

# **The Self in Social Rejection**

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RIJKSUNIVERSITEIT GRONINGEN

# The Self in Social Rejection

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# Dedication

Yes, this is it. This is the book that you have been waiting for, for so long. This time, you know that you will find what you have been looking for in all the other books you have read before. This time, you flip through the first pages with sweaty fingers, having trouble to control your excitement, knowing, that this book must be dedicated to you. And this time you are right. This book is for you! If you find yourself to be the person described above, you helped me a lot through these last four years. I think no one can write a dissertation without the good advice, support, friendship, and love of someone like you.

This book is made of blood, tears, and hope, sometimes laughter, but most of all out of curiosity for, and excitement about the profundity of the human mind.

Three people need to be mentioned in particular:

To Sigi. Thank you for all the inspiring discussions that we had together. I enjoyed best the times when we disagreed. The results of those discussions can be read in this dissertation. I am glad that I got the chance to work with such a great thinker as you.

To Justin. Thank you for agreeing to work with me when I was about to lose faith in this project. You taught me clear thinking and writing, and you always were a good mentor, who helped me to overcome some of the frustrations that go along with writing a dissertation.

To André, my love. None of this would have been possible without you by my side.



# Preface

## The Matrix-Metaphor

**MORPHEUS** "The Matrix is everywhere, it's all around us, here even in this room. You can see it out your window, or on your television. You feel it when you go to work, or go to church or pay your taxes. It is the world that has been pulled over your eyes to blind you from the truth."

**NEO** "What truth?"

**MORPHEUS** "That you are a slave, Neo. That you, like everyone else, is born into bondage...kept inside a prison that you cannot smell, taste, or touch. A prison for your mind. Unfortunately, no one can be told what the Matrix is. You have to see it for yourself."

**NEO** "How?"

*In Neo's right hand, Morpheus drops a red pill.*

**MORPHEUS** "This is your last chance. After this, there is no going back."

*In his left, a blue pill.*

**MORPHEUS** "You take the blue pill, then you wake in your bed, and you believe whatever you want to believe. You take the red pill, you stay in my world, and I show you how deep the rabbit-hole goes. Remember that all I am offering is the truth. Nothing more."

*Neo opens his mouth and swallows the red pill...*

This is a dialogue from the science-fiction movie "The Matrix" (1999), wherein Neo, the main character, is offered to learn the truth about the world we live in: the matrix, an illusory, simulated construct of the world. If he takes the red pill, he gets to know the world as it really is. The blue pill prevents him from

enlightenment and everything remains as it is: viewed through the rose-colored glasses of ignorance and illusion. Leo takes the red pill and ends up in a dark and unfriendly reality.

In this dissertation, I suggest that sometimes it is adaptive for people to go with the blue pill, to keep rose-colored views about themselves, to maintain positive illusions. I specify when and why the truth may not be the best choice, and may well cause damage by preventing important action tendencies, such as motivating people to form social relationships. Or to put it like Cypher, another character in the movie, after he chose to see the world as it really is: “Why, oh why didn't I take the blue pill?”.

A very influential paradigm to study social processes in modern sociology is social network analysis. Social networks are in constant change, due to either the emergence of new social ties or the dissociation of existing social ties (i.e. people enter or end social relationships with one another). Such dissociation of a social relationship can occur in mutual agreement, of course, but it can also happen that a person finds himself being turned down by the other. Some people may even have trouble to form any social ties at all, because of social imperfections that prevent their acceptance as a relationship partner. An important aspect in investigating social networks is the explanation of how, when, and why social ties emerge. So what happens after a person got rejected? Will he try to restore the old relationship, look for a new social partner, or remain without a relationship—thus becoming isolated from the social network?

In this dissertation, I test the idea that how people evaluate themselves after social rejection may be an important component in determining whether they will form new social ties. Positive beliefs in the light of such negative

events may determine social reconnection and thus the formation of new ties. The understanding of the role that self-perceptions play in social rejection offers a deeper insight into the underlying dynamics that create or break a social network, and thus forms an important contribution to existing sociological research after micro-foundations of social relations.



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# **Chapter 1**

## **General Introduction**

## CHAPTER 1

Oftentimes, people seem to live in a world similar to the Matrix: a world where what they see and believe is not a blueprint of reality. People are creators of their own, sometimes illusionary, perception of themselves and the world they are living in. So most of us have a natural tendency to evaluate ourselves very positively (e.g., Alicke, 1985; Alicke & Govorun, 2005; Brown, 1986; or Dunning, Heath, & Suls, 2004, for an overview). We think for example that we are better than average drivers (Svenson, 1981), or that we are more kind than others (Goethals, 1986). Ample research has shown that these kinds of positive self-perceptions apply widely, and are particularly robust in domains that are desirable and refer to the self as a benign person (e.g. Allison et al., 1989; Van Lange, 1991; Van Lange & Sedikides, 1998; Epley & Dunning, 2000). As most people believe that they compare favorably relative to others, which is logically impossible because not everyone can be better than the others, those beliefs have been referred to as being illusionary perceptions about the self (Taylor & Brown, 1988). Such *positive illusions* have been regarded as one of the most robust of all self-enhancement occurrences (e.g., Sedikides & Gregg, 2003), and recent research has revealed that people honestly believe their positive perceptions (Williams & Gilovich, in press). But why would people need to evaluate themselves so favorably? Would an objective evaluation about his qualities and traits not prevent a person from problems and disappointments due to falsities in judgments?

In their prominent review on the merits of positive beliefs, Taylor and Brown (1988, 1994) were among the first to propose that being overly positive about oneself in the light of negative events could be functional. They presented evidence that positive beliefs predict mental health and promote active coping in difficult situations. Also evolutionary biologists like Trivers

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(2002) have suggested that self-deception plays a role in human behavior and may therefore be an important form of adaptive thinking.

However, little attention has been given yet to the question in what ways self-perceptions could be functional in specific negative situations. In this dissertation, I address functional aspects of different self-perceptions in the light of a common and critical negative event: Social rejection. I suggest that the way we feel and think about ourselves may play an important role in how we evaluate experiences of social rejection, and whether we are motivated to reconnect afterwards. In the following, I present a theory of distinct functions of two different components of the self in situations of social rejection: The way people feel about themselves after rejection (i.e. a person's self-esteem), and—in the same situation—how positively they perceive specific aspects of themselves (i.e. a person's belief about him possessing important abilities and traits). Then, I give an overview of the empirical chapters and their role in supporting a functional perspective of the self in social rejection.

### **Two Components of the Self**

The image that we have of ourselves and how we derive it is still a highly discussed topic in the social sciences—one for which as of yet no evident answers are found. Self-beliefs and self-esteem are among the most investigated topics in the field; they are closely related and have been treated as separate constructs in some studies and interchangeable in others (e.g., Brown & Marshal, 2006). In this dissertation, I define self-esteem and self-beliefs as two distinct components of the self with different functions.

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Self-beliefs on the one hand, constitute subjective and often positive perceptions about one's abilities or personal commodities. Ample research has shown that people possess many strategies to deliberately create positive self-beliefs (e.g., Chambers & Windschitl, 2004; Dunning, Heath, & Suls, 2004 for a review). Moreover, a recent study showed that people were quicker to recognize their own face on a picture when it is morphed to be slightly more attractive than they actually are, suggesting that this bias towards positivity concerning the self is even reflected in more automatic processes (Epley & Whitchurch, 2008).

Self-esteem, on the other hand, is often characterized as a more affective component of a person's self-concept. It is the part of the self-concept that evaluates people's self-beliefs and conveys whether they may feel good about themselves. What is consistently found across almost all domains of research on self-esteem is that—just as with self-beliefs—most people strive for high self-esteem. When people can reflect on positive beliefs about themselves, their attempts to enhance self-esteem diminishes, whereas a threat to their positive self-beliefs stimulates attempts to enhance self-esteem. This dynamic process suggests that self-esteem is based on an essential need that people seek to satisfy: a need to evaluate the self positively. Several influential theories in psychology, such as self-esteem maintenance theory (Tesser & Cornell, 1991; Tesser, Crepez, Collins, Cornell, & Beach, 2000), self-affirmation theory (Steele, 1988), or meaning maintenance theory (Heine, Proulx, & Vohs, 2006) adopt this assumption.

### The Social Function of the Self

Implicit in most research on people's self-concept is the suggestion that people seek not only a positive, but also a unitary, coherent concept of themselves, and that self-esteem derives from self-beliefs (Brown, 1998), or to put it differently, that global self-esteem is an accumulation of many sub-domains of self-esteem which are based on specific self-beliefs (e.g., Brown & Marshal, 2006).

Recently however, the view has been proposed that although our self may intuitively feel like a unitary entity and has long been treated as such by most of social sciences, it may be multidimensional—composed to match multiple different functional specializations (Kurzban & Aktipis, 2006; Kurzban & Aktipis, 2007). Kurzban and Aktipis suggest that the self serves a primarily social function, designed to assure social inclusion. According to their view, the self consists of a collection of different subsystems—modules—designed by natural selection to enhance a person's reproductive fitness. These individual systems may have evolved for their functionality instead of a need to feel good about the self or their ability to give a true reflection of reality, and they may also be informationally encapsulated, making it possible for two systems to hold mutually exclusive representations.

This view is in line with the idea that self-esteem and self-beliefs may be two distinct components of the self, with different functions. In the following, I define the possible specializations of those components in more detail.

### *Self-Esteem as a Monitor of One's Relational Value*

Based on the well-established fact that people have a fundamental need to belong to others (Baumeister & Leary, 1995), one possible specialization of the self is introduced by Leary's and other's view of self-esteem as a *sociometer*—a gauge that functions as an index of the degree of one's being accepted by others. According to this theory, evaluative feelings regarding the self (i.e., self-esteem) function as the sociometer: When accepted, people should tend to feel good about themselves; when rejected, they should tend to feel bad. Given the importance of being accepted, and the disadvantages and dangers of interpersonal exclusion, sociometer theory suggests that people have evolved an internal gauge to monitor whether their relational value is high enough to ascertain interpersonal acceptance. As even the mere possibility of rejection could lower self-esteem, this makes the sociometer a feasible warning system for preventing social rejection. Substantial empirical evidence supports the idea that self-esteem serves as an indicator of the degree to which one is being accepted or rejected within relationships—in other words, a gauge of one's relational value (e.g., Leary & Baumeister, 2000; Leary, Tambor, Terdal, & Downs, 1995; for a review, see Leary, 2005). Leary (2005) further specifies that the sociometer as a whole comprises three essential functions: (1) it monitors the social environment for signs of acceptance and possible rejection; (2) it answers with low self-esteem when the relational value is threatened; and (3) it motivates behavior that restores relational value or prevents rejection.

It remains undefined in this theory, however, where the motivation for compensatory actions should come from. In fact, other research has shown that negative feelings (such as they may be triggered by rejection) are likely to functionally interrupt behavior to allow appraisals of the situation (e.g., Frijda, 1986). And it has also recently been proposed that social rejection may cause a

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temporary physical and emotional numbness (DeWall & Baumeister, 2006). This numbness has been found to lower peoples' empathic as well as judgmental abilities and might explain why they sometimes react to rejection with self-defense instead of behavior that aims at restoring social bonds (e.g., Twenge, Catanese, & Baumeister, 2002).

Positive self-beliefs may form a functionally complementary component of the self, one that motivates compensatory approach behavior—even while self-esteem drops in the light of social rejection. Positive beliefs may also buffer numbing effects caused by the rejection, and enable the rejected person to emotionally relate to others. Self-esteem and positive self-beliefs together may thus form a toolkit for evaluating a person's current relational value and at the same time motivating compensatory action tendencies.

### *Positive Beliefs as a Motivator for Functional Approach Behavior*

Positive beliefs have been proposed to be an adaptive tendency, both psychologically and reproductively (Haselton & Nettle, 2006; Taylor & Brown, 1988). As suggested above, the maintenance of positive beliefs may be essential for motivating functional behavior. Haselton and Nettle (2006) have recently introduced this idea in their Error Management Theory (EMT), in which they suggest that even unjustified positive beliefs may be design features rather than design flaws. Following EMT, any decision to engage in behavior involves at least an effort in energy; therefore, it is most adaptive to balance the benefits and rewards that would result from engagement in action. People will only then engage in action, when costs are low and benefits are high, or when not performing the action could result in negative consequences. However, when people make a decision to engage in action,

they often face different environmental constraints, such as time, capacity, and uncertainty. It would be most adaptive to have a bias towards a solution that leads to the best behavior in most known circumstances, resulting in a mechanism which is fast, effortless, and if any error is made, it is the least costly one.

EMT regards the functionality of biases by considering the consequences of behavioral decisions. The theory states that when people make judgments under uncertainty, and costs of false positive and false negative errors have been asymmetric over evolutionary history, selection should have favored a bias toward making the least costly error. According to this idea, positive beliefs should be predictable from patterns of costs and benefits people experienced during their evolutionary past. In making an assessment about the best and least costly action facing an uncertain situation, people can either adopt a certain positive belief or not, and this positive belief can either be true or false, which results in two possible forms of error. A false positive error occurs when people adopt a positive belief that is in fact not true; a false negative error occurs when people do not adopt a positive belief that is in fact true. Nettle (2004) theoretically applied this idea to positive beliefs and concluded that, as long as the situation does not trigger self-preservation needs (e.g., you think you can beat the lion when in fact you cannot), being optimistic about oneself would be more adaptive than pessimism or unbiased neutrality, because the two latter beliefs would lead to behavioral inactivity. The central idea in this approach is thus that positive self-beliefs initiate action towards corresponding goals.<sup>1</sup>

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<sup>1</sup> A related idea to the presumed connection between positive beliefs and approach motivation comes from Taylor and Gollwitzer (1995). They pointed out that positive beliefs attenuate when people are in a deliberate mindset and thus in a state of considering potential goals. However, once an individual has selected a certain goal, an

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Let us take an example. Figure 1 shows all possible belief-outcome relationships for how women's positive beliefs about their physical attractiveness might trigger their approach towards potential mates. When we take a woman's physical attractiveness as an example of a crucial factor in determining her value as mate (see for example Buss & Schmitt, 1993; Li, Bailey, Kenrick, & Linsenmeier, 2002), we derive at two possible errors in self-belief that she could make: (1) she could falsely believe to be very physically attractive – a false positive error. If it were true that positive beliefs promote approach, this would motivate a woman to search for a potential mate. However, she may end up looking for a mate in a different league than her own, which may result in her being rejected. (2) A women could also erroneously assume to be physically unattractive – a false negative error. However, this may then demotivate her from approaching any possible mates at all. Obviously, the second is the more profound error. According to EMT, it would thus be most adaptive for people to maintain overly positive self-beliefs—and even more so when facing rejection.

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implemental mindset emerges together with self-enhancing beliefs. These findings suggest that positive beliefs may be a necessary precondition for actually engaging in pursuing a set goal, and that these positive beliefs only arise when a goal is positively evaluated and adopted.

A link between positivity, approach motivation, and action tendencies was also found in physiological processes of the brain. The mesolimbic dopaminergic system is implicated to play a role in triggering approach motivation (Boksem, 2006; Denk et al., 2005; Niv, 2007; Tops, 2004), resulting for example in more eagerness to complete a given cognitive task. The brain releases dopamine, a neurotransmitter, when an individual expects a reward or obtains an unexpected reward. The general idea is that dopamine-driven processes are functioning in approach motivations towards one's environment, and that dopamine is released when people are in a positive mindset.

|   | Women is physically attractive | Women is physically unattractive |
|---|--------------------------------|----------------------------------|
| Woman <b>believes</b> she is physically attractive:<br>she is motivated to approach potential mates | <b>True Positive Belief</b>    | <b>False Positive Error</b>      |
| Woman <b>believes</b> she is physically unattractive:<br>she refrains to approach potential mates   | <b>False Negative Error</b>    | <b>True Negative Belief</b>      |

**Figure 1:** *Women's positive beliefs about their physical attractiveness applied to an EMT-framework.*

Because people have a fundamental need to belong to others (Baumeister & Leary, 1995), and because of the fatal implications of being a sole person without a mate, family or group, seeking new relationships after rejection may be especially important. If what I propose is true, then holding positive beliefs about one's qualities in the light of rejection may be an adaptive form of thinking, one that is crucial for determining whether people are able to find a suitable mate or to maintain an essential number of social relationships.

### The Self in Social Rejection

In order to maintain an essential number of social relationships, bonding is especially important following episodes or threats of rejection. Indeed, previous research found evidence that people seek reconnection in such

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situations. After experiences of rejection, people contribute more to group tasks (Williams & Sommer, 1997), tend to conform more strongly to other peoples' opinions (Williams, Cheung, & Choi, 2000), and are more motivated to forge social bonds as indicated by greater interest, positive evaluations, and friendly assessments towards a potential person they expected to meet (Maner, DeWall, Baumeister, & Schaller, 2007).

However, although reconnection seems a plausible reaction to rejection, other research in this area has shown that such experience does not necessarily lead to behavior that promotes reconnection. It can on the contrary lead to a reduction of prosocial behavior (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), and may trigger self-defeating (Twenge et al., 2002), or even aggressive behavior (Twenge, Baumeister, Tice, & Stucke, 2001). Whereas trying to socialize after rejection seems the most logical course of action in order to satisfy the need to belong, self-defeating or aggressive behavior seems counterproductive in finding acceptance by others. The question rises why experiences of social rejection sometimes do, and at other times do not lead to behavior that fosters social reconnection.

The role that the self may play in promoting approach or avoidance tendencies towards others after rejection has been widely neglected in research on the consequences of rejection. However, it has been proposed that the need to affiliate with others is closely related to the social motivation to approach, whereas a fear of rejection is related to the social motivation of avoidance (e.g., Gable, 2006). The self-concept has been shown to play a regulatory role in determining people's motivational strategies in dealing with social demands. Social situations can stimulate a motivation to achieve ideals (e.g., social bonding) or a motivation to avoid threats (e.g., damage to your self-esteem) depending on individual differences in coping and desired end-states (e.g.,

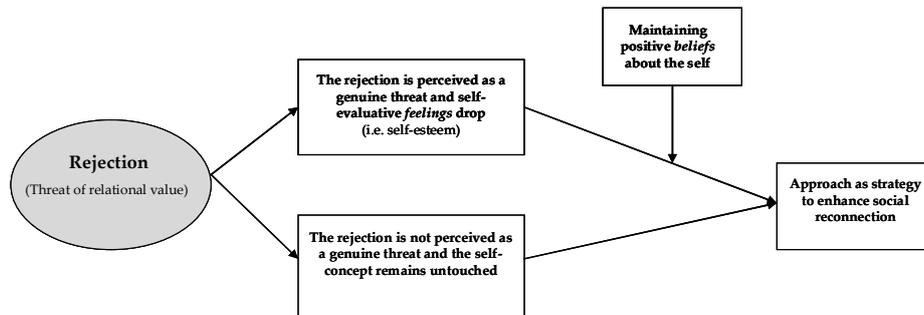
Higgins, 1997). Based on this idea, I assume that people's self-beliefs following rejection may influence the motivational strategies they apply to deal with the rejection, resulting either in efforts to socially reconnect or to protect the self. Following rejection, people may be caught between two needs: the need to reduce momentary emotional pain and to protect the self from further pain, and the need to reconnect. The way people evaluate themselves may play a crucial role in determining which motive is most salient after rejection. Generally, positive beliefs about the self may reduce emotional pain and enhance positive motivation (see Taylor & Brown, 1988, or Taylor, Collins, Skokan, & Aspinwall, 1989, for a similar idea). For people who manage to maintain positive self-beliefs following a threat to their relational value, the need to protect the ego might be smaller and therefore the need to reconnect may become more salient; people may then be more likely still to approach others.

### **The Present Research**

In this dissertation, I aimed to investigate the specific role of the self in social rejection. I tested the idea that self-esteem and positive self-beliefs together may form a toolkit to evaluate a person's current relational value and at the same time to motivate compensatory action tendencies. Based on the preceding discussion, I suggest that self-esteem and self-beliefs may be two distinct specializations of the self that each fulfills a different function in response to social rejection. Self-esteem may serve as an affective component of the self that functions as an index of one's relational value; self-beliefs, as positively biased assessments of one's traits and qualities, may serve as a motivator for behavior that promotes social reconnection. If self-esteem and

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self-beliefs are indeed two distinct functional specializations of the self, they may react differently to social rejection. In situations of social rejection, self-esteem may drop as an index of a change in one's relational value, while self-beliefs remain positive in order to motivate behavior that compensates for the social rejection. This theoretical model is depicted in Figure 2.



**Figure 2:** *Theoretical model of self-esteem and positive self-beliefs in motivating approach tendencies after rejection*

The model summarizes the role of the self in social rejection as following: When encountering social rejection, a person first needs to recognize the incident as a valid threat to his relational value. In line with Leary's sociometer theory, I argue that *self-esteem* functions as an index to attribute rejection as a threat to one's relational value. After the rejection has been perceived as a genuine threat, reflected by a drop in self-esteem, tendencies towards social reconnection occurs to the degree that people maintain positive *self-beliefs*.

### *Human Mating and Female's Physical Attractiveness*

A supremely important type of social relationship—one in which people should be especially vigilant to possible rejection—is the mating relationship. Although their theory addresses a very broad motivation to form bonds, Leary

## CHAPTER 1

and Baumeister (2000) suggested that very intimate and stable bonds such as romantic relationships are particularly important to people, and difficult to replace, because of their often high emotional commitment and intimacy. From an evolutionary point of view, mating relationships are important, because they form the basis for reproducing offspring, and thus finding a good mate is an important aspect of a person's reproductive fitness (Darwin, 1972). Given the essential position of mating relationships, in this dissertation, I focus on this particular example of people's relational value: their value as a mate. Specifically, I look at the possibility that maintaining certain positive beliefs, after being rejected as a mate, may foster the motivation to find a new mate.

Furthermore, there may also be an important sex difference in which positive beliefs are especially important in this domain. Men's desirability as a mate (compared with women's) seems more strongly dependent on traits associated with competence and social status, whereas women's desirability (compared with men's) seems more strongly dependent on traits associated with physical attractiveness (Buss & Schmitt, 1993; Li, Bailey, Kenrick, & Linsenmeier, 2002). Because of the different importance that certain self-beliefs can have for men and women, I concentrated on women for now and emphasize a self-belief that seems to constitute an especially important characteristic in defining their value as a mate: physical attractiveness.

In the following, I give an overview of the dissertation's empirical chapters (Chapters 2-5) and their role in supporting this functional perspective of the self in social rejection.

### *Self-esteem, Self-beliefs, and the Special Case of Mate-Rejection*

If mating relationships are indeed especially important, then one reasonable speculation is that the sociometer is especially sensitive to what we call *capacity rejection* within a mating (versus non-mating) relationship context. Capacity rejection refers to information that one does not have the capacity to form and maintain a certain kind of relationship. I hypothesized that the sociometer may be particularly sensitive to information pertaining to one's capacity as a mate.

In Chapter 2, evidence is presented that self-esteem indeed functions as a relational monitor that is especially sensitive to one's capacity as a mate and to the importance of the reasons for the rejection. Furthermore, indications are presented that self-esteem and beliefs about one's qualities as a mate are two distinct components that react differently to rejection—that even while self-esteem decreases, positive beliefs about the self are maintained, suggesting that feelings and beliefs about the self react differently to rejection.

### *Positive Self-beliefs and Social Reconnection*

In the third chapter, I turn to the idea that positive perceptions about the self may function to facilitate approach towards others. Approach motivation is strongly related to positivity (e.g., Tops, 2004; Watson, Wiese, Vaidya & Tellegen, 1999), thus it was assumed that keeping positive self-beliefs after having been rejected may be a crucial determinant of whether people are motivated to approach others.

In the experiment reported in this Chapter, women's implicit positive beliefs about their physical attractiveness and implicit tendencies to approach men, following a threat to their capacity as a mate, were investigated. The results showed that women who maintained positive beliefs about their

physical attractiveness after rejection on that dimension, were more likely to show approach tendencies towards men. These findings support the idea that positive beliefs foster functional approach following rejection; moreover, they show that the self-belief has to be of special importance to the threatened domain in order to foster functional approach.

### *Self-esteem, Self-beliefs, and Mating*

A remaining question is whether the same effects can also be observed in a field setting. In the fourth chapter, I present a field experiment in which reactions to rejection and the role of the self in subsequent behavior was observed. Again, women were the target of investigation. The idea was tested that self-esteem is a gauge that detects variations in a person's degree of being desired as a mate after contact with a number of potential mates by using a speed-dating paradigm. If self-esteem is indeed a warning device for changes in one's value as a mate, and particularly for signs of possible rejection, then self-esteem should drop if a person detects an unusually high number of rejections by potential mates. The findings support this hypothesis: women who experienced an unusually high number of rejections subsequently reported a drop in their self-esteem.

Furthermore, the idea was tested that positive beliefs about their physical attractiveness may play an important role in motivating mating efforts in women. Therefore I hypothesized that such positive self-beliefs are maintained even when self-esteem decreases, and that they predict tendencies to meet possible mates after signs of rejection. The results showed that women indeed maintain their positive beliefs about being physically attractive in the light of rejection. Although I did not find that these beliefs become particularly important after experiences of rejection, evidence showed that changes in

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women's belief of being physically attractive go together with changes in their willingness to meet potential mates, supporting the idea that positive beliefs may play a role in motivating mating efforts in general.

### *Donating Behavior and Positive Self-beliefs*

The fifth and final empirical chapter differs from the previous ones in that it deals with another domain of relational value and with a different kind of threat to one's relational value: a self-induced identity threat to one's belief about being prosocial. In the previous experiments, I could show that positive self-beliefs contribute to self-regulatory behavior when self-esteem has been threatened. In this study, I focus on self-regulatory behavior concerning the positive illusion itself. The question is whether, in the face of a threat, the stability of positive belief is achieved by self-regulatory behavior. The two experiments presented in this chapter show that in situations of a threat to the perception of one's prosociality, positive beliefs are maintained and even strengthened as people show extra prosocial behavior (donating). This provides evidence that, when threatened, positive self-beliefs are stabilized by self-regulatory behavior.

Before the empirical chapters begin, I want to mention that this dissertation is a collection of articles that can be read independently from each other. For this reason, it is possible that there is some overlap between the different chapters. Since the empirical chapters were written in cooperation with my promotors and other associates, I use the term "we", and not "I" in those parts of the dissertation.



## **Chapter 2**

### **All you Need is Love:**

### **Is the Sociometer Especially Sensitive to One's Mating Capacity? <sup>2</sup>**

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<sup>2</sup> This chapter is based on Pass, J. A., Lindenberg, S. M., & Park, J. H. (in press), All you Need is Love: Is the Sociometer Especially Sensitive To One's Mating Capacity? *European Journal of Social Psychology*. We thank Simon Dalley for his comments on an earlier version of this manuscript.

## CHAPTER 2

It is well established that people are driven by a powerful need to belong, which presumably evolved because belonging to social groups and having romantic relationships heightened chances of survival and reproduction (Baumeister & Leary, 1995). Given the fatal implications of being a sole person without a mate, family, or group, it has been proposed that people possess a means of assessing the degree to which they are being accepted or rejected by others—the so-called sociometer (Leary & Baumeister, 2000; Leary, Tambor, Terdal, & Downs, 1995). State self-esteem is presumed to be the warning component of the sociometer: When accepted, people tend to hold high momentary feelings of self-esteem; when rejected, they tend to hold low momentary feelings of self-esteem (e.g., Leary, Haupt, Strausser, & Chokel, 1998). There is now substantial empirical evidence for the idea that self-esteem serves as a gauge of the degree to which one is being accepted or rejected within relationships—in other words, a gauge of one's relational value (for a review, see Leary, 2005).

Notwithstanding powerful effects of even minor rejection experiences (e.g., Williams, Cheung, & Choi, 2000), rejection experiences should predictably vary, as not all interpersonal relationships are equal. It seems plausible, for instance, that being rejected by a close friend will have a stronger and longer-lasting impact on one's well-being (and thus one's self-esteem) than being shunned by a stranger. Indeed, given that certain relationships (e.g., family relationships, friendships, romantic relationships) are especially important for one's well-being, one might speculate that the sociometer is particularly sensitive to rejection within those relationship contexts. In other words, self-esteem may be especially sensitive to rejection that has functional significance, rather than rejection per se. This idea is in line with the model of contingent self-esteem (Crocker & Knight, 2005), which suggests that self-

esteem is contingent on specific domains of self-worth and that domains that are particularly important to a person have a larger impact and yield greater changes in self-esteem than less contingent domains.

A particularly important relationship domain—one in which people should be especially vigilant to possible rejection—is the romantic relationship. From an evolutionary point of view, mating relationships are vital, as they form the basis for reproduction, and thus finding a good mate is an important contributor to a person's reproductive fitness (Buss, 2003). Psychologically, highly intimate and stable bonds such as romantic relationships are particularly important to people and difficult to replace, because of their often high emotional commitment and intimacy (Leary & Baumeister, 2000). Indeed, existing evidence does suggest a robust link between self-esteem and acceptance in mating relationships in particular. For instance, self-esteem is predicted by one's self-perceived value as a mate and satisfaction with one's romantic relationship (Brase & Guy, 2004). Also, self-esteem is influenced by perceptions of one's spouse's regard (Murray, Griffin, Rose, & Bellavia, 2003). More to the point, a recent study found that the quality of one's romantic relationship predicted self-esteem more strongly than did the quality of one's kin relationships and friendships (Denissen, Penke, Schmitt, & Van Aken, 2008). Thus, to the extent that people possess a sociometer, it may be especially sensitive to one's relational value as a mate. One implication is that self-esteem may be differently impacted by rejection within mating versus non-mating relationship contexts.

The contention that the sociometer is especially sensitive to one's value as a mate is not unchallenged. Ample research has shown that the sociometer is sensitive to acceptance and rejection outside of mating relationship contexts (for a review, see Leary, 2005). It has also been suggested

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that from an evolutionary point of view different relationships pose different adaptive problems, so that multiple sociometers should monitor inclusion in functionally distinct relationships (Kirkpartick & Ellis, 2001, 2002). It has furthermore been suggested that there is an attunement of self-esteem to specific traits depending on the salient social role (Anthony, Holmes, & Wood, 2007): Specifically, for people currently in a romantic relationship, self-esteem was defined more by possessing communal qualities such as kindness and understanding, whereas for people currently not in a romantic relationship, self-esteem was more attuned to social commodities such as appearance or social status.

The findings described above advance the sociometer concept. However, there remains a puzzle with regard to mate value. True, there may be different domains, and the sociometer is sensitive to different attributes in each domain. Yet, the quality of romantic relationships does seem to affect self-esteem more strongly than the quality of other relationships. And from an evolutionary point of view, it seems plausible that relationship domains themselves are not of equal importance with regard to the sociometer. Consider the following distinction: rejection by a mate or by a friend (what Leary Springer, Negel, Ansell, and Evans [1998] call “relational devaluation” apt to create hurt feelings). What will have a stronger impact on self-esteem, the mate rejection or the friend rejection? Here, the context and the salient roles might be important, as suggested by Kirkpartick and Ellis (2001) and by Anthony et al. (2007). However, what if one’s general capacity to attract a mate was in doubt versus one’s general capacity to attract friends? From an evolutionary point of view, one would hazard a guess that mating as a relational domain for the sociometer is more important than friendship as a domain, because if one is continuously rejected as a mate there will be no

offspring even if one has friends. Thus, even though in any given instant having a friend may be more important than having a mate (say, for social support), when it comes to a general capacity contest between the two domains (projecting one's mate or friendship value into the future), the mating domain should win out. For this reason, the sociometer should react more strongly to a threat to one's capacities in the mating domain than to one's capacities in the friendship domain. To our knowledge, this possibility has not yet been directly addressed.

The manipulations that have been used to elicit feelings of rejection (or inclusion) vary substantially across studies. For example, in order to evoke feelings of rejection, Leary and his colleagues (1998) had participants imagine that a date had answered questions about them with regard to their social desirability (e.g., wanting to sit next to participant, wanting to go to dinner or movie with participant). Negative answers would indicate rejection in that instant. By contrast, Twenge, Baumeister, Tice, and Stucke (2001) told participants via false feedback that they will end up alone later in life. This feedback tells participants something about their long-term capacity to maintain relationships. Our contention is that, with the latter manipulation, people may be particularly upset about exclusion from romantic relationships. However, Twenge et al. did not vary the domain to which the capacity applies. On the basis of what we argued above, there is a distinct possibility that the sociometer is attuned differently to capacity rejection in different domains. The present research set out to test this conjecture with regard to mating and friendship domains.

The main objective of Study 1 was to assess the impact of what we call "capacity rejection" in different relationship domains (mating relationship versus friendship) on self-esteem. We expected self-esteem to be especially

sensitive to capacity rejection within the mating relationship domain. In other words, we hypothesized that self-esteem would be lower following capacity rejection in the mating domain than following capacity rejection in the friendship domain.

Relationship status is likely to affect the workings of the sociometer when we deal with relational rejection (e.g., Anthony et al., 2007). Penke and Denissen (2008) have also shown that—at least for men—relationship status affects the strength of the correlation between self-reported mate value and self-esteem.<sup>3</sup> However, relational rejection and capacity rejection are not identical. If our reasoning is correct, then one's mating capacity ought to be so important that the sociometer should react to capacity rejection, even if one is currently in a romantic relationship. Thus, relationship status should not matter with respect to capacity rejection. In order to test this conjecture, we assessed relationship status in our studies and predicted that it will not affect the impact of capacity rejection on self-esteem.

According to an evolutionary psychological perspective, mating capacity of men and women depends on different attributes. Self-esteem should not just respond to capacity rejection in a mating relationship in general, but more specifically to one's being capacity rejected on the traits that contribute most to mate value. Men's desirability as a mate (compared with women's) seems more strongly dependent on traits associated with competence and social status, whereas women's desirability (compared with men's) seems more strongly dependent on traits associated with physical

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<sup>3</sup> They used a mixed measure of mate value that was based on self-assessed reactions of the opposite sex as well as physical attractiveness and intellectual/academic ability. Even though their measure contained some general capacity items, it did not have any reference to the future nor to rejection experience.

attractiveness (e.g., Ben Hamida, Mineka, & Bailey, 1998; Buss & Schmitt, 1993; Li, Bailey, Kenrick, & Linsenmeier, 2002). Thus, young men and women may be especially sensitive not only to capacity rejection within mating relationships (compared to friendship relationships), but also to whether the rejection experience targets their most important trait as a mate. For a man, rejection due to his (low) competence and status may be especially informative of his relational value, with the implication that his self-esteem may be influenced especially strongly by capacity rejection based on competence and status. For a woman, rejection due to her (low) physical attractiveness may be especially informative of her relational value, with the implication that her self-esteem may be influenced especially strongly by capacity rejection based on physical attractiveness. Accordingly, a second objective of the present research (Study 2) was to assess the impact of different reasons for capacity rejection. We hypothesized that (a) men's self-esteem would be lower following capacity rejection based on competence and status, and (b) women's self-esteem would be lower following capacity rejection based on physical attractiveness.<sup>4</sup>

Intriguingly, there may be a separation between people's feelings and beliefs regarding the self, and that difference may become especially relevant in

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<sup>4</sup> It has recently been argued that the sex difference in preference for competent/high-status or physically attractive mates—often found in studies of stated preferences—may be more reflective of people's a priori theories regarding what make desirable mates and may not necessarily translate into behavior when selecting mates (Eastwick & Finkel, 2008). Because sociometer theory implies that people's self-esteem depends on their *perceived* relational value, people's self-esteem may be influenced more by what they perceive to be relevant to mate value rather than what is objectively relevant. In other words, even if men and women do not actually select mates based on physical attractiveness and competence/status, respectively, their perception that the opposite-sex members will employ these criteria may impact their self-esteem in the hypothesized manner following the specific forms of rejection.

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situations of capacity rejection. Together, feelings and beliefs about the self constitute a person's self-concept; they are affective and cognitive representations about a person's identity and abilities. A person's self-concept includes an important affective–evaluative component (i.e., self-esteem or feelings regarding the self), and beliefs about the self pertain to one's abilities or commodities. Feelings and beliefs about the self are often highly related, but are not equivalent. People can believe that they are very attractive, but need not feel attractive at all times—for example, when having a stressful day, a person may feel less attractive and experience a drop in self-evaluative feelings (i.e., state self-esteem). Such incidents do not necessarily change a well-established belief of being attractive. Only if the person continues to feel unattractive for a longer period of time might beliefs about lack of attractiveness be adopted. If many individually important beliefs are lowered, this in turn may influence a person's general feelings regarding the self (i.e., trait self-esteem). The same logic may apply to one's mate value (i.e., one's belief regarding one's capacity in the mating domain) in light of a capacity rejection experience. Thus, although people may experience a drop in self-esteem following rejection, they may nevertheless maintain positive beliefs about their qualities.

Indeed, holding overly positive beliefs about one's qualities (i.e., “positive illusions”) has been proposed to be an adaptive tendency, both psychologically and reproductively (Haselton & Nettle, 2006; Taylor & Brown, 1988). Holding extreme self-beliefs (narcissism) may be self-defeating and lead to aggression. However, narcissists have unstable self-beliefs, and it seems that those who can maintain stable self-beliefs are least prone to self-defeating behavior after rejection (see Baumeister, Bushman, & Campbell, 2000). The maintenance of positive beliefs may be essential for motivating functional

approach behavior (e.g., flirting with a potential mate). As rejection may trigger negative feelings that functionally interrupt behavior to allow appraisals of the situation (e.g., Frijda, 1986), positive illusions may complement the sociometer by motivating compensatory approach behavior, and such beliefs may be especially beneficial following capacity rejection. If such a functionality of positive beliefs exists, they may be conceptually distinct from the feelings that one has about oneself. In other words, even though capacity rejection experiences may lead to lower self-esteem, people may continue to maintain positive beliefs about their qualities. To consider this hypothesis and control for the effects of such beliefs, we assessed self-esteem as well as beliefs about the self in both of our studies.

## **Study 1**

In Study 1, participants were given bogus negative feedback following an inventory that ostensibly measured their value as a mate or as a friend in terms of a capacity. Learning that they have a low value as a mate was expected to lower participants' state self-esteem more than learning that they have low value as a friend. In addition to assessing state self-esteem following the rejection manipulation, we also assessed the impact of relationship status and whether people maintain positive beliefs about the self.

### **Method**

#### *Participants and Design*

One hundred thirty-six students (90 women, 46 men; mean age = 20.14,  $SD = 3.13$ ) from the University of Groningen participated in exchange for partial

course credit. Participants were randomly assigned to the *mate-rejection* condition, the *friend-rejection* condition, or the control condition. Participants completed the study sessions within separate cubicles where all materials were presented on computers in Dutch.

### *Procedure*

The study was described as an investigation of the relationship between different aspects of the self-concept and the so-called “Social and Mate Value Inventory,” which participants were told is a test that is frequently used to assess people’s qualities as a friend or a mate. After having answered some general questions about their age, gender and relationship status (i.e., “Are you currently in a relationship?”), participants assigned to the experimental conditions (mate capacity rejection or friend capacity rejection) completed a questionnaire in which they were provided with several statements (e.g., “I am mostly the one who initiates a social interaction,” “I never worry about my looks,” “I prefer not to be responsible for other people’s feelings”) and were asked to indicate the extent to which they applied to them on a 5-point scale (endpoints labeled *1 = does not apply to me at all*, *5 = does very much apply to me*). Participants assigned to the control condition did not complete this questionnaire and received no feedback; they performed a word-search task instead in which they had to create animal names from scrambled letters that were presented on the computer screen.

After they had filled in the questionnaire, participants in the two experimental conditions read that the computer would now calculate the results of the inventory. A small clock appeared on the screen and they were asked to wait until the computer had finished calculating their score on the test., participants’ feelings of rejection were manipulated by giving them one

of two versions of bogus feedback (using methods from previous assessments that indicated capacity rejection, such as Maner, DeWall, Baumeister, & Schaller, 2007; Twenge et al., 2001). Those assigned to the mate-rejection condition were told that they had an average score on social qualities, implying an average probability that they will have many good friendships in life, but that they had a *low score on mate value*, implying a low probability that they will have a good and fulfilling relationship and a high probability of frequent rejection by possible mates in the future (literally, the assessment ended with “Even if you are in a relationship now, this will change, and the older you get the more likely it becomes that you will end up without a partner later in life.”). Participants assigned to the friend-rejection condition were told that they had an average score on mate value, implying an average probability that they will have good and fulfilling relationships in life, but that they had a *low score on social qualities*, implying a low probability that they will have many good friendships and a high probability of frequent rejection by possible friends in the future (ending with “Even if you are having many friends now, this will change, and the older you get the more likely it becomes that you will end up without any friends later in life.”; see Appendix A). Thus, participants in the two experimental conditions were given feedback that was intended to make them feel to have a low capacity in a specific relationship domain—either as a mate or as a friend.

Following the experimental manipulation, participants completed a measure of beliefs about their qualities and a measure of state self-esteem. The order in which these two measures were presented was counterbalanced (there was no effect of order).

In the measure of beliefs about qualities, participants were asked to evaluate their own current mate and social qualities. For female participants in

the mate condition, being a desirable mate was described as someone who is “sexy and beautiful”; for male participants in the mate condition, being a desirable mate was described as someone who is “competent and athletic.” Participants were asked, “Compared to your average peer, how desirable are you as a mate?” Responses were provided on a 7-point scale (endpoints labeled *1 = not at all*, *7 = very*). For both female and male participants in the friend condition, a social person was described as an “honest, cooperative, and trustworthy friend.” Participants were asked, “Compared to your average peer, how social are you?” Responses were provided on a 7-point scale (endpoints labeled *1 = not at all*, *7 = very*). These questions were intended to assess the extent to which people might hold positive beliefs about their qualities as a mate or friend—even while experiencing a drop in self-esteem—following the capacity-rejection manipulation.

The measure of state self-esteem served as our primary dependent variable. Following McFarland and Ross (1982), participants were asked to indicate the extent to which 12 self-relevant emotions (i.e., proud, competent, self-assured, smart, resourceful, effective, efficient, inadequate, incompetent, stupid, worthless, ashamed) applied at the moment; responses were provided on a 7-point scale (endpoints labeled *1 = not at all*, *7 = very much*).

Finally, participants completed five questions about “experienced rejection” (“Did you feel valued/accepted/excluded/rejected/hurt after the first part of the study?”). Responses were provided on a 7-point scale (endpoints labeled *1 = not at all*, *7 = very much*).

Upon completion, participants were thoroughly debriefed. Special care was taken to ensure that none of the participants suffered any distress or harm as a result of the experimental procedure.

## Results

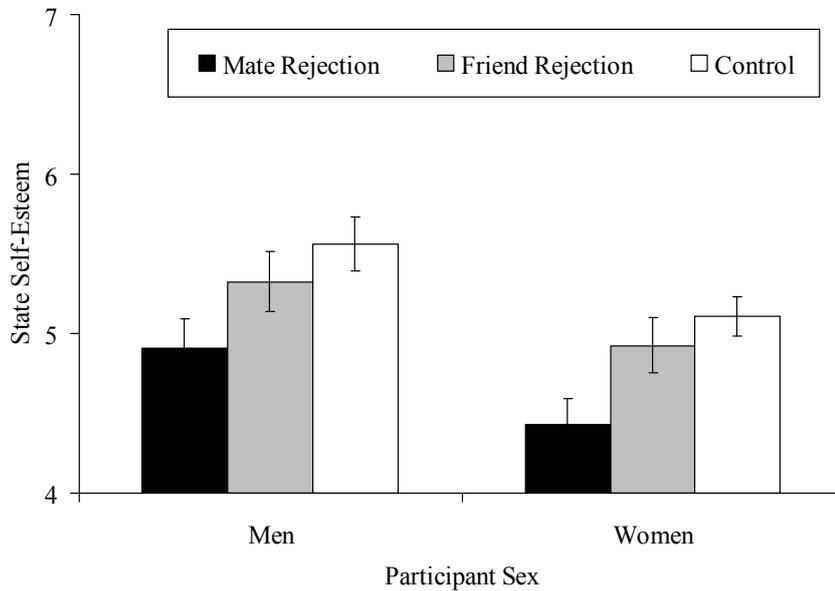
### *Manipulation Check*

Did the manipulation bring about feelings of experienced rejection? For this purpose, a single index of feelings of rejection was created by reverse-coding the items, so that higher scores indicated stronger feelings of rejections, and then averaging the responses across the five items (Cronbach's  $\alpha = .86$ ). A one-way analysis of variance (ANOVA) revealed that feelings of rejection were influenced by the manipulation,  $F(2, 133) = 36.35, p < .01$ . Bonferroni post hoc tests revealed that participants in the mate-rejection ( $M = 4.33$ ) and the friend-rejection ( $M = 4.23$ ) conditions felt more rejected, compared with participants in the control condition ( $M = 2.51$ , both  $ps < .01$ ). In other words, participants in both rejection conditions felt rejected, irrespective of the specific relationship domain.

### *Effect of Rejection Manipulation on State Self-Esteem*

To test the effect of the rejection manipulation on state self-esteem, we first created a single self-esteem index by reverse-coding the negative feelings so that higher scores indicate higher state-self-esteem and then averaging across the 12 self-relevant feelings (Cronbach's  $\alpha = .89$ ). A 2 (participant sex)  $\times$  3 (condition) ANOVA revealed a main effect of sex,  $F(1, 130) = 9.31, p < .01, \eta^2 = .07$ , and a main effect of condition,  $F(2, 130) = 7.97, p < .01, \eta^2 = .11$ ; there was no interaction effect ( $p = .98$ ; see Figure 1). On average, men ( $M = 5.27$ ) indicated higher self-esteem than women ( $M = 4.84, d = .54$ ). Bonferroni post hoc tests revealed that participants in the mate-rejection condition ( $M = 4.60, SD = .85$ ) reported significantly lower self-esteem than participants in both the friend-rejection condition ( $M = 5.05, SD = .85, p = .04, d = .53$ ) and the control

condition ( $M = 5.26$ ,  $SD = .74$ ,  $p < .01$ ,  $d = .83$ ). Self-esteem in the friend-rejection and control conditions did not differ ( $p = .64$ ).



**Figure 1**

*Effect of manipulation (mate rejection, friend rejection, control) on state self-esteem in men and women (errors bars indicate  $\pm$  SE).*

***Is the Effect Mediated by Feelings of Rejection?***

Feelings of rejection (from the manipulation check) were substantially correlated with state self-esteem,  $r(134) = -.53$ ,  $p < .01$ , suggesting the possibility that the effect of the manipulation on self-esteem may be mediated by feelings of rejection. We thus conducted an analysis of covariance (ANCOVA) in which experimental condition was entered as an independent variable, self-esteem was entered as the dependent variable, and the rejection index was entered as a covariate. The results showed that although the effect

size was smaller, the effect of condition remained significant ( $F(2, 132) = 4.05, p = .02, \eta^2 = .06$ ), indicating that feelings of rejection per se do at most partially explain the effect of the rejection manipulation on self-esteem.

*Has Relationship-Status an Effect on State Self-Esteem?*

To test the possibility that relationship status has an effect on people's state self-esteem, we conducted an ANOVA with people's relationship status and rejection manipulation entered as independent variables. The results revealed neither a main effect of relationships status ( $F(1, 130) = .08, p = .78, \eta^2 < .01$ ), nor an interaction effect between rejection manipulation and relationship status on state self-esteem ( $F(2, 130) = .19, p = .83, \eta^2 < .01$ ). The effect of the rejection manipulation remained significant ( $p < .01$ ), suggesting that, as we expected, capacity-rejection affects self-esteem irrespective of someone's relationship status.

*Positive Beliefs about the Self*

Does rejection influence positive self-beliefs? A pair of one-way ANOVAs revealed that, as expected, the manipulation had no effect on people's beliefs about their qualities as a mate ( $F(2, 133) = .40, p = .67, \eta^2 < .01$ ) or a friend ( $F(2, 133) = .63, p = .54, \eta^2 < .01$ ). In other words, people maintained positive beliefs about their qualities (both means were above the scale midpoint of 4; both  $ps < .01$ ), even while experiencing a drop in self-esteem. To test whether the drop in self-esteem occurs independently of these positive self-beliefs, we conducted an ANCOVA in which experimental condition was entered as an independent variable, self-esteem was entered as the dependent variable, and the positive beliefs were entered as covariates. The results showed that the effect of condition remained significant ( $p < .01$ ).

### Discussion

The results of Study 1 showed that self-esteem decreased only after feedback indicating lower value in terms of mate capacity. Self-esteem in the friend-rejection condition did not differ from self-esteem in the control condition (even though people clearly felt rejected in both rejection conditions, as indicated by the manipulation check). Additional results showed that the impact of the manipulation on self-esteem was only partially mediated by feelings of rejection. The effect was also independent of any positive beliefs that people maintain following rejection—in the light of rejection, positive beliefs and self-esteem appear to operate independently of each other. In sum, the results were consistent with our hypothesis: The sociometer is especially sensitive to one's capacity in the mating domain.. Note that this effect occurred even though subjects were told that they had an average level of success in friendship relationships. This is not to say that friendship does not matter for the sociometer; however, low friendships capacity does not seem to be so threatening as long as people have an average level of success in mating relationships. Thus, average mating capacity seems to be able to compensate for low friendship capacity, but not vice-versa.

### Study 2

In the second study, we extended the findings of Study 1 by focusing on an even stronger functional specificity effect: the attributes on which one is rejected. Thus, we did not compare the effect of capacity-rejection on (state) self-esteem in the mating versus friendship domains. Rather, we wanted to

compare in the mating domain the effect of capacity-rejection with regard to attributes than can be taken to be more or less central to mating capacity for the different sexes. As noted above, the (perceived) mate value of men and women has been found to depend on different characteristics. In Study 2, we provided feedback indicating low mate capacity on the basis of characteristics that are highly relevant or less relevant to mate value for each sex. Specifically, we provided participants with one of two bases for capacity rejection: status and competence, or physical attractiveness. We hypothesized that (a) men's (state) self-esteem would be lower following capacity-rejection based on competence and status than following capacity-rejection based on physical attractiveness, and (b) women's self-esteem would be lower following capacity-rejection based on physical attractiveness than following capacity-rejection based on competence and status. Again, we also tested the expectation that relationship status has no effect on the link between capacity-rejection and state self-esteem. We also test the expectation again that positive beliefs about oneself as a mate would not be affected by capacity-rejection.

As a further extension to Study 1, in Study 2 we also looked at the effect of trait self-esteem prior to introducing the manipulation. Trait self-esteem and state self-esteem are both aspects of the sociometer. Whereas state self-esteem provides momentary information about how well one does as a mate, trait self-esteem may be a more stable representation of one's relational potential over time, being determined by one's past experiences of inclusion and rejection, and by one's presumed standing on and perceived importance of socially desirable traits such as physical attractiveness or social status (Anthony et al., 2007; Leary & Baumeister, 2000; MacDonald, Saltzman, & Leary, 2003). Fluctuations in state self-esteem may occur around individually different, more stable levels of trait self-esteem (Leary et al., 1998), so that the

effect of capacity-rejection on state self-esteem would be much lower for subjects high on trait self-esteem. However, we expected that when we deal with capacity-rejection in the mating domain, even a high level of trait self-esteem would not buffer the blow to state-self-esteem.

### Method

#### *Participants and Design*

Ninety students (57 women, 33 men; mean age = 19.98,  $SD = 3.45$ ) from the University of Groningen participated in exchange for partial course credit. Participants were randomly assigned to the *physical attractiveness* condition, the *competence and status* condition, or the control condition. Participants were evenly distributed across the three conditions and completed the study sessions within separate cubicles where all materials were presented in Dutch on computers.

#### *Procedure*

The study was described as an investigation of the relationship between different aspects of the self-concept and the so-called "Mate Value Inventory" (MVI). Upon arrival in the laboratory, the experimenter took a digital photo of the participants' face, which would allegedly be used to determine their facial symmetry. Then, the experimenter measured the participants' waist-to-hip ratio (for female participants) or shoulder-to-waist ratio (for male participants). After having answered some general questions about their age, gender, and relationship status, participants completed the MVI, which consisted of a measure of trait self-esteem (the Rosenberg Self-Esteem scale; Rosenberg, 1965) and several filler scales (e.g., scales measuring mate value,

risk seeking, need for a partner). Upon completion, a small clock appeared on the computer screen and participants in the two experimental conditions were asked to wait until the computer had finished calculating their score on the test, which was allegedly based on the entire set of data that had just been collected. After a few minutes, participants received their score via the computer; they were given feedback indicating that they are likely to be frequently rejected by possible mates and that they are unlikely to end up with a partner later in life. The reason given for the negative feedback differed in the two experimental conditions. Participants in the physical attractiveness condition were informed that their low score was due to their physical characteristics. Participants in the competence and status condition were informed that their low score was due to their lack of competence and status (see Appendix B). Participants in the control condition did not receive negative feedback. They were told that the calculation of the score takes some time and that they would receive their result at the end of the study.

Following the experimental manipulation, participants completed a measure of beliefs about their qualities and a measure of state self-esteem. In this study, the order in which these two measures were presented was randomized.

As in Study 1, we wanted to measure participants' positive beliefs about qualities that were related to the rejected domain. In our first study, we asked them about beliefs that distinguished qualities related to either the domain of mating or friendship. In our second study, we wanted a more detailed measurement of beliefs that are positively related to mate value for both men and women. Participants were asked to evaluate themselves on five qualities: "Compared to the average peer, how

attractive/social/creative/intelligent/competent are you?" Responses were provided on a 7-point scale (endpoints labeled 1 = *not at all*, 7 = *very*).

Our primary dependent variable was again a measure of state self-esteem. In Study 2, we used an extended version of the measure. In addition to the 12 items that were used in Study 1, 10 items were added (sad, happy, angry, serene, ugly, attractive, desperate, optimistic, disdained, loved). Because the original scale comprised many competence-related items, we wanted to balance the scale by adding some items that may pertain more directly to self-evaluations regarding one's value as a mate for both men and women.

Finally, participants completed manipulation-check items (same as in Study 1), after which they were thoroughly debriefed.

## Results

### *Manipulation Check*

For the manipulation check, a single index of feelings of rejection was created by reverse-coding the items so that higher scores indicated stronger feelings of rejection, and then averaging the responses across the five items (Cronbach's  $\alpha = .86$ ). A 2 (sex)  $\times$  3 (condition) ANOVA revealed no main effect of sex ( $F(1, 84) = 2.28, p = .14, \eta^2 = .03$ ) and a strong main effect of condition ( $F(2, 84) = 54.98, p < .01, \eta^2 = .57$ ); there was no interaction effect ( $F(2, 84) = .01, p = .99, \eta^2 < .01$ ). Bonferroni post hoc tests revealed that participants in the physical attractiveness ( $M = 4.67$ ) and competence and status ( $M = 4.83$ ) conditions felt more rejected, compared with participants in the control condition ( $M = 2.57$ , both  $ps < .01$ ). In other words, men and women in both rejection conditions felt rejected, irrespective of the specific reason for the rejection.

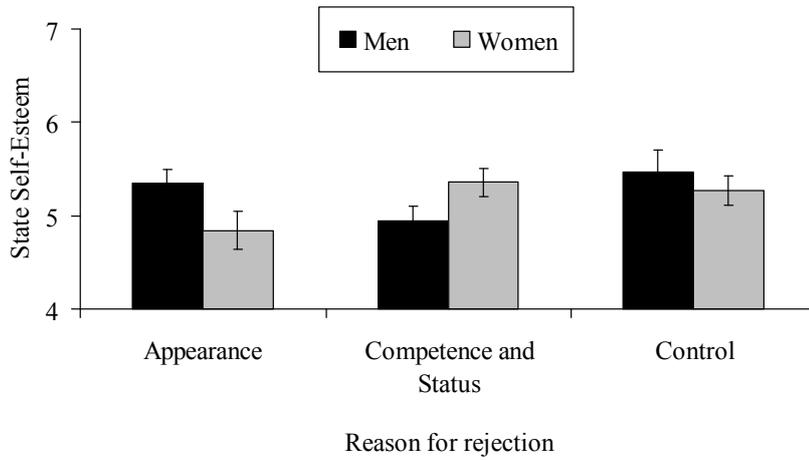
*Effect of Rejection Manipulation on Self-Esteem*

To test the effect of the rejection manipulation on state self-esteem, we first created a single self-esteem index by reverse-coding the negative feelings so that higher scores indicate higher state-self-esteem, and then averaging across the 22 self-relevant emotions (Cronbach's  $\alpha = .91$ ). A 2 (participant sex)  $\times$  3 (condition) ANOVA revealed no main effect (both  $ps \geq .33$ ); there was, however, a significant interaction effect,  $F(2, 84) = 3.12, p = .05, \eta^2 = .07$  (see Figure 2). The specific nature of the interaction effect is illuminated by the results of two planned contrasts. Among men, state self-esteem was significantly lower in the competence and status condition ( $M = 4.94$ ), compared with the physical attractiveness ( $M = 5.36, d = .81$ ) and control ( $M = 5.46, d = .76$ ) conditions,  $t(31) = 2.07, p = .05$ . Among women, state self-esteem was significantly lower in the physical attractiveness condition ( $M = 4.84$ ), compared with the competence and status ( $M = 5.36, d = .66$ ) and control ( $M = 5.27, d = .54$ ) conditions,  $t(55) = 2.25, p = .03$ .

State self-esteem was substantially correlated with trait self-esteem,  $r(90) = .55, p < .01$ , suggesting the possibility that the effect of the manipulation on state self-esteem may differ for people high or low in trait self-esteem. An ANCOVA including trait self-esteem as a covariate, however, showed that the interaction effect between sex and condition remained significant ( $F(2, 84) = 3.21, p = .05, \eta^2 = .07$ ).

As earlier research has shown that relationship status can influence a person's self-esteem following rejection, we tested this possibility in an ANOVA. The results revealed neither a main effect of whether people were currently in a relationship or not on their state self-esteem following rejection ( $F(1, 84) < .01, p = .96, \eta^2 < .01$ ), nor an interaction effect between rejection

manipulation and relationship status on state self-esteem ( $F(2, 84) = .87, p = .43, \eta^2 = .02$ ).



**Figure 2**

*Effect of manipulation (physical attractiveness-based rejection, competence and status-based rejection, control) on state self-esteem in men and women (errors bars indicate  $\pm$  SE).*

#### *Is the Effect Mediated by Feelings of Rejection?*

Feelings of rejection were correlated with state self-esteem,  $r(88) = -.37, p < .01$ . To control for possible mediation, we conducted a 2 (sex)  $\times$  3 (condition) ANCOVA in which the rejection index was entered as a covariate. Neither main effect was significant (both  $ps \geq .12$ ), and the interaction effect remained significant ( $F(2, 83) = 3.55, p = .03, \eta^2 = .08$ ), indicating that feelings of rejection per se do at most only partially mediate the effect of the rejection manipulation on state self-esteem.

*Positive Beliefs about the Self*

To test whether the manipulation had any effect on people's beliefs about their qualities, we created a single index of self-beliefs by averaging across the five items (Cronbach's  $\alpha = .65$ , despite of the low scale consistency of this composite, rerunning the same analysis with the single items revealed very similar results). The results of an ANOVA revealed no effect of the manipulation on people's beliefs about their qualities ( $F(2, 87) = .99, p = .38, \eta^2 = .02$ ), indicating that, as expected, people maintain positive beliefs about their qualities (the mean was above the scale midpoint of 4;  $p < .01$ ), even while experiencing a drop in self-esteem.

Participants self-beliefs were significantly correlated with state self-esteem,  $r(90) = .22, p = .04$ , suggesting that positive beliefs may influence the effect of rejection on participants' feelings of self-esteem. An ANCOVA including positive beliefs as a covariate, however, showed that the interaction effect between sex and condition remained significant ( $F(2, 83) = 4.07, p = .02, \eta^2 = .09$ ).

**Discussion**

The results of Study 2 showed that the impact of capacity-rejection based on competence and status or capacity-rejection based on physical attractiveness depends on one's sex. Consistent with the idea that characteristics that define high mate value differ somewhat for men and women, men experienced a drop in self-esteem following rejection based on competence and status, whereas women experienced a drop in self-esteem following rejection based on physical attractiveness. As in Study 1, the effect was not mediated by feelings of rejection and was independent of positive beliefs that people seem

to maintain following rejection. The results were consistent with the hypothesis that the sociometer is attuned to the importance of particular trait aspects for the person, so that men and women are sensitive to different reasons for capacity-rejection in the mating relationship context.

### General Discussion

If indeed people possess a sociometer that gauges their relational successes and failures, then one reasonable speculation is that the sociometer is especially sensitive to rejection that has functional relevance. The effect of rejection may therefore differ by relationship context and the salience of role, such as roles in mating or friendship contexts. Based on evolutionary reasoning, we argued that the sociometer might be particularly attuned to the mating domain as compared to the friendship domain when the entire domain is threatened. We thus introduced the concept “capacity rejection” to manipulate not rejection in a particular relationship, but belief that one is unable to establish relationships of this kind now and even more in the future. We conducted Study 1 to test the hypothesis that the drop in self-esteem may be especially pronounced following capacity rejection within a mating (versus non-mating) relationship context. In Study 2, we tested the hypothesis that the drop in men’s and women’s self-esteem may be especially pronounced following rejection based on competence/status and physical attractiveness, respectively. Results from the studies were consistent with both hypotheses.

The original version of the sociometer theory by Leary assumes a sociometer that is sensitive to rejection in general. This theory seems to be in need to refinement in two directions. First, there are likely to be functionally specific forms of the sociometer or, alternatively, different sensitivities of a

general sociometer to the salience of roles. Second, it seems useful to distinguish a sociometer for existing social relationships and a sociometer for the capacity to establish and maintain relationships, and in our studies, we focused on the latter. For reasons of evolutionary primacy, the domain of mating relationships is likely to be so important that a threat to this domain overshadows a threat to other domains, irrespective of role salience or relational context. This sociometer, in turn, seems to be sensitive to aspects that are particularly important for the mating context, which differs for men and women. When men are rejected on physical appearance, their sociometer does not react; conversely, when women are rejected based on status and competence, their sociometer does not react. What follows from this is that the individual characteristic of physical appearance acquires considerable importance for women's self-esteem, and not just when mating relationships are salient. It may even provide clues as to why plastic surgery, once available, has become such a popular remedy for women who are concerned about their physical appearance, even though it is a drastic intervention. Similarly, for men, status and competence (both aspects that easily lead to competitive contexts) acquire special importance for self-esteem even outside of the mating domain

Another important finding of our studies was that alongside malleable affective reactions (self-esteem) there are likely to be stable positive beliefs that may facilitate approach behavior even in the face of rejection. Specifically, we found that even while self-esteem decreased, positive beliefs about the self were maintained following the capacity-rejection manipulation. Positive beliefs about the self are functional (Haselton & Nettle, 2006; Kurzban & Aktipis, 2006, 2007; Trivers, 2000), and such beliefs may be especially important following capacity rejection to motivate approach behavior. Indeed,

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there is experimental evidence that rejection increases people's motivation to forge new social bonds (Maner et al., 2007). Because self-esteem is based largely on affective rather than cognitive representations (e.g., Arndt & Goldenberg, 2001), a plausible assumption is that the affective component (self-esteem) functions as a relational monitor, while the cognitive component (self-beliefs) facilitates approach behavior. Although our evidence clearly points in this direction, this remains speculative, and more research is needed to delineate the array of self-relevant reactions that occur following specific kinds of social rejection.

Our theory and findings imply that relationship status should not have much of an impact on the effect of capacity rejection. This finding seems to contradict Penke and Denissen's (2008) finding that relationship status does influence the correlation between self-perceived mate value and self-esteem (at least for men). However, the measures used by Penke and Denissen (namely, past short-term mating success and current relational status) do not clearly map onto mating capacity pertaining to the future. To the degree that their measures did tap mating capacity, the effect is small (as we would expect) and probably shows up as a result of their large sample size.

Indeed, a possible limitation of the present research is the relatively small sample size, especially among men. Thus, although we obtained the predicted results, further research is needed to verify the robustness of these findings.

In this paper, we claimed that the mating domain is more important than the domain of close social bonds for reasons of evolutionary primacy. Although the current results are in line with this idea, we cannot rule out the possibility that these findings are culture bound. The importance of one's capacity as a mate may, at least in part, be due to the freedom of mate choice

in Western societies, where one's success in finding a suitable partner depends primarily on one's desirability as a mate. In societies where arranged marriage is the rule, rejection from the family and social group may have a greater impact than mate rejection. Of course, one's desirability as a mate in those societies often depends on the prestige of the family or social group that one belongs to; thus, rejection in these relational domains may coincide with mate rejection in Western societies. Consequently, the impact of mate rejection compared with rejection from the family or social group may be smaller in these societies. To examine this possibility, future cross-cultural studies would be needed.

Finally, the prominence of mating when entire domains are threatened could be due to the age of our participants, who were all young adults (18-25 years old). It has been proposed that during this period, people develop their mating intelligence (i.e., how to make feasible mate choices based on their own self-assessments; Penke, Todd, Lenton, & Fasolo, 2008), which may make information regarding relational value as a mate especially salient. We could not directly test the effect of age, because we only had participants of one specific age group. If indeed people are especially sensitive to their relational value as a mate during young adulthood, the present findings may not replicate among substantially younger or older people. Furthermore, other relationships may be especially important at other ages, with the implication that people may be especially sensitive to acceptance/rejection within those relationships at the relevant ages. For instance, acceptance by a parent may be especially critical for children, and acceptance by friends may be especially critical for adolescents; accordingly, children's self-esteem may be especially influenced by parental rejection (see Rohner, 2004), and adolescents' self-esteem may be especially influenced by peer rejection (see Parker & Asher,

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1987). Carstensen, Isaacowitz, and Charles (1999) also found that older people concentrate more on affective relationships than young people. However, as research by Steverink and Lindenberg (2006) suggested, it is possible that this relational selectivity is mainly brought about by changes in opportunity rather than by a change in fundamental preferences. Penke and Dennissen (2008) also found that the sensitivity of self-esteem to people's mate values is independent of age.

Clearly, there remain many unexplored avenues for research on the sociometer. And many of these avenues are opening up as a result of more sophisticated integration between social psychological theories and evolutionary principles.

## **Appendix A**

“You got two scores on the SFMVI, one for your social qualities and one for your qualities as a mate.

### *Mate rejection*

For your social qualities you received an average score.

People who fall within this category can achieve an average level of social functioning if they want to. This means there is an average probability that you will have many good social contacts and friendships in your life.

For your qualities as a mate you received a very low score.

People who fall within this category are hardly able to establish and maintain romantic relationships. This means that there is a low probability that you will have good and fulfilling relationships and a high probability of frequent rejection by possible mates. Even if you are in a relationship now, this will change, and the older you get the more likely it becomes that you will end up without a partner later in life.”

### *Friend rejection*

For your qualities as a mate you received an average score.

People who fall within this category can achieve an average level of mating success if they want to. This means there is an average probability that you will have many good romantic relationships in your life.

For your social qualities you received a very low score.

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People who fall within this category are hardly able to establish and maintain social contacts and friendships. This means that there is a low probability that you will have good and fulfilling friendships and a high probability of frequent rejection by possible friends. Even if you are having many friends now, this will change, and the older you get the more likely it becomes that you will end up without any friends later in life.”

## **Appendix B**

“The MVI is based on different aspects that play a role in finding and keeping a mate. Together these aspects form your personal mate value, which is your desirability as a romantic partner. Earlier research has shown that the MVI is a reliable tool to predict future success in romantic relationships based on mate value. From the different dimensions of the MVI, we calculated an aggregate score, which comprises your personal profile. This led to the following result:

### ***Physical attractiveness rejection***

You received a very low score on your physical measurements (the symmetry of your face, hip/shoulder to waist ratio). Physical appearance is very important for establishing and keeping a romantic relationship.

You received an average score on competence and status. Those aspects also contribute to your mate value.

Taken together, this means that you have a low mate value. Therefore your relationships will probably be of short duration. You will be frequently rejected which will make it difficult for you to find someone with whom you can maintain a stable relationship. The older you get, the more likely it becomes that you will end up without a partner in life.”

### ***Status and competence rejection***

You received a very low score on competence and status. Those aspects are very important for establishing and keeping a romantic relationship.

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You received an average score on your physical measurements (the symmetry of your face, hip/shoulder to waist ratio). Physical appearance also contributes to your mate value.

Taken together, this means that you have a low mate value. Therefore your relationships will probably be of short duration. You will be frequently rejected which will make it difficult for you to find someone with whom you can maintain a stable relationship. The older you get, the more likely it becomes that you will end up without a partner in life.”

## **Chapter 3**

### **Love Thy Self:**

#### **Do Positive Self-Beliefs Predict Social Reconnection Following Rejection? <sup>5</sup>**

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<sup>5</sup> This chapter is based on Pass, J. A., Lindenberg, S. M., Park, J. H., & Van Leeuwen, F., (2008). Love Thy Self: Do Positive Self-Beliefs Predict Reconnection Following Rejection? Manuscript in preparation. We thank Martijn Kaizer for his help in collecting the data.

*“Only the person who has faith in himself is able to be faithful to others.”*

– Erich Fromm

Being rejected by others (e.g., being bullied at school, being turned down for a job, or being rebuffed as a potential romantic partner) is part of daily life for every human being from young to old. Rejection hurts not only in a metaphorical sense; it may trigger physical pain (Eisenberger & Lieberman, 2004), bruise your ego (e.g., Leary, 2005 for an overview), and as such threaten your well-being. Therefore, it is not surprising that people are extremely sensitive to signs of rejection (e.g., Leary, 2001). However, despite being rejected frequently in their lives, most people succeed in establishing many well-functioning relationships, probably because they are driven by a fundamental need to belong—which may stimulate them to seek new relationships after rejection (Baumeister & Leary, 1995).

After people have been rejected, it seems that they more often than not manage to compensate for the loss by reconnecting with others. In order to maintain a desired level of social connection, bonding may be especially important following episodes or threats of rejection. Indeed, previous research found evidence for this assumption. An experiment by Williams and Sommer (1997) showed that women who had been ostracized in a ball-toss game were more likely than others to contribute to a collective group-task, which might reflect an effort to be more likable. Other research has shown that after rejection people tend to conform more strongly to other people’s opinions, which might reflect an effort to be seen as more agreeable by others (Williams, Cheung, & Choi, 2000). More to the point, recent research by Maner, DeWall, Baumeister, and Schaller (2007) has shown that people are motivated to forge social bonds after they have been rejected, indicated by greater interest,

positive evaluations, and friendly assessments towards a person they expected to meet.

Although reconnection seems a reasonable reaction to rejection, much research in this area has shown that rejection does not necessarily lead to behavior that promotes reconnection. It can on the contrary lead to a reduction of prosocial behavior (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), and may trigger self-defeating (Twenge, Catanese, & Baumeister, 2002), or even aggressive behavior (Twenge, Baumeister, Tice, & Stucke, 2001). Whereas trying to socialize after rejection seems the most logical course of action in order to satisfy the need to belong, self-defeating or aggressive behavior seems counterproductive in finding acceptance by others. The question arises why experiences of social rejection sometimes do and at other times do not lead to behavior that fosters social reconnection. What factors determine whether people are motivated to reconnect after rejection?

### *How Self-Beliefs may Influence Motivational Tendencies to Reconnect*

One possibility that has been widely neglected in research on the consequences of rejection on people's behavior is the role that a person's self-beliefs may play in motivating reconnection. It has been proposed that the need to affiliate with others is closely related with the social motivation to approach, whereas a fear of rejection is related to the social motivation of avoidance (e.g., Gable, 2006); and the self-concept has been shown to play a regulatory role in determining people's motivational strategies in dealing with social demands. Social situations can stimulate a motivation to achieve ideals (e.g., social bonding) or a motivation to avoid a threat (e.g., damage to your self-esteem) depending on individual differences in coping and desired end-states (e.g., Higgins, 1997). Based on this idea, we assume that people's self-

beliefs following rejection may influence the motivational strategies they apply to deal with the rejection, resulting in efforts either to socially reconnect or to protect the self.

Approach motivation is strongly related to positivity (e.g., Tops, 2004; Watson, Wiese, Vaidya & Tellegen, 1999); thus, we assume that keeping positive self-beliefs after having been rejected may be a crucial determinant of whether people are motivated to approach others. The assumption that people would maintain positive beliefs about themselves following rejection may not seem plausible at first, but ample research on self-beliefs suggests that people have a robust tendency to automatically evaluate themselves as overly positive on various characteristics (e.g., Gilovich, Epley, & Hanks, 2005 for an overview). Although self-beliefs may slightly decrease following a self-threat, people mostly still evaluate themselves to be better than their average peer, which we think can be interpreted as maintenance of positive beliefs. We assume that this maintenance might be functional in situations of rejection, and we want to examine the possibility that people who hold on to their positive self-beliefs while experiencing rejection may show motivational tendencies of social reconnection.

The idea that, depending on how positively people perceive themselves, rejection can trigger either reconnection or self-protective motives is in line with the differing reactions to rejection found in previous research. For example, the studies by Maner et al. (2007) revealed that motivation towards reconnection occurred *only* when the potential interaction partner was expected to be novel (thus none of the rejecters), and when people were expecting face-to-face contact. These boundary conditions—which were absent in studies that found self-defeating and aggressive behavior—point to the possibility that after rejection, people are more vigilant and seek cues of

trustworthiness in order to protect their ego. In line with this assumption, Twenge et al. (2007) found that pro-social behavior drops as a response to rejection and exclusion and that this goes together with a reduction in empathy and trust. They argue that this may not necessarily mean that people do not want to reconnect, but that they are more careful in taking a risk of being hurt again. Pro-social behavior might carry such a risk in that it demands sacrifices by the giver and trust in the receiver.

With regard to self-defeating and aggressive behavior, it has been proposed that such behaviors may be due to a temporary physical and emotional numbness in the aftermath of social rejection (DeWall & Baumeister, 2006). This physical and emotional numbness has been found to lower peoples' empathic as well as judgmental abilities and might explain why they sometimes react to rejection with self-defense. Positive beliefs about the self may buffer such numbing effects and enable the rejected person to relate emotionally to others.

In other words, people may be caught between two needs: the need to reduce momentary emotional pain and to protect the self from further pain, and the need to reconnect. The way people evaluate themselves may play a crucial role in determining which motive is most salient after rejection. Generally, positive beliefs about the self may reduce emotional pain and enhance positive motivation after rejection (see Taylor & Brown, 1988, or Taylor, Collins, Skokan, & Aspinwall, 1989, for a similar idea). For people who manage to maintain positive self-beliefs following a threat to their relational value, the need to protect the ego might be smaller and therefore the need to reconnect may become more salient; people may then be more likely still to approach others.

### *The Importance of Particular Self-Beliefs in Motivating Reconnection*

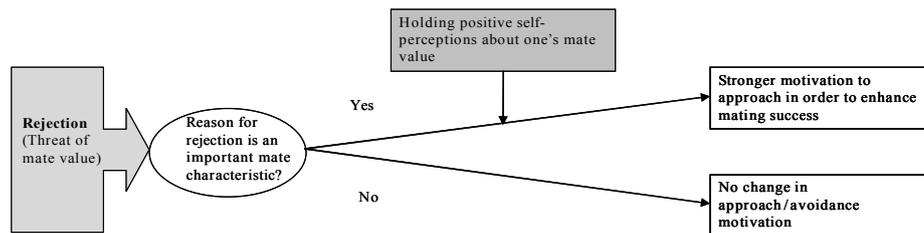
The social belongingness hypothesis holds that people manage to have a certain degree of social relatedness with others. The quality and not the quantity of relationships—thus few close and intimate relationships—has been found to be most important in satisfying this need (Baumeister & Leary, 1995). Close relationships based on romantic love are presumably among the most significant to people. Romantic relationships are particularly important not only regarding their often high level of intimacy, but probably also because of reproduction needs. Moreover, people seem to have quite clear preferences regarding what makes a good mate for them (even though those preferences are not necessarily reflected in their choices for a mate, see Eastwick & Finkel, 2008). The need to find a mate thus forms an important and well-defined subcategory of the need to belong. In the present research, we want to take this particular case of being rejected as a mate as a distinct paradigm for testing our hypotheses. We want to examine the role of people's positive beliefs about their qualities as a mate in the motivation to reconnect with a new possible mate after being rejected.

Recent research has identified that the reason for mate-rejection determines whether the rejection is perceived as threatening to a person's self-concept (Pass, Lindenberg, & Park, in press, Chapter 2 in this thesis). When the reason for being rejected as a mate was evident, people only felt threatened when the rejection was due to a characteristic that seems important to their value as mate. In this study, people were rejected as a mate based on a characteristic that is thought to be either particularly important or not so important in determining their perceived mate value. Men's desirability as a mate (compared with women's) seems mainly dependent on traits associated with competence and social status, whereas women's desirability (compared

with men's) seems mainly dependent on traits associated with physical attractiveness (Buss & Schmitt, 1993; Li, Bailey, Kenrick, & Linsenmeier, 2002). The results showed that men and women were differentially sensitive to rejection based on these characteristics. Women experienced a decline in their momentary self-esteem when the reason for rejection was their physical attractiveness (compared to when it was their status and competence), whereas men experienced a decline in their self-esteem when the reasons for rejection were qualities such as competence and status (compared to when it was their physical attractiveness). In other words, for women a rejection was only perceived as a genuine threat to their self-concept when it was due to their lacking a characteristic important for their perceived mate value—namely when being unattractive; similarly, for men, rejection was perceived as a genuine threat only when it indicated that they lacked status and competence. The study further revealed that although people experienced a decline in their momentary self-esteem, they had positive beliefs about their mate value in general. This finding is in line with our assumption that people may maintain certain positive beliefs about themselves in the light of rejection.

In the current paper, we want to extend this paradigm and look at the possibility that maintaining certain positive beliefs after being rejected as a mate may foster the motivation to find a new mate. Given the different importance that certain self-beliefs can have for men and women, we concentrate on women for now and emphasize a self-belief that seems to constitute an especially important characteristic in defining their value as a mate: physical attractiveness. As people's self-concept has been shown to be sensitive to the particular importance of the threatened characteristic, we assume that the same will apply to the moderating role of self-beliefs in motivating approach. In order to maintain mating efforts in the face of

rejection, we expect that people need to maintain positive beliefs about a characteristic that is believed to be central to their mate value. For women, we expected this to be the belief that they are physically attractive, for men that they possess competence and status. Hence, we hypothesize that when women maintain positive beliefs about their physical attractiveness following a genuine threat of rejection (i.e., rejection based on their physical attractiveness), they will show stronger mating efforts, reflected in stronger approach (or less avoidance) motivation towards members of the opposite sex (i.e. men). We do not expect such an effect of self-perceived physical attractiveness for men. Even when men encounter a genuine threat (i.e. rejection based on their competence and status), holding positive beliefs about their physical attractiveness—a female more than male characteristic of high mate value—should not influence their approach towards members of the opposite sex (i.e. women). The general model for these hypotheses is depicted in Figure 1.



**Figure 1**

*The role of positive self-beliefs in determining approach or avoidance motivation following mate rejection.*

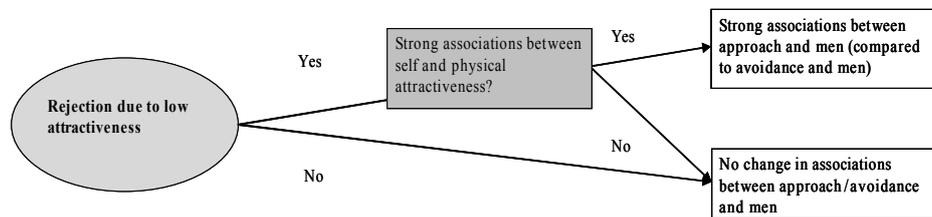
**Overview of the Present Study**

To test our ideas, participants were given bogus negative feedback following an inventory that ostensibly measured their value as a mate in order to evoke

feelings of rejection (based on Pass et. al, in press, Chapter 2 in this thesis). As mentioned above, the (perceived) mate value of men and women has been found to depend on different characteristics. Therefore, we provided feedback indicating low value as a mate based on characteristics that are highly relevant or less relevant to mate value for women or men. Specifically, we provided participants with one of two reasons for rejection: physical attractiveness, or status and competence.

To test the effects of our manipulation on people's self-beliefs and their tendency to approach/avoid possible mates, we created two reaction time measurements based on the Implicit Association Task (IAT). The IAT is a measurement of implicit associations between different categories. The rationale for looking at implicit associations instead of actual behavior or explicit beliefs was that we wanted to capture spontaneous reactions to rejection. Explicit evaluations or behavior are thought to be derived deliberately, whereas implicit evaluations or behaviors are thought to be based on automatic activation (Greenwald & Banaji, 1995; Wilson, Lindsey, & Schooler, 2000). Previous research has shown that rejection can impair deliberate decision making following rejection experiences (e.g., Baumeister, DeWall, Ciarocco, & Twenge, 2005). Therefore, we expect reactions to rejection to be of a more automatic nature. The IAT has been found a suitable tool for measuring automatic evaluations (e.g., Greenwald, McGhee, & Schwartz, 1998; Greenwald, Nosek, & Banaji, 2003). Using automatic tendencies instead of explicit self-reports and behavior also helps to control for other factors that may influence such decisions, such as person characteristics (e.g., humor or ambition) that usually influence mate choice (e.g., Buston & Emlen, 2003) or reconnection (e.g., Maner et al., 2007), and it may reduce possible effects of social desirability.

We created two IATs. One was designed to measure the strength of people’s association of the concepts of approach and avoidance with members of the opposite sex (and thus possible mates); the other was designed to measure the strength of people’s association of physical attractiveness with themselves. With these tasks, we sought to measure peoples’ implicit positive beliefs about their mate value, and their implicit tendency to approach/avoid members of the opposite sex (i.e., their tendency to search for a new mate). We assume that this tool enables us to test the hypothesis that, after being rejected on the bases of their physical attractiveness (important to women), women have a stronger tendency to approach men the stronger they associate themselves with physical attractiveness. On the other hand, after being rejected on the bases of competence and status (important to men), the strength of the associations between themselves and their physical attractiveness should not influence men’s approach/avoidance tendencies towards women. The hypothesis for women is depicted in Figure 2.



**Figure 2**

*The role of self-perceived physical attractiveness in determining women’s approach or avoidance towards men following physical attractiveness rejection.*

## Method

### *Participants and Design*

One-hundred-and-forty students (96 women and 44 men; mean age = 20.40,  $SD = 2.84$ ) from the University of Groningen participated in exchange for partial course credit. Participants were randomly assigned to the *physical attractiveness* condition, the *competence and status* condition, or the control condition. Participants completed the study sessions within separate cubicles where all materials were presented via computers in Dutch.

### *Procedure*

The study was described as an investigation of the relationship between the performance on different cognitive tasks and the so-called “Mate Value Inventory” (MVI). Upon arrival in the laboratory, the experimenter took a digital photograph of the participants’ face, which would allegedly be used to determine their facial symmetry. Then, the experimenter measured the participants’ waist-to-hip ratio (women) or shoulder-to-waist ratio (men), weight, and length as additional indications of physical attractiveness. Participants then completed the MVI, which consisted of several concept scales (i.e., scales measuring trait self-esteem, risk seeking, need for a partner, mate value, depression, regulatory focus – non of the measured trait-terms was found to moderate the effects reported in this article). Upon completion, participants received bogus feedback, which was allegedly based on the entire set of data that had just been collected. In the two rejection conditions, the experimenter informed participants via the computer that they are likely to be frequently rejected by possible mates and that they are unlikely to end up with a partner later in life. The reason given for the negative feedback differed in

the two experimental conditions. Participants in the physical attractiveness condition were given written feedback indicating that their low score was due to their physical characteristics. Participants in the competence and status condition were given written feedback indicating that their low score was due to their lack of competence and status. Participants in the control condition read that they have an average score for their mate value and that they are unlikely to be frequently rejected (see Appendix A). Following the experimental manipulation, participants completed two implicit association tests (IAT). Upon completion of the IATs, participants were carefully debriefed. The theoretical background was explained, and it was emphasized that the feedback was randomly assigned and had nothing to do with the participant's actual mate value.

### *Measurements*

The IAT is a reaction-time measure that is administered via the computer and presumably captures associations between different categories. In this task, participants are presented with a stimulus that appears on the screen (e.g., a picture or a word), which they are asked to categorize by pressing one of two pre-specified keys on the computer-keyboard. The time it takes participants to react to the specified combination of categories is thought to reflect implicit associations people hold concerning the stimulus items (a more detailed description of this methodology is given by Greenwald et al., 1998; Greenwald et al, 2003).

The first IAT assessed implicit associations between people from the opposite sex and the concepts of approach and avoidance. Participants were presented with photographs from people of the same or opposite sex. They were asked to judge whether the person depicted on the photograph was a

man or a woman and also categorize words as connoting either approach (e.g., approach, come close, meet, flirt) or avoidance (e.g., avoid, evade, reject; see Appendix B for the original Dutch items). There were three practice blocks of each 20 trials and two critical blocks of each 40 trials. In the first critical block, women had to press a shared key (A-key) for photographs of men and words that described approach, and to press a different shared key (L-key) for photographs of women and words that described avoidance. In the second critical block, the task was reversed and women were asked to press a shared key (A-key) for photographs of men and words that described avoidance and to press a different shared key (L-key) for photographs of women and words that described approach. For men, the order of these tasks was reversed. If men (women) are cognitively associated with avoidance, then the latter task is perceived as more difficult, which is manifested in longer reaction times. The stronger the association between men (women) and approach, the greater the difference between the two blocks. Therefore, higher IAT-scores indicate less avoidance and more approach towards men (women).

The second IAT assessed associations between the self and words that connote attractiveness or unattractiveness in order to assess people's implicit self-perceived attractiveness. A Single Category Implicit Association Test (SC-IAT; Karpinsky & Steinman, 2006) was used. The SC-IAT consisted of two stages, with each stage consisting of a practice block of 17 trials, and a test block of 68 trials (i.e., three times 17 trials). In the first stage of the mate-value SC-IAT, participants were asked to press a shared key (A-key) for words that relate to the self (I, self, mine, my, myself) and for words that connote attractiveness (charming, beautiful, attractive, handsome, pretty, seductive, lovely), and to press a different key (L-key) for words that connote unattractiveness (unattractive, repulsive, ugly, unwanted, not-noticeable,

disgusting, unloved; see Appendix B for the original Dutch items). In the second stage, the task was reversed and participants were asked to press a shared key for words that connote unattractiveness and words that relate to the self (L-key) and a different key (A-key) for words that connote attractiveness. If attractiveness is cognitively associated to the self whereas unattractiveness is not, the latter task should be perceived as more difficult than the first, which manifests itself in longer reaction times. The difference in average reaction times across the two blocks serves as an indicator of implicit association between the self and attractive/unattractive. In this case, higher scores on the SC-IAT indicate a stronger association between attractive and self than between unattractive and self.

To test whether the SC-IAT indeed measured a more important characteristic for the self-concept of women as compared to men, a pilot-test was conducted to investigate its coherence with two related scales: A scale measuring trait self-esteem (the Rosenberg Self-Esteem scale; Rosenberg, 1965; Cronbach's  $\alpha = 0.81$ ), and a scale measuring self-evaluative feelings (based on McFarland and Ross, 1982, see Appendix B for a list of all feelings; Cronbach's  $\alpha = .91$ ). Sixty-two students (44 women and 18 men, mean age = 20.05,  $SD = 1.65$ ) from the University of Groningen participated in exchange for partial course credit. For the SC-IAT, SC-IAT-scores were produced in line with Karpinski and Steinman (2006), yielding for each participant an SC-IAT-score which indicated the extent to which the self is associated with physical attractiveness. The results revealed that women and men do not seem to differ in how physically attractive they perceive themselves. The average SC-IAT-scores were  $M = .47$  and  $M = .51$  for men and women respectively ( $t(60) = -.35, p = .73$ ). The results further revealed that for women our measure of implicit physical attractiveness significantly correlates with trait self-esteem ( $r = .32, p =$

.04) and with self-evaluative feelings ( $r = .37, p = .02$ ), for men it did not correlate with either of the two ( $r = -.35, p = .15; r = -.27, p = .28$ , respectively), supporting the idea that for women, the SC-IAT measured an important characteristic in defining their self-esteem whereas for men physical attractiveness seemed to be less important to their self-esteem.

## **Results**

### *IAT-Scores*

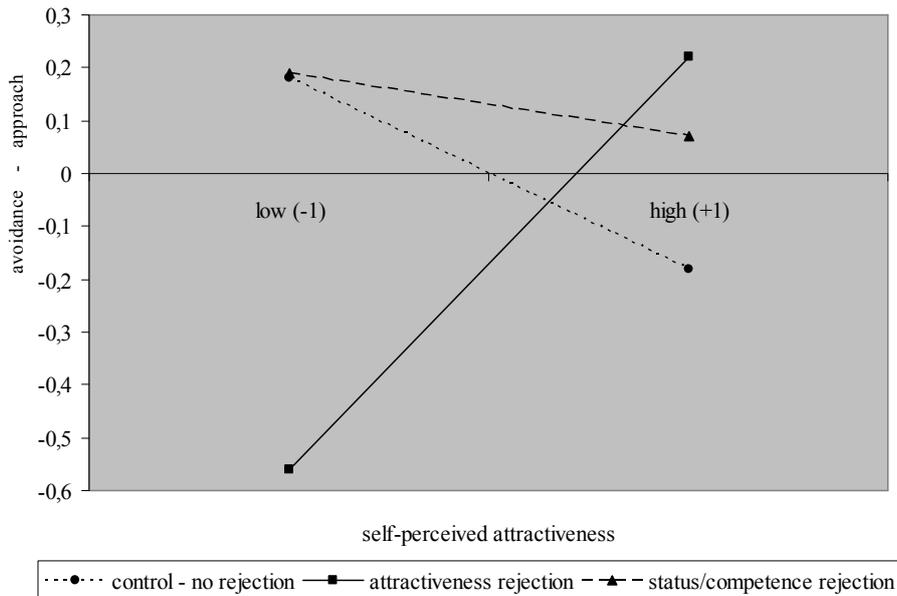
IAT-scores were computed according to the improved algorithm for IAT data (Greenwald et al., 2003). The IAT-score indicates the relative tendency to approach (instead of avoid) a member of the opposite sex. The resulting scores were comparable to standardized effect sizes. Seven participants with an error rate of more than 20% in either of the two tasks were excluded from the analyses. The average IAT-scores were:  $M = .21$  and  $M = -.24$  for men and women respectively (both means differed significantly from 0:  $t(37)=1.96, p = .06; t(89) = -5.53, p < .01$ ). The average scores show that men tend to be approaching towards women, whereas women tend to be avoidant towards men. This finding is in line with the notion that men are mostly the ones to take the initiative in mating while women seem to employ a wait-and-see strategy (see Buss, 1988; or Haselton & Buss, 2000 for a more detailed description of this phenomenon).

For the SC-IAT, again SC-IAT-scores were produced in line with Karpinski and Steinman (2006). This indicated the extent to which the self is associated with physical attractiveness. The generated SC-IAT-scores revealed that men ( $M = .59$ ) and women ( $M = .59$ ) did not differ in how physically attractive they perceived themselves to be.

*Do Positive Self-Beliefs Predict Approach Following Rejection?*

To test our hypothesis that rejection motivates approach when people maintain positive self-beliefs, we investigated the interaction between women's self-perceived attractiveness and rejection manipulation in the prediction of implicit approach/avoidance tendencies towards men. This was done by running two separate regression analyses testing the difference between the control condition and either the attractiveness rejection condition or the status and competence rejection condition. Comparing the control condition with the attractiveness rejection condition, for women either high or low in positive perceptions about their attractiveness, revealed a significant interaction effect ( $\beta = .57, p = .04$ ). In line with our hypothesis, the results showed that the stronger women's associations between themselves and physical attractiveness when they were rejected for being unattractive, the stronger were their tendencies to approach men. No significant effects were found comparing the control condition with the status and competence rejection condition ( $ps \geq .12$ ). The regression lines illustrating the results of this analysis are shown in Figure 3. To illuminate this interaction, we wrote out multiple equations using simple slope analyses. Given that women were rejected on the grounds of their physical attractiveness, approach towards men was higher for women who are high in positive associations concerning their physical attractiveness ( $\beta = .31, t(85) = 1.82, p = .04$ , one-tailed). The simple slopes for the control condition and the status and competence rejection condition were not significant ( $ps \geq .34$ ).

## LOVE THY SELF



**Figure 3**

*Interaction between perceived attractiveness and rejection manipulation in the prediction of women's approach/avoidance towards men.*

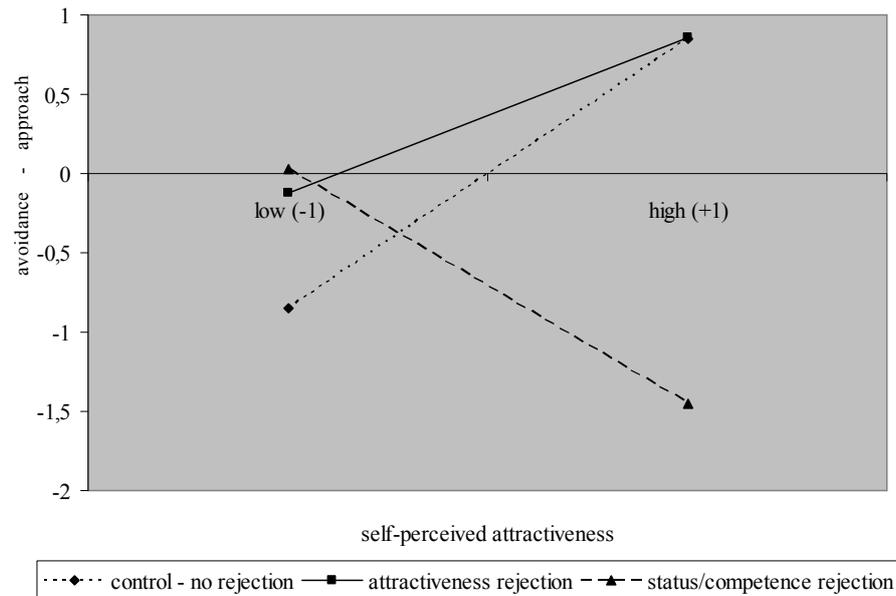
### *Effects of Self-Attractiveness Associations on Approach/Avoidance Following Rejection for Men*

To test our hypothesis that rejection does not motivate approach when people maintain positive self-beliefs with a characteristic that is not particularly important to the threatened dimension, we investigated the interaction between men's self-perceived attractiveness and the rejection manipulation in the prediction of approach/avoidance towards women. Again, this was done by running two separate regression analyses testing the difference between the control condition and either the attractiveness rejection condition or the status and competence rejection condition. We had expected that for men, having strong associations between themselves and physical attractiveness would not

### CHAPTER 3

increase approach after being rejected based on competence and status. However, we found that their reaction was even more extreme. Given that men were rejected on the basis of their (lack of) competence and status, approach towards women was lower for those men who were more positive about their physical attractiveness ( $\beta = -.86, p = .02$ ). No significant effects were found in the attractiveness rejection condition ( $ps \geq .46$ ). The regression lines illustrating the results of this analysis are shown in Figure 4. To illuminate this interaction, we wrote out multiple equations using simple slope analyses. When men were rejected on the grounds of their competence and status, avoidance towards women was higher for men high in positive perceptions about their attractiveness; this simple slope was marginally significant ( $\beta = -.38, t(34) = -1.55, p = .07$ , one-tailed). The analysis further revealed that in the control condition higher self-perceptions of attractiveness did predict approach towards women ( $\beta = .49, t(34) = 1.97, p = .03$ , one-tailed). The simple slope for the attractiveness condition was not significant ( $p \geq .45$ ). The results suggest that when there is no apparent threat of rejection, being physically attractive as a man does add to their mate value and seems to motivate approach. However, when men do not live up to the important characteristics of status and competence, perceiving themselves as physically attractive seems to have an adverse effect and to motivate avoidance.

## LOVE THY SELF



**Figure 4**

*Interaction between self-perceived attractiveness and the rejection manipulation in the prediction of men's avoidance of women.*

## Discussion

The notion that humans have a basic motivation to belong is widely accepted. However, despite the acknowledgement of this tendency, little is known about the motivational processes involved in establishing and keeping social bonds in the light of social rejection. Research on the behavioral consequences of rejection pointed out that contrary to expectations, people do not always take the most logical actions for social reconnection and often engage in behavior that makes it even less likely that they will get accepted by others.

In the current research, we sought to shed more light on underlying processes that may motivate social reconnection in a mating context. We

concentrated on the role that positive self-beliefs may play in motivating either approach or avoidance towards possible new mates following a self-threat that may lead to rejection as a mate. We supposed that when women maintain positive self-beliefs about an important mate characteristic that has been threatened, they will show stronger approach motivation towards possible new mates. The findings of the present study support this hypothesis. When women's mate value was threatened on the grounds of their attractiveness, approach towards men was higher when they held positive associations with their physical attractiveness. This suggests that maintaining positive self-beliefs about aspects that are important for one's mate value may be a defining factor in determining whether people are motivated to reconnect when facing rejection.

We did not expect an effect of beliefs about physical attractiveness for men, as we assumed that this characteristic is less important to their mate value. However, what we found was even more extreme: Men who held positive beliefs about their attractiveness, after being rejected on the basis of their competence and status, tended to be more avoidant towards women. This finding points to the particular importance of the positive belief for the person's momentary self-concept in predicting approach. The current findings may reflect that for men's mate value, a positive impact of being attractive only occurs when men also score high on characteristics that are generally believed to be more important to their mate value such as competence and status (Li et al., 2002). Given a high score on these basic criteria, being attractive may add to a man's value as a mate and make him attractive for both long-term and short-term relationships, but especially for the latter. Recent research has pointed out that while women do find physical attractiveness important in men when considering short-term relationships

such as one-night stands, they clearly prioritize status and competence in long-term partners (Li & Kenrick, 2006). Although we did not intentionally differentiate between long-term and short-term relationships in our manipulation, the used wording highlighted aspects of long-term relationships. Being rejected on important dimensions such as competence and status may thus have led to a switch in valence for men—seeing themselves as physically attractive under such conditions, may have emphasized a shortcoming instead of a bonus in the context of long-term relationships. In situations of acute threat of basic mate criteria, being physically attractive may not substantiate men’s mate value, but may rather reflect agreement with the rejecting information, which lowers their chances for long-term mates and may have evoked a self-protection need and not a need to reconnect.

A different explanation for these sex differences may be that men and women generally apply different coping strategies after rejection or exclusion. Sommer and Williams (1997) suggested that due to cultural norms, men may have stronger concerns with impression management whereas women are expected to be more self-revealing (see also Leary, 1995). Men’s focus on impression management could have led them to cope with rejection by initial withdrawal, which may help them to self-reflect in private and pick up courage for later attempts of reconnection. Women on the other hand may be less concerned with revealing their emotions after rejection and may therefore cope by seeking social confirmation, which is reflected in stronger approach tendencies. This explanation does not tell us, however, why only those men, who felt physically attractive, would show withdrawal.

Despite much research on the consequences of rejection, surprisingly little is known on the differences in how men and women cope with experiences of mate rejection. More work is needed to understand how and

when positive self-beliefs affect which motives are activated following rejection. Future research also needs to address traits that are more relevant for men, such as competence and status. Nevertheless, our results for women support our suggested link between positive beliefs and reconnection, so we believe that the present findings certainly encourage future research.

A final point that has to be considered in more detail is that it could be reasoned that the implicit approach tendencies we measured do not provide information on whether the observed approach is of a positive or negative nature. It may be possible that the approach we observed in women indicated that they were more likely to aggress against men in order to defend themselves. However, if we look at the source of the rejection—an objective score with no allocated rejecter—self-contempt and social withdrawal or avoidance seem a more plausible self-protective reaction. Furthermore, the words used to measure approach, such as flirt or meet, imply a more positive nature of the interaction. Nevertheless, more research is needed to illuminate the specific nature of the observed approach tendency.

### *Concluding Remarks*

Much aggressive and violent behavior especially among young people has been linked to experiences of social exclusion and rejection (e.g., Twenge et al., 2001). One explanation for those consequences of rejection has been that people feel threatened in their ego and therefore react with anger. This resulted in the question of whether people should be encouraged to think positively about themselves (Baumeister, Smart, & Boden, 1996). The current research suggests that thinking positively about oneself might be a double-edged sword. On the one hand, it could lead to irrational self-defeating and sometimes even aggressive and violent behavior. This has been suggested to

be the case when people's self-views are too high and they feel that others are not recognizing their superiority (Baumeister et al., 1996). However, maintaining certain positive self-beliefs in the light of rejection may on the other hand also be necessary to trigger motives of social reconnection. The present work was an attempt to shed more light on whether positive beliefs about one's physical attractiveness may predict such reconnecting tendencies following mate rejection. The found results confirm this idea.

This finding is in line with earlier research that revealed that people seem to hold positive beliefs concerning their mate value in the light of mate rejection even while they experienced a drop in their momentary self-esteem—a sign for the genuine recognition of the threat (Pass et. al, in press, Chapter 2 in this thesis). The fact that momentary self-esteem and positive beliefs showed distinct reactions to rejection was proposed as being due to their different function. The current research extends this finding by providing first indications that positive beliefs about important characteristics of one's mate value might indeed be functional in motivating behavioral tendencies to search for a new mate.

Taylor and Brown (1988) were among the first to propose that being positive about oneself in the light of negative events might be a functional illusion, and also Trivers (2000) stated that self-deception could be an important form of adaptive thinking. We did not directly measure illusions or self-deception, but our findings show that being positive about oneself in the light of rejection—even if it may seem unwarranted in such a situation—could be a necessary factor in influencing adaptive behaviors such as social reconnection.

## **Appendix A**

“The MVI is based on different aspects that play a role in finding and keeping a mate. Together these aspects form your personal mate value, which is your desirability as a romantic partner. Earlier research has shown that the MVI is a reliable tool to predict future success in romantic relationships based on mate value.

From the different dimensions of the MVI, we calculated an aggregate score, which comprises your personal profile. This led to the following result:”

### ***Physical attractiveness rejection***

You received a very low score on your physical measurements (the symmetry of your face, hip/shoulder to waist ratio). Physical appearance is very important for establishing and keeping a romantic relationship.

You received an average score on competence and status. Those aspects also contribute to your mate value.

Taken together, this means that you have a low mate value. Therefore your relationships will probably be of short duration. You will be frequently rejected which will make it difficult for you to find someone with whom you can maintain a stable relationship. The older you get, the more likely it becomes that you will end up without a partner in life.”

### ***Status and competence rejection***

You received a very low score on competence and status. Those aspects are very important for establishing and keeping a romantic relationship.

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You received an average score on your physical measurements (the symmetry of your face, hip/shoulder to waist ratio). Physical appearance also contributes to your mate value.

Taken together, this means that you have a low mate value. Therefore your relationships will probably be of short duration. You will be frequently rejected which will make it difficult for you to find someone with whom you can maintain a stable relationship. The older you get, the more likely it becomes that you will end up without a partner in life."

### *Average Score (Control)*

You received an average score on competence and status as well as on your physical measurements (the symmetry of your face, hip/shoulder to waist ratio). Both aspects are very important for establishing and keeping a romantic relationship.

Taken together, this means that you have an average mate value and your relationships will probably be of normal duration. You will possibly not be rejected very often and therefore you have an average chance of finding someone with whom you can maintain a stable relationship in life."

## Appendix B

### *Mate Value SC-IAT*

Attractive: charmant (charming), mooi (beautiful), aantrekkelijk (attractive), knap (handsome/pretty), verleidelijk (seductive), lief (lovely), attractief (attractive)

Unattractive: onaantrekkelijk (unattractive), afstotelijk (repulsive), lelijk (ugly), ongewild (unwanted), onopvallend (not-noticeable), walgelijk (disgusting), ongeliefd (unloved)

Self-words: ik (I), zelf (self), mijn (mine), mij (my), mezelf (myself)

### *Approach-Avoidance IAT*

Avoidance (vermijden): Vermijden (avoid); ontwijken (avoid); mijden (avoid); ontlopen (evade); afwijzen (reject)

Approach (benaderen): toenaderen (approach), aanspreken (speak to), naderen (come close), ontmoeten (meet), flirten (flirt)

### *Self-Evaluative Feelings*

“Please indicate for the following feelings to what extent they apply to you in general”.

Sad, happy, angry, serene, ugly, attractive, desperate, optimistic, disdained, loved, proud, competent, self-assured, smart, resourceful, effective, efficient, inadequate, incompetent, stupid, worthless, ashamed.

Responses were provided on a 7-point scale (endpoints labeled 1 = *not at all*, 7 = *very*).

## **Chapter 4**

### **Believing is Mating:**

# **The Effect of Mate Rejection on Self-Esteem, Self-Beliefs, and Mating Behavior <sup>6</sup>**

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<sup>6</sup> This chapter is based on Pass, J. A., Park, J. H., Lindenberg, S. M., Van Duijn, M. A. J., & Fawcett, T. (2008). Believing is Mating: The Effect of Mate-Rejection on Self-Esteem, Self-Beliefs, and Mating Behavior. Manuscript in preparation. We like to thank Simon Dalley, Shelli Dubbs, Lea Ellwardt, Ashley Hoben, Katya Ivanova, Liga Klavina, Alona Labun, Sarai Sapulete, Jelle Sijtsema, and Rita Smaniotto for their help in running the experiment.

## CHAPTER 4

What determines why we choose one person as a mate, but not another? When do we reject someone, and what happens when we are the one being rejected as a mate? From an evolutionary perspective, mating decisions are very important: they form the basis of a person's generative potential, and are therefore a prime determinant of one's reproductive fitness (Darwin, 1871).

The decision who we choose as a mate is a very complex one that comprises many different aspects. First, people have specific preferences in what they consider a good mate (e.g., Buss & Barnes, 1986; Buss & Schmidt, 1993; Buston & Emlen, 2003). While there is an ongoing debate regarding the nature of people's preferences when choosing a mate, it is generally agreed that men and women differ to some extent in what they desire in a mate. Women report a stronger preference than men do for a mate with status and resources. Men, on the other hand, seem to put greater emphasis on a potential mate's physical attractiveness than women do (e.g. Buss & Schmidt, 1993, Feingold, 1990, 1992; Li, Bailey, Kenrick, & Linsenmeier, 2002). Although recent research has revealed that people's stated preferences may not necessarily translate into behavior when actually selecting mates (Eastwick & Finkel, 2008; Todd, Penke, Fasolo, & Lenton, 2007), there seems to be a pattern in mate choice; people follow specific strategies in searching and choosing mates. Given most people's success in eventually pairing up, strategies for finding a mate could be regarded as an assembly of mating-related skills (e.g., being more or less selective in choosing a mate depending on one's own rank on the mating market), which together constitute a person's *mating intelligence* (Geher, Miller, & Murphy, 2008).

Good mating decisions need to be mutual, and this is what makes them so complicated. What if you find and choose someone with all preferred characteristics, but that person does not reciprocate your feelings and rejects

you? An implication of this bilateral process is that the success of a choice for a potential mate is directly dependent on the other's preferences. It becomes obvious that high mating intelligence, next to meaningful mate preferences, also comprises knowledge about the other's preferences, as well as knowledge about one's own standing on those qualities (e.g., Penke, Todd, Lenton, & Fasolo, 2008). In this way, knowledge about one's acceptability to others is an important part of one's mating intelligence and thus one's likelihood to succeed in finding a suitable mate.

### *Does Self-Esteem Function as a Mate-Value Meter?*

A person's self-esteem could function as a device for people to track their own value as a mate (Kirkpartick & Ellis, 2001, 2006; Penke et al., 2008). Given the severe implications of being a solitary person without a mate, family or group, it has been proposed that people possess a means of assessing the degree to which they are socially accepted by others—the so-called *sociometer* (Leary & Baumeister, 2000; Leary, Tambor, Terdal, & Downs, 1995). There is ample empirical evidence for the idea that general self-esteem serves as a gauge of the degree to which one is accepted or rejected by others—in other words, a gauge of one's *relational value* (for a review, see Leary, 2005). Recently, it has been found that self-esteem might also be a more relationship-specific device that is especially sensitive to one's value as a mate (Pass et al., in press, Chapter 2 in this thesis), suggesting that people may indeed possess a *mate value sociometer* (Penke et al., 2008; Todd & Miller, 1999). Additionally, other research has provided evidence that self-esteem is particularly sensitive to the quality of one's romantic relationships (e.g., Brase & Guy, 2004; Murray, Griffin, Rose, & Bellavia, 2003; Denissen, Penke, Schmitt, & Van Aken, in press).

Much research has addressed the effect of rejection on self-esteem (e.g. Leary, 2005 for a review), and much correlational research has found a relationship between a person's self-esteem and their mate value. This presumed relationship has, however, never been studied for real-time acceptances or rejections as a mate. Therefore, one objective of the current study was to test whether self-esteem functions as a monitor of one's desirability as a mate, and whether it detects variations in this desirability after contact with a number of potential mates.

### *Do Positive Self-Beliefs Motivate Mating Effort?*

It has been suggested that the sociometer performs three essential functions: it monitors the social environment for signs of acceptance and possible rejection; it answers with low self-esteem when the relational value is threatened; and it motivates behavior that restores relational value or prevents rejection. We assume that the same functions should apply to the mate-value meter. This would suggest that people's self-esteem is constantly sensitive to signals of their desirability as a mate, and that a decrease in self-esteem motivates behavior that improves their mate value, or leads to a downward adjustment of their mate preferences (Penke et al., 2008). It remains undefined, however, where the motivation for compensatory behavior should come from. In fact, other research has shown that negative feelings (such as those triggered by rejection) are likely to functionally interrupt behavior to allow appraisals of the situation (e.g., Frijda, 1986). And it has also recently been proposed that social rejection may cause a temporary physical and emotional numbness (DeWall & Baumeister, 2006). This numbness has been found to lower peoples' empathic as well as judgmental abilities (e.g., Twenge, Catanese, &

Baumeister, 2002), suggesting that a drop in self-esteem may rather inhibit further mating efforts than motivate them.

Positive self-beliefs may form a functionally complementary dimension of the self, one that motivates compensatory approach behavior—even while self-esteem drops in the light of rejection (Pass et al., in press; Pass, Lindenberg, Park, & Van Leeuwen, 2008, Chapter 3 in this thesis). Positive beliefs may also buffer numbing effects caused by the rejection, and enable the rejected person to relate emotionally to others. Indeed, holding overly positive beliefs about one's qualities has been proposed to be an adaptive tendency, both psychologically and reproductively (Haselton & Nettle, 2006; Taylor & Brown, 1988). For this function to be fulfilled, positive beliefs should be relatively insensitive to rejection (even though they may respond positively to acceptance). This "stickiness" of positive beliefs for downward adjustment may be essential for motivating functional approach behavior (e.g., approaching a potential mate), particularly after an experience of rejection. Earlier research has shown that—at least for women—a positive association with the self after rejection based on an important mate characteristic motivates tendencies to approach members of the opposite sex (Pass et al., 2008). Self-esteem and positive self-beliefs may thus jointly form a toolkit for evaluating one's current mate value and at the same time motivating compensatory action tendencies, such as continuing mating efforts or reviving the broken relationship. A second objective of the current study was therefore to test the idea that positive self-beliefs are not lowered even when self-esteem decreases and that they predict the tendencies to seek possible mates (i.e. mating effort) after signs of acceptance or rejection. In contrast to earlier research that found positive beliefs to predict tendencies to seek possible mates both on an implicit level, and with totally contrived feedback (Pass et

al., 2008), the current study seeks to replicate this finding in situations of real acceptances and rejections, and based on explicit beliefs and actual choices.

### *Speed-dating as a Paradigm to Study Mating Behavior*

Earlier research on mate rejection and its relation with mate value faced the problem that it is very difficult to study the emergence and break-up of romantic relationships, as these often happen in private and uncontrolled circumstances. However, a novel way of meeting potential mates has recently emerged, and it offers a less private and more controlled setting for studying mating behavior: *speed dating* (Finkel & Eastwick, 2008; Finkel, Eastwick & Matthews, 2007; Kurzban & Weeden, 2005; Penke et al., 2008). Earlier studies using the speed-dating paradigm already yielded some notable findings, such as incongruence between reported preferences and actual choices, and the finding that in this context, appearance seems to be the most important criterion for selecting a mate for both men and women (e.g., Buston & Emlen, 2003; Eastwick & Finkel, 2008; Kurzban & Weeden, 2005; Todd et al., 2007).

During speed-dating sessions, men and women rotate to meet a number (usually 10-20) of blind dates on one evening. They talk with each date for a few minutes and then decide whether they want to meet that person again for a “real” date, before moving on to meet the next person. The speed-dating paradigm offers the possibility to study people’s reactions to mate acceptance or rejection in a natural environment.

In previous studies of mate preferences that used the speed-dating paradigm, the participants did not typically receive feedback on their success until a few days after the event. In the present research, however, we wanted to give people feedback on their desirability as a mate more immediately, in between two speed-date sessions on one evening. This provides us with the

unique opportunity to study the effect of real-time mate acceptances and rejections on subsequent self-esteem, self-beliefs, and actual mate choice.

### *The Present Research*

Women and men differ slightly in their mate preferences. Men have, for example, a stronger preference for short-term relationships than women, which is often explained by men's (compared to women's) lesser investment in the reproductive process: men do not give birth and therefore have less reason to be cautious in mating (Trivers, 1972). According to this theory, men have a stronger tendency for sexual variety and are especially attuned to signals of fertility and accessibility. Women's desirability (compared with men's) seems therefore strongly dependent on traits associated with physical attractiveness (e.g., Buss, 1988, 1989; Buss & Schmitt, 1993; Li, Bailey, Kenrick, & Linsenmeier, 2002). Therefore, we assume that women's positive beliefs about their physical attractiveness are especially important in defining their self-perceived quality as a mate. If positive beliefs motivate related approach tendencies, a change in this belief should have an effect on women's mating efforts.

As stated above, mating is a mutual process, and the preferences and mating tactics of one sex influence what is a good tactic for the other sex. Because we expect that experiences of acceptance and rejection may change people's feelings, beliefs, and behavior, and thus their mating tactics, in the present study we decided to concentrate only on the effect of being accepted and rejected for one gender: women. This way we could study the suggested mechanism for women, while controlling for changes in men's behavior. Because of limitations in sample size, we were not able to replicate the study with a focus on men.

To sum up, if self-esteem is indeed a monitor of one's desirability as a mate, it should detect variations in this desirability, as indicated by acceptance or rejection by a number of potential mates. We hypothesized that self-esteem would drop if the number of rejections is larger than usual. We also hypothesized that women's beliefs, especially about their physical attractiveness, would be maintained even when self-esteem decreases and that these beliefs would predict women's tendencies to seek possible mates (i.e. their mating effort) in the light of rejection.

### *Overview*

To test our hypotheses, we conducted three speed-dating events in which people met a number of people from the opposite sex. Men and women rotated to meet each other over a series of short "dates", after which they could accept or reject the other person by a confidential mark on a scoring form. In between two sessions of speed-dating (six to nine dates), the women got feedback on their number of acceptances and rejections in the first session. Two acceptances were either added or subtracted from their original score to create situations of unusual acceptance or rejection. A few days before the speed-dating event and again immediately after the feedback, the participants filled in a questionnaire in which we assessed their self-esteem and a variety of relevant self-beliefs regarding their qualities as a mate. We were interested in the effect of the acceptance/rejection experience on the women's self-esteem, their beliefs about their qualities as a mate (especially about their physical attractiveness), and their tendencies to seek possible mates (i.e. the number of men they accepted). We hypothesized that (1) a woman's self-esteem would drop after she received an unusually high number of rejections in the first

round, compared to her self-esteem as measured before the event; (2) her beliefs about her physical attractiveness would not drop after an unusually high number of rejections in the first round, compared to her beliefs as measured before the event; and (3) her beliefs about her physical attractiveness would predict her tendency to say yes to the men, especially after she experienced an unusually high number of rejections.

### Method

#### *Participants*

We recruited subjects through advertisements placed on the internet, in local newspapers and on posters and flyers distributed around the university campus and in bars and cafés around Groningen. We also listed the speed-dating events on a database of studies available to first-year psychology students in exchange for credit points, making it clear that students should only sign up if they were single and interested in dating. We ran three speed-dating events on separate evenings, with a total of 92 participants (44 men, mean age = 24.05,  $SD = 3.87$ ; and 48 women, mean age = 21.38,  $SD = 2.14$ ). Due to last-minute cancellations, the sex ratio was female-biased on the first evening (13 men, 16 women), even on the second evening (14 of each sex) and slightly female-biased on the third evening (17 men, 18 women).

#### *Pre-Questionnaire*

A few days prior to the speed-dating event, people were asked via e-mail to fill in an online questionnaire. This consisted of a series of questions assessing, among other things, their self-perceived mate value (based on the scale of Landolt, Lalumière, & Quinsey, 1995, which we included as a control

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variable), their desire for a long-term or short-term relationship, and their ratings of themselves for various characteristics that have been suggested to be important to a person's quality as a mate (namely physical attractiveness, financial resources, desire for children, social status, health, intelligence, faithfulness, ambition, devotion and parenting skills; based on Buston & Emlen, 2003); responses were provided on an 11-point scale (scale anchors were labeled 1 = much less than average, 6 = average, 11 = much more than average). Furthermore, the participants' self-esteem was measured by asking them to indicate the extent to which 17 self-relevant emotions applied at that moment (namely proud, competent, optimistic, self-assured, attractive, smart, effective, efficient, loved, desperate, inadequate, disdained, incompetent, stupid, ugly, worthless, ashamed; derived from McFarland & Ross, 1982); responses were again provided on an 11-point scale (endpoints labeled 1 = does not apply at all, 6 = neutral; 11 = does apply very much). Four subjects who did not complete the questionnaire on-line did so on paper at the event itself, prior to the start of dating.

### *Procedure*

The speed-dating events took place on weeknights in the Department of Psychology at the University of Groningen and started around 6 p.m. Upon arrival, participants were given a badge with an identification number, a covered clipboard (to ensure confidentiality of the answers), and a pen. All participants first completed and signed a consent form confirming that their participation in the study was entirely voluntary.

Each event consisted of two sessions of speed dating, separated by an interval of roughly half an hour in which we gave the women some manipulated information regarding the responses they received in the first

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session. On arrival, the men and women were directed to two separate rooms where they completed the consent form and waited for the other participants to arrive. The tables in each room were arranged in rows, with chairs on either side, and decorated with candles and flowers.

When all participants were present, half of the men were escorted to the women's room and half of the women were escorted to the men's room. A 'host' directed the proceedings in each room. When everyone was seated, the host blew a whistle to signal the start of the first date, in which the subjects could interact with the person sitting opposite them. After 3 minutes, the host blew the whistle again and instructed the subjects to fill out, in silence, a rating sheet for the person with whom they had just interacted. On these sheets the subjects indicated whether or not they would like to meet that person again (a simple yes/no response), as well rating that person on an 11-point scale for each of the following attributes: physical attractiveness, social status, intelligence, ambition, suitability for a short-term relationship, suitability for a long-term relationship and to what extent they felt that person was interested in them. When everyone in the room had completed these forms, the host instructed the men to move one table to the right while the women remained seated. The host then blew the whistle again to signal the start of the second date. This procedure was repeated until the men had rotated around all the tables, ensuring that all subjects had interacted with every member of the opposite sex in the same room. In cases where there was an imbalance in the sex ratio, each woman passed one or two dates without a partner. Appendix A shows a picture of the setting.

At the end of the first session, the subjects were escorted back to their single-sex rooms while their rating sheets were taken away for processing. Around 15 minutes later, we gave each woman some manipulated (i.e. inflated

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or deflated) information about the responses she received in the first session. The men received no such information. About 5 minutes after the feedback, men and women were asked to fill in another questionnaire (see 'Manipulated Feedback and Interval Questionnaire', below). A further 5 minutes later, the men who had not previously visited the women's room were escorted to the women's room, while the women who had visited the men's room in the first session were escorted there for a second time. In this way, the subjects were able to meet all those of the opposite sex with whom they had not interacted in the first session. The procedure in the second session was the same as in the first session. At the end of the second session, the subjects were escorted back to their single-sex rooms and the women were debriefed about the nature of the experiment (see 'Probe Questionnaire and Debriefing', below).

### *Manipulated Feedback and Interval Questionnaire*

Women were randomly assigned to one of two conditions, the *inflated* condition or the *deflated* condition. The feedback information was based on the true responses they received from the men, but manipulated either upwards (inflated condition) or downwards (deflated condition). During the interval between sessions, we counted the number of acceptances each woman had received in the first session, defined as the number of men answering 'yes' when asked whether or not they would like to meet her again. We then manipulated these scores by adding 2 to the number of acceptances for the inflated women and subtracting 2 from those for the deflated women. The lowest number that women could receive was zero; the highest number was limited to the number of men they met in the first session.

The manipulated feedback took the form of a series of sheets of paper which were designed to look like sections of the rating sheets filled out by the

men, with each sheet indicating either an acceptance or a rejection (though there was no information on the rater's identity). Each woman received a number of acceptances corresponding to her manipulated score, with the remaining sheets showing rejections; the total number of sheets equaled the number of men she met in the first session. We also gave each woman a summary sheet stating the total (manipulated) number of acceptances received, plus an indication of whether that score was in the first (labeled 'lowest'), second ('low'), third ('high') or fourth ('highest') category (see also Appendix B).

The interval questionnaire basically consisted of the same questions as the ones used in the pre-questionnaire. Participants were asked to rate themselves for the same mate qualities as before, give a momentary evaluation of their desire for a long-term or short-term relationship in the second session, and we assessed their self-esteem again (for details on these measures see 'Pre-Questionnaire', above).

### *Probe Questionnaire and Debriefing*

When they had returned to their single-sex rooms after the second session of speed dating, we gave participants a final questionnaire asking about their impressions of the study and what they thought the experiment was designed to test. None of the women suspected that the scores they received in the interval had been manipulated. Afterwards, we debriefed the women by explaining to them the design of the study, and in particular, the fact that their scores had been adjusted up or down by two units, without revealing who was in which treatment group. We answered any questions they had about the study and provided them with our contact details in case of any further

queries. A few days later, we e-mailed all the participants to inform them of their (true) matches in the speed-dating event.

At the end of each event, we provided free drinks and snacks. There was no financial incentive for participation. All data we collected were stored in a non-identifiable form, kept separately from the participants' names and their contact details. Our research protocol was approved by the Ethical Committee of the Department of Psychology of the University of Groningen (Reference: ECP 07116).

## Results

### *Effect of Mate Rejection on Self-Esteem*

Did women's self-esteem drop after they experienced an unusually high number of rejections in the first round compared to their self-esteem as measured before the event?

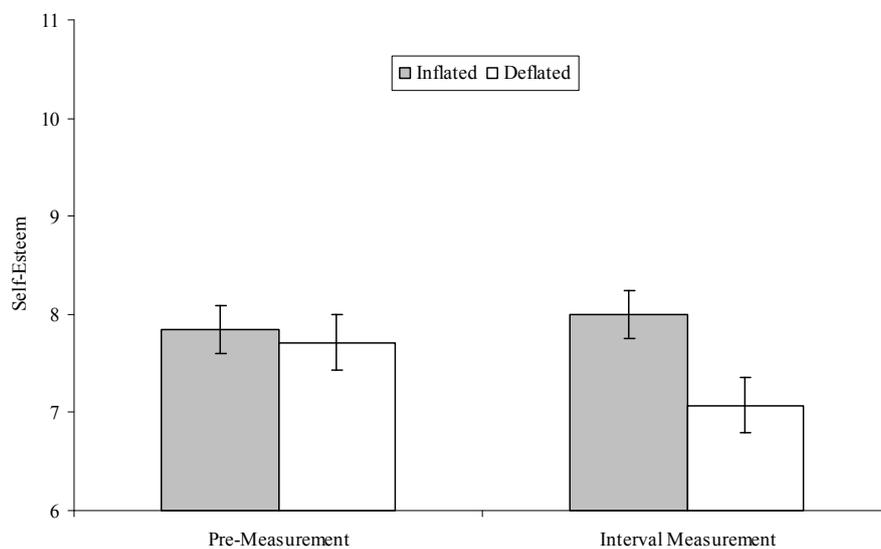
To test the effect of the manipulated feedback information on self-esteem, we first created a single self-esteem index by reverse-coding the negative feelings so that higher scores indicated higher self-esteem, and then averaging across the 17 self-relevant feelings (pre-measured self-esteem: Cronbach's  $\alpha = .91$ ; interval self-esteem: Cronbach's  $\alpha = .93$ ).

An ANOVA testing the expected effect of the feedback information on self-esteem, as measured in the session-interval, revealed a main effect of feedback,  $F(1, 47) = 7.68, p = .01, \eta^2 = .13$ . On average, women in the deflated condition ( $M = 7.07, SD = 1.36$ ) indicated lower self-esteem than women in the inflated condition ( $M = 8.01, SD = 1.14, d = .75$ ).

A repeated-measure ANOVA tested the effect of the feedback information on the differences between pre-measured and interval self-esteem.

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The analysis revealed a significant interaction between the feedback information and self-esteem change,  $F(1, 45) = 10.69, p < .01, \eta^2 = .19$ . Simple main-effects analysis revealed that this interaction was due to a drop in self-esteem for women in the deflated condition ( $F(1, 45) = 14.03, p < .01$ ), compared to no change for women in the inflated condition ( $F(1, 45) = .82, p = .37$ ). This supports our hypothesis that self-esteem may function as a mate-value meter that detects variations in women's degree of being desired as a mate, particularly as a warning device in situations of (possible) rejection. This finding is illustrated in Figure 1.



**Figure 1**

*Effect of manipulated feedback information on women's change in self-esteem (errors bars indicate  $\pm SE$ ).*

*Positive Beliefs about the Self*

Did women's beliefs, especially about their physical attractiveness, remain unchanged after an unusually high number of rejections in the first round compared to their beliefs as measured before the event?

Multiple ANOVAs revealed that, as expected, the feedback information had no effect on any of the 11 beliefs about qualities as a mate (all  $ps \geq .29$ ). In other words, women had positive beliefs about their qualities as a mate, no matter whether they were in the deflated or the inflated condition (all but two means were significantly above the scale midpoint of 6,  $ps \leq .04$ ; women did not seem to hold particularly positive beliefs about their financial resources and did not have a particularly strong desire for children,  $ps \geq .56$ ).

Multiple repeated-measures ANOVAs tested the effect of the feedback information on the differences between women's beliefs about their mate-qualities before and after the feedback information. These analyses revealed two significant interactions between the feedback information and changes in self-beliefs: one for women's belief of being devoted ( $F(1, 45) = 4.74, p = .04, \eta^2 = .10$ ) and one for their belief of being physically attractive ( $F(1, 46) = 6.23, p = .02, \eta^2 = .12$ ), suggesting that the feedback information caused a change in these two beliefs. To illuminate these interactions, we conducted simple main-effects analyses. These revealed a significant increase in beliefs of being devoted for women in the deflated condition ( $F(1, 45) = 4.24, p = .05$ ), but no change for women in the inflated condition ( $F(1, 45) = 1.02, p = .32$ ). Although we did not expect this increase in positive beliefs, it may be that rejected women assumed themselves to be more devoted than usual due to the fact that their acceptances in the first session were apparently unreciprocated, which they may have attributed to their being highly devoted.

For beliefs of being physically attractive, simple main effects analysis revealed that this interaction was due to a marginally non-significant decrease in self-beliefs for women in the deflated condition ( $F(1, 46) = 3.77, p = .06$ ), compared to no change for women in the inflated condition ( $F(1, 46) = 2.52, p = .12$ ).<sup>7</sup> The findings suggest that women may have attributed their seemingly low desirability to their physical attractiveness. The fact that women's perception of their physical attractiveness may have changed as a response to rejection as a mate is in line with the assumption that this belief is perceived to be a particularly important quality in defining a women's mate value. In the next paragraph, we will have a closer look on what the consequences of this drop in self-beliefs may be. According to our hypothesis, this belief should be particularly important in predicting mating efforts.

### *Tendencies to Accept a Mate*

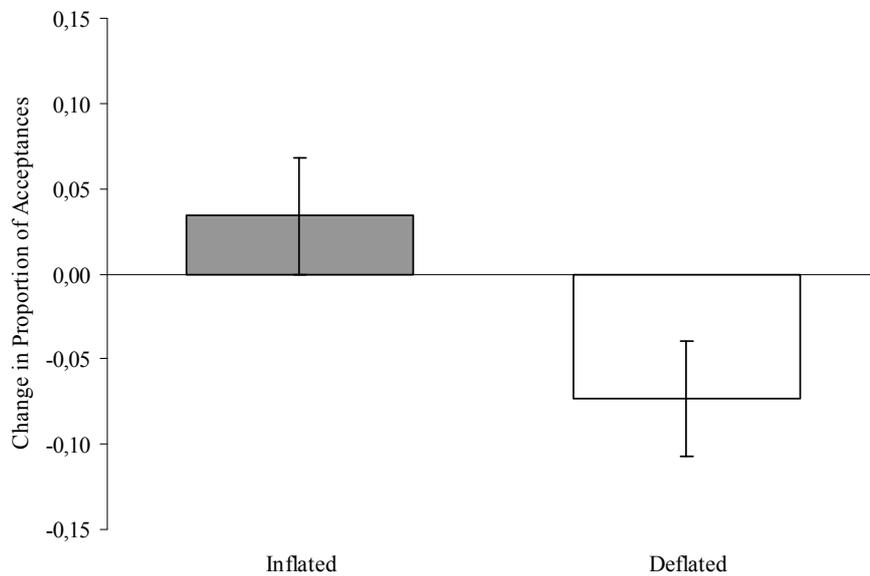
First, we tested whether our study was able to replicate earlier findings on mate acceptance in a speed-date setting. Consistent with previous findings (e.g., Kurzban & Weeden, 2005; Todd et al., 2007), women were choosier than men: on average, female participants accepted 26.3% of their dates, compared to 49.3% for male participants ( $t(90) = 5.21, p < .01$ ). This sex difference in choosiness was present both before the feedback information (women 27.0%, men 49.5%) and afterwards (women 25.6%, men 49.1%). Within each sex, however, choosiness was unrelated to the participant's popularity with the

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<sup>7</sup> As we measured 11 beliefs that may be conceptually related (i.e., they all reflect characteristics that together constitute a person's desirability as a mate), we face a problem with family-wise error rates. Applying Bonferroni correction in an attempt to take this possibility into account, all effects ceased to reach significance ( $ps > .0045$ ). Nevertheless, because these effects were not unexpected on theoretical grounds, they may still reflect interesting tendencies that we thought were noteworthy.

opposite sex (relationship between proportion of acceptances given and received: women  $r(48) = -.07, p = .62$ ; men  $r(44) = -.26, p = .10$ ).

Then, we conducted a repeated-measure ANOVA to test the effect of the feedback information on the women's proportion of acceptances in the first as compared to the second session of speed dating. The analysis revealed a significant interaction between the feedback information and a change in the proportion of acceptances ( $F(1, 46) = 4.90, p = .03, \eta^2 = .10$ ). Simple main-effects analysis revealed that this interaction was due to a significant drop in women's acceptances in the deflated feedback condition ( $F(1, 46) = 4.60, p = .04$ ), compared to no change in the inflated feedback condition ( $F(1, 46) = .97, p = .33$ ; see Figure 2).



**Figure 2**

*Effect of feedback information on the change in proportion of men the women accepted (errors bars indicate  $\pm SE$ ).*

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Next, we tested our hypothesis that women's tendency to say yes to the men, especially after experiences of rejection, is predicted by beliefs about their physical attractiveness.

In line with this idea, we found that a change in perceived physical attractiveness (calculated as women's self-perceived physical attractiveness in the second session minus their self-perceived physical attractiveness in the first session) was related to the number of acceptances in the second session,  $r(48) = .38, p < .01$ , suggesting that a decrease in self-perceived physical attractiveness led to fewer, and an increase to more, acceptances in the second session of speed dating. Differently to what we hypothesized, this effect was not found to interact with the feedback information ( $b = .23, p = .58$ ), suggesting that positive beliefs predict mate acceptances in general, independent of previous acceptance or rejection.

As expected, a change in self-esteem was found to be unrelated to the number of acceptances that women gave to the men in the second session ( $r(48) = .17, p = .24$ ).

The results above diverge from evolutionary theories that predict that women should be less choosy after a number of rejections in order to enhance their mating success (Todd & Miller, 1999; Fawcett & Bleay, in press), but might be in line with the idea that people may become more anxious of being rejected after experiences of rejection (e.g., Downey & Feldman, 1996). If women indeed became more sensitive to rejection-related information, we would expect that rejected women (compared to accepted women) felt that the men in the second session were less interested in them—and thus probably more likely to reject them. In a repeated-measure ANOVA, we therefore tested whether rejection had an effect on how the women perceived the men's

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interest in them in the first as compared to the second session of speed dating. The analysis revealed a significant interaction between the feedback information and how the women perceived the men's interest in them ( $F(1, 46) = 5.55, p = .02, \eta^2 = .11$ ). Simple main-effects analysis revealed that this interaction was due to a significant increase in the belief that men were interested in them for women in the inflated feedback condition ( $F(1, 46) = 5.39, p = .03$ ), compared to no change for women in the deflated feedback condition ( $F(1, 46) = 1.02, p = .32$ ). This suggests that if this change in perceived interest is related to acceptances, it is not the rejected women who get more sensitive, but the accepted women who get less sensitive. However, we found that this change in perceived interest was not related to the number of acceptances in the second session,  $r(48) = .17, p = .36$ , suggesting that more perceived interest of the men did not lead to more acceptances, and less perceived interest did not lead to fewer acceptances, in the second session of speed dating, making it less likely that the tendency to accept a mate is due to rejection sensitivity.

## Discussion

In order to be able to make successful mating decisions, a person needs knowledge about what qualities a potential mate prefers, as well as knowledge about his or her own standing on those qualities (e.g., Penke et al., 2008). Knowledge about one's acceptability to others as a potential mate is therefore an important part of one's mating intelligence and the likelihood of finding a suitable mate. Previous research has shown that self-esteem may function as a mate-value meter, a gauge of assessing one's standing as a mate (Brase & Guy, 2004; Murray et al., 2003; Denissen et al., in press; Pass et al., in

press). The present research set out to test further the idea that self-esteem is a gauge that detects variations in one's desirability as a mate after contact with a number of potential mates, by using a speed-dating paradigm. If self-esteem is indeed a warning device for changes in one's value as a mate, and particularly for signs of possible rejection, we hypothesized that self-esteem would drop if a person detects a high risk of being rejected as a mate. The findings of the present research support this hypothesis. Women who experienced an unusually high number of rejections subsequently reported a drop in their self-esteem.

After rejection, it is important for people to continue their mating efforts in order to succeed in eventually finding a suitable mate. We suggested that positive beliefs about one's qualities as a mate may form a functionally complementary dimension of the mate-value meter, one that motivates compensatory approach behavior—even while self-esteem drops in the light of rejection. Positive beliefs about important mate characteristics, such as physical attractiveness for women, may play an especially important role in motivating mating efforts. Therefore, we hypothesized that, as an adaptive form of thinking, such positive self-beliefs should be maintained even when self-esteem decreases. Furthermore, such positive beliefs may predict tendencies to seek possible mates after signs of rejection. A statistically strict interpretation of the results indeed suggests that women's positive beliefs did not change when facing rejection. However, the current findings also showed a tendency for women to reduce their positive beliefs about being physically attractive in the light of rejection—although not significantly so. Nevertheless, the observed tendency is in line with our idea that this belief is particularly important to women's self-perceived mate value. While we did not find that those beliefs are more important in predicting tendencies to accept a mate after

experiences of rejection, we did find evidence that changes in a woman's belief of being physically attractive go together with changes in their willingness to seek potential mates. This supports our idea that positive beliefs may play a role in motivating mating efforts in general and that maintaining such beliefs while facing rejection might indeed be important for motivating people to pursue possible mating opportunities.

### *The Effect of Rejection on Choosiness*

Concerning women's choosiness, the current research is the first to test empirically the evolutionary prediction that women should become less choosy after rejection in order to increase their chances of mating success (Todd & Miller, 1999; Fawcett & Bleay, in press). Contrary to what this theory would predict, the current findings suggest that women become choosier after rejection, at least in the sense of quantity. However, acceptance in a speed date is not the same as an actual mate choice, as it only reflects a desire to meet that person again, not a definite decision. Another obstacle in the currently used design is that the women did not know who had rejected them. This represents a different situation to real dating, where the specific characteristics of the rejecting person (and so potentially his or her quality as a mate) are typically known. The current situation did not offer the women information about which specific men might have accepted them and which might have been out of their league. Thus, we assume that our findings reflect tendencies to meet men after rejection and not necessarily actual mate choice, which might still show that women become less choosy as reflected in choices for different men depending on previous rejection experiences. Nevertheless, the present findings provide valuable insights for refining existing theories.

Another explanation for the observed decrease in acceptances after rejection may be that people became more sensitive to possible rejection after having experienced rejection (e.g., Downey & Feldman, 1996). We assumed that if this were true, rejected women, compared to accepted women, should have been more attuned to whether their dates were interested in them. The results did not support this idea, suggesting that rejection sensitivity is an individual tendency that may not necessarily be related to actual experiences of rejection.

### *Limitations and Future Directions*

One limitation of the present research is that it only captures one side of the story. As stated in the introduction, mating is a process based on mutual decisions. We decided to concentrate on one sex, because we wanted to control for possible interdependent effects of changes in self-perception in men. As our main aim was to study the emergence of mating tendencies based on mechanisms within the individual, we believe that our design suffices to give an indication of the presumed mechanism – at least for women. However, men and women differ considerably in their mating behavior (e.g., Penke et al., 2008), and it is therefore possible that the mechanism has slightly different implications for men. It has for example been found that men are often the ones to take the initiative in mating and that women are the decision makers (see Buss, 1988; or Haselton & Buss, 2000 for an elaborate description of this phenomenon). This would imply that men need stronger or more stable positive beliefs than women, as for them it is even more crucial to show approach tendencies. Besides that, due to this role allocation and the fact that men are more accepting than women are, it might be more likely for men to be rejected, making it even more important for them to possess stable positive

beliefs about their qualities as a mate. Indeed, earlier research has shown that men have stronger positive beliefs about their qualities as a mate than women do (Pass et al., in press). However, future research needs to replicate the current findings for men in order to cover the whole story.

One critique on using the speed-dating paradigm may be that it diverts from more traditional ways of meeting potential mates. However, the present research focused mainly on general tendencies to meet potential mates and we believe that this paradigm is well suited for capturing such a motivation. Nevertheless, the tendency to seek partners could differ in a speed-date setting—where the initial motivation was to meet potential mates—compared to more neutral settings such as the supermarket or the workplace. However, as more traditional settings to meet potential mates are often chosen for the same reason (e.g., bars or discotheques), we believe that speed dating may represent findings that are similar at least to some “real life” settings, though most likely not all.

### *Concluding Remarks*

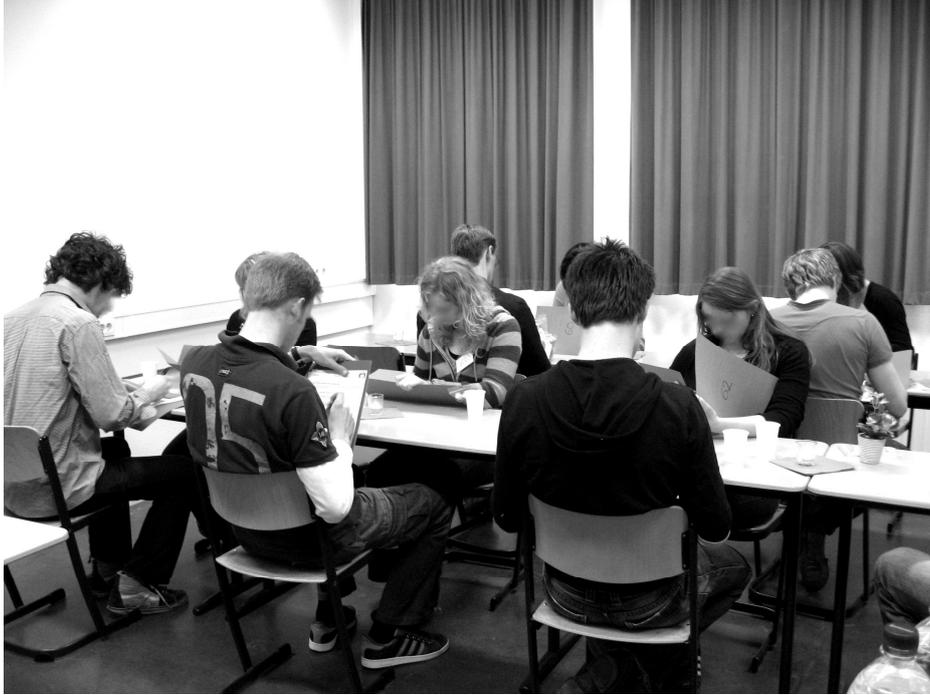
Recently, the view has been proposed that although our self may intuitively feel like a unitary entity and has long been treated as such by most of social sciences, there is evidence that it may be multidimensional—composed to match multiple different functional specializations (Kurzban & Aktipis, 2006; Kurzban & Aktipis, 2007). Kurzban and Aktipis suggest that the self serves a primarily social function, designed to assure social inclusion. According to their view, the self consists of a collection of different subsystems—modules—designed by natural selection to enhance a person’s reproductive fitness. These individual systems may have evolved for their functionality and they may be informationally encapsulated, making it possible for two systems to hold

mutually exclusive representations. Seen in this light, self-esteem and self-beliefs may be two distinct concepts of the self, with different functions that are both essential for mating: one for signaling one's mate value and the other for not letting rejection lead to withdrawal.

The current study used a novel speed-dating approach to study people's reactions to being accepted or rejected as a mate. Extending earlier research that used the speed-dating paradigm as a setting to study mate preferences (e.g., Finkel & Eastwick, 2008), the current study applied an experimental design. This provided the unique opportunity to study the effect of real-time mate acceptances and rejections on subsequent self-esteem, self-beliefs, and mating efforts. We found evidence that together the two dimensions of the self may form a toolkit that evaluates a person's desirability as a mate, and at the same time motivates compensatory action tendencies, such as continuing mating efforts. The results provide fascinating new insight into how these three variables may interact to maintain the mating process as a social process in which people are sensitive to signals about their mating value, are generally motivated to improve their mating value, and do not let themselves be paralyzed by rejection. Together, these processes make mating intelligence a truly social intelligence.

Appendix A

Setting of the Study



## Appendix B

### Summary of the Feedback

|                                      |                                    |   |  |
|--------------------------------------|------------------------------------|---|--|
| Jouw ID <input type="text"/>         |                                    |  |  |
| Aantal "JA"s <input type="text"/>    | Aantal "NEE"s <input type="text"/> |   |  |
| <i>laagste categorie</i><br>0-25% JA | <i>lage categorie</i><br>25-50% JA | <i>hoge categorie</i><br>50-75% JA  | <i>hoogste categorie</i><br>75-100% JA |

### Single Feedback Sheet

|   |  |
|---|--|
| 1. Zou je deze persoon terug willen zien?   | <input type="checkbox"/> JA <input type="checkbox"/> NEE |
| <i>In het geval dat jij en de ander allebei deze vraag met JA beantwoorden, zullen jullie in de komende dagen jullie e-mail adressen toegestuurd krijgen.</i> |  |



## **Chapter 5**

### **Where Have all my Good Deeds Gone?**

#### **The Effect of Difficulty of Retrieval on Donating Behavior and Positive Self- Beliefs <sup>8</sup>**

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<sup>8</sup> This chapter is based on Pass, J. A., Lindenberg, S., & Fetchenhauer, D. (2008). Where Have all my Good Deeds Gone? The Effect of Difficulty of Retrieval on Donating Behavior and Positive Self-Beliefs. Manuscript submitted for publication. We thank David Dunning and Suzanne Pietersma for their comments on earlier versions of the manuscript.

Most people hold overly positive beliefs about their traits and qualities (e.g., Alicke & Govorun, 2005; Dunning, Heath, & Suls, 2004), and especially about their prosocial qualities (e.g., Allison, Messick, & Goethals, 1989; Epley & Dunning, 2000; Fetchenhauer & Dunning, 2006; Gilovich, Epley, & Hanks, 2005; Van Lange, 1991; Van Lange & Sedikides, 1998). Such, “positive illusions” have been said to be psychologically and reproductively adaptive (Haselton & Nettle, 2006; Taylor & Brown, 1988). It has been shown that positive beliefs are important for mental health and promote active coping in difficult situations (Taylor and Brown, 1988). From an evolutionary point of view, it would make sense that negative information about the self creates a negative affective response in order to give notice that something is wrong (Leary, 2005), while maintaining positive self-beliefs for keeping up the motivation to approach others (see Pass, Lindenberg, Park & Van Leeuwen 2008, Chapter 3 in this dissertation). Yet, how do people maintain positive self-beliefs? Is the stability of these beliefs the result of self-regulation, such that the person actively seeks to maintain the stability of self-beliefs? Recent research points to the possibility of self-regulation (see for instance Vohs & Heatherton, 2004). In other words, whereas stable positive self-beliefs help self-regulation in the face of a threat to the self, these beliefs themselves may be stabilized by yet other self-regulatory efforts. The present study set out to test the conjecture that people self-regulate positive beliefs about themselves by engaging in compensatory behavior.

The idea that people turn to self-affirming strategies when their self is threatened is not new (see for example Steele, 1988). However, much of the literature on self-affirmation strategies after ego threats is concerned with one or another form of emotion regulation (Rudman, Dohn, & Fairchild, 2007). For example, people whose self-esteem has been threatened in one domain may

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emphasize their qualities in other domains (Steele, 1988; Tesser, 2000). Or they may increase out-group stereotypes (Schimel et al., 1999), or derogate others in order to enhance the self (Fein & Spencer, 1997). Here, because they may serve different functions, we would like to split the affective and cognitive aspects of self-esteem and focus in this study specifically on (cognitive) self-beliefs and their maintenance. For this reason, we turn to the influence of remembered episodes as possible sources of threats to self-beliefs.

Positive self-beliefs are fed by episodes that are embellished into positive stories in which one is involved, even if these stories remain untold (McLean, Pasupathi, & Pals, 2007). One's positive self-beliefs may thus also be influenced by the felt ease with which these episodes come to mind. There is evidence showing that people indeed evaluate themselves based on how easily they can conjure up instances of their own behavior (Schwarz et al., 1991). In their studies on the ease-of-retrieval paradigm, Schwarz and his colleagues (1991) let people recall either twelve (a difficult task) or four (an easy task) events of own assertive behavior in the past. People evaluated themselves to be more assertive, the easier they perceived the recall task. Thus, people who were asked to recall four events were more likely to infer that they are assertive compared to people who were asked to recall twelve events, even though the former group recalled fewer events. Another experiment by Pass, Lindenberg, and Buunk (2005) showed that when the recall task is not perceived as difficult, the more instances of their own prosocial behavior people generate, the more prosocial they believe themselves to be. These results provide evidence that people may base self-beliefs also on such heuristic information as feelings of ease of recalling past events involving trait-relevant information. By the same logic, one would assume that people who

have difficulty recalling episodes in which they behave in the trait-relevant way might feel threatened in their self-beliefs about this trait.

It could be that one way of dealing with such a threat would be to discard it as uninformative or to trivialize it in other ways (Simon, Greenberg & Brehm, 1995). However, recent research by Menon and Raghurir (2003) suggests that people automatically rely on the ease of recall, even when it is discredited as a source of information. It has also been found that people honestly believe their positive beliefs (Williams & Gilovich, in press), which makes trivialization of the threatening information not a likely strategy of dealing with a threat to positive self-beliefs based on recall. For threatened self-beliefs based on recall, a likely self-regulatory strategy could be to engage in behavior that would create positive episodes that can be remembered and thereby improve the positive basis of self-beliefs. In the experiments by Schwarz et al. (1991), subjects felt less assertive when they had to recall twelve events. But Schwarz et al. did not offer subjects the opportunity for self-regulatory behavior. We believe that this makes a big difference. If given the opportunity for self-regulatory behavior to stabilize the threatened self-belief, subjects might be able to maintain the stability of their self-belief even though it is threatened.

The objective of the present research was to investigate the effect of ease of recall on possible self-regulatory behavior. The particular self-relevant dimension we chose for this study is prosociality, because it is well known that most people care about being prosocial (see Fetchenhauer & Dunning, 2006). As people generally perceive themselves to be very prosocial, we expected that difficulty of recalling one's past prosocial deeds—which may indicate that one is not as prosocial as assumed—would evoke a threat to positive self-beliefs about prosociality. We hypothesized that felt difficulty of recall would

bring about self-regulatory prosocial behavior. We also hypothesized that a reported self-belief on prosociality will remain unaffected; because when not threatened, the belief will remain anyway as it is, and when threatened, people maintain it by extra prosocial behavior.

### Experiment 1

Following methods used in previous research (Schwarz et al., 1991), participants were asked to recall either twelve (difficult task) or four (easy task) of their past prosocial deeds. Experiencing it as difficult to recall one's prosocial deeds was expected to trigger self-regulatory prosocial behavior. We further hypothesized that people's self-perceived prosociality compared to the average other would remain unaffected.

#### Method

##### *Participants and Design*

Forty undergraduate students at the University of Cologne received €3 for participation. The experiment had a single-factor (ease of recall: easy vs. difficult) between-participants design. One participant did not engage in the given recall task and was therefore excluded from the data analysis. Participants completed the study within separate rooms where all materials were presented in German.

##### *Procedure*

Participants were told that they would participate in a study on the working of people's memory and were seated in a room provided with a table on which

they could see the questionnaire, a pen, a closed envelope, and a piggybank. The experimenter handed them the €3 remuneration in coins of 50 cents and instructed them to read all instructions on the paper. First, participants read a definition of prosocial behavior: behavior intended to have a positive effect on another person such as being helpful or giving an honest compliment. Participants assigned to the *easy-task-condition* were then asked to recall four, whereas participants in the *difficult-task-condition* were asked to recall twelve incidences of own past prosocial behavior. Participants had to write down their memories on a lined paper that was embedded in the questionnaire, which they had to hand over to the experimenter afterwards. There was no time restriction for the recall task, but participants were asked to write down what came to their mind easily.

Following the recall task, participants were given an opportunity to donate money. They read the following instruction: "In the beginning of this research, you received €3 for your participation. We now want to give you the opportunity to donate part of your money to Amnesty International. This organization is mainly reliant on donations in order to be able to follow their objectives, which particularly concern adherence to basic human rights (e.g., the abolishment of torture). We want to emphasize that this research is completely anonymous and that you do not have to donate anything, if you do not want to. If you would like to donate something, you can do so now by putting your chosen amount of money in the piggybank. After you made your decision, please open the envelope to continue with the last part of the study." In order to enhance the perception of anonymity for the participant, the piggybank already contained a few coins.

Subsequently, participants were asked to give an evaluation of their prosociality: "Compared to your average peer, how prosocial are you?"

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Responses were provided on a 7-point scale (endpoints labeled 1= *not at all prosocial*, 7 = *very prosocial*).

Finally, participants were asked to rate their recall experience: “In the beginning we asked you to recall 4/12 incidents where you acted prosocially towards someone else. How difficult was this task for you?” responding on a 7-point scale (endpoints labeled 1= *very easy*, 7 = *very difficult*).

Upon completion, participants were debriefed about the experimental procedure.

### Results and Discussion

#### *Manipulation Check of Task Difficulty*

Our manipulation had the intended effect. An independent-samples t-test on the difficulty of the task revealed that participants who had to recall four events ( $M = 3.05$ ,  $SD = 1.84$ ) perceived this task as easier compared to participants who had to recall twelve events ( $M = 4.70$ ,  $SD = 1.78$ );  $t(37) = 2.84$ ,  $p < .01$ ,  $d = .91$ .

#### *Donating Behavior*

We found that donating behavior had a bimodal distribution because either some participants did not donate at all or others donated all the money. A K-S test of normality revealed that donating behavior was significantly non-normal ( $D(39) = .22$ ,  $p < .01$ ). Therefore, we conducted a log-linear analysis on the data<sup>9</sup>. We converted the donation variable into three categories:

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<sup>9</sup> Log-linear analyses use Poisson Regression to model the structure of tables in terms of cell counts. It exceeds the possibilities of Pearson’s Chi-squared tests and can be used to model multi-way contingency tables (see e.g., Agresti, 2002 for more details on log-linear models).

participants who gave no money, participants who donated some of the money, and participants who donated all of the money. The log-linear analysis of donation and the two experimental conditions revealed that a two-way interaction best fit the data on a  $\chi^2 (2) = 11.13, p < .01$  level. This interaction is illuminated by looking at the separate 2x2 associations. A chi-square test on condition and donating some money versus all the money revealed a significant association;  $\chi^2 (1) = 9.00, p < .01$ . Table 1 shows the corresponding cell counts. The odd ratios indicated that participants who had an easy task were 5.50 times more likely to donate some, but not all of the money, compared to participants who had a difficult task. However, participants in the difficult-task condition were 3 times more likely than participants in easy-task condition to give *all* of the money away. The odds of donating any money at all were almost equal in both conditions and did not differ significantly from each other (*odds ratio* (donated) = 1.30, *odds ratio* (not donated) = 1.80;  $\chi^2 (1) = 1.48, p = .23$ ).<sup>10</sup>

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<sup>10</sup> To test for the possibility that participants felt only threatened when they did not succeed in remembering the specified number of prosocial deeds, we conducted another log-linear analysis testing whether success had an effect on donating behavior. The result revealed no significant interaction between those variables ( $\chi^2 (4) = .39, p = .42$ ), suggesting that not the fact that participants did not succeed in the task constituted a threat to their self-belief, but the difficulty of recalling more events. As earlier research on prosocial behavior often found a gender effect, we also controlled for possible effects of gender. No significant effect could be found ( $\chi^2 (5) = .28, p = .74$ ).

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**Table 1**

*Counts for Donation by Ease of Recall.*

|          |                    | Ease of recall |           | Total |
|----------|--------------------|----------------|-----------|-------|
|          |                    | Easy           | Difficult |       |
| Donation | Nothing donated    | 5              | 9         | 14    |
|          | Some money donated | 11             | 2         | 13    |
|          | All money donated  | 3              | 9         | 12    |
| Total    |                    | 19             | 20        | 39    |

### *Positive Beliefs About One's Prosociality*

As expected, we found no significant effect of condition on participants' self-assessed prosociality. Participants who had to recall four events ( $M = 5.11$ ,  $SD = .99$ ) did not differ significantly in their self-reported prosociality from participants who had to recall twelve events ( $M = 4.60$ ,  $SD = 1.05$ );  $t(37) = 1.54$ ,  $p = .13$ . The average score on prosociality over conditions indicated that people maintain positive beliefs about their prosociality (the mean was above the scale midpoint of 4;  $M = 4.85$ ,  $SD = 1.04$ ;  $t(38) = 5.08$ ,  $p < .01$ ).

The results of the first experiment imply that the felt ease with which people recall their prosocial behavior indeed influences the amount of money they give to charity, thus the degree of their actual prosocial behavior. There is, however, an important limitation of Study 1. It is possible that asking people to recall incidences in which they acted prosocially makes the norm to act prosocially more accessible and thus increases prosocial behavior (see Joly, Stapel, & Lindenberg, 2008). This may explain why subjects in the easy recall

condition gave some money, and why more subjects in the difficult recall condition gave all their money: the higher the number of incidences subjects have to recall, the more accessible prosocial norms might become. Ideally, one should be able to separate the effect of increased accessibility from the self-regulatory effect. This is what we set out to do in our second study.

### Experiment 2

The aim of our second experiment was twofold. One objective was to see how robust the findings of our first study are. There has not been much research on self-regulatory prosocial behavior after a difficult recall task. A second objective of Experiment 2 was to differentiate effects of norm activation through the recall task from the self-regulatory behavior.

In our second experiment, we therefore added two conditions in which people were asked to recall either four or twelve incidences of others' prosocial deeds. If the results of our first experiment are due to norm activation, we would expect exactly the same pattern of effects on subjects' donating behavior after recalling events of self as well as others' prosocial deeds. If the effect is due to a having one's self-belief about prosociality threatened, however, we would expect an effect on donating behavior only when people found it difficult to recall their own prosocial deeds.

#### Method

##### *Participants and Design*

One hundred ninety-nine undergraduate students at the University of Cologne received €3 for participating in this study. The experiment had a 2

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(ease of recall: easy vs. difficult) x 2 (target of behavior: self vs. others) between-participants design. Participants completed the study within separate rooms where all materials were presented in German.

### *Procedure*

The procedure was the same as in Experiment 1. However, we now added a target-other condition to the target-self condition. In the target-other conditions, participants were asked to recall and write down events in which *others* had behaved prosocially. After the recall task, participants were given the opportunity to anonymously donate money. Subsequently, they were asked to give an evaluation of their own perceived prosociality compared to their peers' and to rate the difficulty of the recall-task. Upon completion, participants were debriefed about the experimental procedure.

## Results and Discussion

### *Manipulation Check of Task Difficulty*

Our manipulation had the intended effect. An ANOVA on the difficulty of the task revealed that participants perceived it as easier to recall four events ( $M = 3.21$ ,  $SD = 1.74$ ) compared to twelve events ( $M = 3.89$ ,  $SD = 1.56$ );  $F(1, 198) = 8.87$ ,  $p < .01$ ,  $d = .41$ . Participants also perceived it as easier to recall events about themselves ( $M = 3.23$ ,  $SD = 1.62$ ) compared to others ( $M = 3.86$ ,  $SD = 1.70$ );  $F(1, 198) = 7.64$ ,  $p < .01$ ,  $d = .38$ .

### *Donating Behavior*

As in Experiment 1, a K-S test of normality revealed that donating behavior was distributed significantly non-normal ( $D(199) = .26$ ,  $p < .01$ ). Therefore, we

conducted a log-linear analysis on the data. Again, we first divided the donation variable into three groups: participants who gave no money, participants who donated some of the money, and participants who donated all of the money. The log-linear analysis of donation and the two experimental conditions revealed that a three-way interaction best fit the data. This interaction was marginally significant,  $\chi^2(2) = 5.15, p = .08$ .<sup>11</sup>

Our hypothesis is best illuminated by separate chi-square tests for target-other and target-self. Consistent with the findings of Experiment 1, when the self was the target there was a significant association between the easy-task and the difficult-task condition on whether participants donated some or all of the money;  $\chi^2(1) = 7.90, p < .01$ . Table 2 shows the corresponding cell counts. The odd ratios implied that participants who had the easy recall task were 1.90 times more likely to donate some of the money compared to participants in the difficult-task condition. However, participants in the difficult-task condition were 1.90 times more likely to donate *all* of the money than participants in the easy-task condition.

When others were the target, we found no significant associations between the easy-task and the difficult-task condition on whether participants donated some or all of the money;  $\chi^2(1) = .12, p = .73$ . The odds of donating any money at all were almost equal in both conditions and did not differ significantly from each other (*odds ratio* (donated) = 1.03, *odds ratio* (not donated) = 1.00;  $\chi^2(1) = .01, p = .23$ ).

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<sup>11</sup> As in Study 1, we tested for the possibility that participants felt only threatened when they did not succeed in remembering the specified number of prosocial deeds. However, a log-linear analysis between success, target, and pro-social behavior did not reveal a significant interaction ( $\chi^2(7) = 5.27, p = .59$ ). Again, we also could not find any effect of gender on prosocial behavior ( $\chi^2(9) = 4.1, p = .91$ ).

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**Table 2**

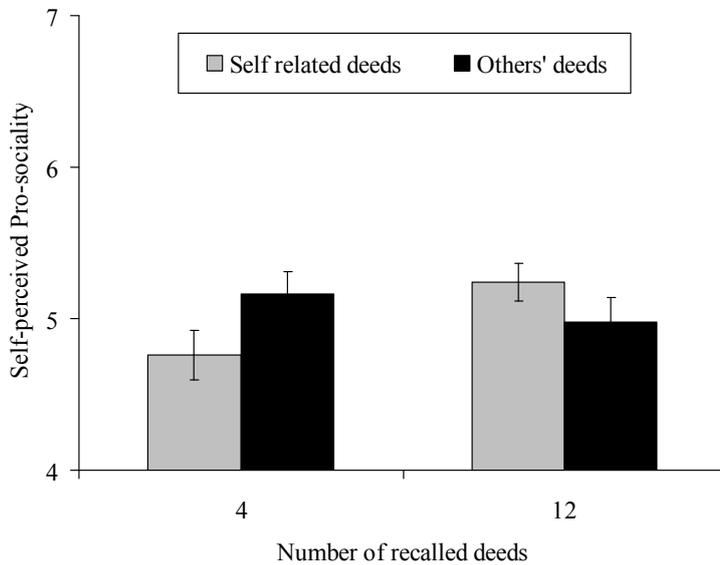
*Counts for Donation by Ease of Recall*

| Target: Self    |                    | Ease of recall |           | Total |
|-----------------|--------------------|----------------|-----------|-------|
|                 |                    | Easy           | Difficult |       |
| <b>Donation</b> | Nothing donated    | 10             | 10        | 14    |
|                 | Some money donated | 25             | 13        | 13    |
|                 | All money donated  | 14             | 27        | 12    |
| Total           |                    | 49             | 50        | 99    |
| Target: Others  |                    | Ease of recall |           | Total |
|                 |                    | Easy           | Difficult |       |
| <b>Donation</b> | Nothing donated    | 14             | 11        | 25    |
|                 | Some money donated | 17             | 19        | 36    |
|                 | All money donated  | 20             | 19        | 39    |
| Total           |                    | 51             | 49        | 100   |

***Positive Beliefs About One's Prosociality.***

An ANOVA revealed no main effect of target and ease of recall on self-beliefs of prosociality ( $F_s < 1.07$ ). But we found a significant interaction,  $F(1, 198) = 4.97, p = .03$ . Simple effects revealed that recalling events of others does not have an effect on self-belief and that the interaction is defined by a difference in the target-self condition;  $F(1, 98) = 5.63, p = .02, d = .47$ . As can be seen in

Figure 1, when participants in the self-target condition had the difficult recall task, they reported to be all the more better-than-average ( $M = 5.24$ ,  $SD = .89$ ) than when recall was easy ( $M = 4.76$ ,  $SD = 1.13$ ).



**Figure 1**

*Effect of ease of recall on peoples' self-perceived prosociality compared to the average peer (errors bars indicate  $\pm SE$ ).*

The results of Experiment 2 showed that, as expected, the felt ease with which subjects recall their prosocial behavior influences the amount of money they give to charity and thus the degree of their prosocial behavior. Additionally, Experiment 2 showed that the impact of felt ease of recall on subjects' donating behavior depends on the activation of the self-concept and thus on the threat to the self. Ease of recall only had an effect on subjects' behavior when they had to recall events about their own prosocial deeds. Participants who give some of the money are those for whom it was easy to

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recall incidences of own prosocial behavior, possibly striving for consistency with a positive self-belief. However, most participants who donate all of the money are those for whom the recall task was perceived as difficult. This replicates exactly the same pattern as we already found in Experiment 1.

A finding against our expectations is that participants reported to be more prosocial after a difficult compared to an easy task of recalling own prosocial behavior. We had predicted that the self-regulatory behavior of subjects who are threatened in their self-belief about prosociality would neutralize the threat and there would be no difference with the no-threat condition. However, it is possible that the self-regulatory behavior even increased the self-belief.

### General Discussion

For the study of self-regulatory processes, it is useful to distinguish affective components of self-esteem and cognitive components (self-beliefs). From an evolutionary interpretation of the sociometer (Leary, 2005), one would expect the former to respond negatively to negative information about a self-relevant trait, whereas the latter remains stable in order to motivate approach and thus prevent withdrawal from the social field. However, where does the stability of self-beliefs come from? Do people take self-regulatory measures to stabilize it? It has long been known that people compensate ego threats with compensatory strategies. However, in most cases discussed in the literature, these are strategies for the affective component. Much less is known about the cognitive component. Because positive self-beliefs are influenced by experienced and recalled episodes (McLean et al., 2007; Pass et al., 2005), it seemed appropriate to test the self-regulatory behavior with an ease of

retrieval paradigm. Having to recall a few incidences of one's own prosocial behavior is likely to be easy and not threatening to positive self-beliefs about prosociality; but having to recall many such incidences is likely to be difficult and thus to pose a threat to the self-beliefs.

Our studies show that indeed difficult recall tasks lead to more post-threat prosocial behavior (higher donations). Both our studies showed this to be the case. Thus, we have shown that people do take self-regulatory action when their self-beliefs are threatened and when the opportunity for the self-regulatory behavior offers itself right away. In the experiment by Schwarz et al. (1991) about assertiveness, no such self-regulatory opportunity was offered. In real life, it is likely that people have a variety of self-regulatory opportunities when their positive self-beliefs are threatened.

Another variant on our proposed explanation for the found results could be that being asked to recall events of prosocial behavior activated the norm to be prosocial. This norm-activation may have made prosocial behavior more salient and led people to act accordingly. For example, Joly et al. (2008) found that thinking of people (self and other) makes norms automatically more relevant. The more time people spend thinking about prosocial behavior (viz. the more examples they generated), the more important they might have found the norm to act prosocially, and the more likely they might have been to donate more money. However, in Study 2, we contrasted thinking about prosocial incidents of the self with thinking about prosocial incidents concerning others. As we would expect from the hypothesis about self-regulatory behavior after a threat to the self, the difference between the easy and the difficult task with regard to prosocial behavior (donation) was only found for recall tasks about self, not about others. If norm-activation through recall tasks had driven the behavior, we would have observed a similar

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pattern for self and other recall tasks. Thus, we can be reasonably confident that the effect is driven by a threat to the self.

The finding that people seem to take trouble to maintain positive beliefs about their own prosociality, even when these beliefs are not in harmony with their actual behavior, supports the notion that such beliefs are particularly robust in domains that are desirable and refer to the self as a moral person (Allison et al., 1989; Epley & Dunning, 2000; Van Lange, 1991; Van Lange & Sedikides, 1998). Beyond the notion of robustness, there has been extensive debate about whether it is driven by a motivation to feel good about oneself or is a product of purely cognitive mechanisms (e.g., Chambers & Windschitl, 2004, for a review). It seems unsatisfactory to think that people use self-deception just to feel good about themselves, or that such belief represents an error in judgment. A contrary view is to assume that it may be functional to live up to one's positive self-beliefs. We favor the position that holding overly positive beliefs about one's qualities is an adaptive tendency because it is likely to motivate approach behavior (Haselton & Nettle, 2006; Pass et al., 2008, Chapter 3 in this thesis; Taylor & Brown, 1988). As it is crucial for people to be accepted by others (Baumeister & Leary, 1995), they may need to act socially adequate to prevent rejection. The maintenance of positive beliefs—especially in the domain of social functioning—may thus be necessary to motivate compensatory behavior in order to prevent rejection by others. Self-regulating the stability of such beliefs may thus be an important part of social functioning.



# **Chapter 6**

## **General Discussion**

Social rejection in its many forms is omnipresent in our daily lives. Whether we are applying for a job, choosing a best friend in school, or flirting with someone in a bar, there is always the chance that the other will not reciprocate our wishes. These incidences of rejection can threaten our need to form and maintain social bonds. Forming and maintaining at least a minimum amount of social bonds provides people with important protective and reproductive benefits (Baumeister & Leary, 1995); therefore, being able to detect signs of rejection seems a crucial ability to guide adjustments in our behavior in order to choose the right partners for bonding, or prevent the break of current relationships. If we were not able to detect signs of rejection, we might not be able to learn how to change our behavior so as to be socially accepted.

Earlier research has shown that people indeed seem to possess an internal gauge that monitors the degree to which they are accepted by others – the *sociometer* (e.g., Leary & Baumeister, 2000; Leary et al., 1995; for a review, see Leary, 2005). Yet, this sensitivity to signs of rejection may come at a price: negative feelings triggered by the sociometer may cause a temporary physical and emotional numbness (DeWall & Baumeister, 2006)<sup>12</sup>, which may lead to withdrawal instead of active behavioral adjustment. This sensitivity could make people so vulnerable to rejection that relationships might break up whenever rejection occurs. As this is obviously not the rule of what can be observed in reality, where most people seem to succeed in forming and maintaining social bonds despite of being frequently rejected, the question comes up what the possible mechanisms may be that prevent such withdrawal and promote active coping after rejection.

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<sup>12</sup> I did include a measure of mood (namely the Self-Assessment Manikin [SAM] by Lang, 1980) in the two experiments reported in Chapter 2 and indeed could not find any effects of the rejection manipulation on mood, which supports the idea that people might become emotionally numb following rejection.

## GENERAL DISCUSSION

In my dissertation, I sought to answer this question by focusing on the role of self-esteem and self-beliefs on people's feelings and behavioral tendencies following experiences or threats of rejection. Based on theoretical considerations and previous evidence, I suggested that self-esteem and self-beliefs may be two distinct specializations of the self that each fulfills a different function in response to social rejection. The results support the idea that people's self-esteem may function as a relational monitor to detect signs of possible rejection, especially in the case of being rejected on the grounds of important mate characteristics. In addition, evidence was presented that maintaining positive self-beliefs may be a complementary mechanism that promotes social approach tendencies (e.g. flirting) following rejection. In this final chapter, I review the main findings reported in the empirical chapters and discuss some of their implications.

### **Self-Esteem as a Mate-Value Meter**

One objective of the current studies was to shed more light on the role of self-esteem as a relational monitor. Building on the assumption that mating relationships constitute a particularly important relationship domain, in Chapter 2, I tested the hypothesis that self-esteem may be especially sensitive to information pertaining to one's capacity as a mate. In the first study, participants were given bogus negative feedback following an inventory that ostensibly measured their value as a mate or as a friend. The results of this study showed that self-esteem decreased only after feedback indicating lower value as a mate; when the feedback indicated lower value as a friend, no change in self-esteem occurred. These findings suggest that when it comes to capacity-rejection, self-esteem is indeed especially sensitive to one's value as a

mate. This is not to say that friendship does not matter; however, not succeeding in friendships does not seem to be so threatening as long as people have an average level of success in mating relationships.

From an evolutionary perspective, characteristics that define high mate value differ somewhat for men and women. Men's self-esteem may be influenced especially strongly by rejection due to low competence and status. Rejection on these characteristics may therefore be especially informative of men's value as a mate. For a woman, self-esteem may be influenced especially strongly by rejection due to low physical attractiveness. Rejection on this characteristic may therefore be especially informative of her mate value. I tested this hypothesis in a second study, where I provided participants with feedback indicating low capacity as a mate based on either competence and status, or physical attractiveness. The results of this study revealed that men's self-esteem was indeed only lowered following capacity-rejection based on competence and status, and women's self-esteem was only lowered following capacity-rejection based on their physical attractiveness, suggesting that self-esteem is not sensitive to rejection information in general but also to specific reasons for rejection.

In Chapter 4, I set out to further test the idea that self-esteem is a gauge that detects variations in a person's degree of being desired as a mate. I tested the hypothesis that a person's self-esteem would drop after detecting negative variation in being rejected as a mate by using a speed-dating paradigm. Participants took part in one of three speed-dating events in which they met a number of people from the opposite sex. Men and women rotated to meet each other over a series of short "dates", after which they could accept or reject the other person. In between two sessions of speed-dating, the women got feedback on their number of acceptances and rejections in the first session.

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Two acceptances were either added or subtracted from their original score to create situations of unusual acceptance or rejection. The results supported the hypothesis that women who experienced an unusually high number of rejections subsequently reported a drop in their self-esteem. It is noteworthy that whereas in Chapters 2 and 3 rejection was based on feedback that was completely contrived by the experimenters, rejection in the speed-dating study was based on real acceptances and rejections (only in exaggerated form).

Together, these findings extend earlier research showing effects of acceptance and rejection on self-esteem that were not specific to mating relationships or specific characteristics (see Leary, 2005, for an overview). The sociometer may work differently in situations where people feel rejected in a relationship and in situations in which they feel rejected with regard to their capacity for forming the particular kind of relationship. The results suggest that when it comes to capacity rejection, the sociometer is especially attuned for the mating dimension, and that it is especially sensitive to information on characteristics that are most important to one's mate value.

### **Self-Beliefs as a Motivator for Social Reconnection**

A second objective of the current study was to test the hypothesis that positive self-beliefs form a functionally complementary component of the self, one that motivates compensatory approach behavior.

Applying an Error-Management framework to self-beliefs (see Haselton & Nettle, 2006), I hypothesized that holding overly positive beliefs about the self may be an adaptive form of thinking: maintenance of positive beliefs may be essential for motivating functional approach behavior (e.g., tendencies to meet a potential mate), and such beliefs may be especially

beneficial following rejection. In line with that idea, both studies reported in Chapter 2 revealed that people, when experiencing rejection, still believed to be good mates – even while their self-esteem dropped.

In the study described in Chapter 3, I further tested the idea that people do not only hold on to their positive beliefs, but that those beliefs also motivate functional approach. I provided feedback to participants that indicated low value as a mate based on characteristics that are highly relevant or less relevant to mate value for either women or men. Specifically, I provided participants with one of two reasons for rejection: physical attractiveness, or status and competence. I then measured peoples' implicit positive beliefs about their physical attractiveness, and their implicit tendency to approach members of the opposite sex (i.e., their tendency to meet possible new mates). By measuring implicit evaluations and tendencies I was able to capture spontaneous reactions to rejection. Previous research has shown that rejection can impair deliberate decision making following rejection experiences (e.g., Baumeister et al., 2005). Therefore, I expected reactions to rejection to be of a more automatic nature. Furthermore, using automatic tendencies instead of explicit self-reports and behavior also helped to control for factors such as person characteristics (e.g., humor or ambition) that usually influence mate choice (e.g., Buston & Emlen, 2003) or reconnection (e.g., Maner et al., 2007), and it reduced possible effects of social desirability. The results of this study showed that when women's mate value was threatened on the grounds of their physical attractiveness, approach towards men was higher when they held positive associations with their physical attractiveness. This supports the idea that maintaining positive self-beliefs about aspects that are important for one's desirability as a mate may be a defining factor in

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determining whether people are motivated to reconnect when facing rejection – at least for women.

The speed-dating study in Chapter 4 replicated this finding for explicit beliefs and actual tendencies to accept someone as a possible mate after experiences of rejection. The findings of this study implicated that especially positive beliefs about important mate characteristics, such as physical attractiveness for women, play an important role in motivating mating efforts. The results showed that women maintain their positive beliefs about being physically attractive in the light of rejection. Furthermore, I found evidence that, if there are changes in women's belief of being physically attractive, it goes together with changes in their willingness to meet potential mates. This supports the idea that positive beliefs may play a role in motivating mating efforts in general, and that thinking about herself as attractive is particularly important to a woman's self-perceived value as a mate.

Finally, in Chapter 5, I looked at a different socially important belief: pro-sociality. It is known that people's self-beliefs are grounded in episodes they can remember in which they showed the positive trait in question. This suggested using the so-called *ease of retrieval* paradigm. Based on earlier research, which showed that people base their perceptions on the difficulty with which belief-related memories come to mind (Schwarz et al., 1991), in two experiments, I created situations in which people experienced it either as easy or difficult to recall their own pro-social deeds. I hypothesized that difficulty to recall their good deeds would pose a threat to people's positive self-belief about prosociality. I also hypothesized that, in the face of threat, people would support the stability of this belief by showing extra prosocial behavior (donating). The results show that when people are threatened in their belief of being pro-social, this belief is maintained and even strengthened as

people take extra efforts to behave prosocially. Thus positive self-beliefs may not be stable because they are unaffected by threat. Rather, they are stable because the individual engages in self-regulatory behavior to maintain the positive belief.

### **Theoretical Implications**

The above findings constitute novel empirical evidence for the assumption that the way we feel and think about ourselves may play an important role in (1) how we evaluate experiences of social rejection, and (2) in whether we are motivated to reconnect afterwards. More specifically, we found evidence for the idea that self-esteem and positive self-beliefs together may form a toolkit to evaluate a person's current relational value—particularly a person's capacity as a mate—and at the same time to motivate compensatory action tendencies. The findings suggest that self-esteem may serve as an affective component of the self that functions as an index of one's relational value; self-beliefs, as positively biased and relatively stable assessments of one's traits and qualities, may serve as a motivator for behavior that promotes social reconnection. In the following, I discuss some of the implications of these findings.

#### ***Sociometer Theory and Domain Specificity***

The findings of the present dissertation have implications for sociometer theory. Given the importance of being accepted, and the disadvantages and dangers of interpersonal exclusion, sociometer theory suggests that people have evolved an internal gauge to monitor whether their relational value is

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high enough to ascertain interpersonal acceptance (Leary & Baumeister, 2000; Leary et al., 1995; for a review, see Leary, 2005).

Presently, it is often discussed whether the sociometer indiscriminately monitors all kinds of social relationships—as has been suggested by Leary’s work—or whether there may be multiple domain- and relationship-specific sociometers (Kirkpartick & Ellis, 2001). Related to the latter assumption, recent research by Anthony et al. (2007) has shown that self-esteem is differently attuned to traits that seem important in particularly salient social roles. The evidence presented in this dissertation suggests that, although there are likely to be functionally specific forms of the sociometer, or, alternatively, different sensitivities of a general sociometer to the salience of roles, it seems useful to distinguish a sociometer for social relationships and a sociometer for the capacity to establish and maintain relationships. For reasons of evolutionary primacy, the domain of mating relationships—and one’s capacity to establish those—is likely to be so important that a threat to this domain overshadows a threat to other domains, irrespective of the role salience or relational context. Extending earlier research on sociometer effects in non-mating relationships, the present results indeed suggest that self-esteem may be especially sensitive to rejection in the mating domain, and especially sensitive to traits that are most important to one’s capacity as a mate. Of course, these results should not be interpreted as saying that friendship does not matter; however, not being able to succeed in friendships does not seem to be so threatening as long as people have an average level of success in mating relationships.

### *Positive Beliefs as an Adaptive Form of Thinking*

It has been proposed that being overly positive about oneself in the light of negative events might be an important form of adaptive thinking (Taylor & Brown, 1988, 1994; Trivers, 2002). By applying an Error-Management framework to positive self-beliefs (Haselton & Nettle, 2006), the present work offers empirical evidence that one of the merits of a positive self-view may lie in its capacity to motivate functional behavior.

A limitation of the current work is that although the results suggest that positive beliefs may be the motivator for functional behavior, it does not provide direct evidence for this causal relationship. Earlier research by Taylor and Gollwitzer (1995) on the relationship between positive beliefs and approach motivation has shown that positive beliefs attenuate when people are in a deliberate mindset and thus in a state of considering potential goals. However, once an individual has selected a certain goal, an implemental mindset emerges together with positive beliefs. This implies that the positive beliefs may be caused by the motivation to fulfill the set goal and not that the positive beliefs precede this motivation. However, this does not rule out the possibility that positive beliefs may be a necessary precondition for actually engaging in pursuing a set goal.

Other research provides additional indication that a positive mindset is necessary for people to actually engage in behavior. Research on motivational processes in the brain implicated that the mesolimbic dopaminergic system may play a role in triggering approach motivation (Denk et al., 2005; Niv, 2007; Tops, 2004). The brain releases dopamine, a neurotransmitter, when an individual expects a reward or obtains an unexpected reward. The general idea is that dopamine-driven processes are functioning in approach motivations towards one's environment, and that

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dopamine is released when people are in a positive mindset. Thus for dopamine to be released and motivate approach, people may need to hold positive beliefs first.

### *Self-Esteem and Self-Beliefs: Two Functionally Distinct Concepts?*

As outlined in the introduction, a recent evolutionary theory proposes that the self is a multidimensional concept which has been composed to match various different functional specializations (Kurzban & Aktipis, 2006; Kurzban & Aktipis, 2007). In their theory, the authors suggest that the self serves a primarily social function, particularly designed to assure social inclusion. According to their view, the self consists of a collection of different subsystems—modules—designed by natural selection to enhance a person's reproductive fitness. These individual systems may have evolved for their functionality and they may be informationally encapsulated, making it possible for two systems to hold mutually exclusive representations. The present finding that self-esteem and self-beliefs react differently to social rejection provides empirical evidence that supports the notion that these concepts may be two distinct specializations of the self that each fulfills a different function in response to social rejection. Self-esteem may serve as an affective component of the self that functions as an index of one's relational value; self-beliefs, as positively biased assessments of one's traits and qualities, may serve as a motivator for behavior that promotes social reconnection.

### **View on Future Research**

As I already mentioned in the previous section, one limitation of the current work is that although I could show a clear relationship between the

maintenance of positive beliefs and approach tendencies, I was not able to show a direct causal link between those two concepts. Even though I think that my theoretical considerations and my evaluation of previous findings support the assumption that positive beliefs motivate approach, further research is needed to provide more evidence for this relationship. Furthermore, future research needs to extend these findings to different social areas (e.g., the workplace), and different beliefs (e.g., being a good colleague). Previous research shows that people possess positive beliefs over a wide array of characteristics (e.g., Alicke, 1985; Alicke & Govorun, 2005; Brown, 1986; Dunning et al., 2004), which suggests that they may also exert their motivational influence over different social areas and beliefs.

Another limitation of the research reported in this dissertation is that I mainly focused on women to prove the link between positive beliefs and approach motivation following rejection. Despite much research on the consequences of rejection, surprisingly little is known on the differences in how men and women cope with experiences of mate rejection. Thus, more work is needed to understand how and when positive self-beliefs affect which motives are activated following rejection. Given the promising results for women, I believe that the present findings certainly encourage future research on this topic.

The current findings could have implications for research pertaining to depressive tendencies. Depression can take many forms and differs widely between individuals in its symptomatic expressions. However, some characteristics seem to be quite common: depressed people often feel sad and show a lack of motivation for undertaking action. At the same time, depressed people, compared to mentally healthy people, hold a more realistic perception of themselves and the control they can exert on their environment (Alloy &

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Abrahamson, 1988; Taylor & Brown, 1988). The present work could offer an explanation for the inactivity observed in people who suffer from a depression. Depression often occurs after people experienced distressing changes in their lives, such as the death of a loved one or a break-up of a meaningful relationship. If people lack positive beliefs pertaining characteristics that seem relevant in the specific distressing incident, it is possible that depressive symptoms and perhaps even more severe forms of depression are brought about by social rejection. The finding that positive beliefs seem to be related to action tendencies and the fact that depressed people seem to lack such self-perceptions points in this direction. However, this conjecture is as of yet speculative, and more research is needed to investigate whether the observed pessimism in depressed people is related to their tendency for being passive.

Finally, this work has implications for social network research. Although the presented work mainly focused on the specific context of rejection in romantic relationships, and the findings suggest that this may be a particularly important relationship domain, this is of course not the only domain wherein rejection occurs. People can also be rejected by their colleagues at the workplace, or even earlier as children by their parents or peers. Generally, the current findings suggest that rejection may not necessarily break a social tie as long as the rejection is not based on an important characteristic for the relational context. If it is based on a relevant characteristic, the current findings suggest that an important question should be whether the person is able to uphold positive beliefs regarding this aspect. If, for example, peers frequently bully a child, the question may be whether the child is able to maintain his positive beliefs about being a good classmate or friend for long without help from others, and subsequently, what the

processes are that help the child to maintain these positive beliefs. It may not only be important that other friends defend the child against being bullied, but also that they help each other in upholding positive beliefs about being a good friend and classmate. By doing so, they may prevent each other from becoming socially isolated. Recent research on parental rejection in early adolescence has shown that peer acceptance partly buffers for negative consequences (e.g., depression) of parental rejection (Sentse, Lindenberg, Omvlee, Ormel, & Veenstra, 2008), which suggests that acceptance by others may indeed help to uphold positive beliefs. Therefore, future research after social network processes may benefit from considering a person's self-evaluations and their possibly social source in assessing implications of network structures and dynamics.

### Conclusion

To conclude, in this dissertation, I aimed to investigate the specific role of the self in social rejection. I tested the idea that self-esteem and positive self-beliefs together may form a toolkit to evaluate a person's current relational value and at the same time to motivate compensatory action tendencies following experiences of rejection. The current findings suggest that self-esteem and self-beliefs may indeed be two distinct functional specializations of the self: self-esteem seems to serve as an affective component that functions as an index especially of one's mate value; self-beliefs seem to serve as a motivator for behavior that promotes social reconnection. Together these findings suggest that next time someone rejects you, even if you feel bad about yourself and reality weighs heavy on you: Choose the blue pill and keep thinking positive!

# Summary

People are creators of their own, sometimes illusionary, perception of themselves and the world they are living in. So have most of us a natural tendency to evaluate ourselves very positively (e.g., Alicke, 1985; Alicke & Govorun, 2005; Brown, 1986; or Dunning, Heath, & Suls, 2004, for an overview). In their prominent review on the merits of positive beliefs, Taylor and Brown (1988, 1994) were among the first to propose that being overly positive about oneself in the light of negative events could be functional. They presented evidence that positive beliefs predict mental health and promote active coping in difficult situations, and Trivers (2002) suggested that self-deception might be an important form of adaptive thinking. However, little attention has been given yet to the question in what ways self-perceptions could be functional in specific negative situations. In this dissertation, I address functional aspects of different self-perceptions in the light of a common and critical negative event: Social rejection.

Social rejection in its many forms is omnipresent in our daily lives. Whether we are applying for a job, choosing a best friend in school, or flirting with someone in a bar, there is always the chance that the other will not reciprocate our wishes. These incidences of rejection can threaten our need to form and maintain social bonds. Forming and maintaining at least a minimum amount of social bonds provides people with important protective and reproductive benefits (Baumeister & Leary, 1995); therefore, being able to detect signs of rejection seems a crucial ability to guide adjustments in our behavior in order to choose the right partners for bonding, or prevent the break of current relationships. If we were not able to detect signs of rejection, we might not be able to learn how to change our behavior as to be socially accepted. Earlier research has shown that people indeed seem to possess an internal gauge that monitors the degree to which they are accepted by others –

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the *sociometer* (e.g., Leary & Baumeister, 2000; Leary et al., 1995; for a review, see Leary, 2005). Yet, this sensitivity to signs of rejection may come at a price: negative feelings triggered by the sociometer may cause a temporary physical and emotional numbness (DeWall & Baumeister, 2006), which may lead to withdrawal instead of active behavioral adjustment. This sensitivity could make people so vulnerable to rejection that not only relationships might break up whenever rejection occurs, but new ones may also not be formed. As this is obviously not what can be observed in reality, where people seem to succeed in forming and maintaining social bonds despite of being frequently rejected, the question comes up what the possible mechanisms might be that prevent such withdrawal and promote active coping after rejection.

In my dissertation, I seek to answer this question by focusing on the role of self-esteem and positive self-beliefs in people's feelings and behavioral tendencies following experiences or threats of rejection. Based on theoretical considerations and previous evidence, I suggest that self-esteem and self-beliefs may be two distinct specializations of the self that each fulfills a different function in response to social rejection. Self-esteem may serve as an affective component of the self that functions as an index of one's relational value; self-beliefs, as positively biased assessments of one's traits and qualities, may serve as a motivator for behavior that promotes social reconnection. If self-esteem and self-beliefs are indeed two distinct functional specializations of the self, they may react differently to social rejection. In situations of social rejection, self-esteem may drop as an index of a change in one's relational value, while self-beliefs remain positive in order to motivate behavior that compensates for the social rejection.

**All you Need is Love:  
Is the Sociometer Especially Sensitive To One's Mating  
Capacity?**

Building on the assumption that mating relationships constitute a supremely important relationship domain, in Chapter 2, I hypothesized that the sociometer (i.e., self-esteem) may be especially sensitive to what we call *capacity rejection* within a mating (versus non-mating) relationship context. Capacity rejection refers to information that one does not have the capacity to form and maintain a certain kind of relationship (say mate or friend). The findings provided evidence that self-esteem indeed functions as a relational monitor that is especially sensitive to one's capacity as a mate, and to the importance of the reasons for the capacity rejection in the mating context. Furthermore, I found indications that self-esteem and beliefs about one's qualities as a mate are two distinct concepts that react differently to rejection: While self-esteem decreased, positive beliefs about the self were maintained, suggesting that feelings and beliefs about the self may be two distinct specializations that each fulfills a different function in response to social rejection.

**Love Thy Self:  
Do Positive Beliefs Predict Social Reconnection Following  
Rejection?**

In the third chapter, I turn to the idea that positive perceptions about the self may function to facilitate approach towards others. Approach motivation is strongly related to positivity (e.g., Tops, 2004; Watson et al., 1999), thus it was

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assumed that keeping positive self-beliefs after having been rejected may be a crucial determinant of whether people are motivated to approach others.

In the experiment reported in this Chapter, I looked at implicit positive beliefs about women's physical attractiveness and implicit tendencies to approach men, following a threat to their value as a mate. I found that women who maintained positive beliefs about their physical attractiveness after rejection on that dimension, were more likely to show approach tendencies towards men. These findings support the idea that positive beliefs foster functional approach following rejection.

### **Believing is Mating: Effect of Mate-Rejection on Self-Esteem, Self-Beliefs, and Mating Behavior**

Even though so the two previous chapters provide evidence for our hypotheses, an obvious question is whether these effects can also be observed in a field setting. In the fourth chapter, I therefore present a field experiment in which reactions to rejection and the role of the self in subsequent behavior were observed. Again, women were the target of my investigation. I tested the idea that self-esteem is a gauge that detects variations in a person's degree of being desired as a mate after contact with a number of potential mates by using a speed-dating paradigm. If self-esteem is indeed a warning device for changes in one's value as a mate, and particularly for signs of possible rejection, I hypothesized that self-esteem would drop if a person detects negative variation in being rejected as a mate. The findings support this hypothesis: women who experienced an unusually high number of rejections subsequently reported a drop in their self-esteem. I could also observe that women indeed maintain their positive beliefs about being physically attractive in the light of rejection, and that changes in women's belief of being physically attractive go together with changes in their willingness to meet potential

mates. These findings support the idea that positive beliefs may play a role in motivating mating efforts.

### **Where have all my Good Deeds Gone? The Effect of Difficulty of Retrieval on Donating Behavior and Positive Self-Beliefs**

The fifth and final empirical chapter differs from the previous ones in that it deals with another domain of relational value and with a different kind of threat to one's relational value. Here, I investigated a self-induced identity threat to one's belief about being pro-social. The two experiments presented in this chapter showed that in situations of a threat to the perception of one's pro-sociality, positive beliefs are maintained by self-regulatory behavior. When people's belief in their own prosociality was threatened, they showed extra prosocial behavior (donating). This provides evidence that positive self-beliefs may be stabilized by self-regulatory behavior.

### **Conclusion**

The above findings constitute novel empirical evidence for the assumption that the way we feel and think about ourselves may play an important role in (1) how we evaluate experiences of social rejection, and (2) in whether we are motivated to reconnect afterwards. More specifically, we found evidence for the idea that self-esteem and positive self-beliefs together may form a toolkit to evaluate a person's current relational value—particularly a person's mate value—and at the same time to motivate compensatory action tendencies. The findings suggest that self-esteem may serve as an affective component of the self that functions as an index of one's relational value; self-beliefs, as positively biased and relatively stable assessments of one's traits and qualities,

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may serve as a motivator for behavior that promotes social reconnection. In conclusion, one could say that next time someone rejects you, even if you feel bad about yourself and reality weights heavy on you: Keep thinking positive!

# Samenvatting

Mensen creëren hun eigen, soms illusionaire, visie over henzelf en de wereld om hen heen. Zo hebben vele mensen een natuurlijke neiging om zichzelf als bijzonder positief te beschouwen (bijv, Alicke, 1985; Alicke & Govorun, 2005; Brown, 1986; Dunning, Heath, & Suls, 2004). Taylor en Brown (1988, 1994) waren met hun bekende schets over de waarde van positieve illusies de eersten die voorstelden dat positief denken over jezelf in het licht van negatieve gebeurtenissen wellicht een functie zou kunnen hebben. Zij presenteerden aanwijzingen dat positieve gedachten kunnen leiden tot mentale gezondheid en actieve zelfredzaamheid in moeilijke situaties. Tot nu toe is er echter nog weinig aandacht besteed aan de vraag op welke wijze zelfpercepties in negatieve situaties functioneel zouden kunnen zijn. In deze dissertatie heb ik daarom gekeken naar de functionele aspecten van verschillende zelfpercepties in het licht van een essentiële en veel voorkomende negatieve gebeurtenis: sociale afwijzing.

Sociale afwijzing in zijn vele vormen is alomtegenwoordig in ons dagelijks leven. Of we nou solliciteren voor een baan, kiezen voor een beste vriend op school, of met iemand in een café flirten, er is altijd de kans dat de ander onze wensen niet beantwoordt. Sociale afwijzing kan onze behoefte bedreigen om sociale bindingen te vormen en te behouden. Het vormen en behouden van tenminste een klein aantal sociale relaties verschaft mensen belangrijke voordelen betreffende veiligheid en voortplanting (Baumeister & Leary, 1995). Daarom is het belangrijk dat mensen in staat zijn om tekens van afwijzing op te merken, zodat we ons gedrag kunnen bijstellen door bijvoorbeeld geschikte partners voor een relatie te kiezen of er voor te zorgen dat huidige relaties worden behouden. Als het ons niet mogelijk zou zijn om

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tekens van sociale afwijzing te ontdekken, zouden we waarschijnlijk niet in staat zijn om te leren hoe we ons gedrag moeten aanpassen om sociaal geaccepteerd te worden. Eerder onderzoek heeft kunnen laten zien dat mensen inderdaad een interne meter blijken te bezitten die controleert in welke mate wij door anderen geaccepteerd worden – de zogenaamde *sociometer* (bijv. Leary & Baumeister, 2000; Leary et al., 1995; Leary, 2005). Deze sensitiviteit voor tekens van sociale afwijzing zou echter ook negatieve gevolgen kunnen hebben. De door de sociometer veroorzaakte negatieve gevoelens zouden een tijdelijke fysieke en emotionele verlamming teweeg kunnen brengen (DeWall & Baumeister, 2006), wat ertoe zou kunnen leiden dat mensen zich terugtrekken in plaats van actief hun gedrag aanpassen. Omdat de realiteit kennelijk anders zit en mensen ondanks regelmatige afwijzing er toch veelal in slagen om sociale relaties te vormen en te behouden, dient zich de vraag aan wat het onderliggende mechanisme is dat ervoor zorgt dat mensen zich niet terugtrekken en dat het actief tegengaan van sociale afwijzing bevordert.

In mijn proefschrift heb ik er naar gestreefd om deze vraag te beantwoorden door me te richten op de rol van gevoelens van eigenwaarde en het geloof in jezelf na (het risico op) sociale afwijzing. Gebaseerd op theoretische beschouwingen en uitkomsten uit eerder onderzoek heb ik voorgesteld dat gevoelens van eigenwaarde en positieve gedachten twee afzonderlijke specialisaties zijn van het zelf, die elk een andere functie heeft in reactie op sociale afwijzing. Gevoelens van eigenwaarde (de sociometer) zouden, als het affectieve gedeelte van het zelf, kunnen dienen als een interne meter van de mate waarin iemand sociaal geaccepteerd wordt. De neiging om (onterecht) positief over je eigenschappen en vaardigheden te denken zou daarentegen gedrag kunnen motiveren dat sociale toenadering na een

afwijzing bevordert. Als gevoelens van eigenwaarde en positieve gedachten over jezelf twee verschillende specialisaties van het zelf zijn, dan zou het mogelijk moeten zijn dat ze verschillende reacties op sociale afwijzing laten zien. In situaties van sociale afwijzing zouden gevoelens van eigenwaarde kunnen afnemen als een indicatie voor een verandering in iemands relationele waarde. Tegelijkertijd zouden positieve gedachten over het zelf moeten blijven bestaan om gedrag te motiveren dat voor de negatieve gevolgen van de sociale afwijzing compenseert (bijvoorbeeld door iemand te motiveren om op zoek te gaan naar nieuwe contacten).

### **Liefde is Alles wat je Nodig Hebt:**

#### **Is de Sociometer Bijzonder Gevoelig Voor Iemands Vermogen als Romantische Partner?**

Voortbouwend op de assumptie dat romantische relaties een bijzonder belangrijk type relatie vormt, is er in Hoofdstuk 2 de hypothese getoetst dat de sociometer (d.w.z., iemands gevoelens van eigenwaarde) bijzonder gevoelig is voor wat we *vermogensafwijzing* noemen, in de context van romantische (versus niet-romantische) relaties. Vermogensafwijzing verwijst naar informatie die impliceert dat men niet het vermogen heeft om bepaald type relaties (zoals vriendschappen of romantische relaties) te vormen en te behouden. De bevindingen duiden erop dat gevoelens van eigenwaarde inderdaad de functie hebben om toezicht te houden op iemands mate van acceptatie, en dat deze sociometer vooral gevoelig is voor iemands vermogen als romantische partner en de redenen voor een eventuele afwijzing. Verder is er gevonden dat gevoelens van eigenwaarde en gedachten over de eigen

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kwaliteit als partner mogelijk twee afzonderlijke concepten van het zelf zijn, die verschillend op vermogensafwijzing reageren: terwijl gevoelens van eigenwaarde afnamen, bleven positieve gedachten over de kwaliteit als partner bestaan. Dit suggereert dat gevoelens en gedachten over jezelf twee afzonderlijke specialisaties van het zelf zouden kunnen zijn, die elk een andere functie vervullen bij sociale afwijzing.

### **Hou van Jezelf:**

#### **Voorspellen Positieve Gedachten Toenaderingsgedrag in Gevolge van Afwijzing?**

In het derde hoofdstuk heb ik me bezig gehouden met de vraag of positieve gedachten over jezelf de functie hebben om toenadering naar anderen te motiveren. Motivatie tot toenadering wordt sterk gerelateerd aan positief zijn (bijv., Tops, 2004; Watson et al, 1999). Daarom heb ik aangenomen dat het behouden van positieve gedachten na sociale afwijzing een bepalende factor zou kunnen zijn voor iemands motivatie om anderen opnieuw te benaderen.

In het experiment dat in dit hoofdstuk gerapporteerd wordt, is er voornamelijk gekeken naar vrouwen die werden afgewezen op hun vermogen als romantische partner. Ik heb gevonden dat vrouwen die impliciete positieve gedachten over hun fysieke aantrekkelijkheid behouden nadat ze sociale afwijzing hadden ervaren, eerder geneigd zijn om mannen opnieuw te benaderen. Deze bevindingen ondersteunen het idee dat toenadering bevorderd wordt door positieve gedachten over het zelf na sociale afwijzing te behouden.

### **Geloven is Flirten:**

#### **Het Effect van Afwijzing als Partner op Eigenwaarde, Positieve Gedachten, en Flirtgedrag**

Ook al hebben de voorgaande twee hoofdstukken bewijs gevonden voor mijn hypothesen, de voor de hand liggende vraag blijft of deze effecten ook terug te vinden zijn in de praktijk. In het vierde hoofdstuk heb ik daarom een veldexperiment opgezet waarin ik heb gekeken naar de reacties op afwijzing als partner en de rol van het zelf in het hierop volgende gedrag. Wederom heb ik me voornamelijk gericht op vrouwen, en is het idee onderzocht dat iemands eigenwaarde een meter is die variatie in iemands waarde als romantische partner waarneemt. Dit is onderzocht door te kijken naar veranderingen in eigenwaarde van vrouwen nadat ze een aantal mogelijke romantische partners hadden ontmoet tijdens een "speed-date" sessie. Als iemands eigenwaarde inderdaad een meter is die gevoelig is voor tekens van mogelijke afwijzing, dan zou iemands eigenwaarde omlaag moeten gaan wanneer er een hoger aantal afwijzingen geconstateerd wordt. De resultaten van deze studie ondersteunen deze aanname: Vrouwen die een opvallend hoog aantal afwijzingen tijdens het daten hadden ervaren, lieten een lagere eigenwaarde zien. We konden ook zien dat vrouwen inderdaad hun positieve gedachten over hun fysieke aantrekkelijkheid bleven behouden, en dat veranderingen in deze gedachten samengingen met veranderingen in hun bereidheid om potentiële romantische partners na afloop van de speed-date sessie terug te zien. Deze bevindingen steunen het idee dat positieve gedachten een rol kunnen spelen in het motiveren van flirtgedrag.

### **Waar Zijn al Mijn Goede Daden Gebleven? Het Effect van de Moeite van het Herinneren op Doneren en Positieve Gedachten over het Zelf**

Het vijfde en laatste empirische hoofdstuk verschilt van de voorafgaande hoofdstukken in dat het zich bezig houdt met een ander domein van sociale waarde en met een ander type van bedreiging. Hier heb ik een zelfteweeggebrachte bedreiging van iemands perceptie als pro sociaal persoon onderzocht. De twee experimenten die in dit hoofdstuk gepresenteerd worden, laten zien dat in situaties waarin iemands perceptie als pro sociaal persoon bedreigd wordt, positieve gedachten behouden en zelf versterkt worden door zelfregulerend pro sociaal gedrag (meer geld doneren). Dit levert bewijs voor de stelling dat positieve zelfpercepties mede door zelfregulerend gedrag in stand worden gehouden.

### **Conclusie**

De hierboven gerapporteerde bevindingen verschaffen nieuw empirisch inzicht in de assumptie dat wat we over onszelf voelen en denken een belangrijke rol zou kunnen spelen in (1) hoe we sociale afwijzing ervaren en evalueren, en (2) of we gemotiveerd zijn om daarna andere mensen te benaderen. Meer specifiek is er dus bewijs gevonden voor het idee, dat iemands gevoelens van eigenwaarde en iemands positieve gedachten over het zelf samen een instrument vormen om iemands sociale waarde—vooral iemands waarde als romantische partner—te evalueren, en tegelijkertijd compenserende gedragingen te bevorderen. De bevindingen doen vermoeden

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dat iemands eigenwaarde fungeert als een op gevoelens gebaseerde component van het zelf, die een index vormt voor iemands sociale waarde. Positief getinte en relatief stabiele gedachten over iemands eigenschappen en kwaliteiten zouden daarentegen kunnen fungeren als beweegredenen voor het benaderen van mensen. Concluderend zou men kunnen zeggen dat de volgende keer dat iemand je afwijst, zelfs als je je slecht over jezelf voelt, en de realiteit zwaar op je schouders drukt: Blijf positief denken over jezelf!



# Zusammenfassung

Menschen kreieren sich oftmals eine eigene, illusionäre Wahrnehmung ihrer Selbst und der Umgebung, in der sie leben. So besitzen viele von uns eine natürliche Tendenz sich als sehr positiv einzuschätzen (siehe z.B. Alicke, 1985; Alicke & Govorun, 2005; Brown, 1986; oder Dunning, Heath, & Suls, 2004, für eine Übersicht). Mit ihrer Abhandlung über die Bedeutung positiven Denkens, waren Taylor und Brown (1988, 1994) die Ersten, die behaupteten, dass positive Selbstbewertung sich selbst betreffend vor dem Hintergrund negativer Ereignisse zweckmäßig sein könnte. Sie präsentierten wissenschaftliche Beweise dafür, dass positiver Glaube in Zusammenhang steht mit geistiger Gesundheit, und dass er eine aktive Bewältigung von schwierigen Situationen unterstützt. Jedoch wurde der Frage, auf welche Weise Selbstwahrnehmungen in negativen Situationen zweckmäßig sein könnten, bis heute wenig Aufmerksamkeit geschenkt. In meiner Dissertation befasse ich mich daher am Beispiel eines alltäglichen und kritischen negativen Ereignisses - der sozialen Abweisung - mit den funktionalen Aspekten verschiedener Selbstwahrnehmungen.

Unterschiedliche Formen der sozialen Abweisung sind in unserem täglichen Leben allgegenwärtig. Ob wir uns für einen neuen Job bewerben, uns in der Schule einen Freund suchen, oder mit jemandem in einer Bar flirten, es besteht immer die Gefahr, dass unsere Wünsche nicht erwidert werden. Solche sozialen Abweisungen können unser Bedürfnis nach sozialen Bindungen bedrohen. Das Formen und Erhalten von schon einer kleinen Anzahl sozialer Bindungen, verschafft Menschen einen wichtigen, schützenden und reproduktiven Vorteil (Baumeister & Leary, 1995). Es erscheint eine äußerst wichtige Fähigkeit zu sein, Anzeichen von sozialer

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Abweisung zu erkennen, um Anpassungen in unserem Verhalten steuern zu können, die dafür sorgen, dass wir uns geeignete Partner aussuchen, oder versuchen die Trennung einer momentanen Beziehung zu verhindern. Würden wir diese Anzeichen nicht erkennen, wären wir wahrscheinlich auch nicht in der Lage zu lernen, wie wir unser Verhalten ändern müssten, um sozial akzeptiert zu werden. Frühere Untersuchungen haben gezeigt, dass Menschen in der Tat ein internes Messgerät zu besitzen scheinen, womit sie überwachen, in welchem Ausmaß sie von anderen akzeptiert werden—den *Soziometer* (z.B. Leary & Baumeister, 2000; Leary et al., 1995; für eine Übersicht siehe Leary, 2005). Jedoch kann solch eine Empfindsamkeit gegenüber sozialer Abweisung auch negative Folgen hervorbringen: Durch den Soziometer ausgelöste negative Gefühle können eine zeitweilige körperliche und emotionale Starre hervorrufen (DeWall & Baumeister, 2006), welche anstelle von aktiver Bewältigung des Problems dazu führt, dass die Person sich zurückzieht. Diese Empfindsamkeit gegenüber sozialer Abweisung könnte Menschen selbst so verletzbar machen, dass nicht nur bestehende Beziehungen auseinander gehen, sondern auch keine neuen Bindungen mehr eingegangen werden. Offensichtlich entspricht dies jedoch nicht unseren Beobachtungen im alltäglichen Leben. Hier scheinen Menschen sehr wohl in der Lage zu sein, soziale Bindungen zu schaffen und zu erhalten, obwohl sie häufig mit sozialer Abweisung konfrontiert werden. Darum stellt sich die Frage, welche Mechanismen dafür verantwortlich sind, dass wir uns in Situationen sozialer Abweisung nicht zurückziehen, sondern uns aktiv damit auseinandersetzen.

In meiner Dissertation versuche ich, diese Frage zu beantworten. Hierbei konzentriere ich mich auf die Funktion unseres Selbstwertgefühls und des positiven Glaubens an uns selbst: Wie schätzen wir soziale Abweisung ein

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und wie verhalten wir uns danach? Auf der Grundlage theoretischer Betrachtungen und vorhandener wissenschaftlicher Erkenntnisse, nehme ich an, dass unser Selbstwertgefühl und unser Glaube an uns selbst zwei unterschiedliche Spezialisierungen unseres Selbstbildes sind, welche in Situationen sozialer Abweisung jeweils eine andere Funktion erfüllen. Unser Selbstwertgefühl könnte als der emotionale Teil unseres Selbstbildes, als ein Indikator unseres momentanen sozialen Wertes fungieren. Der positiv verzerrte und meist stabile Glaube an unsere Eigenschaften und Qualitäten könnte dagegen als Motivator dafür dienen, sich nach sozialer Abweisung wieder neu zu binden. Wenn unser Selbstwertgefühl und unser Glaube an uns selbst tatsächlich zwei unterschiedliche Funktionen einnehmen, dann sollten sie unterschiedliche Reaktionen bezüglich sozialer Abweisung hervorrufen. In Situationen sozialer Abweisung könnte unser Selbstwertgefühl als Zeichen einer Veränderung unseres sozialen Wertes abnehmen; gleichzeitig sollte unser Glaube an uns selbst unverändert bleiben, um so ein Verhalten zu initiieren, welches die soziale Abweisung wieder ausgleicht (z.B. sich entschuldigen, oder einen neuen Freund suchen).

### **Alles was man braucht ist Liebe:**

#### **Ist der Soziometer besonders sensibel im Bereich der Partnerschaft?**

Basierend auf der Annahme, dass (romantische) Partnerschaften eine besonders wichtige Beziehungsdomäne formen, teste ich im zweiten Kapitel die Hypothese, dass der Soziometer (d.h. unser Selbstwertgefühl) im Bereich romantischer Beziehungen (verglichen mit nicht-romantischen Beziehungen)

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besonders sensibel auf sogenannte *Vermögensabweisung* reagiert. Die Vermögensabweisung meint, dass man nicht die Fähigkeit besitzt, eine bestimmte Art der Beziehung (bspw. Als Partner oder Freund) aufzubauen und zu führen. Die Untersuchungsergebnisse zeigen, dass unser Selbstwertgefühl tatsächlich als Messgerät unseres sozialen Wertes fungiert, welches besonders sensibel auf unsere Bedeutung und Eigenschaft als romantischer Partner reagiert. Des Weiteren gibt es Anzeichen dafür, dass unser Selbstwertgefühl und unser positiver Glaube an unsere Qualität als Partner zwei unterschiedliche Komponenten unseres Selbstbildes sind, welche andere Reaktionen auf soziale Abweisung aufweisen: Während unser Selbstwertgefühl abnimmt, behalten wir den Glauben an unsere Qualität als Partner bei. Dies weist darauf hin, dass Gefühle über und Glaube an uns selbst zwei unabhängige Spezialisierungen sind, welche jeweils eine andere Funktion als Reaktion auf soziale Abweisung einnehmen.

### **Liebe dich selbst:**

#### **Prophezeit unser Glaube an uns selbst soziale Annäherung als Reaktion auf Abweisung?**

Im dritten Kapitel befasse ich mich mit der Frage, ob positiver Glaube an uns selbst die Funktion hat, soziale Annäherung zu fördern. Die Motivation zur Annäherung ist eng verbunden mit positiver Einstellung (z.B., Tops, 2004; Watson et al., 1999). Deshalb nehme ich an, dass das Erhalten von positivem Glauben an sich selbst nach einer Abweisung ein bestimmender Faktor sein kann hinsichtlich der Frage, ob Menschen motiviert sind, sich erneut sozial anzunähern.

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Das in diesem Kapitel beschriebene Experiment untersucht einerseits den impliziten positiven Glauben von Frauen an ihre körperliche Anziehungskraft, und andererseits ihre impliziten Tendenzen, sich Männern zu nähern, nachdem ihr Wert als Partner bedroht wurde. Dabei konnte festgestellt werden, dass Frauen welche weiterhin an ihre körperliche Anziehungskraft glaubten eher geneigt waren, sich Männern anzunähern, obwohl sie zuvor aufgrund ihrer Attraktivität abgewiesen wurden. Diese Resultate unterstützen die These, dass ein positiver Glaube an seine Qualitäten funktionale soziale Annäherung fördert.

### **Glauben ist Paaren:**

#### **Der Effekt von Partnerabweisung auf das Selbstwertgefühl, den Glauben an uns Selbst und Paarungsverhalten**

Obschon die bisherigen Studien meine Hypothesen unterstützen, bleibt die naheliegende Frage, ob diese Effekte auch in der Praxis zu beobachten sind. Im vierten Kapitel beschreibe ich daher ein Feld-Experiment, in dem ich die Reaktionen unseres Selbstwertgefühls und die Rolle unseres positiven Glaubens an uns selbst und das daraus resultierende Verhalten untersucht habe. Anhand einer weiteren Untersuchung mit Frauen, die nach einer *Speed-Date* Veranstaltung von einigen potentiellen Partnern abgewiesen worden sind, wurde die These überprüft, ob das Selbstwertgefühl ein Messgerät ist, welches Unterschiede im Partnerwert feststellen kann. Wenn unser Selbstwertgefühl wirklich eine Warnvorrichtung für Veränderungen in unserem Partnerwert darstellt, dann sollte es abnehmen, wenn wir eine ungewöhnlich hohe Anzahl sozialer Abweisungen feststellen. Die Resultate

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dieser Untersuchung stützen diese Annahme: Frauen, die ungewöhnlich oft von Männern abgewiesen werden, zeigen eine Abnahme ihres Selbstwertgefühls. Des Weiteren konnte ich beobachten, dass Frauen ihren positiven Glauben an ihre körperliche Anziehungskraft beibehielten, und dass wenn eine Veränderung dieses Glaubens eintritt, diese auch eine entsprechende Veränderung bezüglich der Bereitschaft, potentielle Partner nach dem Speed-Date wieder zu treffen, hervorbringt. Diese Befunde unterstützen die Annahme, dass positiver Glaube Paarungsbemühungen motiviert.

### **Wo sind meine guten Taten geblieben?**

#### **Der Effekt der Schwierigkeit des Erinnerns auf die Bereitschaft Geld für einen guten Zweck zu spenden und unseren Glauben an uns Selbst**

Das fünfte und letzte empirische Kapitel unterscheidet sich von den vorherigen dadurch, dass es einen anderen Bereich des sozialen Wertes und eine andere Art der Bedrohung betrifft. Hier habe ich eine selbstverursachte Bedrohung der Identität, basierend auf dem Glauben, eine soziale Person zu sein, untersucht. In den zwei Experimenten, welche in diesem Kapitel beschrieben werden, wurden Personen gefragt sich an eine große (eine schwierige Aufgabe) oder eine kleine (eine einfache Aufgabe) Anzahl ihrer vergangenen guten Taten zu erinnern. Frühere Untersuchungen konnten feststellen, dass obwohl bei der schwierigen Aufgabe eigentlich mehr Erinnerungen generiert werden, es doch so ist, dass Menschen ihr Urteil auf die Leichtigkeit der Erinnerung basieren (Schwarz et al., 1991), also bei der

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schwierigen Aufgabe dazu tendieren sollten sich selbst als wenig sozial oder wohl­tätig zu beurteilen. Die Ergebnisse meiner Studie zeigen, dass in Situationen, in welchen jemand's sozialer Wert bedroht wird durch die Schwierigkeit des Erinnerns an seine eigenen soziale Taten, der Glaube an seinen eigenen sozialen Wert jedoch beibehalten und sogar durch zusätzliches prosoziales Verhalten verstärkt wird. Dies beweist, dass die Stabilität des Glaubens an den eigenen sozialen Wert durch selbst-regulierendes Verhalten stabilisiert wird.

## Schlussfolgerung

Die hier präsentierten Untersuchungsergebnisse bieten neue wissenschaftliche Erkenntnisse hinsichtlich folgender Annahme: Wie wir uns fühlen und was wir über uns denken, spielt eine wichtige Rolle für (1) wie wir Erfahrungen sozialer Abweisung bewerten, und (2) ob wir motiviert sind, uns sozial wiederanzunähern. Speziell habe ich darüber Erkenntnisse gewonnen, dass unser Selbstwertgefühl und unser positiver Glaube an uns selbst gemeinsam ein Instrument bilden, welches den aktuellen sozialen Wert—und besonders den Wert als romantischen Partner—misst. Gleichzeitig werden kompensierende Verhaltensweisen motiviert. Die Resultate lassen vermuten, dass unser Selbstwertgefühl, als emotionaler Teil unseres Selbstbildes einen Indikator für unseren momentanen sozialen Wert darstellt. Der positiv verzerrte und meist stabile Glaube an unsere Eigenschaften und Qualitäten scheint dagegen soziales Wiederannähern zu motivieren. Schlussfolgernd lässt sich sagen: „Wenn Du beim nächsten Mal abgewiesen wirst, selbst wenn Du Dich sehr schlecht fühlst und die Realität schwer auf Deinen Schultern lastet: Glaube an dich!“



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# Curriculum Vitae

I was born on October 20th, 1977 in Kleve (Germany), shortly before the evening news – so they could spread the message right away. After I finished my secondary-school exam in Germany, I moved to the Netherlands and studied Psychology at the Radboud University in Nijmegen, where I graduated in Social Psychology at the end of 2003. Next to my study, I worked as a research assistant for the Language Comprehension Group at the Max-Planck Institute for Psycholinguistics, also in Nijmegen, until I started as a PhD student at the ICS/Department of Sociology at the University of Groningen in 2004. The research that I reported in this book is the result of my work there. I sincerely hope that you found reading it worth your time. Thank You! Jessica

