeister, 1998). Moreover, in negotiation settings guilt stimulates concessions (Ketelaar & Au, 2003; Lelieveld, Van Dijk, Van Beest, Steinel, & Van Kleef, 2011; Lelieveld, Van Dijk, Van Beest, & Van Kleef, 2012). This suggests that disappointment elicits generous offers in negotiations by evoking guilt in others.

A caveat in this prior research is that it only assessed situations in which disappointment evokes guilt. In such situations, expressions of disappointment may indeed elicit a tendency amongst targets to act prosocially (Lelieveld et al., 2012; Van Kleef et al., 2006a). We extend this research by noting that expressions of disappointment may not always induce guilt. We propose that if disappointment does not evoke guilt, the communicated weakness may evoke a tendency amongst targets to act selfishly, which is reflected by lower offers. Evoked guilt may thus be a key determinant of whether the weakness that is communicated by expressions of disappointment pays off or backfires.

With whom and on behalf of whom

Guilt is considered to be a social phenomenon and arises from interpersonal transactions (Baumeister et al., 1994). Individuals experience higher levels of guilt in close relationships and lower levels of guilt when dealing with others they identify less or have less in common with (Baumeister et al., 1994; Baumeister, Reis, & Delespaul, 1995). Whether disappointment evokes guilt in negotiations or not may thus depend on how much one identifies with one's opponent. In this respect, it is important to investigate the effects of an opponent's *group membership*.

Prior research on social identity has shown that group membership is an important determinant of interpersonal behavior. Members from the in-group are seen as more similar in attitudes and values in comparison to members from the out-group and this has been shown to influence responses towards others (Tajfel & Turner, 1986; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). When dealing with out-group members, people tend to be concerned more with their own interests instead of the collective interest (Tajfel, Billig, Bundy, & Flament, 1971), which implies that in negotiations, bargainers may use more distributive bargaining tactics. Also, research has shown that bargainers adopt a

more competitive negotiation strategy when they deal with out-group members (Brewer & Kramer, 1986; Keenan & Carnevale, 1992; Kramer, 1991; Rothbart & Hallmark, 1988). Although a potential role of guilt was not considered in these studies, they do suggest that when individuals bargain with out-group members, they may feel less concerned with their opponent's outcomes and experience lower levels of guilt. An opponent's group membership may thus be a crucial determinant of whether disappointment evokes guilt or not.

Besides investigating the effects of an opponent's group membership, it is also important to take the *type of negotiation* into account. Two important types of negotiations can be distinguished: individual negotiations and negotiations where a representative negotiates for a constituency (i.e., representative bargaining; e.g., Druckman, 1994). In representative negotiations, a bargainer's constituency can have a significant impact on his/her bargaining behavior. Negotiators who negotiate on behalf of (a group of) others have a desire to make a positive impression on their constituents (Adelberg & Batson, 1978; Gruder & Rosen, 1971; Wall, 1975, 1991). Research has found that representatives typically adopt a more competitive bargaining strategy and make fewer concessions than individual negotiators do (Benton, 1972; Druckman, Solomon, & Zechmeister, 1972, Van Kleef, Steinel, Van Knippenberg, Hogg, & Svensson, 2007), suggesting that representatives are more concerned with their own outcomes and those of their group, and less so with the outcomes of their opponent. Since guilt rests on a concern for other's outcomes (Baumeister et al., 1994; Leith and Baumeister, 1998; Lelieveld et al., 2012; Mallett & Swim, 2007), bargainers may experience lower levels of guilt when they negotiate as representatives. Whether disappointment evokes guilt or not, may thus be determined by the type of negotiation (i.e., whether it is a representative negotiation or an individual negotiation).

Current studies

We thus suggest that communicating disappointment may be a double-edged sword. On the one hand, when it evokes guilt, the communicated weakness may pay. On the other hand, communicating disappointment may backfire when it does not evoke guilt. We investigate the relevance of this for negotiation behavior, by taking into account *with whom* one negotiates, but also *on behalf of whom* one negotiates. We argue and demonstrate that disappointment evokes higher levels of guilt when the opponent

expressing disappointment is an in-group member, or when the negotiation is an individual negotiation. In these cases, the weakness that disappointment signals elicits prosocial behavior in the counterpart, which is reflected in generous offers (see also Lelieveld et al, 2012). When bargainers negotiate with an out-group opponent or as representatives, they are typically less concerned with the outcomes of their opponent. In these situations, disappointment evokes lower levels of guilt, and as a result the communicated weakness elicits a tendency to act in a self-interested way, which is reflected in lower offers (see also Thompson et al., 1995).

Although our theoretical analysis is specific to the emotion of disappointment, we deemed it important to demonstrate that the effects of disappointment can indeed be distinguished from those of another negative emotion. To establish this, we pitted the effects of disappointment against another negative emotion that does not communicate weakness: anger. Although anger and disappointment are both common reactions to undesirable outcomes and have been shown to possess similar levels of intensity and appropriateness in bargaining settings similar to ours (Lelieveld et al., 2011, 2012; see also Wubben, De Cremer, & Van Dijk, 2009), research has shown that in contrast to our predictions about disappointment, anger does not communicate weakness. This makes anger a highly relevant emotion to compare the effects of disappointment with. Anger is an emotion that elicits approach tendencies (Harmon-Jones, 2004) and feelings of control (Roseman, Antoniou, & Jose, 1996). Angry individuals are perceived to be powerful (Tiedens, 2001) and in negotiations they are perceived as tough (Sinaceur & Tiedens, 2006). Research on the communication of anger in negotiations has shown that angry bargainers are perceived to have high limits (e.g., Van Kleef, De Dreu, &Manstead, 2004a, b). When a bargainer has high limits, this means he/she is not expected to give in. Anger may therefore alert others to negative consequences (e.g., conflict escalation), which may lead them to concede to avoid impasse.

In contrast to the communication of disappointment, we suggest that anger may not elicit lower offers when it is communicated by an out-group member or in representative negotiations. Being associated with toughness and power, communicated anger may not suffer from the disadvantages of communicating weakness. Regardless of whether it is communicated by an in-group or out-group member, the toughness and high limits that anger communicates may lead targets to give in to avoid impasse. Similarly, to avoid ending the negotiation in impasse, targets of anger may offer more when negotiating

for their own outcomes, but also when negotiating as representatives. We thus predict that when communicated by an in-group member and in an individual negotiation, anger and disappointment may both elicit generous offers. When communicated by an out-group member or in a representative negotiation, we predict that anger elicits generous offers, but disappointment does not.

To examine the effects of group membership (in-group vs. out-group, see Experiment 5.1) and the type of negotiation (individual vs. representative negotiation, see Experiment 5.2 and 5.3), we used the *ultimatum bargaining game*, a commonly used task to study motivated bargaining behavior (Güth, Schmittberger, & Schwarze, 1982). In this game, two players have to decide on how to distribute a certain amount of chips. One of the players (the allocator) makes a "take it or leave it" offer to the other player (the recipient) by offering a proportion of the chips. If the recipient accepts, the money will be distributed accordingly. If the recipient rejects, both receive nothing. Because of its simple structure, in which many dynamics of making offers and counteroffers are not present, the ultimatum bargaining game is very suited and also often used to examine the effects of emotional reactions in bargaining (see also Lelieveld et al., 2012; Van Dijk, Van Kleef, Steinel, & Van Beest, 2008).

Experiment 5.1

In Experiment 5.1 we investigated the influence of group membership on the effects of communicated disappointment and anger. We manipulated the group membership of the opponent communicating the emotion, by either informing the participants that their opponent was a student from another or from the same university. We expected that communicating disappointment would elicit high offers from participants when it is communicated by an in-group member, but low offers when communicated by an out-group member. Regardless of the opponent's group membership, disappointment may communicate weakness. When communicated by an out-group member, disappointment may evoke lower levels of guilt and the communicated weakness may lead bargainers in this situation to make lower offers. When communicated by an in-group member, disappointment may evoke higher levels of guilt and the communicated weakness may lead bargainers to offer more. Being an emotion that does not communicate weakness, but actually signals high limits (Van Kleef et al., 2004a, b) and toughness

(Sinaceur & Tiedens, 2006), anger does not come with the disadvantages that disappointment has when it is communicated by an out-group member. The high limits that anger communicates may lead participants to make higher offers to avoid impasse, regardless of the expresser's group membership.

Method

Design and participants

The study used a 2 (opponent's emotion: disappointment vs. anger) × 2 (opponent's group membership: in-group vs. out-group) between-participants design. Participants were 81 students from Leiden University (61 females, 20 males, M_{age} = 20.11, *SD* = 1.98).

Procedure

Upon arrival, participants learned that they would participate in a large collaborative study, initiated by researchers at Leiden University and the University of Amsterdam, and that they would be paired with another participant. This participant would either be a student from their own university (an in-group member), or a student from the other university (an out-group member). Subsequently, participants learned that the computer randomly determined which of the other participants they were paired with. Half of the participants learned they were paired with an in-group member and half learned they were paired with an out-group member. Members of each dyad were referred to as person X and person Y and participants were assigned the letter X.

Before they received information about the bargaining situation, participants were asked to indicate to what extent they agreed with six general statements about bargaining behavior. The answers to these questions were used as the cause of the emotional reaction (cf. Lelieveld et al., 2012; Van Dijk et al., 2008). Example statements were "During negotiations strategy plays an important role" and "During negotiations my own outcomes are important". After giving their opinion on the bargaining statements, participants learned that their ratings were sent to Y. This was explained by pointing out that in reality people often have information about their opponent in a negotiation.

Subsequently, participants received information about the ultimatum bargaining situation. All participants learned that they, X, would bargain with Y over the distribution of 100 chips. Participants learned that they were assigned the role of allocator and that the chips had different values for the allocator and the recipient. One chip was worth 10 eurocents to them (person X), but only 5 cents to the recipient (person Y). Introducing this asymmetry (see also Lelieveld et al., 2012; Van Dijk et al., 2008; Van Dijk & Vermunt, 2000) creates some ambiguity about what should be considered a fair allocation, which reduces bargainers' tendency to just propose a 50-50 split of the money (which often happens in ultimatum bargaining; see Camerer & Thaler, 1995). Participants learned that they would make an offer to Y by indicating how they wanted to allocate the chips. If Y agreed, the chips were distributed accordingly. However, if Y turned down the division, both X and Y would not receive any money.

After explaining the bargaining situation, the manipulation of the recipient's emotion was induced. Participants were led to believe that while they received the instructions about the bargaining game, Y had typed a reaction after reading the participant's answers to the bargaining statements. To ensure that participants believed that the emotional reaction was not altered for strategic reasons, participants learned that Y did not know that the reaction would be sent back to them (see Van Kleef et al., 2004a). In the angry opponent condition, participants read: "Now that I've read what X typed, it makes me quite angry. This is unpleasant. I am really annoyed". In the disappointment conditions participants read "Now that I've read what X typed, I feel quite disappointed. This is unpleasant. I am really disappointed". The angry and disappointed emotional statements were adapted from previous research on the effects of emotional communication in negotiations (e.g., Lelieveld et al., 2011, 2012; Sinaceur & Tiedens, 2006; Van Dijk et al., 2008; Van Kleef et al., 2004a, b, 2006a).

Finally, participants made their ultimatum offer. Subsequently, participants completed a questionnaire with manipulation checks and items designed to measure the perception of the opponent's weakness, the opponent's limits, and participants' guilt. All items were answered on 7-point scales.

To ensure that our manipulations of the communicated emotions were successful, participants were asked to indicate how angry and disappointed they thought Y was. To check whether participants realized that their opponent was from a different university or from the same university, we asked participants which university their opponent attended.

To check whether participants identified more with their in-group (students from their own university) than with their out-group (students from the other university), we asked participants to indicate to what extent they agreed with five statements concerning students from their own university (e.g., "I feel a strong connection to other students from my university", "I identify strongly with other students from my university", and "I feel a large resemblance to the values and opinions of other students from my university"). These were combined into a single index of identification with the in-group ($\alpha = .78$). The same five statements were used to assess the identification with students from the other university (i.e., the out-group). These items were combined into a single index of identification with the out-group ($\alpha = .81$).

To measure the perceived weakness of the opponent, we asked participants to what extent they perceived their opponent to have a weak bargaining position. As a second indication of whether the opponent was perceived to be weak, we also measured the perception of the opponent's limits, by asking what they thought the opponent's lowest acceptable number of chips would be. If the lowest acceptable number of chips of the opponent is perceived to be high, this means that opponents are not expected to give in much and that their limits are perceived to be high. A bargainer's limits are an indication of his/her weakness, such that a weak bargainer is considered to have low limits, whereas a tough bargainer is considered to have high limits (Sinaceur & Tiedens, 2006; Van Kleef et al., 2004a, b). Furthermore, in line with previous research (Lelieveld et al., 2011, 2012), we assessed participants' guilt by asking how guilty they felt during the negotiation.

It is also relevant to check whether anger and disappointment might differ in intensity. To rule out that a difference in intensity is driving our effects, we asked participants how negative they thought their opponent was. Also, although previous research has shown that in negotiations it is not more or less appropriate to communicate disappointment than to communicate anger (Lelieveld et al., 2011, 2012), we also measured the perceived appropriateness of the communicated emotions to ensure that this did not influence our results. We asked participants to what extent they thought the emotional reaction was appropriate in the current situation. At the end participants were debriefed and received 3 euros.

Results

Manipulation checks

Opponent's emotion. A 2 (opponent's emotion) × 2 (opponent's group membership) Analysis of Variance (ANOVA) on the anger ratings yielded only a main effect of opponent's emotion, $F(1, 77) = 225.82$, $p < .001$, $\eta^2 = .75$, indicating that participants in the angry opponent condition rated their opponent as more angry ($M = 6.20$, $SD = .98$) than did participants in the disappointed opponent condition ($M = 3.30$, $SD = .72$). The 2 × 2 ANOVA on the disappointment ratings also only revealed a main effect of opponent's emotion, $F(1, 77) = 66.41$, $p < .001$, $\eta^2 = .46$, indicating that participants in the disappointed opponent condition judged the opponent to be more disappointed ($M = 5.92$, $SD = 1.46$) than did participants in the angry opponent condition ($M = 3.73$, $SD = .90$).

Opponent's group membership. All participants correctly answered the question about which university their opponent attended. Also, the identification ratings were submitted to a 2 × 2 mixed-model ANOVA, with opponent's group membership and opponent's emotion as between-participants variables and group (identification to students from the same university vs. identification to students from the other university) as a repeated-measures variable. First of all, the analysis yielded a main effect of group, $F(1, 77) = 610{,}37$, $p < .001$, $\eta^2 = .89$, indicating that participants identified more with students from the same university ($M = 4.69$, $SD = .64$) than with students from the other university ($M = 2.30$, $SD = .48$). Secondly, the analysis showed no significant main or interaction effects of opponent's emotion or group membership ($ps > .37$).

These findings suggest that the manipulations of opponent's emotion and opponent's group membership were successful.

Offer

A 2 × 2 ANOVA on participants' offers yielded main effects of opponent's emotion, $F(1, 77) = 6.22$, $p < .05$, $\eta^2 = .08$, and opponent's group membership, $F(1, 77) = 11.70$, $p < .001$, $\eta^2 = .13$. More importantly, these main effects were qualified by a significant interaction, $F(1, 77) = 4.35$, $p < .05$, $\eta^2 = .05$ (see Table 5.1).

Table 5.1. Number of chips offered to the opponent as a function of opponent's emotion and opponent's group membership (Experiment 5.1)

	Anger		Disappointment	
	M	*SD*	*M*	*SD*
Individual negotiation	59.65 [a]	7.85	59.00 [a]	5.61
Representative negotiation	57.52 [a]	7.18	50.24 [b]	7.66

Note. Means with different superscripts differ significantly (*p*s <.05, analyzed with simple-effect analyses).

As expected, participants offered fewer chips to out-group members communicating disappointment (M = 50.24, SD = 7.66) than to in-group members communicating disappointment (M = 59.00, SD = 5.61), $F(1, 77) = 14.96$, $p < .001$, $\eta^2 = .16$. Participants' offers to out-group opponents communicating anger (M = 57.52, SD = 7.18) as well as in-group opponents communicating anger (M = 59.65, SD = 7.85) were high and did not differ significantly ($p = .35$).

Moreover, as Table 5.1 shows, offers to disappointed out-group members were significantly lower (M = 50.24, SD = 7.66) than offers to angry in-group members (M = 59.65, SD = 7.85) or angry out-group members (M = 57.52, SD = 7.18, *p*s < .005). Finally, offers to disappointed in-group members did not differ significantly from offers to angry in-group members or angry out-group members, *p*s > .52.

Perceived weakness

A 2 × 2 ANOVA on the perceived weakness ratings only revealed a main effect of opponent's emotion, $F(1, 77) = 85.59$, $p < .001$, $\eta^2 = .53$, indicating that disappointed opponents were perceived to be weaker (M = 4.75, SD = .81) than angry opponents (M = 2.61, SD = 1.20).

In agreement with the perceived weakness ratings, a 2 × 2 ANOVA on the perceived limits ratings yielded only a main effect of opponent's emotion, $F(1, 77) = 11.69$, $p < .001$, $\eta^2 = .13$, indicating that the limits of disappointed opponents were judged to be lower (M = 50.00, SD = 9.82) than the limits of angry opponents (M = 57.68, SD = 10.48).

Guilt

A 2 × 2 ANOVA on the guilt ratings revealed main effects of emotion, $F(1, 77) = 7.70$, $p < .01$, $\eta^2 = .09$, and group membership, $F(1, 77) = 9.89$, $p < .005$, $\eta^2 = .11$. More importantly, these main effects were qualified by an interaction effect, $F(1, 77) = 10.68$, $p < .005$, $\eta^2 = .12$. Simple main effects showed that disappointment evoked higher levels of guilt in participants when communicated by an in-group opponent ($M = 5.00$, $SD = 1.05$) than when disappointment was communicated by an out-group opponent ($M = 3.14$, $SD = 1.32$), $F(1, 77) = 20.28$, $p < .001$, $\eta^2 = .21$. Moreover, disappointment from an in-group opponent also evoked more guilt than anger communicated by an in-group ($M = 3.25$, $SD = 1.33$) or out-group opponent ($M = 3.29$, $SD = 1.45$, both ps $< .001$). Levels of guilt did not differ across the anger conditions ($p = 1.00$).

Mediated moderation analysis

We expected that the interaction effect of opponent's emotion and opponent's group membership on participant's offers would be mediated by participant's guilt. This means that we anticipated mediated moderation (Muller, Judd, & Yzerbyt, 2005). We first performed a series of regression analyses with the opponent's emotion × opponent's group membership interaction as the independent variable, offers as the dependent variable, and guilt as the mediator (while controlling for the opponent's emotion and opponent's group membership). These regression analyses showed a significant opponent's emotion × opponent's group membership interaction effect on offers ($\beta = -.21$, $p < .05$) and a significant interaction effect on the mediator ($\beta = -.32$, $p < .005$), consistent with the ANOVA results reported above. Furthermore, the mediator significantly predicted participant's offers ($\beta = .49$, $p < .001$). Finally, when the mediator (participant's guilt) was included in the regression analyses, the interaction effect of opponent's emotion and opponent's group membership on offers became non-significant ($\beta = .08$, $p = .46$).

To test whether this mediated moderation was significant, we used a bootstrap method (Preacher & Hayes, 2004, 2008). A bootstrapped mediation analysis uses re-sampling of raw data to estimate the confidence intervals (CI) of the indirect effects, of which the mediation model consists.[1] We used bootstrapping to estimate the indirect effect of the opponent's emotion × opponent's group membership interaction on offers with guilt as mediator, while controlling for the opponent's emotion and opponent's group membership terms. Using 10,000 bootstrap re-samples and bias corrected and accelerated intervals (see Preacher & Hayes, 2008), we obtained confidence intervals that did not contain zero at the 99% level (i.e., lower CI = -2.47; upper CI = -.19), indicating significant mediation. Thus, participant's guilt mediated the interaction between opponent's emotion and opponent's group membership on the offer.

Additional measures

To ensure that our results were not caused by a difference in the intensity or appropriateness of the emotions, we measured both the intensity and appropriateness of the communicated anger and disappointment. A 2 × 2 ANOVA on the intensity ratings showed no significant main effects of opponent's emotion (p = .50) or group membership (p = .47) and no interaction effect (p = .11; overall M = 5.42, SD = 1.13), indicating that the conditions did not differ with regard to the perceived intensity of the emotion.

Accordingly, a 2 × 2 ANOVA on the appropriateness ratings showed no significant main effects of opponent's emotion (p = .59) or group membership (p = .91) and no interaction effect (p = .13; overall M = 5.32, SD = 1.30), indicating that the conditions also did not differ with regard to the perceived appropriateness of the emotion.

Finally, entering the intensity and appropriateness ratings as covariates in our mediation analyses did not change the pattern of findings.

Discussion

In line with our expectations, the results from Experiment 5.1 show that in negotiations, the interpersonal effects of disappointment and not the effects of anger

[1] We used bootstrapping because this method offers a good test of mediation effects with relatively low sample sizes (cf. Preacher & Hayes, 2004, 2008). Testing for mediation with the procedure described by Baron and Kenny (1986) yielded similar findings: When controlling for the mediator guilt, all mediated moderation analyses showed a significant reduction of the interaction effect (the opponent's emotion × opponent's group membership interaction for Experiment 5.1 and the opponent's emotion × type of negotiation interaction for Experiment 5.2 and 5.3), as confirmed by Sobel tests (all ps < .05).

depend highly on the expresser's group membership. We showed that disappointment communicates weakness, which can have two effects: It can evoke a tendency to act self-interested which is reflected in lower offers to disappointed opponents, or a sense of social responsibility which is reflected in higher offers. Our findings showed that whether participants felt guilty determined whether participants made higher offers to disappointed opponents or not. When disappointment was communicated by an in-group member it evoked guilt, which elicited higher offers from participants. However, when disappointment was communicated by an out-group member, participants felt less guilty, which elicited lower offers from participants.

Anger, on the other hand, elicited higher offers from participants regardless of the expresser's group membership. Being an emotion that communicates less weakness, anger may not elicit lower offers when it is communicated by an out-group member. In line with previous research (Van Dijk et al., 2008; Van Kleef et al., 2004a, b), angry bargainers were perceived to have high limits and participants offered more, regardless of whether the anger was expressed by an in- or out-group member.

This is the first experiment that has shown that, besides evoking guilt, disappointment also communicates weakness. When disappointment is communicated by someone you do not identify with (i.e., when your opponent is an out-group member), levels of guilt are low, and communicated weakness may elicit lower offers. When disappointment is communicated by an in-group person, the communicated weakness is accompanied by guilt, which results in more generous offers. In Experiment 5.2 we investigated the effect of the type of negotiation. We investigated whether the weakness that disappointment communicates would also elicit lower offers when the target of the emotion negotiates as a representative for a constituency.

Experiment 5.2

In Experiment 5.2 we investigated the influence of the type of negotiation, by comparing the effects of communicated disappointment and anger in individual versus representative bargaining. We manipulated the type of negotiation, by either informing the participants that they negotiated for the outcomes of a group of three other participants (the representative negotiation condition) or for their own outcomes (the individual negotiation condition). We expected that disappointment would communicate weakness,

regardless of the type of negotiation. This weakness may pay when disappointment evokes guilt, but backfire when it does not. We expected that disappointment would evoke guilt in participants who negotiated for their own outcomes (see Lelieveld et al., 2011, 2012), which would lead participants to offer more. However, in a representative negotiation, we expected disappointment to evoke lower levels of guilt because representative negotiators tend to exhibit less concern for their negotiation counterparts. In this case, the communicated weakness would evoke a tendency to act in a self-interested way by making lower offers. Since anger does not communicate weakness, we expected that it would not elicit low offers from participants in a representative negotiation.

Method

Design and participants

The study used a 2 (opponent's emotion: disappointment vs. anger) × 2 (type of negotiation: individual vs. representative negotiation) between-participants design. Participants were 78 students from a university in the Netherlands (55 females, 23 males, M_{age} = 20.81, SD = 2.13).

Procedure

The procedure resembled the procedure of Experiment 5.1. However, in the current experiment half of the participants learned that they were negotiating for a group consisting of three other participants and that these participants were dependent on them for their outcomes. Participants themselves did not receive any of the chips, only their constituency (the three other participants) received the chips participants bargained for. If the participant would end up with 50 chips, for instance, each of the three other participants would earn 50 chips. Note that the constituency would only receive the chips if the (simulated) opponent would accept the participant's ultimatum offer and that the participants could not communicate with the constituency during the course of the negotiation. The other half of the participants did not have a constituency and received the same instruction as participants in Experiment 5.1.

After explaining the bargaining situation, participants received the emotional reactions (angry and disappointed reactions) as in Experiment 5.1 and subsequently made

their offer. Also, participants completed a similar post-negotiation questionnaire as in Experiment 5.1. The negotiation type manipulation was checked by asking participants who would receive the chips they negotiated for: the participants themselves, three other participants, or nobody. Note that participants in the representative negotiation condition did not receive any of the outcomes of the negotiation. One may wonder whether participants in this condition would then be less motivated to get a good outcome. Although this would not explain any differences between disappointment and anger, we asked participants to indicate how motivated they were to get a good outcome, to rule out that a difference in motivation was driving the effects.

Results

Manipulation checks

Opponent's emotion. A 2 (opponent's emotion) × 2 (type of negotiation) ANOVA on the anger ratings yielded only a main effect of opponent's emotion, $F(1, 74) = 79.41$, $p < .001$, $\eta^2 = .52$. Participants in the angry opponent condition rated their opponent as more angry ($M = 6.24$, $SD = 1.32$) than did participants in the disappointed opponent condition ($M = 3.67$, $SD = 1.19$). The 2 × 2 ANOVA on the disappointment ratings also only revealed a main effect of opponent's emotion, $F(1, 74) = 81.88$, $p < .001$, $\eta^2 = .53$, indicating that participants in the disappointed opponent condition judged the opponent to be more disappointed ($M = 6.15$, $SD = .95$) than did participants in the angry opponent condition ($M = 3.79$, $SD = 1.34$).

Type of negotiation. All participants answered the question about who would receive the negotiated chips once the opponent accepted the offer correctly.

These findings suggest that the manipulations of opponent's emotion and type of negotiation were successful.

Offer

A 2 × 2 ANOVA on offers yielded a main effect of type of negotiation, $F(1, 74) = 9.77$, $p < .005$, $\eta^2 = .12$. This main effect was qualified by a significant interaction, $F(1, 74) = 4.60$, $p < .05$, $\eta^2 = .06$ (see Table 5.2).

Table 5.2. Number of chips offered to the opponent as a function of opponent's emotion and type of negotiation (Experiment 5.2)

	Anger		Disappointment	
	M	*SD*	*M*	*SD*
Individual negotiation	56.42 [a]	9.76	59.40 [a]	8.53
Representative negotiation	54.42 [a]	8.98	48.65 [b]	8.74

Note. Means with different superscripts differ significantly (*p*s <.05, analyzed with simple-effect analyses).

As expected, participants offered fewer chips to disappointed opponents when they negotiated as representatives (M = 48.65, SD = 8.74) than when they negotiated for themselves (M = 59.40, SD = 8.53), $F(1, 74) = 14.25$, $p < .001$, $\eta^2 = .16$. Offers in the anger conditions did not differ significantly (M = 54.42, SD = 8.98; M = 56.42, SD = 9.76, $p = .50$).

Moreover, as Table 5.2 also shows, offers from participants in a representative negotiation setting who had a disappointed opponent were significantly lower (M = 48.65, SD = 8.74) than offers to angry opponents in a representative negotiation (M = 54.42, SD = 8.98) or an individual negotiation (M = 56.42, SD = 9.76), both *p*s < .05. Offers from participants who negotiated individually and had a disappointed opponent did not differ significantly from offers to angry opponents in representative and individual negotiations, both *p*s > .32.

Perceived weakness

A 2 × 2 ANOVA on the perceived weakness ratings only revealed a main effect of opponent's emotion, $F(1, 74) = 47.30$, $p < .001$, $\eta^2 = .39$, indicating that participants perceived disappointed opponents to be weaker (M = 4.85, SD = 1.19) than anger opponents (M = 2.92, SD = 1.26).

In agreement with these results, a 2 × 2 ANOVA on the perceived limits ratings yielded only a main effect of opponent's emotion, $F(1, 74) = 7.94$, $p < .01$, $\eta^2 = .10$, indicating that participants judged the limits of disappointed opponents to be lower (M = 49.33, SD = 11.80) than the limits of angry opponents (M = 55.92, SD = 8.19).

Guilt

A 2 × 2 ANOVA on the guilt ratings revealed main effects of opponent's emotion, $F(1, 74) = 10.15$, $p < .005$, $\eta^2 = .12$, and type of negotiation, $F(1, 74) = 7.58$, $p < .01$, $\eta^2 = .09$. More importantly, these were qualified by an interaction effect, $F(1, 74) = 11.22$, $p < .005$, $\eta^2 = .13$. Simple main effects showed that participants felt guiltier towards disappointed opponents when they negotiated for themselves ($M = 5.25$, $SD = 1.07$) than when they negotiated as representatives ($M = 3.10$, $SD = 1.41$), $F(1, 74) = 19.11$, $p < .001$, $\eta^2 = .21$. Moreover, participants with disappointed opponents who were negotiating for their own outcomes also felt guiltier than participants with angry opponents who negotiated as representatives ($M = 3.16$, $SD = 1.98$) or individually ($M = 2.95$, $SD = 1.65$, both ps $< .001$). Levels of guilt did not differ significantly across the anger conditions ($p = .98$).

Mediated moderation analysis

We expected that the interaction effect of opponent's emotion and type of negotiation on participant's offers would be mediated by participant's guilt. As in Experiment 5.1, we performed regression analyses, which showed a significant opponent's emotion × type of negotiation interaction effect on offers ($\beta = -.23$, $p < .05$) and a significant interaction effect on the mediator ($\beta = -.33$, $p < .005$), in line with the ANOVA results. The mediator (participant's guilt) significantly predicted participant's offers ($\beta = .48$, $p < .001$). Finally, when the mediator was included in the regression analyses, the interaction effect of opponent's emotion and type of negotiation on offers became non-significant ($\beta = .05$, $p = .69$). Our bootstrap analysis using 10,000 re-samples showed confidence intervals that did not contain zero at the 99% level (i.e., lower CI = -3.26; upper CI = -.14), indicating significant mediation. Thus, participant's guilt mediated the interaction between opponent's emotion and type of negotiation on the offer.

Additional measures

A 2 × 2 ANOVA on the intensity ratings showed no significant main effects of opponent's emotion ($p = .22$) or type of negotiation ($p = .64$) and no interaction effect ($p = .25$; overall $M = 5.47$, $SD = 1.28$). The conditions thus did not differ with regard to the perceived intensity of the emotion.

A 2 × 2 ANOVA on the appropriateness ratings showed no significant main effects of opponent's emotion ($p = .93$) or type of negotiation ($p = .62$) and no interaction effect (p

= .34; overall *M* = 4.46, *SD* = 1.41), indicating that the conditions did not differ with regard to the perceived appropriateness of the emotion.

A 2 × 2 ANOVA on the motivation ratings showed no significant main effects of opponent's emotion (p = .82) or type of negotiation (p = .86) and no interaction effect (p = .86; overall *M* = 6.14, *SD* = .62), indicating that the conditions did not differ with regard to participant's motivation to get a good outcome.

Entering the intensity, appropriateness, and motivation ratings as covariates in our mediation analyses did not change the pattern of findings.

Discussion

The findings of Experiment 5.2 showed that in negotiations, the interpersonal effects of disappointment, but not the effects of anger, depend highly on the type of negotiation. We found that when participants negotiated as representatives, they felt less guilty toward disappointed opponents than when they negotiated for their own outcomes. In line with the results of Experiment 5.1, we found that when the communication of disappointment did not evoke guilt, participants made lower offers. When disappointment did evoke guilt (when they negotiated for their own outcomes) participants made higher offers. Participants were still careful when they negotiated with an angry opponent. These opponents were perceived as less weak, to have high limits, and participants offered more chips to angry opponents.

Experiment 5.1 and 5.2 thus showed that whether communicating disappointment pays or backfires, depends on whether disappointment evokes guilt or not. When an opponent communicated disappointment and it did not evoke guilt in bargainers (i.e., when it was communicated by an out-group member or when the bargainer negotiated as a representative), the communicated weakness evoked self-interested behavior (i.e., lower offers). When disappointment did evoke guilt (i.e., when it was communicated by an in-group member or when the bargainer negotiated for his/her own outcomes), the communicated weakness evoked prosocial behavior. In both experiments our emotion manipulation consisted of written messages. To rule out that our effects are restricted to verbal emotional reactions, in Experiment 5.3 we used a video of a trained actor who expressed either disappointment or anger. This emotion manipulation included facial, postural and vocal expressions of both emotions.

Experiment 5.3

Method

Design and participants

The study used a 2 (opponent's emotion: disappointment vs. anger) × 2 (type of negotiation: individual vs. representative negotiation) between-participants design. Participants were 84 students from a university in the Netherlands (60 females, 24 males, M_{age} = 21.57, *SD* = 3.65).

Procedure

The procedure was identical to the procedure of Experiment 5.2, except for the emotion manipulation. In the current experiment a trained actor spoke exactly the same text as in Experiment 5.1 and 5.2 for the angry and disappointed emotional reaction. In the angry display condition, he frowned a lot, spoke with an angry and irritable tone of voice, and looked stern. In the disappointed display condition, he raised the insides of his eyebrows, spoke with a disapproving tone of voice, and shook his head (for similar procedures, see Barsade [2002], Bono and Ilies [2006], Lewis [2000], Van Kleef et al. [2009]). The two clips were of equal length.

Results

Manipulation checks

Opponent's emotion. A 2 (opponent's emotion) × 2 (type of negotiation) ANOVA on the anger ratings yielded only a main effect of opponent's emotion, $F(1, 80) = 102.54$, $p < .001$, $\eta^2 = .56$. Participants in the angry opponent condition rated their opponent as more angry (*M* = 6.00, *SD* = .83) than did participants in the disappointed opponent condition (*M* = 3.12, *SD* = 1.66). The 2 × 2 ANOVA on the disappointment ratings also only revealed a main effect of opponent's emotion, $F(1, 80) = 61.42$, $p < .001$, $\eta^2 = .43$, indicating that participants in the disappointed opponent condition judged the opponent to be more

disappointed (*M* = 6.14, *SD* = 1.28) than did participants in the angry opponent condition (*M* = 3.98, *SD* = 1.22).

Type of negotiation. All participants answered the question about who would receive the negotiated chips once the opponent accepted the offer correctly.

These findings suggest that the manipulations of opponent's emotion and type of negotiation were successful.

Offer

A 2 × 2 ANOVA on offers yielded a main effect of type of negotiation, $F(1, 80) = 9.06$, $p < .005$, $\eta^2 = .10$. This main effect was qualified by a significant interaction, $F(1, 80) = 6.28$, $p < .05$, $\eta^2 = .07$ (see Table 5.3).

Table 5.3. Number of chips offered to the opponent as a function of opponent's emotion and type of negotiation (Experiment 5.3)

	Anger		Disappointment	
	M	*SD*	*M*	*SD*
Individual negotiation	57.65 [a]	8.51	59.86 [a]	5.18
Representative negotiation	56.73 [a]	8.09	49.75 [b]	11.06

Note. Means with different superscripts differ significantly (*p*s <.05, analyzed with simple-effect analyses).

As expected, participants made lower offers to disappointed opponents when they negotiated as representatives (*M* = 49.75, *SD* = 11.06) than when they negotiated for themselves (*M* = 59.86, *SD* = 5.18), $F(1, 80) = 15.21$, $p < .001$, $\eta^2 = .16$. Offers in the anger conditions did not differ significantly (*M* = 57.65, *SD* = 8.51; *M* = 56.73, *SD* = 8.09, $p = .72$).

Moreover, as Table 5.3 also shows, offers from participants who negotiated as representatives and had a disappointed opponent were significantly lower (*M* = 49.75, *SD* = 11.06) than offers to angry opponents, who negotiated as representatives or individually (*M* = 56.73, *SD* = 8.09; *M* = 57.65, *SD* = 8.51, *p*s < .01). Offers from participants who

negotiated individually and had a disappointed opponent did not differ significantly from offers to angry opponents who negotiated as representatives or individually, both *p*s > .60.

Perceived weakness

A 2 × 2 ANOVA on the perceived weakness ratings only revealed a main effect of opponent's emotion, $F(1, 80) = 32.10$, $p < .001$, $\eta^2 = .29$, indicating that participants perceived disappointed opponents to be weaker ($M = 4.60$, $SD = 1.33$) than angry opponents ($M = 2.88$, $SD = 1.47$).

A 2 × 2 ANOVA on the perceived limits ratings also yielded only a main effect of opponent's emotion, $F(1, 80) = 5.89$, $p < .05$, $\eta^2 = .07$, indicating that participants judged the limits of disappointed opponents to be lower ($M = 50.90$, $SD = 16.52$) than the limits of angry participants ($M = 58.62$, $SD = 11.71$).

Guilt

A 2 × 2 ANOVA on the guilt ratings revealed main effects of emotion, $F(1, 80) = 4.67$, $p < .05$, $\eta^2 = .06$, and type of negotiation, $F(1, 80) = 7.64$, $p < .01$, $\eta^2 = .09$. More importantly, these were qualified by an interaction effect, $F(1, 80) = 6.97$, $p < .01$, $\eta^2 = .08$. Simple main effects showed that participants felt guiltier towards disappointed opponents when they negotiated individually ($M = 5.05$, $SD = 1.25$) than when they negotiated as a representative ($M = 3.25$, $SD = 1.41$), $F(1, 80) = 14.61$, $p < .001$, $\eta^2 = .15$. Moreover, participants who negotiated individually and had a disappointed opponent felt guiltier than participants with angry opponents who negotiated individually ($M = 3.45$, $SD = 1.61$) or as representatives ($M = 3.41$, $SD = 1.76$, both *p*s < .001). Levels of guilt did not differ across the anger conditions ($p = 1.00$).

Mediated moderation analysis

Like in Experiment 5.2, we performed regression analyses to investigate whether the interaction effect of opponent's emotion and type of negotiation on participant's offers would be mediated by participant's guilt. These analyses showed a significant opponent's emotion × type of negotiation interaction effect on offers ($\beta = -.26$, $p < .05$) and a significant interaction effect on the mediator ($\beta = -.26$, $p < .01$). The mediator (participant's guilt) significantly predicted participant's offers ($\beta = .48$, $p < .001$). Finally, when the mediator was included in the regression analyses, the interaction effect of opponent's emotion and

type of negotiation on offers became non-significant (β = -.04, p = .73). Our bootstrap analysis using 10,000 re-samples showed confidence intervals that did not contain zero at the 99% level (i.e., lower CI = -2.54; upper CI = -.06), indicating significant mediation. Thus, participant's guilt mediated the interaction between opponent's emotion and type of negotiation on the offer.

Additional measures

A 2 × 2 ANOVA on the intensity ratings showed no significant main effects of opponent's emotion (p = .21) or type of negotiation (p = .67) and no interaction effect (p = .97; overall M = 5.35, SD = 1.09). The conditions thus did not differ with regard to the perceived intensity of the emotion.

A 2 × 2 ANOVA on the appropriateness ratings showed no significant main effects of opponent's emotion (p = .80) or type of negotiation (p = .22) and no interaction effect (p = .51; overall M = 4.36, SD = 1.07), indicating that the conditions did not differ with regard to the perceived appropriateness of the emotion.

A 2 × 2 ANOVA on the motivation ratings showed no significant main effects of opponent's emotion (p = .25) or type of negotiation (p = .37) and no interaction effect (p = .97; overall M = 6.07, SD = .77), indicating that the conditions did not differ with regard to participant's motivation to get a good outcome.

Again, entering the intensity, appropriateness, and motivation ratings as covariates in our mediation analyses did not change the pattern of findings.

General Discussion

Social-functional approaches to emotion suggest that expressing disappointment in negotiations may be a double-edged sword. Disappointment communicates weakness, which on the one hand can evoke a tendency to act in a self-interested way (De Dreu, 1995; Güth & Huck, 1997; Kagel et al., 1996; Lawler, 2002; Pillutla & Murnighan, 1995; Suleiman, 1996), but on the other hand also a tendency to act in a prosocial way (Fisher & Nadler, 1974; Frieze & Boneva, 2001; Gardner & Seeley, 2001; Greenberg, 1978; Handgraaf et al., 2008; Lee & Tiedens, 2001; Rafaeli & Sutton, 1991). In negotiations, the first tendency may lead others to maximize their own outcomes and make lower offers. The second may lead others to help the weak opponent and cooperate more. Our goal was to resolve this

apparent inconsistency. In three experiments using both written emotion manipulations (Experiment 5.1 and 5.2) and filmclips involving facial, postural, and vocal expressions (Experiment 5.3) we demonstrated that whether guilt is evoked or not determines whether disappointment elicits high or low offers. Communicating disappointment pays when it elicits guilt in the target, but backfires when is does not elicit guilt. We pitted the interpersonal effects of disappointment (an emotion that communicates weakness) against the effects of anger (an emotion that communicates strength) and showed that an opponent's group membership and the type of negotiation (two important moderators of motivated bargaining behavior) determine whether communicating disappointment results in high outcomes or not. As anticipated, the interpersonal effects of anger were not affected.

We also showed why these factors moderate expressions of disappointment and not of anger. In our first experiment we showed that when an in-group member communicates disappointment it evokes guilt, but when an out-group member communicates disappointment it does not. People generally allocate more rewards to in-group members and regard in-group members more positively than out-group members (Tajfel, 1978). Also, research has shown that people tend to help members of their in-group more than members of their out-group (e.g., Dovidio et al., 1997; Levine, Prosser, Evans, & Reicher, 2005; Omoto & Snyder, 2002). People tend to care less about out-group members, and empathic responses towards out-group members are generally dampened or even absent (Avenanti, Sirigu, & Aglioti, 2010; Cikara, Bruneau, & Saxe, 2011).

Whether people feel guilty or not depends highly on a concern for the other (Baumeister et al., 1994; Leith and Baumeister, 1998; Lelieveld et al., 2012; Mallett & Swim, 2007). Indeed, our results showed that when out-group members communicated disappointment it did not evoke guilt, which led participants to offer less. When in-group members communicated disappointment it did evoke guilt, and this led participants to offer more. Guilt thus determined whether the weakness that disappointment communicated evoked a tendency to act in a self-interested way (which was reflected in low offers from participants), or a tendency to act prosocially (which was reflected in high offers from participants). The effects of expressions of anger, on the other hand, were not dependent on the expresser's group membership. Anger communicated high limits regardless of whether it was expressed by an in- or out-group member. In line with

previous research (Sinaceur & Tiedens, 2006; Van Dijk et al., 2008; Van Kleef et al., 2004a, b), we showed that participants made generous offers to these angry opponents.

In our second en third experiment we showed that not only group membership, but also the type of negotiation may influence the effects of disappointment. We showed that only when participants negotiated for their own outcomes, disappointment evoked guilt. In representative negotiations, however, disappointment evoked less guilt in participants. This is in line with research that has indicated that representatives adopt a more competitive bargaining strategy and make fewer concessions compared to individual negotiators (Benton, 1972; Druckman et al., 1972, Van Kleef et al., 2007). Expressions of anger were again not dependent on whether participants negotiated as representatives or not. Anger signaled high limits in both cases. Moreover, in line with previous research (Sinaceur & Tiedens, 2006; Van Dijk et al., 2008; Van Kleef et al., 2004a, b), we showed that participants made generous offers to angry opponents, regardless of the type of negotiation.

Our results contribute to the existing line of research that suggests that emotions that communicate power are often more advantageous to express than emotions that communicate weakness. Emotions that communicate power, such as anger, signal competence (Tiedens, 2001), but also toughness and dominance (Clark et al., 1996; Karasawa, 2001; Knutson, 1996; Sinaceur & Tiedens, 2006; Van Beest, Van Kleef, & Van Dijk, 2008; Van Dijk et al., 2008; Van Kleef et al., 2004a, b). This research suggests that, in general, people concede more to tough and powerful people than to bargainers who are perceived as soft or submissive (e.g., Bacharach & Lawler, 1981; Komorita & Brenner, 1968; Pruitt, 1981; Yukl, 1974). Our findings accord with this reasoning to the extent that anger (which communicates power) elicited higher offers than disappointment (which communicates weakness) when communicated by an out-group member (Experiment 5.1) or in a representative negotiation (Experiment 5.2 and 5.3). However, when the communicated weakness evokes a social responsibility in others (when people feel guilty), weak emotions such as disappointment may actually induce cooperativeness in others. In the latter situation, expressing emotions that communicate weakness may benefit bargainers.

In some situations it has even been shown that expressing emotions that communicate weakness in negotiations is superior to expressing emotions that communicate power. In a recent study, the interpersonal effects of anger and

disappointment were examined in a similar ultimatum setting (see Lelieveld et al., 2012). In this study, the power of the bargainers expressing the emotions was manipulated. When anger and disappointment were communicated by a high power bargainer both emotions elicited high offers, but when they were communicated by a low power bargainer, anger elicited low offers but disappointment did not. The current research shows that bargainers who communicate disappointment do not always obtain higher outcomes than bargainers who communicate anger. The effects of disappointment depend highly on whether it evokes guilt in others or not.

In addition to the documented findings that disappointment may elicit a loss of control (Zeelenberg et al., 1998) and feelings of weakness (Van Dijk & Zeelenberg, 2002b) in the self, the current findings indicate that it also communicates this weakness to others. This suggests that there is a clear link between the intrapersonal effects of disappointment (which refer to the effects of emotions on people's *own* thoughts, behavior and feelings) and the interpersonal effects of disappointment (which refer to the effects of emotions on *others'* thoughts, behavior and feelings). Research on other emotions has also shown that feelings and intentions that are evoked by certain emotions are also communicated to others. For instance, people who experience anger not only feel powerful (Roseman et al., 1996), they are also perceived as powerful and tough (Sinaceur & Tiedens, 2006; Tiedens, 2001; Van Dijk et al., 2008, Van Kleef et al., 2004a, b). Similarly, people who experience guilt not only feel that they violated an expectation or norm (Leith & Baumeister, 1998; Smith, Webster, Parrott, & Eyre, 2002), their guilt also signals this to others (Van Kleef et al., 2006a; Wubben et al., 2009). And previous research on disappointment showed that people experiencing disappointment not only feel in need of help (Van Dijk & Zeelenberg, 2002b), their expressions of disappointment also convey this dependence to others (Van Kleef et al., 2006a). We add to this literature by showing that disappointment not only elicits feelings of weakness in oneself, but also communicates weakness to others. This communicated weakness can pay when guilt is evoked, but backfire when it does not evoke guilt.

Directions for future research

In the current experiments we used the ultimatum bargaining game to investigate the interpersonal effects of anger and disappointment. This enabled us to study the effects of communicated emotions in a one-shot bargaining setting with a clear outcome. Thanks

to this controlled setting, we were able to provide clear findings and conclusions regarding the interpersonal effects of emotions and their underlying processes. For future research, it may also be interesting to investigate how our findings generalize to other types of negotiations. Prior findings regarding the interpersonal effects of emotions obtained in ultimatum bargaining settings (e.g., Lelieveld et al., 2012; Van Dijk et al., 2008) have been similar tot findings obtained in multi-trial negotiations (e.g., Lelieveld et al., 2011; Van Kleef et al., 2004a, b) and even face-to-face negotiations (e.g., Sinaceur & Tiedens, 2006). It would be interesting to see whether the current findings will also generalize to such settings.

In our studies we focused on anger and disappointment as steady-state emotions. However, during negotiations feelings and emotions of bargainers may change profoundly. Previous research has shown that these emotional transitions (i.e., the movement between emotions states) may lead to different outcomes than corresponding steady-state emotions (Filipowicz, Barsade, & Melwani, 2011). These studies compared the communication of anger and happiness to displays of becoming angry (i.e., emotional expressions moved from happiness to anger) and becoming happy (i.e., emotional expressions moved from anger to happiness). Results showed that displays of becoming angry elicited higher offers from others than did steady-state anger. Negotiation outcomes for displays of becoming happy were not significantly different from displays of steady-state happiness. However, opponents did give bargainers who showed displays of becoming happy lower relational impression ratings. With regard to the interpersonal effects of anger and disappointment, it may also be interesting to investigate the effects of emotional transitions. Communicating disappointment backfires when it is communicated by an out-group member or in representative negotiations. Starting off with displaying an emotion that communicates power (i.e., anger), and moving to an emotion that communicates less power (i.e., disappointment), may be a wise alternative to expressing the steady-state emotion disappointment. It could be that expressers are then perceived to be less weak (because they start off with an emotion that signals strength), but the transition to disappointment may still evoke guilt. Future research could investigate how emotional transitions between anger and disappointment differ from the steady-state emotions that we investigated and which transition would elicit positive negotiation outcomes.

In future research, it may also be interesting to include other determinants of whether bargainers feel guilty or not towards their opponent. We now investigated the

effects of group membership and of the type of negotiation and showed that bargainers feel less guilty when their opponent is an out-group member or when they negotiate as representatives. Guilt, however, has also been shown to be linked to perspective taking and empathy, such that people feel guiltier towards another person when they want or are able to take the perspective of the other and when they empathize more with the other (Leith & Baumeister, 1998; Tangney & Dearing, 2002). It would be interesting to investigate if manipulating these concepts (e.g., by instructing participants to take the perspective of the other person) would produce similar results.

In Experiment 5.2 and 5.3, we showed that the type of negotiation is a crucial determinant of whether disappointment evokes guilt or not. Our findings show that when bargainers negotiate as representatives, disappointment evokes less guilt. Participants in Experiment 5.2 and 5.3 may have been more concerned with the outcomes of their constituency and less with the outcomes of the disappointed opponent, which led participants to experience lower levels of guilt. There are several alternative explanations for why these participants experienced lower levels of guilt. First, it could be that participants assumed that their opponent was negotiating as a representative as well. We did not inform participants about whether their opponent was negotiating as a representative as well or for own outcomes. Participants may have felt less guilty in the representative negotiation, because they believed that they did not directly harm the outcomes of their opponent, but only the outcomes of the opponent's constituency (whom they were not directly dealing with). Secondly, participants who negotiated as representatives may have perceived their constituency more as in-group members and their opponent more as an out-group member. In line with Experiment 5.1, one may then conclude that disappointment evoked lower levels of guilt, because it was communicated by an out-group member. Finally, participants may have felt less responsible for the outcomes of the opponent. Participants in our studies negotiated on the authority of a constituency, which may have led participants to feel less responsible for lower outcomes of their opponent. As a result, participants may have felt less guilty. Although we feel that these explanations may very well be related (e.g., in representative bargaining one may feel less responsible for the outcomes of the opponent, because one tends to see him/her as an out-group member), it may be interesting for future research to further explore these explanations.

In our studies, guilt was a crucial determinant of the interpersonal effects of disappointment. Anger, on the other hand, did not evoke guilt in our participants. At this point, it may be noted that some studies have shown that expressions of anger can also elicit sympathy or support (Clark & Brissette, 2003) and even feelings of guilt (Giner-Sorolla & Espinosa, 2011). However, these findings were obtained in situations in which the two parties were engaged in a close affiliative relationship (Yoo, Clark, Lemay, Salovey, & Monin, 2011) and in non-competitive situations (Giner-Sorolla & Espinosa, 2011). In our studies, the interpersonal effects of disappointment were examined within competitive bargaining settings, where the communication of anger may not evoke guilt in others, but instead triggers strategic considerations (Van Kleef et al., 2010). Future research could investigate the effects of anger and disappointment in close relationships to see whether in negotiations, anger can also evoke guilt in others.

Whether communicating disappointment yields high outcomes seems to depend on whether it evokes guilt or not. We do not suggest, however, that guilt is the only factor that determines whether communicating weakness pays or not. Factors such as empathy, or the closeness of the relationship of the negotiation parties may also determine whether communicated weakness evokes a tendency to act prosocially. In this regard, it may also be interesting to broaden the scope and investigate other emotions that elicit a need for help. Other supplication emotions such as sadness, fear and worry (see Van Kleef et al., 2006a) may also communicate weakness. So far, previous literature has not linked guilt to any of these other supplication emotions. Future research could investigate when and how these emotions evoke a tendency to act prosocially and when and how they evoke a tendency to act in a self-interested manner.

Conclusion

The current studies underscore the idea that specific emotions evoke specific affective reactions in others (e.g., Van Kleef et al., 2006a, 2010). One should therefore treat each emotion as a distinct predictor of behavior in negotiations. We showed that, unlike anger, disappointment communicates weakness and thus exerts influence via different processes than anger does. In contrast to the common belief that weakness is a liability in negotiations, expressing disappointment can be effective under particular circumstances. We showed that the positive effects of disappointment depend highly on whether or not it evokes guilt. The weakness that disappointment communicates may elicit a sense of social

responsibility in others when disappointment evokes guilt, but a tendency to act in a self-interested manner when it does not evoke guilt. These findings help to resolve the apparent inconsistency regarding the interpersonal effects of disappointment and extend the literature on communicated power/weakness.

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Chapter 6

General Discussion

Chapter 6

The aim of this dissertation was to gain knowledge about the interpersonal effects of two of the most often expressed emotions: anger and disappointment (Van Dijk & Zeelenberg, 2002b). The similarities and differences between the effects of both emotions were examined, and the results showed under which conditions and for what reasons communicating anger and/or disappointment helps or hurts in negotiations. Over the course of several behavioral studies and one neuroimaging study, using different negotiation paradigms and different emotion manipulations, the findings presented in this dissertation provide insight in the distinct effects of communicating anger and disappointment in negotiations.

In this final chapter, I summarize the results of the four empirical chapters. Furthermore, I discuss how the results contribute to existing social functional analyses of emotions. Finally, I give suggestions for future research.

Summary of the empirical findings

In the first empirical chapter (Chapter 2), it was investigated when anger and disappointment change bargaining behavior via reciprocal or complementary emotions. As expected, power was a key determinant. When a high-power bargainer communicated anger, the complementary emotion fear was evoked, which led opponents to make higher offers. When it was communicated by a low-power bargainer, anger was reciprocated, which led opponents to make lower offers. Communicating disappointment, however, always evoked the complementary emotion guilt and increased offers, regardless of the bargainer's power position. Although both emotions elicited generous offers when they were communicated by high-power bargainers (but for different reasons), disappointment was more advantageous than anger, when communicated by low-power bargainers.

In Chapter 3, I continued to study how anger and disappointment affect bargaining behavior by considering underlying neural mechanisms. Moreover, the effects of the communication of these emotions were compared to the effects of the communication of the positive emotion happiness. The results showed that bargainers more often made lower offers to angry opponents than to happy or disappointed opponents. With regard to the underlying neural mechanisms, the results showed increased activation in the

temporoparietal junction (TPJ) for receiving happy reactions, in comparison to receiving angry or disappointed reactions. In prior studies TPJ has been associated with a variety of social cognitive tasks such as perspective-taking (Ruby & Decety, 2003), action understanding (Kret, Pichon, Grèzes, & De Gelder, 2011; Samson, Apperly, Chiavarino, & Humphreys, 2004) and empathy (Lamm, Batson, & Decety, 2007). It is possible that the recipient's happiness encouraged participants to take the perspective of the recipient. This is in line with behavioral research that showed that happiness leads to more closeness and increased perspective taking (Frantz & Janoff-Bulman, 2000; Fredrickson, 1998). The difference in neural reactions to anger and disappointment was also investigated. Compared to disappointment, expressions of anger increased activation in the MPFC. In previous research this region has been implicated in strategic bargaining (i.e., maximizing own outcomes and defecting in a trust game, see Van den Bos, Van Dijk, Westenberg, Rombouts, & Crone, 2009, 2011) and, more broadly, in self-referential thinking. This is in line with the behavioral results that showed that bargainers with angry opponents more often made self-serving offers and maximized their own outcomes.

Whereas the first two empirical chapters thus showed that communicating disappointment in negotiations is more advantageous than communicating anger, in Chapter 4 I addressed the question of whether disappointment would always yield higher outcomes than anger. The findings showed that the interpersonal effects of anger and disappointment depend critically on the target of the emotion, that is, whether they are directed at the person or at the offer. Anger pays when it is directed at the offer, but disappointment pays when it is directed at the person. Offer-directed anger elicited higher offers than person-directed anger, because people inferred higher limits from opponents who communicated offer-directed anger. Person-directed disappointment elicited higher offers in others than offer-directed disappointment, because it evoked higher feelings of guilt.

Chapter 5 completes the analyses of anger and disappointment. In this chapter it is argued that disappointment communicates a sense of dependency and weakness that is less present in anger. I then propose that this weakness has benefits and downsides depending on whether disappointment evokes guilt or not. When disappointment evokes guilt, the communicated weakness elicits a prosocial tendency. When it does not evoke guilt, disappointment elicits a selfish tendency. Key determinants of whether or not disappointment evokes guilt are the group membership of the expresser and the type of

negotiation. When disappointment is communicated by an out-group member or in a representative negotiation, it evokes lower levels of guilt in people, which lead them to make lower offers. When disappointment is communicated by an in-group member or in an individual negotiation, it evokes higher levels of guilt in people, which lead them to make higher offers.

Anger and disappointment: similarities and differences

The results of the four empirical chapters provide new insights into the similarities and differences between the interpersonal effects of anger and disappointment. Below, I first discuss these similarities and differences between anger and disappointment and then discuss what the implications are for opponents in negotiations.

Similarities between anger and disappointment

At first sight, anger and disappointment are two very similar emotions. Indeed, both emotions are considered to be negative emotions and reactions to undesirable outcomes (Frijda, Kuipers, & Ter Schure, 1989). With regard to the interpersonal effects of anger and disappointment, both emotions communicate an undesirable outcome and a desire for behavioral change in the other person. They both signal that a wrong has been done by the target of the emotions, to the expresser or to someone else (Wubben, De Cremer, & Van Dijk, 2011). Anger and disappointment are also perceived as possessing similar levels of intensity and appropriateness in bargaining situations (see also Wubben, De Cremer, & Van Dijk, 2009). Finally, this dissertation also shows that, compared to communications of happiness, there was reduced activation in the TPJ for targets of communications of anger and disappointment. As noted above, in prior studies this region was associated with perspective-taking (Ruby & Decety, 2003), and empathy (Lamm et al., 2007).

These findings seem to be in contrast to the findings of the other chapters in this dissertation. Communications of disappointment elicit high offers from others when these others feel guilty. As noted in Chapter 5, guilt has been shown to be linked to perspective taking and empathy, such that people feel guiltier towards another person when they want or are able to take the perspective of the other and when they empathize more with the other (Leith & Baumeister, 1998; Tangney & Dearing, 2002). So why do the findings of Chapter 3 show reduced activation for targets of disappointment in an area associated

with perspective taking and empathy? Although it is certainly possible that the reduced TPJ activation in the participants can be interpreted as reduced perspective taking, I want to stress that this need not be the case. fMRI is a relatively new technique and it is still hard to interpret what it means if a certain brain region is activated during behavior of participants. Regions that are activated may represent a number of different functions and it is hard to tell exactly what process is responsible for the behavior that people show in the scanner. In Chapter 3 there were no behavioral data to support the claim that the reduced TPJ activation represents reduced perspective taking. The TPJ has been implicated in other processes as well, which could lead to other interpretations of the TPJ activation. The TPJ, for instance, has also been implicated in action understanding (Kret et al., 2011; Samson et al., 2004). In Chapter 3 the emotional expressions were reactions to a 6-4 offer in favor of the participant (the target of the emotion). Participants thus received happy, angry, and disappointed reactions to self-serving offers that they made. It is therefore also possible that the reduced activation in the TPJ for communications of anger and disappointment, compared to communications of happiness, implies that angry or disappointed reactions were less confusing than happy reactions. It could be that it was more unclear for targets why people would be happy about receiving less than half of the money than why people would be angry or disappointed. Future research could investigate how this TPJ activation should be interpreted.

Based on these insights, one may erroneously conclude that anger and disappointment have similar effects on others. However, as the findings of the four empirical chapters of this dissertation show, anger and disappointment are two very distinct emotions, with different effects on others.

Differences between anger and disappointment

The most important difference between the interpersonal effects of anger and disappointment is the communicated strength/weakness of the emotions. The findings presented in this dissertation, but also in previous work (Tiedens, 2001), have shown that anger communicates strength. In negotiations, it communicates toughness and high limits (Sinaceur & Tiedens, 2006; Van Kleef, De Dreu, & Manstead, 2004a, b), which are indications of strength. By communicating toughness and high limits, anger forces opponents to give in. Anger entails a threat (Sinaceur, Van Kleef, Neale, Adam, & Haag, 2011; Van Dijk, Van Kleef, Steinel, & Van Beest, 2008) and, as a result, it can evoke fear in

others. Because anger communicates power, it can thus elicit high offers from others in negotiations.

This dissertation shows that anger can also backfire, such that it elicits low offers from opponents. When angry bargainers have low power, opponents do not have to care about the communicated anger or implied threat (Van Dijk et al., 2008). In this case anger does not elicit high offers. This dissertation also showed that in this situation (i.e., when bargainers communicating anger have low power), anger activated regions in the MPFC in others, which is associated with self-referential thinking and the maximization of own outcomes. Observers of anger are thus more concerned with their own outcomes, and only offer more in situations when they have to be careful about the communicated power/high limits (i.e., in situations where bargainers who communicate anger have high power). Finally, the communication of anger backfires when the information about the power and high limits does not come across. In line with previous research (Steinel, Van Kleef, & Harinck, 2008), the findings of this dissertation show that when anger is directed at the person, it is less informative about one's limits and is thus less seen as an indication of power. As a result, angry bargainers are not perceived to be powerful and communicating anger may elicit lower offers.

Disappointment does not typically communicate a sense of toughness. It communicates dependency (Eisenberg, 2000) and a call for help (Clark, Pataki, & Carver, 1996; Timmers, Fischer, & Manstead, 1998; Van Kleef, De Dreu, & Manstead, 2006a), which are indications of weakness. This dissertation indeed shows that disappointment communicates weakness, which can have benefits and downsides, depending on whether it evokes guilt or not. When disappointment evokes guilt, the communicated weakness evokes a tendency to act prosocially, which is reflected in higher offers. When disappointment does not evoke guilt, the communicated weakness evokes a tendency to act in a self-interested manner, which is reflected in lower offers.

To conclude, by communicating power and high limits, anger may thus pay, because it alerts opponents to negative consequences (e.g., conflict escalation and impasse). When opponents do not have to care about these negative consequences (when anger is communicated by a low-power bargainer) or when the information about the high limits is not communicated in the right way (when it is directed at the person), anger may backfire. In contrast, by communicating weakness, disappointment may pay when it evokes guilt, because then it can elicit a prosocial reaction. However, when disappointment

does not evoke guilt, this communicated weakness backfires and elicits a tendency to act in a self-interested way. When disappointment is communicated by an out-group member or in a representative negotiation, targets do not feel guilty. In these situations, disappointment elicit low offers. This dissertation thus not only shows that the interpersonal effects of anger and disappointment differ, but also why this is the case and under what conditions.

The most important difference between anger and disappointment is thus that whereas anger communicates power, disappointment seems to communicate weakness. In the negotiation literature there is a common belief that weakness is a liability in negotiations (De Dreu, 1995; Güth & Huck, 1997; Kagel, Kim, & Moser, 1996; Lawler, 2002; Pillutla & Murnighan, 1995; Suleiman, 1996). Whereas previous findings have indeed shown that it is advantageous to express emotions that communicate power (Sinaceur & Tiedens, 2006; Van Kleef et al., 2004a, b), under particular circumstances it can be (more) effective to express emotions that communicate weakness.

General implications

The present dissertation demonstrates that two of the most often expressed emotions in negotiations, anger and disappointment, have distinct social functions and affect the behavior, thoughts, beliefs and emotions of others differently. The findings presented in this dissertation increase our understanding of the social functions of emotions and extend previous social functional accounts of emotions. Below I address the implications of the work presented in this dissertation for social functional accounts of emotions (specifically for the Emotion as Social Information model), and some of the more general contributions.

Correspondence with and extension of social functional accounts of emotion

As explained in Chapter 1, the findings in this dissertation correspond with, but also extend social functional accounts of emotion. Below I will first explain how the findings presented in this dissertation correspond with social functional analyses and after that I will explain how the findings extend current social function analyses of emotion. I focus on a dominant social functional account of emotions: the Emotion as Social

Information (EASI) model by Van Kleef, De Dreu, and Manstead (2010; see also Van Kleef, 2009; Van Kleef, Van Doorn, Heerdink, & Koning, 2011).

Correspondence with the EASI model

According to the EASI model emotions can affect others via inferential as well as affective reactions. Emotions contain crucial information about the feelings and intentions of the sender of the emotion, which can have consequences for the behavior of receivers of the emotion. People may thus infer important information from emotional expressions of others (Keltner & Haidt, 1999; Van Kleef, 2009). In addition to providing relevant information, emotions can also wield interpersonal influence by eliciting affective reactions in others. By evoking affective reactions in others, emotions can influence behavior of observers of the emotion. The findings in this dissertation correspond with the EASI model, because they focus on inferential as well as affective reactions to emotions of others.

With regard to the inferential effects of anger and disappointment, the findings in this dissertation showed that anger communicates information about one's limits. Specifically, anger communicates that one has high limits and does not want to give in much during the negotiation. Also, Chapter 5 showed that anger communicates lower levels of weakness (which can also be interpreted as higher levels of power). As noted above, this can lead opponents to give in themselves, to not let the negotiation end in impasse. Disappointment, on the other hand, communicates weakness (see Chapter 5). This can elicit a tendency to act prosocially, but also a tendency to act in a self-interested way.

With regard to the affective reactions to anger and disappointment, this dissertation showed that in negotiations anger and disappointment can indeed evoke emotional reactions in others, which predict subsequent behavior. In negotiations, anger can evoke reciprocal and complementary emotions in others (see Chapter 2). When anger is communicated by a high-power bargainer it evokes the complementary emotion fear in others, which leads others to give in. When anger is communicated by a low-power bargainer it evokes the reciprocal emotion anger in others, which leads others to make less generous offers. Disappointment can also evoke reciprocal and complementary emotions in others. Chapter 2 showed that, compared to communicating no emotion, disappointment evoked more reciprocal disappointment. This, however, did not predict

the behavior of bargainers. Instead, when communicated by high- as well as low-power bargainers, disappointment also evoked complementary guilt in others and this predicted behavior (i.e., it led others to make generous offers). Chapter 4 also showed that disappointment evoked guilt and Chapter 5 even showed that guilt is the key determinant of whether communicating disappointment pays or not. When disappointment evokes guilt, it seems to elicit a tendency to act prosocially. When it does not evoke guilt, it elicits a tendency to act in a self-interested way. In line with the EASI model, this dissertation thus shows that anger and disappointment can affect others via inferential as well as affective reactions.

Another way in which the findings presented in this dissertation support the EASI model, is that the findings corroborate the notion that it is essential to distinguish between different types of emotions and to not only consider the valence of emotions. It is important to acknowledge that specific emotions have differential effects (e.g., Lerner & Keltner, 2000; Tiedens & Linton, 2001; Van Kleef et al., 2006a, 2010). This dissertation indeed shows that anger and disappointment, two negative emotions, have very distinct effects on others. As described above, anger and disappointment only have a few similarities. Most of the interpersonal effects of anger and disappointment differ and one should therefore treat each emotion as a distinct predictor of behavior in negotiations.

Extension of the EASI model

Besides corresponding with the EASI model, the findings in this dissertation can also be seen as an extension of the model. According to the EASI model, emotions may influence others via inferential processes or via affective processes. As explained in Chapter 1, whether inferential processes or affective reactions take precedence in how emotions affect others has been shown to depend on several factors (Van Kleef et al., 2010; 2011). One important factor is the cooperative versus competitive nature of the situation (Van Kleef et al., 2010). The EASI model posits that affective reactions become more predictive of social decisions to the extent that the situation is perceived as cooperative, whereas strategic inferences become more predictive when the situation is perceived as competitive. I agree with the EASI model that in previous research, emotional expressions in competitive situations have mainly influenced others via inferential processes. However, the findings of this dissertation show that even in competitive situations (such as the different bargaining paradigms used in this dissertation), anger and disappointment may

affect others via affective reactions. Chapter 2 indeed showed that in a competitive bargaining setting, anger can evoke reciprocal (anger) and complementary (fear) emotions in others, which predicts subsequent behavior. Similarly, Chapter 2, 4, and 5 showed that disappointment affects opponent's behavior by evoking guilt, which in turn affected their offering behavior. This dissertation thus shows that it is not always the case that inferential processes are more predictive of behavior in competitive situations than affective reactions.

Another important factor that, according to the EASI model, determines whether emotions affect others more via affective processes than via inferential processes, is the relative power of the target of the emotion. Whereas high-power individuals have less motivation to process the information conveyed by emotions, low-power individuals have a higher motivation to do so (De Dreu & Van Kleef, 2004; Fiske & Dépret, 1996; Keltner, Van Kleef, Chen, & Kraus, 2008). According to the EASI model, high-power individuals are thus more influenced by others' emotions via affective reactions, and low-power individuals more via inferential processes. The findings of Chapter 2, however, show that low-power bargainers can also be influenced by their (high-power) opponent via affective reactions. Individuals felt more fearful when dealing with a high-power angry bargainer and guilty when dealing with a high-power disappointed bargainer. These emotional reactions to anger and disappointment also predicted subsequent offers.

These are two examples of findings reported in this dissertation that indicate that although the EASI model would predict that anger and disappointment would affect opponents primarily via inferential processes, the findings of this dissertation show that affective reactions are also predictive of behavior. Of course, and this is also acknowledged by the EASI model, it can be true that affective reactions are based on inferences. For instance, we can infer from another person's disappointment that he or she expected more from us, and consequently feel guilty. This way, both affective reactions and inferential processes play a role in the same situation, and they may even influence each other. However, according to the EASI model, inferential processes take precedence (over affective reactions) when the situation is perceived to be competitive and when the observer is a low-power individual. I agree with the EASI model that previous research has mainly showed that in competitive situations and when communicated by high-power individuals, emotions affect others via inferential processes. The findings in this dissertation, however, extend the EASI model by suggesting that this is not the complete

story. This dissertation shows that even in competitive situations and in low-power situations, affective reactions can affect the behavior of others.

A second way the findings in this dissertation can serve as an extension of the EASI model is by focusing on the underlying neural mechanisms of the interpersonal effects of emotions (Chapter 3). According to the EASI model (and other social functional analyses of emotions), emotions have social functions such that they influence others' behavior, thoughts, feelings, intentions and perceptions. What these analyses do not take into account are the underlying neural mechanisms. This way, researchers can find similarities of and differences between distinct emotions that cannot be found or would not initially have been thought of based on only investigating behavioral effects. Indeed, Chapter 3 shows similarities of and differences between effects of communicated anger and disappointment that the other chapters do not show. In comparison to communicated happiness, results show decreased activation in regions that have been associated with a variety of social cognitive tasks such as perspective-taking, action understanding, and empathy. This is a similarity between the interpersonal effects of anger and disappointment that does not come up in any of the other chapters. When zooming in on the two negative emotions anger and disappointment, results also showed that compared to communicated disappointment, communicated anger activated brain regions in others associated with self-referential thinking and the maximization of own outcomes. Although this is in line with many of the behavioral results of the other chapters, the fact that anger evokes a concern for own outcomes has not been made specific by any of the other chapters. For this reason, I want to stress that besides focusing on the behavior, intentions and emotions that are influenced by others' emotions, social functional analyses should also take into account how others' emotions can influence one's brain regions.

Link between intra- and interpersonal effects of emotions

As explained in Chapter 1, the effects of emotions can be divided into intrapersonal effects and interpersonal effects. The intrapersonal effects of emotions refer to the effects of emotions on people's *own* thoughts, behavior, and feelings. The interpersonal effects of emotions refer to the effects of emotions on *others'* thoughts, behavior, and feelings. Although the work presented in this dissertation focuses mainly on the interpersonal effects of emotions, it also suggests that there is a clear link between the intrapersonal and interpersonal effects of emotions. The findings showed that feelings and

intentions that are evoked by anger and disappointment are also communicated to others. For instance, people who experience anger not only feel powerful (Roseman, Antoniou, & Jose, 1996), the findings in this dissertation showed that expressions of anger also communicate to others that they are powerful and tough (Sinaceur & Tiedens, 2006; Tiedens, 2001; Van Dijk et al., 2008, Van Kleef et al., 2004a, b). Similarly, people experiencing disappointment not only feel in need of help (Van Dijk & Zeelenberg, 2002b), they also communicate this to others (Van Kleef et al., 2006a; Van Kleef & Van Lange, 2008). And people experiencing disappointment not only feel weak (Van Dijk & Zeelenberg, 2002b), Chapter 5 showed that they also communicate this to others. This dissertation thus adds to the literature on communicated emotions by linking the intra- and the interpersonal effects of emotions.

Practical implications

Emotions are regarded by many as disruptive forces that interfere with decision-making. Often, professional negotiators are advised to show a poker face and not express their emotions (Nierenberg, 1968; Susskind & Cruikshank, 1987), because it signals weakness and provides information to others that you do not want them to know. The findings presented in this dissertation suggest that emotional expressions can also help to obtain high outcomes. Anger can elicit generous offers in negotiations, as long as it is not communicated in a low power position and/or directed at the person. Disappointment can elicit high offers in negotiations, under the condition that it evokes guilt in opponents (i.e., when it is not (1) directed at the offer, (2) communicated to an out-group member, and/or (3) communicated in a representative negotiation). Also, this dissertation suggests that it is not necessarily detrimental to signal weakness. Weakness can lead others to make high offers, as long as it elicits a prosocial tendency in others. However, the effects of communicating anger and disappointment may also depend on other factors that I have not discussed or investigated in this dissertation. In the next section, I consider other factors that could influence the interpersonal effects of anger and disappointment when I discuss avenues for future research.

Where do we go from here?

Over the course of four empirical chapters, using different negotiation paradigms, different measures, and different emotion manipulations, this dissertation provided new

insights into the interpersonal effects of two of the most often communicated negative emotions, anger and disappointment. Although this dissertation showed similar results across different negotiation paradigms, one may wonder whether similar results would be obtained in a face-to-face negotiation. Using computer-mediated negotiation paradigms enabled us to permit a carefully controlled manipulation of the emotion. Furthermore, it enabled us to study the interpersonal effects of emotions in the fMRI scanner. I have no reason to suspect that the findings presented in this dissertation are restricted to computer-mediated interactions. Findings obtained with computer-mediated interactions such as the ones used in this dissertation are consistent with findings obtained with different paradigms, including surveys involving full-time workers (e.g., Van Kleef, De Dreu, Pietroni, & Manstead, 2006b), nonverbal manipulations of emotional expressions by means of pictures (e.g., Pietroni et al., 2008) and face-to-face negotiation (e.g., Sinaceur & Tiedens, 2006). Moreover, in Experiment 5.3 (see Chapter 5), a video of a person that expressed either disappointment or anger was used, that included facial, postural and vocal expressions of both emotions. The results of this experiment were similar to the results of Experiment 5.2 that used a verbal emotion manipulation where participants could not see the person expressing the emotion. Different channels of emotional communication are thus functionally equivalent (see also Van Kleef et al., 2011). Nevertheless, future research could investigate the generalization of the interpersonal effects of anger and disappointment across settings.

A more interesting issue perhaps concerns the cooperative mindset that disappointment evoked when it evoked guilt in others. Although the negotiation setting was competitive, participants in the experiments reported in this dissertation showed increased cooperation (i.e., they made higher offers) to disappointed opponents when disappointment evoked guilt. Anger also elicited high offers, not because it evoked a prosocial tendency in others, but more so because others did not want to reach impasse. Disappointment really seems to elicit a prosocial tendency. It may have reduced the perceived competitiveness of the situation and may have "transformed" the predominantly competitive bargaining context into a perceived cooperative situation. This can be explained by March's logic of appropriateness (March, 1995; see also Messick, 1999; Weber, Kopelman, & Messick, 2004). In brief, this theory posits that people make decisions in social situations by categorizing the decision situation in terms of appropriateness. The question that is asked, implicitly or explicitly, is 'What kind of situation is this?' The answer

that is given to this question will depend on the cues available about the situation. I argue that disappointment is such a cue. It may signal that it is not appropriate to act competitively. Disappointment may therefore have reduced the default competitive situation of a negotiation and may have transformed it into a perceived cooperative one. This is in line with results by Van Doorn, Heerdink, and Van Kleef (2012), which showed that expressions of disappointment lead observers to perceive the situation as more cooperative. Future research may investigate how this transforming power of disappointment works and when it predicts opponent's behavior.

The results presented in this dissertation show how different negative emotions affect others. All of this research, however, focused on the behavior of adults. Little research has focused on the interpersonal effects of emotions on children and adolescents. This is surprising in light of the fact that children and adolescents have been shown to respond very differently to behavior of others, also in comparison to adults. There is considerable evidence that early in adolescence individuals are more inclined to act and think in a self-interested manner (Eisenberg, Carlo, Murphy, & Van Court 1995; Elkind, 1985), whereas later in adolescence, individuals tend to think more about others and take social responsibility (Steinberg, 2009). Also, children's ability to take the perspective of other people increases with age (Eisenberg, Cumberland, Guthrie, Murphy, & Shepard, 2005). More relevant for this dissertation, children's ability to distinguish between different types of emotions or between real and fake emotions also increases with age (Harris, Donnelly, et al., 1986). In addition, research focusing on distinct emotions has shown that older children differentiate more between the emotions of anger, sadness, and fear than do their younger counterparts (Jenkins & Ball, 2000). These changes across age seem to be associated with functional changes in the brain. During adolescence functional changes occur in social brain regions (see Blakemore, 2008, for a review). For instance, activity in parts of the frontal cortex increases between childhood and adulthood (e.g., Crone & Dahl, 2012), whereas activity in parts of the cingulate cortex decreases from adolescence into adulthood (Monk et al., 2008). More relevant for this dissertation (specifically to the results presented in Chapter 3), research has shown that emotion-related activity in the prefrontal cortex increases with age during adolescence (Yurgelun-Todd, & Killgore, 2006). Moreover, activity in the TPJ during social decision-making also increases with age (Van den Bos et al., 2009). In Chapter 3, prefrontal cortex activation was associated with the interpersonal effects of anger (which elicited low offers) and TPJ

activation with the interpersonal effects of happiness (which elicited high offers). One may then expect that young adolescents are more generous to angry opponents, but less generous to happy opponents. Future research could investigate whether children behave differently than adults to a communicated emotion, and whether functional changes that occur in the brain (specifically in the prefrontal cortex and the TPJ) can explain why this is the case.

The current dissertation focused on the two negative emotions anger and disappointment. As noted in Chapter 1, we focused on the interpersonal effects of these two negative emotions, because they are two of the most often communicated emotions. Moreover, they can be said to have the social function of changing other's behavior, which makes it highly relevant to investigate how they do so. It is, however, also interesting to investigate the interpersonal effects of other negative emotions in negotiation settings. Van Kleef and colleagues (2006) already investigated the interpersonal effects of other negative emotions such as worry, guilt, and regret. The communication of these emotions is less common and they do not have the apparent aim of changing the behavior of others. Nonetheless, the authors showed that communicating regret and guilt has very different effects than communicating worry or disappointment. Communicating regret or guilt elicited lower offers, whereas worry or disappointment elicited generous offers. Their results showed that not only anger and disappointment differentially affect opponents in negotiations, other negative emotions may do so as well.

Finally, given that different negative emotions have very distinct effects on opponents in negotiation, it is worth considering whether one can also find differences in the effects of different positive emotions. As far as I know, no research so far has tried to compare the interpersonal effects of different positive emotions in negotiations. For instance, it seems plausible that positive emotions that communicate power (e.g., pride) have different interpersonal effects in negotiations than positive emotions that communicate lenience (e.g., happiness). So far, when research focuses on the interpersonal effects of positive emotions, they mainly focus on one category of positive affect: happiness (Sauter, 2010). A full understanding of the social functions of emotions can be obtained by also including other types of positive emotions.

To conclude

As I mentioned at the beginning of this journey, the expression "I am not angry with you, I'm just disappointed" is often used to make people feel bad about what they have done, in hopes of changing their behavior. Indeed, the first two chapters showed that in competitive situations, it is more effective to communicate disappointment than to communicate anger. However, this account of the effectiveness of communicating anger versus disappointment was qualified along the way. In chapters three and four, results showed that the effectiveness of communicating anger versus disappointment depends highly on the situation and on the target of the emotion. By taking a close look at how these two emotions affect others' behavior and underlying neural mechanisms, this dissertation provided a more in-depth view of the social functions of negative emotions. I hope the present findings will inspire researchers in the fascinating field of the social functions of emotions. But know that if this is not the case, I will not be angry, just disappointed.

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Samenvatting

Emoties in onderhandelingen: De rol van gecommuniceerde boosheid en teleurstelling

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Emoties spelen een belangrijke rol in het dagelijks leven. Ze werden lang gezien als belemmeringen bij het nemen van rationele beslissingen. Recentelijk heeft dit beeld over emoties plaatsgemaakt voor een functioneel perspectief op emoties. Het idee is ontstaan dat emoties informatie bevatten over je gevoelens en intenties. Ze leveren niet alleen informatie aan jezelf, maar ook aan anderen. Ze hebben dus ook een sociale functie. De informatie die emoties communiceren naar anderen kan consequenties hebben voor het gedrag van de ontvangers (Keltner & Haidt, 1999).

Emoties zijn dus belangrijk binnen sociale interacties en bij het maken van beslissingen. Wanneer mensen beslissingen maken zijn ze vaak afhankelijk van anderen. Conflicten die in dit soort situaties ontstaan worden vaak opgelost door onderhandelingen. Hoewel inmiddels veel mensen het erover eens zijn dat emoties een cruciale rol spelen in onderhandelingen, is het nog onduidelijk wat voor rol. Bij het onderzoeken van de interpersoonlijke effecten van emoties (de effecten van emoties op andermans intenties en gedrag) binnen onderhandelingen heeft eerder onderzoek zich vooral gericht op het vergelijken van boosheid en blijheid. Boze mensen worden vooral gezien als taaie onderhandelaars en in vergelijking met blijdschap communiceert boosheid in een onderhandeling hogere eisen (bv., Sinaceur & Tiedens, 2006; Van Kleef, De Dreu, & Manstead, 2004a, b). Onderzoek heeft laten zien dat onderhandelaars met boze tegenstanders ook meer toegeven dan met blije tegenstanders (Van Kleef et al., 2004a, b).

Dit eerste onderzoek naar de interpersoonlijke effecten van emoties in onderhandelingen liet dus zien dat gecommuniceerde emoties het gedrag van tegenstanders in onderhandelingen beïnvloedt. Het is echter belangrijk om niet alleen het verschil tussen positieve emoties (blijheid) en negatieve emoties (boosheid) te

onderzoeken. Aangezien eerder onderzoek heeft laten zien dat specifieke emoties specifieke effecten hebben op anderen (zie Van Kleef, De Dreu, & Manstead, 2010), is het belangrijk om een verschil te maken tussen verschillende typen emoties. Weinig studies hebben zich bijvoorbeeld gericht op de verschillen tussen de interpersoonlijke effecten van verschillende negatieve emoties. Dit proefschrift heeft zich hierop gericht door twee van de meest gecommuniceerde en vaak voorkomende negatieve emoties in onderhandelingen met elkaar te vergelijken: boosheid en teleurstelling.

Boosheid is een emotie die mensen voelen wanneer het behalen van bepaalde doelen worden gedwarsboomd (Berkowitz, 1993; Carver & Harmon-Jones, 2009; Dollard, Doob, Miller, Mowrer, & Sears, 1939; Lewis, Alessandri, & Sullivan, 1990). Mensen voelen boosheid vooral wanneer anderen de oorzaak zijn van het niet behalen van het doel (Roseman, Antoniou, & Jose, 1996). Teleurstelling, daarentegen, is een emotie die mensen voelen wanneer bepaalde uitkomsten lager zijn dan verwacht. Het gaat vaak gepaard met gevoelens van machteloosheid. Zowel boosheid als teleurstelling communiceren dat men ergens ontevreden over is. Ondanks deze overeenkomst hebben deze emoties specifieke effecten op anderen. In dit proefschrift vergelijken we de interpersoonlijke effecten van boosheid en teleurstelling in onderhandelingen en laten we zien dat beide emoties verschillende effecten hebben op tegenstanders en verschillende onderliggende mechanismen hebben. Er wordt niet alleen gekeken naar de verschillende effecten op het gedrag van anderen (zie Hoofdstuk 2, 4, en 5), maar ook op de onderliggende hersengebieden van anderen (zie Hoofdstuk 3).

In **Hoofdstuk 2** is onderzocht hoe boosheid en teleurstelling het gedrag van tegenstanders in een onderhandeling beïnvloeden. Hoewel eerder onderzoek zich vooral heeft gericht op de informatie die boosheid en teleurstelling communiceren (zie Van Kleef & Van Lange, 2008), richt Hoofdstuk 2 zich vooral op de emoties die boosheid en teleurstelling bij anderen oproepen en hoe dit vervolgens het gedrag van de anderen beïnvloedt. Boosheid en teleurstelling kunnen allebei reciproke emoties (een zelfde emotie) oproepen. Boosheid roept dan boosheid op bij anderen, en teleurstelling roept teleurstelling op. Ze kunnen echter ook complementaire emoties (een tegengestelde emotie) oproepen bij anderen (Van Kleef et al., 2008). Een complementaire emotie die vaak geassocieerd wordt met boosheid is angst (Dimberg & Öhman, 1996; Van Kleef et al., 2004a). Hoofdstuk 2 laat zien dat schuld een complementaire emotie is die in onderhandelingen wordt opgeroepen door de communicatie van teleurstelling.

De bevindingen van Hoofdstuk 2 laten zien dat de relatieve machtspositie van de onderhandelingspartijen kan bepalen of een reciproke emotie of een complementaire emotie wordt opgeroepen. In Hoofdstuk 2 is de relatieve machtspositie van de persoon die boosheid of teleurstelling communiceert gemanipuleerd in een ultimatum spel setting. De bevindingen laten zien dat de relatieve machtspositie bepaalt of de communicatie van boosheid hoge of lage biedingen oproept. Wanneer een onderhandelaar in een hoge machtspositie boosheid communiceert, roept dit de complementaire emotie angst op bij anderen, wat vervolgens leidt tot hogere biedingen. Wanneer een onderhandelaar in een lage machtspositie boosheid communiceert, roept het de reciproke emotie boosheid op bij anderen, wat vervolgens leidt tot lagere biedingen. De effecten van teleurstelling zijn niet afhankelijk van de relatieve machtspositie van de onderhandelingspartijen. De bevindingen toonden aan dat teleurstelling schuld opriep bij anderen, onafhankelijk van de relatieve machtspositie van de onderhandelaars. Dit leidde tot hogere biedingen van tegenstanders. Op basis van deze resultaten zou dus geconcludeerd kunnen worden dat het effectiever is om teleurstelling te communiceren in onderhandelingen dan om boosheid te communiceren.

In lijn met de resultaten van Hoofdstuk 2, laat ook **Hoofdstuk 3** zien dat teleurstelling hogere biedingen oproept bij anderen in onderhandelingssituaties dan boosheid. In Hoofdstuk 3 worden de neurale mechanismen die betrokken zijn bij de interpersoonlijke effecten van boosheid en teleurstelling onderzocht en deze worden bovendien vergeleken met de interpersoonlijke effecten van de positieve emotie blijdschap. Onze gedragsresultaten lieten zien dat mensen vaker een zelfzuchtig bod deden aan boze tegenstanders dan aan teleurgestelde of blije tegenstanders. Met betrekking tot de neurale mechanismen, werd allereerst het effect van valentie onderzocht. De resultaten lieten zien dat blijheid van de tegenstander geassocieerd was met activiteit in de temporoparietale overgang (TPJ). Dit gebied is in eerder onderzoek vooral gerelateerd aan het perspectief nemen van anderen. Het is mogelijk dat de blijdschap van de ander de deelnemers in onze studie aanspoorden om het perspectief te nemen van de ander. Dit is in lijn met eerder gedragsonderzoek dat laat zien dat blijdschap leidt tot affiliatie en een toename in het nemen van het perspectief van een ander (Frantz & Janoff-Bulman, 2000; Fredrickson, 1998). Wanneer we inzoomden op de effecten van de twee negatieve emoties, lieten de bevindingen zien dat boosheid van anderen meer activatie liet zien in de mediale prefrontale cortex dan teleurstelling van anderen. Dit gebied is in eerder onderzoek in

soortgelijke settings vooral gerelateerd aan het maximaliseren van eigen uitkomsten en, wat algemener, zelfgerelateerd denken. Dit is in lijn met de gedragsresultaten die laten zien dat deelnemers met boze tegenstanders vaker zelfzuchtige biedingen deden en hun uitkomsten dus maximaliseerden.

Terwijl de eerste twee empirische hoofdstukken lieten zien dat gecommuniceerde teleurstelling vaak hogere biedingen oproept bij anderen dan gecommuniceerde boosheid, is in **Hoofdstuk 4** onderzocht of dit altijd het geval is. De bevindingen laten zien dat de effecten van boosheid en teleurstelling afhangen van waarop de emotie gericht is. Meer specifiek, het maakt veel uit of de emotie gericht is op de persoon of op het bod in de onderhandeling. De resultaten van Hoofdstuk 4 laten zien dat boosheid hogere biedingen oproept bij anderen wanneer het gericht is op het bod, terwijl teleurstelling juist hogere biedingen oproept bij anderen wanneer het gericht is op de persoon. Bodgerichte boosheid roept hogere biedingen op dan persoonsgerichte boosheid, omdat tegenstanders de limieten van de boze persoon hoger inschatten wanneer de boosheid op het bod is gericht. Persoonsgerichte teleurstelling roept hoger biedingen op dan bodgerichte teleurstelling, omdat teleurstelling meer schuld oproept wanneer het gericht is op de persoon.

In **Hoofdstuk 5**, ten slotte, wordt de analyse van de interpersoonlijke effecten van boosheid en teleurstelling voltooid. In dit hoofdstuk wordt aangetoond dat teleurstelling zwakte communiceert, terwijl boosheid juist macht communiceert. De zwakte die gepaard is met teleurstelling kan hoge biedingen oproepen bij anderen, maar ook lage biedingen, afhankelijk van of teleurstelling schuld oproept of niet. Wanneer teleurstelling schuld oproept, wekt de communiceerde zwakte een neiging op bij anderen tot prosociaal gedrag. Wanneer het geen schuld oproept, wekt de zwakte een neiging op bij anderen tot zelfzuchtig gedrag. Twee belangrijke factoren die bepalen in hoeverre teleurstelling schuld oproept zijn het groepslidmaatschap van beide partijen (behoren ze tot dezelfde groep of niet) en het type onderhandeling (individuele onderhandelingen vs. onderhandelingen via vertegenwoordigers). Wanneer teleurstelling wordt gecommuniceerd door een lid van een andere groep of in een onderhandeling met vertegenwoordigers, dan roept teleurstelling minder schuld op bij tegenstanders, wat leidt tot lagere biedingen. Wanneer teleurstelling wordt gecommuniceerd door een lid van de eigen groep of in een individuele onderhandeling, dan roept teleurstelling meer schuld op bij tegenstanders, wat leidt tot hogere biedingen. De effectiviteit van de communicatie van boosheid hangt niet af van het groepslidmaatschap van beide partijen of van het type onderhandeling. In beide situaties

communiceert boosheid macht en hoge limieten, waardoor tegenstander toegeven om impasse te vermijden.

Samengevat toont de huidige dissertatie aan dat de twee negatieve emoties boosheid en teleurstelling verschillende effecten hebben op het gedrag en de hersengebieden van anderen in onderhandelingen. Boosheid is een emotie die macht communiceert en tegenstanders geven in onderhandelingen toe om impasse te vermijden. Wanneer mensen geen rekening hoeven te houden met de negatieve consequenties van de hoge limieten van boosheid (zie Hoofdstuk 2 en 3), of wanneer de informatie over hoge limieten niet goed wordt gecommuniceerd (zie Hoofdstuk 4), werkt het communiceren van boosheid averechts. Teleurstelling is een emotie die zwakte communiceert. Tegenstanders geven toe wanneer die gecommuniceerde zwakte schuld oproept, maar wanneer het geen schuld oproept, werkt teleurstelling averechts (zie Hoofdstuk 5). Dit proefschrift laat dus niet alleen zien dat de interpersoonlijke effecten van boosheid en teleurstelling verschillen, maar beschrijft ook de onderliggende processen die ten grondslag liggen aan deze verschillen en de consequenties die deze verschillen hebben voor gedrag. Op deze manier draagt dit proefschrift bij aan een meer volledig en specifieker beeld van de sociale functies van negatieve emoties.

Summary

Emotions in negotiations: The role of communicated anger and disappointment

Emotions play an important role in everyday life. Until recently, emotions were regarded as detrimental or disruptive forces that interfere with rational decision-making, instead of as social tools that facilitate decision-making. Increasingly, however, this thought has made way for a functional approach to emotions (Frijda, 1986). This approach emphasizes that emotions contain valuable information about one's feelings and intentions (Keltner & Haidt, 1999). They thus also have a social function. The information that emotions communicate to others can have consequences for the behavior of others (Van Kleef, De Dreu, & Manstead, 2010).

When people make decisions they are often dependent on others. Conflicts that arise in such situations are often resolved by negotiations. Although most research agrees on the assumption that emotions play a crucial role in negotiations, it is still unclear what role exactly. Research on the interpersonal effects of emotions (how emotions affect others' feeling, intentions, and behavior) in negotiations has thus far focused mainly on comparing the communication of anger and happiness. Angry bargainers are perceived to be tough negotiators and, compared to happiness, anger communicates high limits (e.g., Sinaceur & Tiedens, 2006; Van Kleef, De Dreu, & Manstead, 2004a, b). Research has also shown that these appraisals of the bargainer's limits lead opponents to make more concessions to angry negotiators, than to happy negotiators (Van Kleef et al., 2004a, b).

This first line of studies thus showed that communicating emotions may affect the bargaining behavior of opponents. It is, however, important to consider the effects of specific emotions and to not only investigate emotions that differ in valence, such as anger and happiness. Few studies have considered the interpersonal effects of different negative emotions in negotiations. This dissertation aims to compare different negative emotions,

by focusing on two of the most often communicated and experienced emotions in negotiations: anger and disappointment.

Anger arises when a person's goals are frustrated (Berkowitz, 1993; Carver & Harmon-Jones, 2009; Dollard, Doob, Miller, Mowrer, & Sears, 1939; Lewis, Alessandri, & Sullivan, 1990). It mostly arises when others are blamed for the goal blockage (Roseman, Antoniou, & Jose, 1996). Disappointment, on the other hand, arises when progress towards a goal is below expectations (Carver & Scheier, 1990; Van Kleef & Van Lange, 2008) and/or when a desired outcome is not achieved (Bell, 1985; Frijda, 1986; Van Dijk & Van der Pligt, 1997). It involves feelings of powerlessness, a tendency to turn away from an event, and wanting to do nothing (Zeelenberg, Van Dijk, Manstead, & Van der Pligt, 1998a). Anger and disappointment are both emotions that are reactions to undesirable behavior of others, and at the same time desire behavioral change of others (Van Dijk & Zeelenberg, 2002b). However, when taking a closer look, both emotions are very different in terms of their effects on others. In this dissertation we compare the interpersonal effects of anger and disappointment in negotiations and show that both emotions have distinct effects on opponents and that they have different underlying mechanisms. We do not only look at the effects that they have on the behavior of others (see Chapter 2, 4, and 5), but also on the underlying neural mechanisms (see Chapter 3).

In the first empirical chapter (**Chapter 2**), it was investigated when anger and disappointment change bargaining behavior of others. Whereas previous research has mainly focused on the information that anger and disappointment communicate (see Van Kleef & Van Lange, 2008), in Chapter 2 I investigated the emotions that anger and disappointment evoke in others and how they subsequently influence behavior. Anger and disappointment can both evoke reciprocal emotions (anger evokes anger and disappointment evokes disappointment). They can, however, also evoke different, but corresponding (i.e., complementary) emotions in others (Van Kleef et al., 2008). A complementary emotion that is often associated with anger is fear (Dimberg & Öhman, 1996; Van Kleef et al., 2004a). Chapter 2 shows that a complementary emotion that disappointment evokes in negotiations is guilt. The findings show that power is a key determinant of whether reciprocal or complementary emotions are evoked. When a high-power bargainer communicated anger, the complementary emotion fear was evoked, which led opponents to make higher offers. When it was communicated by a low-power bargainer, anger was reciprocated, which led opponents to make lower offers.

Communicating disappointment, however, always evoked the complementary emotion guilt and increased offers, regardless of the bargainer's power position. Although both emotions elicited generous offers when they were communicated by high-power bargainers (but for different reasons), disappointment was more advantageous than anger, when communicated by low-power bargainers.

In **Chapter 3**, the study of how anger and disappointment affect bargaining behavior is continued by considering underlying neural mechanisms. Moreover, the effects of the communication of these emotions were compared to the effects of the communication of the positive emotion happiness. The results showed that bargainers more often made lower offers to angry opponents than to happy or disappointed opponents. With regard to the underlying neural mechanisms, the results showed increased activation in the temporoparietal junction (TPJ) for receiving happy reactions, in comparison to receiving angry or disappointed reactions. In prior studies TPJ has been associated with perspective-taking. It is possible that the recipient's happiness encouraged participants to take the perspective of the recipient. This is in line with behavioral research that showed that happiness leads to more closeness and increased perspective taking (Frantz & Janoff-Bulman, 2000; Fredrickson, 1998). The difference in neural reactions to anger and disappointment was also investigated. Compared to disappointment, expressions of anger increased activation in the MPFC. In previous research this region has been implicated in strategic bargaining (i.e., maximizing own outcomes and defecting in a trust game, see Van den Bos, Van Dijk, Westenberg, Rombouts, & Crone, 2009, 2011) and, more broadly, in self-referential thinking. This is in line with the behavioral results that showed that bargainers with angry opponents more often made self-serving offers and maximized their own outcomes.

Whereas the first two empirical chapters thus showed that communicating disappointment in negotiations is more advantageous than communicating anger, in **Chapter 4** I addressed the question of whether disappointment would always yield higher outcomes than anger. The findings showed that the interpersonal effects of anger and disappointment depend critically on the target of the emotion, that is, whether they are directed at the person or at the offer. Anger pays when it is directed at the offer, but disappointment pays when it is directed at the person. Offer-directed anger elicited higher offers than person-directed anger, because people inferred higher limits from opponents who communicated offer-directed anger. Person-directed disappointment elicited higher

offers in others than offer-directed disappointment, because it evoked higher feelings of guilt.

Chapter 5 completes the analyses of anger and disappointment. In this chapter it is argued that disappointment communicates a sense of dependency and weakness that is less present in anger. I then propose that this weakness has benefits and downsides depending on whether disappointment evokes guilt or not. When disappointment evokes guilt, the communicated weakness elicits a prosocial tendency. When it does not evoke guilt, disappointment elicits a selfish tendency. Key determinants of whether or not disappointment evokes guilt are the group membership of the expresser and the type of negotiation. When disappointment is communicated by an out-group member or in a representative negotiation, it evokes lower levels of guilt in people, which lead them to make lower offers. When disappointment is communicated by an in-group member or in an individual negotiation, it evokes higher levels of guilt in people, which lead them to make higher offers.

To sum up, the current dissertation shows that the two negative emotions anger and disappointment have different effects on the behavior and brain regions of others in negotiations. Anger is an emotion that communicates power and opponents in negotiations give in to avoid impasse. When opponents do not have to care about these negative consequences (when anger is communicated by a low-power bargainer, see Chapter 2 and 3) or when the information about the high limits is not communicated in the right way (when it is directed at the person, see Chapter 4), anger may backfire. Disappointment is an emotion that communicates weakness. Opponents give in when this communicated weakness evokes guilt, but when it does not evoke guilt, communicating disappointment backfires (see Chapter 5). This dissertation thus not only shows that the interpersonal effects of anger and disappointment differ, but also what their underlying mechanisms are and what the different consequences are for behavior. By taking a close look at how these two emotions affect others' behavior and underlying neural mechanisms, this dissertation provides a more in-depth view of the social functions of negative emotions.

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Curriculum Vitae

Gert-Jan Lelieveld was born on the 25th of July 1984 in Leiderdorp, The Netherlands. He grew up in Zoeterwoude. He attended high school at 'Het Vlietland College' in Leiden. After studying computer sciences for one year at the Technical University in Delft, at the age of 19, he went to Leiden University to study psychology. Within five year he finished both the Bachelor in Psychology and the Research Master in Social and Organizational Psychology. His Master thesis on the interpersonal effects of anger and disappointment was written under the supervision of Eric van Dijk. After graduation he started a PhD project that focused on the interpersonal effects of emotions in negotiations, under the supervision of Eric van Dijk, Ilja van Beest, and Gerben van Kleef. This project resulted in the present dissertation. Gert-Jan now works as an Assistant Professor at the department of social and organizational psychology at Leiden University. He conducts research in the fields of social psychology and social neuroscience.

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