

HOW COMMUNICATION AFFECTS THE MINDS  
OF SENDERS AND RECIPIENTS:  
EFFECTS OF COMMUNICATIVE ROLES  
ON STEREOTYPES, PREJUDICE, AND BEHAVIOR

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# How communication affects the minds of senders and recipients: Stereotypes, prejudice, and behavior

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*to my parents*



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## CHAPTER 1

# General Introduction



“When we were still small children, my brother and I sometimes spent the weekend with our grandparents, who always spoiled us very much. They allowed us all the things that our parents never would have condoned, like eating as much candy as we wanted to. They also bought us presents, and took the time to walk with us through the forest, or to tell us fairy tales.”

Suppose someone told you this story, how would this affect your impression of elderly people? Would this description of typical elderly behavior let you agree more with elderly stereotypes? Or would it not at all change the way you perceive elderly people? And what if you had been the storyteller yourself? If you had told this story about your grandparents, would this have strengthened your stereotypes about elderly people?

Providing answers to these questions is the goal of the present dissertation. Specifically, we will investigate how the roles of sender and recipient in interpersonal communications about members of social groups affect the activation of stereotypes and prejudices about these groups. We do not argue that such short communications as the one about the kind grandparents (which is an actual description of typical elderly behavior written by one of our participants) lead to long-term changes in the use of stereotypes and prejudices. Rather, they may cause spontaneous fluctuations in the accessibility of related concepts, so that the strength of stereotype activation and prejudices may vary. Several studies have revealed that this activation is by no means an inevitable and fixed process, but that it may change due to situational or individual factors (see Blair, 2001).

It is important to note that we will not explore the relation between communication and stereotypes or prejudice by focusing on the content of the message, as is done in research on the Linguistic Intergroup Bias and the Linguistic Expectancy Bias (Maass, 1999; Wigboldus & Douglas, 2007). Instead, we will explore whether the communicative roles of sender and recipient differentially affect the intrapersonal, cognitive consequences of communicative acts.

## Introduction

Communication can undoubtedly be regarded one of people’s most important daily activities, since they spend a considerable amount of their time interacting with one another, thereby exchanging a host of information. People share their ideas about virtually everything, from how they feel, to their weekend activities, or their opinion about their government. Besides these differences in content, communication can also take different forms, from trivial small talk to persuasive statements. This dissertation focuses on how generating or receiving a message about the behavior of a member of a specific group contributes to the maintenance or negation of stereotypes and prejudice.

Obviously, the primary function of communication is to pass information on to another person, either because senders simply want to share a certain piece of information, or because they want to influence recipients. When this information concerns other people or groups of people, often times stereotypes and prejudices come into play. In this dissertation, it is investigated to what extent the roles of sender

and recipient affect people's cognitive responses. Do senders inadvertently convince themselves of their own point of view by telling it to someone else? Are senders correct in assuming that recipients take over this impression? We will answer these questions by measuring senders' and recipients' stereotype accessibility and prejudices, as well as their behavioral tendencies towards a member of the target group.

In past research, the term sender has been used both for participants who passed on self-generated information (e.g. Gordijn, Postmes, & de Vries, 2001) as well as for those who passed on other-generated information (e.g. Janis & King, 1954). In our studies, senders always generated their messages themselves, and their messages concerned true events that they themselves had witnessed. Moreover, each sender's message was communicated to just one recipient within a yoked design. This offered the opportunity to measure the reactions of senders and recipients within one paradigm, which enabled us to hold the content of the messages constant between senders and recipients. Moreover, this method closely resembles real life interpersonal communications, where senders formulate their own messages, which are then communicated to recipients.

The remainder of this introduction will provide the theoretical background for the studies presented in the following chapters. First, we will review research that demonstrates the flexibility of not only the application, but also the activation of stereotypes and prejudice. Whereas the application of stereotypes and prejudice was traditionally considered to be under the individual's control, their activation was suggested to be automatic and inevitable (Bargh, 1999; Devine, 1989). If this were the case, it would be useless to explore how communicative roles may shape this process. Therefore, we will describe research on the relation between people's motives and the strength of the activation of stereotypes, and we will explain how this relates to our studies.

Next, processes that are assumed to affect senders and recipients are discussed separately. We will argue that stereotype accessibility and prejudice depend on people's communicative roles, which are affected by different processes, and that senders will therefore respond in a different way than recipients.

Before closing this introduction by outlining the studies that will be presented in detail in chapters 2 and 3, we will explain why we used indirect<sup>1</sup> measures of stereotype accessibility and prejudice as dependent measures instead of explicit ones, as has usually been done in research on the relation between communication and stereotyping or prejudice.

## Flexibility of Stereotypes and Prejudice

People frequently rely on existing stereotypes and prejudices when judging others (Banaji, 2001). Partially, they do so for the sake of efficient information processing (Macrae, Milne, & Bodenhausen, 1994; Macrae, Stangor, & Milne, 1994). Theoretically even more important is the finding that people's stereotypes and prejudices can operate automatically, that is outside people's awareness, without their intention, and even outside of their control. Because of this automaticity, for a long time the activation

<sup>1</sup> Following the reasoning by De Houwer (2003) and Fazio & Olson (2003), we decided to use the term indirect measures instead of implicit measures.

of stereotypes and prejudices was considered a fixed and inevitable process (Bargh, 1999; Devine, 1989).

Although this argumentation sounds plausible, evidence from a large body of reaction times experiments suggests that the activation of stereotypes and prejudice is, to the contrary, rather flexible (see Blair, 2001). They have been shown to be shaped by the motives, the focus of attention, and specific strategies of the perceiver, as well as by features of the situation and characteristics of the target person. Below, we will elaborate on the effects of individuals' motives, because they are crucial for the studies presented in chapters 2 and 3.

## **Individuals' Motives**

Blair (2001) divided the motives of the perceiver into those that serve a positive self-image and those that help to attain social goals. Concerning self-image motives, psychologists have identified the need for positive self-esteem as especially important (Baumeister & Leary, 1995; Leary & Baumeister, 2000; Solomon, Greenberg, & Pyszczynski, 1991), and this need has been demonstrated to affect the activation and application of stereotypes and prejudice in a way that allows perceivers to gain higher self-regard (Fein & Spencer, 1997; Sinclair & Kunda, 1999; Spencer, Fein, Wolfe, Fong, & Dunn, 1998). For instance, Fein and Spencer (1997) argued that stereotyping and prejudice play a role in the maintenance of self-esteem. They found that participants were more likely to derogate members of stereotyped groups after their self-esteem had been threatened rather than bolstered. Moreover, derogation mediated the subsequent increase in participants' self-esteem.

Concerning social motives, Blair (2001) discussed social tuning, effects of social roles, and compliance with a majority. As an example of the last process, Sechrist and Stangor (2001) found that participants who had learned that their racial stereotypes were shared by most of their peers exhibited more automatic race stereotypes than those who had learned that most of their peers disagreed with them.

Aside from the impact of these personal motives on the activation of stereotypes and prejudice, we argue that two other motives may affect people's stereotypes and prejudice within a communication. Senders may want to persuade recipients of their own point of view, whereas recipients may be motivated to defend their independence of forming their own impressions. How these motives may shape senders' and recipients' cognitive responses will be described in the following.

## **Processes That Influence Senders**

### *Accessibility of Stereotypes*

When describing an event, senders have to retrieve the relevant information from memory. As research on retrieval-induced forgetting (Anderson, Bjork, & Bjork, 1994)

has demonstrated, this can impair memory for related but non-retrieved information concerning the event relative to unrelated information. This effect may occur either because the related information is inhibited (Anderson & Spellman, 1995; Veling & Van Knippenberg, 2004), or because it is blocked by the highly activated rehearsed information (Anderson & Neely, 1996). Since related information can also consist of facts that are the opposite of the retrieved information, sending a message that contains counterstereotypic information should decrease stereotypic associations, whereas sending a message with stereotypic content is predicted to lead to less counterstereotypic thoughts. Building on the same argument, Dunn & Spellman (2003) reported that participants showed decreased memory for individuating information after they had rehearsed stereotypic descriptions and vice versa.

The accessibility of an event can also be increased by mental imagery (Carroll, 1978; Gregory, Cialdini, & Carpenter, 1982). Subsequently, the higher accessibility can cause higher ratings of the probability that the event will happen. This process may also play a role in person perception (Blair, Chapleau & Judd, 2004). In case that the imagined event contains a person's behavior, it can be expected that this behavior gets more accessible, too. The same may be true for the derived characteristics of the actor, which may be more or less stereotypic, and which might therefore lead to enhanced or reduced accessibility of stereotypes.

Communication can also affect the organization of information. Most relevant for the present experiments are findings from research on cognitive tuning (Zajonc, 1960), which has demonstrated that the anticipation of the role of sender or recipient strongly influences this organization. We will first describe the effects of expecting to send a message. We will elaborate on the consequences of receiving a message in the section on processes that influence recipients. According to Zajonc (1960), senders activate cognitive structures that are functional to their communicative role. Since senders' task is to convey a comprehensible impression of the described event, they are supposed to try and form a clear image for themselves, which leads to an integration and unification of the available information. Guerin and Innes (1989) concluded that this leads to a more unified and distorted person perception. Information that may challenge the formed impression is usually neglected or discounted, so that the impression can stay intact. Thus, passing on stereotypic or counterstereotypic information should also lead to convergent impressions of the groups involved for senders themselves.

### *Communication and Prejudice*

Senders of a message have the strong tendency to convince themselves of the advocated opinion. For instance, research has shown that they find self-generated arguments more convincing than those offered by others (Boninger, Brock, Cook, Gruder, & Romer, 1990). But the effect goes even farther. It seems that senders do not even have to generate the arguments themselves if a stronger conviction of the advocated position is to result. It suffices to merely pass on arguments that were formulated by someone else, even if these arguments support a standpoint that opposes the sender's personal opinion. In a study by Janis & King (1954), participants' attitudes concerning three

different topics were measured. In a follow-up session, they were given arguments that plead for a position that opposed their own one. Participants read the arguments for all three topics, but they gave an oral presentation of these arguments for only one topic, whereas they listened to someone else's presentation of the other topics. More attitude change in the direction of the counterattitudinal arguments was measured when participants had given a presentation compared to when they had only listened to someone else's presentation.

Higgins and Rholes (1978) applied this principle to person perception by showing how describing another person to someone else can influence the attitude of the sender towards this person. After participants had been given ambiguous information about a man, they described him to someone who supposedly liked or disliked him. Not only were the descriptions more favorable when the man was liked by the recipient, but so were senders' attitudes towards him.

Two more general processes, which have not been developed within communication research, may also come into play when senders describe the behavior of a person to someone else, namely self-perception and cognitive dissonance. We will explain both processes and their potential effects one after the other.

Often times people infer what they think or how they feel from their own behavior. The more diffuse their inner states are, the more they seem to rely on their own actions in order to interpret them (Bem, 1967). Therefore, self-perception can cause changes in senders' attitudes, especially if these attitudes are weak ones (Chaiken & Baldwin, 1981; Holland, Verplanken, & Van Knippenberg, 2002). People's attitudes may be weak and diffuse with regard to at least some social categories, so that self-perception effects may gain impact on the sender of a message that describes someone in positive or negative terms. Providing a positive or negative description of a member of a target category could then lead to a corresponding attitude. For instance, Sedikides (1990) described how this can influence the sender's own attitude, even up and above priming effects. Sedikides primed senders with positive or negative traits. Moreover, he asked them to read an ambiguous description of a person. Next, participants passed this description on to someone who supposedly liked or disliked this person, or who had a neutral attitude. After passing the description on to a neutral recipient, senders' subsequent attitude towards the described person was congruent with the valence of the primed traits. But when senders believed that recipients liked or disliked the target person, senders adjusted the description of that person accordingly, and along with it senders' attitude changed in the same direction.

Cognitive dissonance theory (Festinger, 1957) makes identical predictions as self-perception theory, but proposes a different mechanism that brings about attitude change. Cognitive dissonance theory suggests that attitude-inconsistent behavior can arouse tension in an individual, which may be reduced by changing one's attitude so that it corresponds with one's behavior (Festinger & Carlsmith, 1959). Both theories have been shown to be valid, but to apply in different situations. When behavior and attitudes are highly discrepant, cognitive dissonance may arise. When the discrepancy is smaller, self-perception offers a better explanation for people's behavior (Fazio, Zanna, & Cooper, 1977).

In conclusion, the reviewed evidence leads to the prediction that senders will assimilate towards the content of the message. A stereotypic description should lead to more stereotype activation than a counterstereotypic one, and a positive description should result in a more positive attitude than a negative one.

## Processes That Influence Recipients

### *Accessibility of Stereotypes*

We have argued so far that senders are driven by the motive to convince recipients of their point of view, and that trying to influence recipients ultimately makes senders believe more strongly in their standpoint themselves. Turning to recipients, we suggest that their reactions are determined by a completely different motive, namely the motive to defend their individual independence. A message like the one about the grandparents at the beginning of this chapter may evoke the impression in recipients that the sender wants to influence their view of certain people or groups of people, in this case of elderly people. According to psychological reactance theory (Brehm & Brehm, 1981), people want to think, act, and feel as they themselves want to. Whenever they perceive a threat to this freedom, they are predicted to become motivated to defend their independence. As a result, they will change their behavior in the opposite direction as intended by the person who tried to influence them. Applied to the relation between communication and the activation of stereotypes, this means that a message that depicts a person in stereotypic ways will lead to less stereotype activation than one that conveys a counterstereotypic impression. Thus, compared to senders, recipients are predicted to activate elderly stereotypes to a smaller extent after having received the story about the grandparents at the beginning of this chapter, i.e. they will show a contrast effect.

Yzerbyt, Coull, and Rocher (1999) demonstrated that contrast can occur as a consequence of receiving counterstereotypic information. According to these authors, stereotypes are relatively robust, because they allow efficient information processing (Fiske, 1998; Macrae et al., 1994; Von Hippel, Sekaquaptewa, & Vargas, 1995). Yzerbyt et al. (1999) presented participants with a counterstereotypic description of a computer engineer. Half of the participants processed this counterstereotypic information while they were kept cognitively busy, whereas the other half was not. Without load participants activated stereotypes about computer engineers in general more strongly, but not of the described one, because they were able to discard this person as an atypical computer engineer. They could not deny that this specific person behaved in an atypical way, but they could categorize him as atypical, thereby keeping the stereotype of computer engineers in general intact. Participants who had been put under load, however, did not have enough processing capacity to construe this computer engineer as an exception, and therefore they activated stereotypes to a smaller degree.

Yzerbyt et al. (1999) only analyzed reactions to counterstereotypic information, leaving open the question whether these results could be reproduced with stereotypic



information. Although stereotypes are functional, because they enable quick information processing, their use can also be problematic. Besides potentially evoking disapproving reactions from others, stereotyping can even cause negative self-directed affect in perceivers themselves, because using stereotypes may conflict with important personal values (Devine, Monteith, Zuwerink, & Elliot, 1991). We believe that people can be motivated prevent these negative outcomes. It follows that they should also dismiss a stereotypic description of a target person and suppress stereotypes.

### *Communication and Prejudice*

As we have already noted in the section on senders, cognitive tuning also plays an important role for recipients during interpersonal communications. According to Zajonc (1960), recipients activate cognitive constructs that are different from those activated by senders, because they have to fulfill a different task than senders. Whereas the latter must try to convey a comprehensible impression, recipients must try to integrate and understand this information. Therefore, they have to remain mentally flexible, which makes them more vulnerable to external influences. However, when recipients realize that the information challenges their own opinion, they are predicted to try and defend it. Instead of staying open-minded, they dismiss all information that poses a threat to their attitude. Instead, they become more convinced of their own attitude. Thus, the organization of information resembles that of senders, but the content opposes it.

To summarize, recipients' stereotypes and prejudices are predicted to contrast away from the content of the message. A stereotypic description is predicted to lead to less stereotype activation than a counterstereotypic one, and a positive description is predicted to result in a more negative attitude than a negative one.

## **Assessing the Cognitive Consequences of Communication With Explicit or With Indirect Measures**

People's stereotypes and prejudices can generally be measured with two classes of devices, namely with explicit or with indirect measures. Explicit measures usually are questionnaires that ask people to what extent they agree with certain statements concerning their endorsement of stereotypes or prejudices (McConahay, 1986; Swim, Aikens, Hall, & Hunter, 1995). Although for decades, questionnaires were the primary method to assess participants' inner states, responses to these measures may be flawed for several reasons. One reason may be that people conceal their true thoughts, because stereotypic and prejudiced reactions are seen as socially undesirable (McConahay, 1986). However, they may not only try to hide their stereotypes and prejudices from others, but also from themselves. People with genuine egalitarian convictions may resist acknowledging these thoughts to themselves (Dovidio & Gaertner, 2004). Finally, people's associations between certain groups and specific characteristics or affective reactions may be unconscious, so that they may simply be unaware of them (e.g. Greenwald, McGhee, & Schwartz, 1998). Therefore, researchers have plead for the

development and use of indirect measures, which are able to assess more implicit aspects of stereotypes and prejudices (Fazio, Jackson, Dunton, & Williams, 1995). Moreover, indirect measures should be less prone to faking, and more sensitive to spontaneous, short-term changes in the structure of individuals' stereotypes and prejudices.

Indirect measures usually build on one of two methodological principles. The first principle suggests that participants must be forced to react so fast on the target stimuli that conscious control of the response becomes very hard, if not impossible. This principle forms the basis for reaction time procedures (De Houwer, 2003; Fazio et al., 1995; Greenwald et al., 1998; Macrae et al., 1994; Nosek & Banaji, 2001). According to the second principle, one must conceal the relation between the independent and the dependent variable, like in word stem completions (Gilbert & Hixon, 1991). The rationale behind this idea is that participants will not be able to adjust their behavior accordingly, when they cannot recognize what is manipulated and how this affects subsequent measurements. Therefore, reactions on indirect measures are expected to be less subject to social desirability effects than those on explicit measures (Fazio et al., 1995). Moreover, Steffens (2003) has demonstrated that the former are indeed less prone to faking than the latter.

Although it is known that participants will not readily report their true thoughts when asked for in a straightforward way, research on the relation between communication and social cognition has usually relied on explicit measures (Bohner, Ruder, & Erb, 2002; Chen, Reardon, Rea, & Moore, 1992; Roskos-Ewoldsen, Bichsel, & Hoffman, 2001). Findings from these studies suggest that the default response to communicative acts is assimilation for both senders and recipients. Thus, after the communication, senders and recipients were found to be more in favor of the advocated position.

We used indirect measures in the current experiments in order to reduce the influence of two potentially biasing processes on participants' spontaneous responses, namely social desirability effects and the recollection of long-term beliefs. Because of social desirability considerations, participants may not report their true convictions on explicit measures. The reduced controllability of responses on indirect measures limits this possibility. Experimental results can also be biased when participants report their genuine explicit beliefs. Responding to explicit measures offers participants the opportunity to recollect their long-term attitudes, which may be relatively stable and resistant to change. Researchers who are interested in spontaneous changes in participants' beliefs may be better advised to use indirect measures, because they may be better suited to detect these changes (see Blair, 2001). Their procedures force participants to react more on momentary impulse, so that they are not able to deliberate about their response.

## **Overview of the experiments**

The following two chapters will present seven experiments that investigated the cognitive consequences of sending or receiving a message that is relevant to stereotypic or prejudiced impressions of specific people or groups of people.

Chapter 2 focuses on the activation of stereotypes. In Experiment 2.1, participants wrote (senders) or read (recipients) two short but true stories about a Moroccan, who behaved either stereotypically or counterstereotypically. Moroccans are a significant ethnic minority in The Netherlands, and because perceivers generally do not want to be considered racist (Dovidio & Gaertner, 2004), they usually control stereotypes. Stereotype activation was measured with a lexical decision task.

In Experiment 2.2, the main character in the stories was an elderly person. We wanted to examine whether the results from Experiment 2.1 would generalize to a less socially undesirable stereotype, and stereotyping elderly people is tolerated more than stereotyping members of ethnic minorities. Stereotype activation was determined within a pre- and post-measurement design, in which participants took the first lexical decision task prior to writing or reading a message, and the second thereafter.

Both Experiment 2.1 and 2.2 measured stereotype activation with a lexical decision task. Therefore, the main goal of Experiment 2.3 was to replicate the findings from these experiments with a different measure, namely a false memory task. Moreover, we asked participants to write or read a message about a woman.

The goal of Experiment 2.4 was to elucidate the processes behind the reactions of recipients. Participants read the same stories as in Experiment 2.3 while they were or were not put under cognitive load.

The subject of chapter 3 will be the effect of communicative roles on prejudice and on related behavioral tendencies. In Experiment 3.1 participants wrote or read two short but true stories about an elderly person, who behaved positively or negatively. Attitudes towards elderly people were assessed with an implicit association test (Greenwald et al., 1998).

Experiment 3.2 resembled Experiment 3.1, except that this time reaction times on an affective priming task (Fazio et al., 1995) were used as dependent variable.

Experiment 3.3 investigated the effects of communication on behavior. After participants had written or read positive or negative stories about a German, they were asked to take a seat in the waiting room, where another – German – participant was already waiting. Seating distance towards this participant was measured as an indication of participants' tendency to approach or avoid this person.

Please note that there exists some overlap between the following chapters, since the empirical chapters (chapters 2 and 3) were written independently of each other and of the rest of this thesis.



## CHAPTER 2

# **How Communication Affects the Minds of Senders and Recipients: Opposite Consequences for Stereotype Activation**



## Introduction<sup>2</sup>

Communication is an integral part of life. For most, if not all, species it serves an important survival function (Oller & Griebel, 2004). It enables them, for example, to signal danger, and to secure that their basic biological needs are satisfied. Human communication is, of course, especially rich, and it is used to express a great range of information, needs, goals, and emotions (Anderson & Patrick, 2004). The main tool humans use to this end is language, and from a psychological perspective, one of the most important functions of human language is to convey information about other people or groups of people.

A central theme in research on intergroup relations has been the use of stereotypes (Allport, 1954; Blair, 2001; Bodenhausen, 1988; Macrae, Milne, & Bodenhausen, 1994), and it has repeatedly been shown that communication plays an important role in the transmission and maintenance of stereotypes (Maass, 1999; Maass, Milesi, Zabbini, & Stahlberg, 1995; Wigboldus, Semin, & Spears, 2000; Wigboldus, Semin, & Spears, 2006). However, whereas these experiments focused primarily on the communicative consequences for recipients, the present investigation aimed to also elucidate potential consequences for senders, and to compare them with those for recipients. We consider such a comparison important, because communication may not only be involved in the transmission of stereotypic impressions to recipients, but also in the maintenance of senders' stereotypic beliefs (Karpinski & Von Hippel, 1996). It is also conceivable that the effects on recipients are not always as straightforward as is usually assumed. Communication can take many forms, and each might have differential effects on senders and recipients. We examined the consequences of one form of communication, namely the description of a person who behaved (counter)stereotypically. We consider it worthwhile to clarify the exact influence of different forms of communication, and the present studies contribute to our understanding of this question.

We employed a communication paradigm that allowed senders to formulate their own messages, which were then passed on to recipients, thereby keeping the content of the messages constant. The goal of the present experiments was to explore the consequences of a stereotypic or counterstereotypic message about a member of a social category for senders' and recipients' stereotype activation with respect to this category.

From the existing literature, one can derive the hypothesis that these consequences would be identical for senders and recipients, as well as that they would have opposite consequences. Supporting the former view, research on priming effects has shown that passive processing of constructs can influence subsequent thought and action (Bargh, Chen, & Burrows, 1996; Dijksterhuis, Spears, Postmes, Stapel, Koomen, Van Knippenberg, & Scheepers, 1998). Moreover, research on the Linguistic Expectancy Bias (Maass, 1999; Maass et al., 1995; Wigboldus et al., 2000; 2006) has demonstrated that communication can lead to stereotype perpetuation through subtle and unconscious biases in linguistic abstraction (Semin & Fiedler, 1991). Stereotypic behavior is usually described more abstractly than counterstereotypic behavior, and

<sup>2</sup> The present chapter is based on Mooren, Van Knippenberg, & Wigboldus, (2007a).

because higher abstraction implies that the behavior reflects stable characteristics of the actor, stereotypes are sustained. Although Wigboldus et al. (2000; 2006) showed that recipients of a message are able to infer the implications of linguistic abstraction, the mere inference of the different meanings implied by linguistic abstraction does not necessarily mean that recipients also activate the respective stereotypes.

Maybe the most basic psychological process that could cause opposite outcomes for senders' and recipients' stereotype activation is psychological reactance (Brehm & Brehm, 1981). People usually value their individual freedom to act, think, and feel like they want to. When they perceive a threat to this freedom they are motivated to re-establish it, and one such threat can be the conviction that one is being manipulated. It is conceivable that this impression also arises when someone else tells a story that clearly conveys a (counter)stereotypic image of a certain group. Reactance might then even lead to ironic effects, such that a stereotypic message results in less stereotype activation for recipients than a counterstereotypic one.

Yzerbyt, Coull, and Rocher (1999) demonstrated that this ironic effect can follow the reception of counterstereotypic descriptions. They argued that people generally resist adjusting their stereotypes, because these are functional tools for information processing (Fiske, 1998; Macrae et al., 1994; Von Hippel, Sekaquaptewa, & Vargas, 1995). The authors confronted their recipients with a counterstereotypic description of a computer engineer. Moreover, half of the participants were put under load while processing the information, whereas the other half was not. Participants in the no load condition formed more stereotypic impressions of the target category, but not of the target person. This was due to their ability to construe the target person as an atypical member of the category. They could not deny that stereotypes did not apply to this specific person, but by subtyping him as atypical, the stereotype of the category as a whole was kept intact. On the other hand, participants who had been put under load did not have enough capacity to perceive him as an exception, and therefore their impressions of the target group were less stereotypic.

The question remains whether this effect can be replicated for the reception of stereotypic messages. Besides being functional for efficient information processing, using stereotypes also has its drawbacks. One could be considered superficial or, in the case of ethnic stereotypes, racist, or one could experience negative self-directed affect, because using stereotypes conflicts with important personal values (Devine, Monteith, Zuwerink, & Elliot, 1991). People could be motivated to prevent these negative outcomes of using stereotypes as much as they value the benefits of relying on category information. It follows that they should also dismiss a stereotypic description of a target person and inhibit or suppress stereotypes. We therefore expect that recipients' stereotype activation will contrast away from the content of the message. Stereotypes are predicted to be activated more strongly after a counterstereotypic message than after a stereotypic one.

Analyzing the processes that might affect senders leads to a completely different prediction. For example, retrieval-induced forgetting (Anderson, Bjork, & Bjork, 1994) might decrease stereotypic associations for senders of counterstereotypic messages, and counterstereotypic associations for senders of stereotypic messages. Research on



retrieval-induced forgetting has consistently shown that rehearsal of information leads to impaired memory for related (unrehearsed) compared to unrelated (unrehearsed) information, either because the related information is inhibited (Anderson & Spellman, 1995; Veling & Van Knippenberg, 2004) or because it is blocked by the highly activated rehearsed information (Anderson & Neely, 1996). Applying this paradigm to stereotypes, Dunn & Spellman (2003) reported that participants showed decreased memory for individuating information after they had rehearsed stereotypic items and vice versa.

In the same vein, mental imagery has been shown to increase the accessibility of an imagined event (Carroll, 1978; Gregory, Cialdini, & Carpenter, 1982), which can in turn lead to higher estimates of the probability of that event. These experiments did not measure stereotype activation, but if the scenario describes a person's behavior, then this behavior should also get more accessible, probably along with related characteristics of the actor (Blair, Chapleau & Judd, 2004). Therefore, imagining someone who behaved in (counter)stereotypic ways can be expected to result in higher accessibility of this behavior and related traits.

Communication can also affect the organization of information. Research on cognitive tuning (Zajonc, 1960) has provided strong evidence that, compared to recipients, senders generally develop impressions of a target person that are more unified and distorted (Guerin & Innes, 1989), presumably because the role of recipient asks for open-mindedness in order to integrate the incoming information. However, Zajonc (1960) also demonstrated that recipients tend to reject the message when they anticipate that it is incongruent with their own beliefs. In this case the organization of information resembles that of senders. The content of the information itself should be quite different from senders, though. Whereas senders are supposed to convince themselves of their point of view by activating congruent information, recipients are supposed to show reactance, which leads to the activation of incongruent information.

Higgins and Rholes (1978) elaborated on this research by demonstrating that messages about another person can influence senders' attitude towards this person. After participants had read a story about a man, they described him to someone who supposedly liked or disliked him. Not only were the descriptions more favorable when the man was liked by the recipient, but so were participants' attitudes towards him. We think that besides that saying something positive or negative can make people believe in this evaluation, saying something (counter)stereotypic can also make them believe in or negate the correctness of stereotypes.

From the preceding theoretical discussion the prediction follows that communication may have opposite consequences for senders and recipients. Specifically, the cognitions of senders are predicted to assimilate towards the content of the message, whereas those of recipients are predicted to contrast away from it. Therefore, we expected that senders of stereotypic messages would show stronger stereotype activation than senders of counterstereotypic ones, whereas the reversed pattern was expected for recipients.

We did not predict a rebound effect for senders of atypical messages (Wegner, 1994), because we did not ask participants to not think of stereotypic behavior, but to

think of counterstereotypic behavior. Whereas the former usually leads to a rebound effect (Macrae, Bodenhausen, Milne, & Jetten, 1994; Monteith, Spicer, & Tooman, 1998), the latter usually results in a reduction of stereotype activation (Blair & Banaji, 1996; Blair, Ma, & Lenton, 2001; Dasgupta & Greenwald, 2001; Rudman, Ashmore, & Gary, 2001).

Below we will present four experiments on the relation between communication about a member of a target group and subsequent activation of stereotypes about this group. In Study 2.1, we asked participants to either write or read two stories about a Moroccan target person that depicted this person in stereotypic or counterstereotypic ways. Stereotype activation was measured with a primed lexical decision task (LDT). Study 2.2 and Study 2.3 used the same manipulations, but different target categories and dependent variables. In Study 2.2, participants wrote or read about an elderly person, and stereotype activation was measured with a pre- and post-measurement LDT. In Study 2.3, women were the target category, and a false memory paradigm was employed to assess stereotype activation. Study 2.4 explored the processes behind recipients' contrast effect by introducing cognitive load for half of the recipients.

## Study 2.1

Study 2.1 compared the consequences of communication on stereotype activation for senders and recipients of a message. Participants either wrote or read two short but true stories about a Moroccan who displayed typical or atypical behavior. Moroccans are a significant ethnic minority in The Netherlands, so we expected that it would be easy for participants to write two stories about events they had witnessed. We expected that communicating about stereotypic or counterstereotypic behavior of a Moroccan would affect the activation of stereotypes about this group differentially for senders and recipients. Specifically, we predicted that writing typical stories would lead to more stereotype activation than writing atypical stories, whereas reading typical stories would lead to less stereotype activation than reading atypical stories. Stereotype activation was measured with a primed LDT (Galinsky & Moskowitz, 2000; Sinclair & Kunda, 1999).

### *Method*

*Participants and design.* Thirty-eight (29 female and 9 male; average age = 22 years) undergraduate students participated in the experiment receiving € 3. Participants were randomly assigned to a 2 (role: sender vs. recipient) x 2 (stories: typical vs. atypical) x 2 (valence of the LDT target: positive vs. negative) mixed-model design with repeated measures on the last variable.

*Procedure and materials.* On arrival at the laboratory, participants were explained that they would be taking part in an experiment about how people express and process certain events. Next, they were seated in separate cubicles where they worked on two

different tasks on a computer. For the first task, the communication task, participants were randomly assigned to one of four conditions.

Senders were asked to write two short but true stories (4 – 5 sentences) about a Moroccan, whereas recipients were asked to read these same stories. Half of the participants wrote or read two stories about a Moroccan who displayed stereotypic behavior, whereas the other half wrote or read two stories about a Moroccan who behaved counterstereotypically. It is important to note that the design was yoked, thus we always presented exactly one recipient with the stories written by one sender. This design enabled us to keep message content constant for senders and recipients. In order to secure that recipients would take the task seriously and spend attention to the texts, they were told that it was important that they read the stories carefully, and were asked to form an impression of the main character. Moreover, it was explained that they would be asked questions about their impression of this person later on. For senders it was clearly stated that another participant would be going to read their stories. Before recipients read the stories, we corrected all mistakes in the texts so that recipients would not be distracted from the content. All participants had three minutes to complete the task.

The second task, which represented the dependent measure, was a primed LDT (Galinsky & Moskowitz, 2000; Sinclair & Kunda, 1999), which consisted of 40 trials in random order. Each trial started with the presentation of a row of Xs for one second in order to indicate the start of the next trial. Then the prime word ‘Moroccan’ was presented for 200 ms, immediately followed by the target word. We used ‘Moroccan’ as the only prime, because we wanted to keep the representation of this category activated. Based on a pilot study, we used five positive (e.g. hospitable) and five negative (e.g. sexist) Moroccan stereotypes as targets. Thus, all targets were Moroccan stereotypes. We used positive and negative stereotypes in order to control that the communication task affected only participants’ stereotypes, but not their prejudices. 10 country labels were added as distracters. Finally, 20 non-words, which were anagrams of the former 20 words, completed the stimulus material. All stimuli stayed on the screen until participants pressed a key. The target words were presented at the center of the screen in black 18-points charcoal letters against a white background. Participants were instructed to indicate as fast and accurately as possible whether the target word was or was not an existing Dutch word by pressing the respective key on the keyboard before them. Finally, participants indicated their gender and age, and were debriefed and paid.

After the experiment, two raters, who were blind for conditions, and who did not know the purpose of the experiment, scored the stereotypicality and the valence of the stories on a scale running from ‘1 = not at all typical/very negative’ to ‘5 = very typical/very positive’.

## *Results*

*Content of the stories.* We conducted a one-way ANOVA with stories as factor on the length, valence, and stereotypicality of the stories. We found that typical stories

were rated as being more stereotypic ( $M = 4.00, SD = 0.82$ ) than atypical stories ( $M = 1.94, SD = 0.85$ ),  $F(1, 18) = 47.11, p < .01, \eta^2 = .67$  (interrater reliability  $r = .81$ ), and also as being more negative in valence ( $M = 2.35, SD = 0.72$ ) than atypical stories ( $M = 4.11, SD = 0.76$ ),  $F(1, 18) = 18.62, p < .01, \eta^2 = .55$  (interrater reliability  $r = .88$ ). Stereotypicality and valence were highly negatively correlated ( $r = -.88, p < .01$ ).

*Communication and activation of stereotypes.* We discarded all LDT-trials with fault responses (i.e. when participants indicated that an existing word was a non-word and vice versa), and with response latencies that deviated more than three standard deviations from the individual overall mean. The mean reaction times on the Moroccan stereotypes were then subjected to a 2 (role: sender vs. recipient) x 2 (stories: typical vs. atypical) x 2 (valence of the LDT target: positive vs. negative) mixed-model ANOVA with repeated measures on the last variable. Two participants were excluded from this analysis, because their mean reaction times deviated more than three standard deviations from the overall mean. The only effect that emerged was the predicted Role x Stories interaction,  $F(1, 32) = 4.23, p < .05, \eta^2 = .12$ . Simple effects analyses revealed that the effect of stories was significant within the role of recipient,  $F(1, 32) = 5.78, p < .05, \eta^2 = .15$ , but not within that of senders,  $F(1, 32) < 1, ns$ , although means were in the predicted direction. Recipients reacted faster after an atypical than typical message (see Table 1).

Moreover, the effect of role was marginally significant within typical stories,  $F(1, 32) = 3.77, p = .06, \eta^2 = .10$ , but not significant within atypical ones,  $F(1, 32) < 1, ns$ . Senders of typical messages reacted faster than recipients of the same messages (see Table 1). Results were identical after log and inverse transformations of reaction times.

Table 1: *Mean Reaction Times and Standard Deviations on Moroccan Stereotypes as a Function of Role and Stories.*

Role	Stories	
	Typical	Atypical
Sender		
<i>M</i>	587 ms <sub>a, b</sub>	605 ms <sub>a, b</sub>
<i>SD</i>	84 ms	54 ms
Recipient		
<i>M</i>	656 ms <sub>a</sub>	568 ms <sub>b</sub>
<i>SD</i>	92 ms	71 ms

*Note.* Cells with different subscripts differ significantly from each other at  $p < .05$ .

*Discussion*

Results partly confirmed our predictions. Recipients of atypical stories showed higher stereotype activation than recipients of typical stories. Although the pattern of means for senders was in the predicted direction (more stereotype activation after typical compared to atypical stories), the difference between conditions was not

reliable. Maybe the most parsimonious explanation for these results is that there was psychological reactance at work in recipients (Brehm & Brehm, 1981). They might have felt manipulated by the messages and motivated to counteract this influence, which eventually led to a reversed pattern of results compared to senders. According to these results, the transmission of stereotypes might be less direct than is often assumed.

It is noteworthy that the contrast effect was especially strong for recipients of typical stories. Both simple effects that involved this condition were significant. Whereas Yzerbyt et al. (1999) demonstrated that contrast can occur for recipients of atypical descriptions, our experiment showed that it can even be stronger for those of typical descriptions. An important methodological difference between the Yzerbyt et al. (1999) studies and our experiment is that they used computer engineers and archivists as target categories, whereas we used Moroccans. Stereotyping Moroccans surely is a socially more sensitive issue. For most people, appearing prejudiced is socially undesirable (Dovidio & Gaertner, 2004), which can be a motive to control stereotypes (Fazio, Jackson, Dunton, & Williams, 1995; Kinder & Sanders, 1996; Schuman, Steeh, Bobo, & Krysan, 1997). Furthermore, experiments by Monteith et al. (1998) showed that the suppression of stereotypes only leads to a rebound effect when there are no strong norms against using stereotypes about the target group.

In order to try and replicate these results, and to examine their generalizeability, we conducted a second experiment with elderly people as target category. We considered elderly stereotypes as more malleable than those about Moroccans, so that the difference between senders of typical and atypical stories might become stronger. We also included several individual difference measures to control for their potential influence on the relationship between communication and stereotype activation.

## Study 2.2

With our second experiment we pursued several goals. First, we looked at the effects of communication about a different group than in Study 2.1, namely elderly people. Moreover, we included several individual difference measures to control for their potential effects. Finally, there were two methodological modifications. First, we measured the effects of communication on stereotype activation with a pre- and post-measurement design, that means we administered one LDT prior to, and a second after the communication task. Second, we primed participants subliminally with the target category in order to make responses even less controllable. Third, we added unrelated traits as target words to obtain a reaction times baseline.

We expected to replicate the results of Study 2.1, albeit with a more pronounced effect on senders. For recipients we predicted the same ironic effects on stereotypic trials as in Study 2.1, and the reverse for senders.

### *Method*

*Participants and design.* Participants were 40 undergraduate students (17 male and 23 female; average age = 22 years), who received € 3. Participants were randomly assigned

to a 2 (role: sender vs. recipient) x 2 (stories: typical vs. atypical) x 2 (measurement: pre- vs. post-measurement) x 2 (stimulus: elderly stereotypes vs. unrelated traits) x 2 (target valence: positive vs. negative) mixed-model design with repeated measures on the last three variables.

*Procedure and materials.* Upon arrival, participants were informed that they were going to take part in a number of separate studies. First, participants worked on a primed LDT, which was the pre-measure of stereotype activation. It was the same as in Study 2.1, except for the stimuli used and the fact that this time participants were primed subliminally. The LDT consisted of 60 trials, and as prime the word ‘Elderly’ was presented for 32 ms. Based on a pilot study, as target words we selected five positive (e.g. wise) and five negative (e.g. forgetful) elderly stereotypes as targets, five positive (e.g. famous) and five negative (e.g. mean) traits that were unrelated to elderly people, 10 country labels as distracters, and 30 non-words, which were anagrams of the former 30 targets.

After completion of the LDT, participants solved 10 math problems of medium difficulty as a filler task in order to neutralize the prime with elderly people from the LDT.

Next, participants worked on the same communication task as in Study 2.1, except that they wrote or read two stories about an elderly person instead of a Moroccan.

Before the administration of the second LDT, participants filled in two questionnaires: a mood questionnaire, and the Need for Cognition scale (Cacioppo & Petty, 1982). The LDT, which represented the post-measure of stereotype activation, was identical to the first one, except that new stimuli were used in order to minimize learning effects.

Next, participants responded to a block of questionnaires and provided some general personal information. The first questionnaire was the Personal Need for Structure scale (Neuberg & Newsom, 1993). The second questionnaire was Plant and Devine’s (1998) scale for internal and external motivation to respond without prejudice, which was modified so that it contained questions about the motivation to control stereotypes.

Finally, participants indicated how often they had contact with elderly people on a 6-point scale running from ‘1 = never’ to ‘6 = daily’, and how difficult it had been not to think of elderly stereotypes while writing or reading the two stories. Senders were asked how difficult it had been to come up with the stories. The last two items were answered on 7-point scales from ‘1 = very easy’ to ‘9 = very difficult’. Finally, participants indicated their gender and age.

As in Study 2.1, two raters scored the stereotypicality and valence of the stories on a scale running from ‘1 = not at all typical/very negative’ to ‘5 = very typical/very positive’.

## Results

*Content of the stories.* We conducted a one-way ANOVA with stories as factor on the length, valence, and stereotypicality of the stories. The only effect was that typical stories were rated as being more stereotypic ( $M = 4.35$ ,  $SD = 0.88$ ) than atypical stories ( $M = 1.60$ ,  $SD = 0.81$ ),  $F(1, 18) = 37.10$ ,  $p < .01$ ,  $\eta^2 = .61$ ; interrater reliability  $r = .79$ . Stereotypicality and valence were negatively correlated ( $r = -.60$ ,  $p < .01$ ). Participants

who had written atypical stories ( $M = 4.30$ ,  $SD = 2.26$ ) did not find this more difficult than those who had written typical stories ( $M = 3.70$ ,  $SD = 2.06$ ),  $F(1, 18) < 1$ , ns. Moreover, it was significantly more difficult for senders ( $M = 5.25$ ,  $SD = 2.36$ ) than for recipients ( $M = 3.75$ ,  $SD = 2.26$ ) not to think of elderly stereotypes during the communication task,  $F(1, 36) = 4.73$ ,  $p < .05$ ,  $\eta^2 = .11$ .

*Communication and activation of stereotypes.* We subjected the mean reaction times to a 2 (role: sender vs. recipient) x 2 (stories: typical vs. atypical) x 2 (measurement: pre- vs. post-measurement) x 2 (stimulus: elderly stereotypes vs. unrelated traits) x 2 (target valence: positive vs. negative) mixed-model ANOVA with repeated measures on the last three variables. Two subjects were excluded from this analysis, because their error rate was more than three-standard deviations above the overall mean.

First, a main effect of stimulus emerged,  $F(1, 34) = 23.46$ ,  $p < .01$ ,  $\eta^2 = .41$ . Participants reacted faster on elderly stereotypes ( $M = 594$  ms) than on unrelated traits ( $M = 626$  ms).

More important, we found the predicted Role x Stories x Measurement x Stimulus interaction,  $F(1, 34) = 6.29$ ,  $p < .05$ ,  $\eta^2 = .16$ . Focusing on the trials with elderly stereotypes, we first computed difference scores by subtracting the post- from the pre-measurement reaction times, and then we conducted a 2 (role: sender vs. recipient) x 2 (stories: typical vs. atypical) between-subjects ANOVA. We found the predicted interaction,  $F(1, 34) = 4.13$ ,  $p = .05$ ,  $\eta^2 = .11$ . Whereas senders of typical stories reacted faster on post- than pre-measurement trials (diff = + 61 ms), there was virtually no difference for senders of atypical stories (diff = - 5 ms). Recipients of typical stories showed only little change in reaction times between post- and pre-measurement (diff = + 9 ms), whereas there was a larger difference in the opposite direction for recipients of atypical stories (diff = - 24 ms). Simple effects analyses revealed that the effect of stories was marginally significant within the role of sender,  $F(1, 34) = 3.50$ ,  $p = .07$ ,  $\eta^2 = .09$ , but not significant within the role of recipient,  $F(1, 34) < 1$ , ns. Senders of typical stories showed more facilitation in reaction times from the pre- to the post-measurement than senders of atypical stories (see Table 2).

Table 2: *Mean Differences in Reaction Times and Standard Deviations on Elderly Stereotypes Between the Pre- and Post-Measurement LDT as a Function of Role and Stories.*

Role	Stories	
	Typical	Atypical
Sender		
<i>M</i>	+ 61 ms*	- 5 ms
<i>SD</i>	76 ms	71 ms
Recipient		
<i>M</i>	- 9 ms	+ 24 ms
<i>SD</i>	96 ms	50 ms

Note. \*  $p < .05$ .

It also revealed that the effect of role was borderline significant within typical stories,  $F(1, 34) = 4.08$ ,  $p = .051$ ,  $\eta^2 = .11$ , whereas it was not significant within atypical stories,  $F(1, 34) < 1$ , ns. Senders of typical stories showed more facilitation from pre- to the post-measurement reaction times than recipients (see Table 2).

Finally, only the difference score between the pre- and post-measurement reaction times of senders of typical messages was significant,  $F(1, 34) = 5.92$ ,  $p < .05$ ,  $\eta^2 = .15$  (all other  $F$ s  $< 1$ , ns).

None of the several variables we entered as a covariate (mood, need for structure, valence of the stories etc.) showed a significant effect on reaction times. They also failed to affect the strength of the interaction.

### *Discussion*

The findings from Study 2.1 were partly replicated. Once again, we found an interaction between whether participants wrote or read two stories and the content of the stories. However, whereas in Study 2.1 the effect on recipients was stronger, this time it was more pronounced for senders. Replicating the results of Study 2.1, the difference between senders and recipients of typical stories was significant, whereas that between senders and recipients of atypical stories was not. The explanation for this finding may be that for senders the activation threshold for stereotypes is supposed to be lower than for counterstereotypes. Due to the usually frequent individual confrontation with stereotypes, these can become highly accessible faster than counterstereotypes, which are not as ubiquitous (Devine, 1989).

Although we measured several individual difference variables and features of the stories, none affected reaction times or the strength of the interaction. Having demonstrated the effects with different target categories, we proceeded to extend the generalizeability of our findings in Study 2.3.

## **Study 2.3**

With Study 2.3 we pursued two objectives. First, we wanted to replicate the effects we had found with primed LDTs with a different measure of stereotype activation. Second, we aimed to demonstrate the effects with yet another social category. To these ends we used a false memory paradigm (Deese, 1959; Roediger & McDermott, 1995) and modeled it after the procedure used by Blair et al. (2001).

In this paradigm, participants are first presented a list of words, amongst which are some expressions that are used as primes for a specific social category. In the present study, this was the category of women. After a short filler task, participants work on a surprise recognition task, in which a new list of words is presented. Participants' task is to indicate for each word whether it had or had not been in the studied list. Some words are taken from the older list (potential hits), whereas others are new (potential false alarms; FAs). The new words contain expressions that are related to the primed category, as well as terms that are associated with



an opposite category (e.g. female vs. male). The primary dependent variable is the proportion of FAs on words associated with the primed category. Blair et al. (2001) found that counterstereotypic mental imagery about a woman (i.e. imagining a strong woman) led to less FAs on female targets than neutral mental imagery (a Caribbean vacation).

Participants' task in these authors' counterstereotypic mental imagery condition closely resembles that in our atypical/writing condition, but there are two important differences. First, whereas Blair et al. (2001) gave participants specific instructions about what to think of, namely a strong woman, we asked participants to write about two real events they had witnessed in which a woman behaved atypically. Second, the focus in the Blair et al. (2001) study was on the effects of a specific cognitive strategy on stereotype activation, whereas our emphasis is on the effects of communication. For this reason our experiment introduced a communicative context that was not present in their experiments. This communicative context can increase the impact on cognitions, at least on those of the sender (McCann & Higgins, 1992; Semin, Gil De Montes, & Valencia, 2003). Moreover, Blair et al. (2001) did not include a stereotypic mental imagery condition, so that the effects on senders of stereotypic events are not clear. Based on the results of Studies 2.1 and 2.2, we predicted that senders of typical and recipients of atypical messages would produce more FAs on female targets than senders of atypical and recipients of typical messages.

### *Method*

*Participants and design.* Participants were 40 undergraduate students (12 male, 28 female; average age: 22.50 years), who received € 3. They were randomly assigned to a 2 (role: sender vs. recipient) x 2 (stories: typical vs. atypical) between-subjects design.

*Procedure and materials.* The first task was the same communication task as in Studies 2.1 and 2.2, except that the main character in the stories was a woman. After this task, participants filled in the Personal Need for Structure scale (Neuberg & Newsom, 1993) and the Need for Cognition scale (Cacioppo & Petty, 1982).

Next, they were presented the false memory task (Blair et al., 2001; Deese, 1952; Roediger & McDermott, 1995). Sixty words were presented one at a time and in a fixed order at the center of the screen. Each word was presented for one second, followed by a blank screen for 300 milliseconds. Among the words were 10 expressions that were meant to prime the category of women (e.g. woman, girl), 10 gender-neutral roles (e.g. author, artist), and 10 gender-neutral traits (mean, happy). These were included to secure that participants knew that there had been some roles and traits in the list. Otherwise they will not make FAs on this type of words (Lenton, Blair, & Hastie, 2001).

After presentation of the list, participants worked on math problems for about 5 minutes and were then given a surprise recognition task, which contained eight words

from the presented list, and 22 new words. The latter included six stereotypically feminine roles and traits (e.g. hair-dresser, emotional) as targets, as well as six stereotypically masculine roles and traits (e.g. pilot, assertive) as filler items. The remaining 10 words were distracters. Participants were asked to judge for each word whether it had or had not been in the studied list. The main dependent variable was the proportion of FAs on female targets.

Finally, participants indicated how difficult it had been not to think of female stereotypes while writing or reading the two stories. Senders were also asked how difficult it had been to write two stories. Both questions were answered on a 9-point scale ranging from '1 = very easy' to '9 = very difficult'. The last two questions concerned the gender and the age of the participants.

As in Study 2.1 and Study 2.2, two raters scored the stereotypicality and the valence of the stories on a scale running from '1 = not at all typical/very negative' to '5 = very typical/very positive'.

### Results

*Content of the stories.* We conducted a one-way ANOVA with stories as factor on the length, valence, and stereotypicality of the stories. The only effect was that typical stories were rated as being more stereotypic ( $M = 4.35$ ,  $SD = 0.88$ ) than atypical stories ( $M = 1.60$ ,  $SD = 0.81$ ),  $F(1, 18) = 52.66$ ,  $p < .01$ ,  $\eta^2 = .17$ . Stereotypicality and valence were positively correlated ( $r = .46$ ,  $p < .05$ ).

Participants who had written atypical stories ( $M = 5.50$ ,  $SD = 3.14$ ) did not find this more difficult than those who had written typical stories ( $M = 6.60$ ,  $SD = 2.46$ ),  $F(1, 18) < 1$ , ns. We also did not obtain significant effects on the question of how difficult it had been to not think of female stereotypes while writing or reading (a)typical stories (all  $F$ s  $< 1$ , ns).

*Communication and activation of stereotypes.* We subjected the proportion of FAs on female targets to a 2 (role: sender vs. recipient) x 2 (stories: typical vs. atypical) between-subjects ANOVA. One participant was excluded because the proportion of FAs and misses deviated more than three standard-deviations from the overall mean. We found the predicted Role x Stories interaction,  $F(1, 35) = 5.70$ ,  $p < .05$ ,  $\eta^2 = .14$ . Simple effects analyses indicated that the effect of stories was significant within the role of recipient,  $F(1, 35) = 5.82$ ,  $p < .05$ ,  $\eta^2 = .14$ , but not within that of sender,  $F(1, 35) < 1$ , ns, although conditions differed in the predicted direction. Recipients produced more FAs after atypical than typical stories (see Table 3). Moreover, the effect of role was significant within typical stories,  $F(1, 35) = 4.18$ ,  $p < .05$ ,  $\eta^2 = .11$ , but not within atypical ones,  $F(1, 35) = 1.75$ ,  $p > .10$ , although means were again in the predicted direction. Senders of typical stories produced more FAs than recipients (see Table 3).

We did not find an effect of any of the covariates we entered.

Table 3: *Mean Proportion and Standard Deviations of FAs on Female Targets as a Function of Role and Stories.*

Role	Stories	
	Typical	Atypical
Sender		
<i>M</i>	33.33 % <sub>b</sub>	25.00 % <sub>a, b</sub>
<i>SD</i>	24.85 %	16.20 %
Recipient		
<i>M</i>	14.81 % <sub>a</sub>	36.66 % <sub>b</sub>
<i>SD</i>	13.03 %	21.94 %

*Note.* Cells with different subscripts differ significantly from each other at  $p < .05$ .

### *Discussion*

The conclusions from Studies 2.1 and 2.2 were confirmed, this time with a false memory paradigm instead of an LDT and with yet another category, namely women. We can therefore conclude that the effects generalize across different social categories and measures. Once more, we found an interaction between participants' communicative role and the content of the message. A closer inspection of the data revealed that, similar to Study 2.1, the difference between recipients of typical and atypical stories, as well as the difference between senders and recipients of typical stories, was significant. Although the differences between senders of typical and atypical stories, and between senders and recipients of atypical stories were in the predicted direction, they did not reach statistical significance.

Also similar to Study 2.1, both significant simple effects involved recipients of typical stories, which indicated once more that this condition showed the strongest effect. This is not surprising if one considers that most of our participants were female, and therefore reading a message that confirmed female stereotypes may have evoked a strong tendency to counteract this impression.

Variables we used as covariates again did not show any effects, neither individual difference variables, nor features of the messages.

Together, Studies 1 – 3 demonstrate that communication can affect senders' and recipients' stereotype activation in opposite ways. It can lead to assimilation to the content of the message for senders, and to contrast for recipients. However, although means always differed in the predicted direction in all conditions, effects were stronger for recipients in Study 2.1 and 2.3, and for senders in Study 2.2. In order to gain further support for our hypothesis that senders show assimilation, whereas recipients show contrast, we conducted a meta-analysis on the data of all three experiments. The raw data from the stereotypic trials of Studies 2.1 and 2.3, as well as the difference scores from the stereotypic trials of Study 2.2 (all predicting the same interaction between sending and receiving a message and the content of the message) were first converted to z-scores within each experiment, and then combined into an overall ANOVA, with experiment number as between-subjects factor (Rosenthal, 1991). The Role x Stories

interaction was the only significant effect,  $F(1, 101) = 13.93, p < .01, \eta^2 = .12$ . Simple effects analyses showed that the effect of stories was borderline significant within the role of sender,  $F(1, 101) = 3.71, p = .057, \eta^2 = .04$ , and significant within the role of recipient,  $F(1, 101) = 11.26, p < .01, \eta^2 = .10$ . Whereas senders assimilated towards the content of the message, recipients showed contrast. Moreover, the effect of role was significant within typical stories,  $F(1, 101) = 12.02, p < .01, \eta^2 = .11$ , and marginally significant within atypical ones,  $F(1, 101) = 3.31, p = .07, \eta^2 = .03$ . Senders of typical and recipients of atypical messages showed more stereotype activation than senders of atypical and recipients of typical messages.

The Role  $\times$  Stories  $\times$  Experiment interaction was not significant,  $F(2, 101) < 1$ , ns. Therefore, we concluded that the general pattern of results was identical across the three experiments.

Since we have speculated that the ironic effects on recipients are due to psychological reactance, the goal of Study 2.4 was to examine this hypothesis. Psychological reactance theory (Brehm & Brehm, 1981) states that people want to think and act in an independent fashion. When they feel manipulated in this respect, they are supposed to be motivated to re-establish their individual freedom. As a result, they will not conform to the source of the manipulation, but rather change their behavior in the opposite direction. With respect to our studies, people might also perceive their individual freedom to be threatened when someone tells a story that clearly conveys a (counter)stereotypic message about another person, since they want to form their impressions independently.

However, the execution of reactance might need some cognitive capacity, especially since in this specific case this would mean that recipients may have to activate counterstereotypes, or to question the credibility of the source. It follows that putting recipients under cognitive load while they read the message should make this more difficult. As a consequence, stereotype activation under load is predicted to assimilate to the content of the message. It is conceivable that actively composing a message consumes more cognitive capacity than passively receiving it. Thus, whereas recipients in Studies 1 – 3 may have had enough capacity to inhibit stereotypic thoughts, senders may have been too busy composing their message to be able to correct for stereotypic intrusions.

## Study 2.4

In order to investigate if psychological reactance causes the contrast effect on recipients, in Study 2.4 we asked recipients to read the same messages as in Study 2.3, and introduced cognitive load for half of them. Yzerbyt et al. (1999) have shown that this can reverse the results for recipients of counterstereotypic information. It remains to be tested whether this is also the case for recipients of stereotypic messages.

### *Method*

*Participants and design.* Forty undergraduate students (34 female, 6 male; average age = 21 years) participated in the experiment receiving € 3. They were randomly

assigned to a 2 (load: load vs. no load) x 2 (stories: typical vs. atypical) between-subjects design.

*Procedure and materials.* The procedure was the same as in Study 2.3, except that this time all participants were asked to read two stories. These were the same stories as in Study 2.3. For half of the participants the instruction also was identical to that of Study 2.3. The other half was asked to rehearse a string of 8 symbols (? @ ! # % + \$ &) while reading the stories in order to keep them cognitively busy (Van den Bos, Peters, Bobocel, & Ybema, 2004). We also asked participants how difficult it had been not to think of female stereotypes on a 9-point scale from ‘1 = not at all’ to ‘9 = very difficult’.

### Results

*Effort to control stereotypes.* The load manipulation affected the difficulty of controlling stereotypes,  $F(1, 36) = 7.50, p < .05, \eta^2 = .19$ . Participants found it harder to control stereotypes under load ( $M = 5.85, SD = 1.95$ ) than without load ( $M = 3.95, SD = 2.39$ ).

*Communication and activation of stereotypes.* We excluded one participant, because the proportion of FAs and misses was more than three standard-deviations above the overall mean. The proportion of FAs on female targets was subjected to a 2 (load: load vs. no load) x 2 (stories: typical vs. atypical) between-subjects ANCOVA with all FAs and misses except those on the female stereotypes as covariate. The predicted Load x Stories interaction emerged,  $F(1, 34) = 4.85, p < .05, \eta^2 = .13$ . Simple effects analyses showed that the effect of stories was borderline significant within the no load conditions,  $F(1, 34) = 3.95, p = .055, \eta^2 = .10$ . Recipients of typical stories produced less FAs than recipients of atypical stories (see Table 4). Although conditions differed in the predicted direction, the effect was not significant within the load conditions,  $F(1, 34) = 1.14, p > .20$ . Moreover, the effect of load was significant within typical stories,  $F(1, 34) = 8.25, p < .01, \eta^2 = .20$ , but not within atypical ones,  $F(1, 34) = < 1, ns$  (see Table 4). Participants produced more FAs under load than without load.

Table 4: *Mean Proportion and Standard Deviations of FAs on Female Targets as a Function of Load and Stories.*

Load	Stories	
	Typical	Atypical
Load		
<i>M</i>	43.33 % <sup>a</sup>	31.66 % <sup>a, b</sup>
<i>SD</i>	25.09 %	27.72 %
No Load		
<i>M</i>	12.96 % <sup>b</sup>	33.33 % <sup>a, b</sup>
<i>SD</i>	13.89 %	23.57 %

*Note.* Cells with different subscripts differ significantly from each other at  $p < .05$ .

Finally, there was a marginally significant main effect of load,  $F(1, 34) = 3.74$ ,  $p = .06$ ,  $\eta^2 = .10$ . Participants produced more FAs under load ( $M = 37.52\%$ ,  $SD = 26.42\%$ ) than without load ( $M = 23.17\%$ ,  $SD = 21.74\%$ ). This effect was qualified by the interaction described above.

### *Discussion*

Study 2.4 demonstrated that recipients must possess sufficient cognitive capacity to be able to resist the impression conveyed by senders. This is in line with our hypothesis that psychological reactance causes the contrast effect of stereotype activation. According to this approach, recipients counteracted the impression expressed in the message. Since this requires cognitive capacity, recipients could no longer execute this adequately under cognitive load. Therefore, under load the contrast effect turned into an assimilation effect, although this was weaker than the contrast effect for participants who had not been put under load.

## **General Discussion**

Research on the relation between communication and stereotyping usually suggests that stereotypes are transmitted from the sender to the recipient in a relatively straightforward way (Maass, 1999; Maass, et al., 1995; Wigboldus et al., 2000; 2006). Our results demonstrate that this is not necessarily the case, and that it may be bound to specific conditions. Across different social categories and measures of stereotype activation, we found consistent evidence that senders and recipients can even be affected in opposite ways by (counter)stereotypic messages about a member of a target group. Specifically, senders activated stereotypes more strongly after they had written a message that portrayed the main character in stereotypic rather than counterstereotypic ways, whereas for recipients higher accessibility of stereotypes was measured after a counterstereotypic compared to a stereotypic description.

We also found that the difference between senders and recipients of typical stories was larger than that between senders and recipients of atypical stories. For senders, being confronted with stereotypes due to a stereotypic description may have had more impact than being confronted with counterstereotypes due to a counterstereotypic description, because the threshold for stereotypes to be activated is lower than for counterstereotypes, due to the omnipresence of stereotypes. Recipients, on the other hand, seem to have felt more reactance after a stereotypic rather than counterstereotypic description. Thus, the motivation to negate stereotypes in the face of a message that clearly confirmed them was stronger than the motivation to preserve stereotypes after a message that conveyed a counterstereotypic impression. This is not surprising if one considers the target categories that we used in our experiments. These might have fostered social desirability effects more strongly than considerations of efficiency. A closer look at Studies 1 – 3 supports this. In Study 2.1 the target category was a socially sensitive one, namely Moroccans, who are a significant ethnic minority

in The Netherlands. Because it is socially undesirable to appear racist, people are usually motivated to control stereotypes and prejudices about such groups (Gaertner & Dovidio, 2004). In Study 2.3, the target category was women, and most of our participants were female. Therefore, recipients may once again have been motivated to dismiss a stereotypic description. Supporting this analysis, in both studies recipients of typical stories showed the strongest effect of all conditions. They were involved in both significant main effects. Study 2.2, in contrast, used a less socially sensitive target category, namely elderly people, with the result that the strong effect on recipients of typical stories disappeared, presumably because the motivation to show reactance was weaker than in Studies 2.1 and 2.2.

It is also noteworthy that the meta-analysis revealed that the difference between recipients of stereotypic and counterstereotypic messages seemed larger than that between senders. A possible explanation is that recipients were influenced only by the content of the message, whereas senders may have written this message as a simplification of a more complex situation. Therefore, they may have thought of and activated more than they had written in their message, so that it eventually impacted them less than recipients.

Another important point is that the assimilation and contrast effects seem to be rather universal processes that are not affected by individual difference variables. We analyzed several theoretically relevant constructs, which have been shown to influence stereotyping, like need for structure, need for cognition, or the motivation to not use stereotypes. However, none of these traits changed the described pattern of results.

Study 2.4 shed light on the processes behind the ironic effects on recipients. We were able to show that stereotype activation in recipients assimilates to the content of the message when this is processed under cognitive load, whereas it contrasts without load. This is strong evidence that recipients actively counteracted senders' intended impression when they were able to do so. When senders described a person in clearly (counter)stereotypic ways, the notion may have risen in recipients that the sender was trying to manipulate their impression of this person or group. According to Brehm and Brehm (1981) this can instigate a process of psychological reactance. Whenever people feel manipulated they are thought to counteract this in an attempt to claim their individual freedom, which can subsequently lead to opposite outcomes as intended by the source of influence. This is exactly what we observed in Studies 1 – 3. Recipients of atypical stories activated stereotypes more strongly than recipients of typical stories. Whereas the former may have resisted to change their impressions because they wanted to keep the information processing advantages that stereotypes offer (Yzerbyt et al., 1999), the motivation of the latter might have been to prevent negative outcomes of using stereotypes, like negative self-directed affect (Devine et al., 1991). Reactance is not for free, however. Its execution consumes cognitive capacity, and once concurrent and cognitively exhausting tasks deplete this resource, reactance is predicted to fail, which is what we found in Study 2.4.

Together these experiments provide converging evidence that communication can affect stereotype activation in senders and recipients in opposite ways. The transmission

of stereotypes via communication might be less straightforward than is often assumed in research. Therefore, we would like to encourage research that explores the conditions under which communication does and does not lead to stereotype perpetuation.

Future research may aim to replicate the present studies within a paradigm that uses spoken instead of written communication. Effects would probably have been different, had we asked participants to communicate directly with each other. Evidence that written communication can produce different results comes from a recent publication by Epley and Kruger (2005). They concluded that e-mail communication leads to more stereotype activation in recipients than spoken communication, presumably because the former lacks paralinguistic cues. Even though this does only apply indirectly to the present experiments, because these authors looked at the effect of expectancies on explicit evaluations of the sender of the message, whereas we focused on implicit cognitions about the whole category described in the message, we think that investigating the effects of spoken communication on stereotype activation in senders and recipients is an important next step.

Another contribution of future research could be to explore whether the relationship between sender and recipient affects the relation between communication and stereotype activation. Our recipients read texts that had been written by strangers. Varying the closeness of the interaction partners might reveal that it is easier for friends to influence the other's impressions than it is for strangers. Supporting this view, Silvia (2005) has recently shown that similarity decreases reactance. Moreover, the closer another person is, the higher his or her credibility usually is, which should subsequently make stereotype transmission more likely (Budesheim, DePaola, & Houston, 1996; Hornsey, Trembath, & Gunthorpe, 2004).

In conclusion, the present results, as well as our final speculations, reveal that communication is a complex process with many facets. This is especially important for senders who want to influence recipients' impressions of other people or groups of people. Senders may influence their own impressions the way they wanted to change those of recipients, whereas their effort may backfire on recipients' impressions, such that attitude change occurs in the opposite direction as intended by the sender. Thus, the transmission of stereotypes seems to be less straightforward than has been assumed so far, and future research may explicate the conditions that do and do not lead to stereotype transmission and maintenance through communication.



## CHAPTER 3

# **Linking Communication and Cognition: Effects of Communicative Roles on Prejudice**



## Introduction<sup>3</sup>

People usually believe that their opinion about other people or groups of people reflects only their individual convictions, and that these have developed independently of external influences. This stands in sharp contrast to empirical evidence (Forsyth, 2000), which stresses the impact that other people have on our prejudices. For example, it is well known that people show less prejudice when they are interviewed by a member of the group involved (Kinder & Sanders, 1996). Although this has usually been interpreted in terms of interviewees hiding their true attitude, Lowery, Hardin, and Sinclair (2001) demonstrated that this effect can even be observed on indirect measures of prejudice, which are less controllable than explicit ones (Steffens, 2003). Therefore, Lowery et al. (2001) concluded that participants' reactions represent sincere attempts to seek common ground with the interviewer. At the same time, Sechrist and Stangor (2001) reported how perceptions of the ingroup's level of prejudice can affect individual group members' prejudice. Participants who had learned that most of their peers did not share their prejudiced beliefs, subsequently exhibited less prejudice than those who thought the majority agreed with them.

We believe that much of the influence others exert on our prejudices stems from interpersonal communication. However, many questions on this influence are still unanswered. The present experiments aimed to clarify some of these questions. The rationale behind focusing on how communication affects people's prejudices was twofold. First, as prejudice can determine intergroup behavior, it has always been a major issue for social psychologists. Studying the effects of communication on prejudice not only informs us how these variables relate to each other theoretically, but may also show how prejudice is fostered, or how it can be changed in everyday interpersonal communications, thereby contributing to an important societal issue. Second, whereas the role of communication in the transmission and maintenance of stereotypes has received considerable attention (Maass, 1999; Yzerbyt, Coull, & Rocher, 1999; Chapter 2 of the present dissertation), the same effects have largely been neglected with regard to prejudice. Maybe the most prominent exception is research on the linguistic intergroup bias (LIB; Maass, Ceccarelli, & Rudin, 1996; Maass, Salvi, Arcuri, & Semin, 1989; Wigboldus & Douglas, 2007). The present studies had a different focus than the LIB, however. Whereas the LIB focuses on the effects of the message content, our main interest concerned the effects of the communicative roles of sender and recipient.

Therefore, we did not only measure the effect of communication on recipients' prejudice, but also on that of senders, which enabled us to compare them with each other. Whether communication affects the sender or the recipient of a message more strongly is still an open question, since to date, research has focused on either senders (Gordijn, Postmes, & De Vries, 2001; Higgins & Rholes, 1978; Sedikides, 1990) or recipients only (Bohner, Ruder, & Erb, 2002; Brock, 1967; Chen, Reardon, Rea, & Moore, 1992; Johnson & Izzett, 1972; Roskos-Ewoldsen, Bichsel, & Hoffman, 2002; Ward & McGinnies, 1974; Worchel & Brehm, 1970). In order to draw valid conclusions

<sup>3</sup> The present chapter is based on Mooren, Van Knippenberg, & Wigboldus, (2007b).

about the cognitive consequences of interpersonal communication for senders and recipients, we employed a paradigm in which senders generated their own messages, which were then transmitted to recipients. Thus, it should be noted that the sender role was not confined to sending a message that was generated by someone else, but that it included the active construction of the message. This paradigm closely resembled real life settings, and it enabled us to directly compare senders' and recipients' reactions to the same message.

Moreover, we determined participants' prejudice with indirect and explicit measures, so that we were able to compare responses on both kinds of procedures. Although most research on the relation between communication and attitudes to date has relied on explicit measures, we argue that indirect measures are better suited to explore this question, because they reduce the demand characteristic inherent in explicit measures. Whereas participants have full control over their answers on explicit measures, it is hard or even impossible to control reactions on indirect measures (Fazio, Jackson, Dunton, & Williams, 1995; Steffens, 2003).

Before describing the details of our studies, we will first review research that has stressed the impact of people's roles and behavior on their attitudes.

### *Cognitive tuning*

Speaking directly to the present investigation, Zajonc's (1960) pioneering work on cognitive tuning demonstrated how the anticipation of the role of sender or recipient influences the organization of information about a target. According to Zajonc, cognitive structures are activated when people anticipate communicating with others, and senders and recipients are considered to activate structures that are functional to their respective communicative role. Senders' task is to convey a comprehensible impression of the target, so they try to form a clear image for themselves, which leads to an integration of the available information. Recipients, in contrast, have to be open-minded in order to process the information provided by the sender. This leads to a more loosely organized structure. Guerin and Innes (1989) concluded that the cognitive structures activated by senders lead to a more unified and distorted impression than those activated by recipients. Zajonc (1960) also demonstrated, though, that under specific conditions, recipients organize the incoming information in the same way as senders. When recipients anticipate that the message challenges their own point of view, they become motivated to defend it. Instead of staying open-minded, they dismiss all information that poses a threat to their attitude. Instead, they become more convinced of their own attitude. Thus, the organization of information resembles that of senders, but the content is the opposite.

### *Self-Perception and Cognitive Dissonance*

As people monitor their behavior, they can, and frequently do infer their thoughts or feelings from their actions, especially when internal states are diffuse and difficult to interpret (Bem, 1967). Therefore, self-perception effects can account for changes

in senders' attitudes, particularly weak attitudes (Chaiken & Baldwin, 1981; Holland, Verplanken, & Van Knippenberg, 2003). At least with regard to some social categories, people's attitudes may be weak and diffuse, so that self-perception effects may influence the sender. Providing a positive or negative description of a member of a target category could then lead to a corresponding attitude. Sedikides (1990) described how this can influence senders' own attitude, and that this effect can even be stronger than priming effects. Senders who had been primed with positive or negative traits were asked to read an ambiguous description of a target person. Next, they described this person to a recipient who was said to like or dislike the this person, or to hold a neutral attitude. After communicating with a neutral recipient, senders' attitude towards the target was congruent with the valence of the prime. But when the recipient liked or disliked the target person, senders adjusted the description of this person accordingly, and along with it their attitude changed in the same direction.

Cognitive dissonance theory (Festinger, 1957) makes identical predictions as self-perception theory, but proposes a different mechanism that brings about attitude change. Cognitive dissonance theory suggests that attitude-inconsistent behavior can arouse tension in an individual, and it proposes several ways to reduce this unpleasant state. One route that people often times take is to change their attitude in order to bring it in line with their behavior (Festinger & Carlsmith, 1959). Both theories have been shown to be valid, although they may apply in different situations. When behavior and attitudes are highly discrepant, cognitive dissonance may arise. When the discrepancy is smaller, self-perception offers a better explanation for people's behavior (Fazio, Zanna, & Cooper, 1977).

Finally, research has shown that people find self-generated arguments more convincing than those offered by others (Boninger, Brock, Cook, Gruder, & Romer, 1990), and that they also have better memory for their own arguments (Slamecka & Graff, 1978), so that senders are more likely to change their attitude in the advocated direction than recipients (Janis & King, 1954). Senders are even able to persuade themselves of a point of view they had not agreed on before (Gordijn et al., 2001). Concerning the current experiments, we therefore predicted that senders' attitudes would assimilate towards the valence of the message.

Recipients' attitudes, in contrast, were predicted to show a contrast effect due to psychological reactance (Brehm & Brehm, 1981; Heller, Pallak, & Picek, 1973; Wright, Wadley, Danner, & Phillips, 1992), because they may want to defend their freedom to think independently. Psychological reactance theory states that individuals are motivated to think, act, and feel like they themselves want to. When they feel coerced to take over a certain behavior or opinion, they are predicted to change in the opposite direction as intended by the source of influence, thereby confirming their independence. One can easily imagine how receiving a description that casts a clearly positive or negative light on a member of a group evokes recipients' impression that senders want to influence their attitude towards this group. This impression is then supposed to cause the ironic effect that receiving a positive message leads to a more negative attitude than receiving a negative message. We have already demonstrated this process in experiments on the effect of communication

on stereotype activation (Chapter 2 of the present dissertation). Whereas senders activated stereotypes more strongly after having transmitted a message that portrayed a person in stereotypic rather than counterstereotypic ways (they assimilated towards the content of the message), recipients showed the opposite pattern (they contrasted away from the content of the message). However, when recipients were put under cognitive load, they showed assimilation, indicating that recipients actively tried to counteract the impression conveyed by senders as long as they had the capacity to do so.

Below, we will present three experiments on the relation between communication and implicit as well as explicit prejudice. In Study 3.1 and 3.2, participants wrote or read two stories about an elderly person who displayed positive or negative behavior. In Study 3.1 we measured implicit prejudice with a single target implicit association test (Karpinski & Steinman, 2006; Wigboldus, Holland, & Van Knippenberg, 2006), and explicit prejudice with a single item questionnaire (Holland, Verplanken, & Van Knippenberg, 2003). Study 3.2 employed an affective priming task (Fazio et al., 1995) and the internal and external motivation to respond without prejudice scale (Plant & Devine, 1998) as measures of implicit and explicit prejudice, respectively. Study 3.3 investigated behavioral consequences. After participants had written or read two stories about a German person, they were asked to take a seat in the waiting room, where a German participant was already waiting to continue with the experiment. The seating distance towards this participant was measured as an indication of participants' approach or avoidance tendencies towards the category of Germans. Explicit prejudice was measured with the same question as in Study 3.1.

## Study 3.1

Study 3.1 examines the differential effects of the communicative roles of sender and recipient on implicit and explicit prejudice towards elderly people. To this end, participants either wrote or read a message that depicted an elderly person in a positive or negative way. Following this communication, implicit prejudice was measured with a single target implicit association test (ST-IAT; Karpinski & Steinman, 2006; Wigboldus et al., 2006), whereas explicit prejudice was assessed with a single item questionnaire (Holland, Verplanken, & Van Knippenberg, 2003). Concerning implicit prejudice, we predicted that senders' attitudes would be more positive after a positive rather than a negative message, and that the reverse would be true for recipients of the same message. Concerning explicit prejudice, we predicted assimilation for both senders and recipients.

### *Method*

*Participants and design.* Participants were 52 undergraduate students from the Radboud University Nijmegen (42 female, 10 male; average age = 22 years), who

received € 3. They were randomly assigned to a 2 (role: sender vs. recipient) x 2 (stories: positive vs. negative) between-subjects design.

*Procedure and materials.* On arrival in the laboratory, participants were told that they would be taking part in a number of separate studies, for which they were seated in individual cubicles. First, they worked on the communication task, which was the main manipulation. Participants were randomly assigned to one of four conditions. Senders wrote two short but true stories (4 – 5 sentences) about an elderly person who displayed positive or negative behavior. Recipients read these same stories. To keep the content of the stories constant across conditions, we used a yoked design, that means we always had one recipient read the stories written by one sender. Since it was important to make sure that recipients would read the stories carefully, we told them that it was important that they form an impression of the main character in the stories, and that they would be asked questions about their impression later on. Senders were told that another participant would be going to read their stories. After senders had written their message, we corrected all mistakes in the texts to prevent recipients from getting distracted from the content. All participants had three minutes to complete the task.

Communicating about something positive or negative can influence people's mood, which can subsequently affect their attitudes (Bless, Mackie, & Schwarz, 1992; Dovidio, Gaertner, Isen, & Lawrence, 1995; Forgas, 1995; Forgas & Moylan, 1991; Wilder & Simon, 2004; Zuwerink & Devine, 1996). To be able to control whether the effect of the communication task is mediated by changes in mood, we asked participants to fill in a 14-item mood questionnaire<sup>4</sup> (e.g. "To what extent are you feeling sad?"; "To what extent are you feeling happy?"; 1 = not at all, 7 = very much).

As implicit measure of prejudice we employed a ST-IAT (Karpinski & Steinmann, 2006; Wigboldus et al., 2006), which measures implicit prejudice towards one specific group, in our case towards elderly people. This ST-IAT consisted of a total of three phases. In phase one, participants indicated as fast and accurately as possible whether the target picture on the computer screen was a positive (e.g. a smiley) or negative (e.g. a tank) one by pressing the respective key on the keyboard before them. We used five positive and five negative targets, each of which was presented twice. In phase two, five black-and-white pictures of elderly people were added as targets. One half of the participants were instructed to press the same key to indicate that the target was either positive or an elderly person. In that case, we also included five positive and 10 negative targets from phase one. In phase three, elderly pictures were combined with negative targets. In that case, the stimuli consisted of five elderly pictures, as well as five negative and 10 positive targets taken from phase one. For the other half of our participants, elderly targets were combined in the reversed order with positive and negative targets. In phase two, these participants pressed the same key to indicate that the target was negative or an elderly person. In phase three, elderly pictures were paired with positive targets. The total number of trials was 60. Within each phase the targets

<sup>4</sup> We also measured several individual difference variables, like need for cognition (Cacioppo & Petty (1982), need for structure (Neuberg & Newsom, 1993), and internal and external motivation to respond without prejudice (Plant & Devine, 1998).

were presented in a random order. Each trial started with the presentation of an asterisk at the center of the screen for 1000 ms, followed by the target item, which stayed on the screen until participants pressed a key. If they had pressed the wrong key (e.g. the 'positive' key for a negative target), the word 'fault' appeared for 1000 ms. Otherwise, the next trial started without delay. A positive implicit attitude towards elderly people is indicated by faster reaction times on elderly targets when these had been combined with positive relative to negative targets.

In order to compare participants' responses on an indirect measure such as an ST-IAT (Karpinski & Steinmann, 2006; Wigboldus et al., 2006) with responses on explicit measures, we asked participants' to report their attitude towards elderly people on a single item questionnaire ("What is your general evaluation of elderly people?"; Holland, Verplanken, & Van Knippenberg, 2003; 1 = very negative, 9 = very positive).

Before participants were debriefed and paid, they answered questions about their age and gender. Senders were also asked how difficult it had been to write two stories about an elderly person (1 = very easy, 9 = very difficult).

After the experiment, two raters, who were blind for conditions, and who did not know the purpose of the experiment, scored the stereotypicality and the valence of the stories (1 = stereotypical/very negative, 7 = counterstereotypical/very positive).

### Results

*Content of the stories.* A one-way ANOVA with stories as factor on length, stereotypicality, and valence of the stories revealed only an effect on valence. Positive stories ( $M = 6.31$ ,  $SD = 0.69$ ) were scored as describing the main character in more positive terms than negative stories ( $M = 2.81$ ,  $SD = 0.48$ ),  $F(1, 24) = 223.81$ ,  $p < .01$ ,  $\eta^2 = .90$ . Stereotypicality and valence were not correlated ( $r = -.03$ , ns; interrater reliabilities  $r = .72$  and  $r = .95$ , respectively.). Finally, writing two positive stories ( $M = 5.23$ ,  $SD = 2.09$ ) was not more difficult than writing two negative stories ( $M = 6.15$ ,  $SD = 2.54$ ),  $F(1, 24) = 1.02$ ,  $p = .32$ .

*Communication and implicit prejudice.* Since results of the ST-IAT were identical for participants who had first reacted to elderly pictures combined with positive targets, and for those who had first reacted to elderly pictures combined with negative targets, we will not report analyses including order effects. We discarded all trials with fault responses (e.g. when participants indicated that a positive target was negative), as well as those with response latencies that deviated more than three standard-deviations from the overall mean. In order to analyze whether the role of sender versus recipient affected participants' implicit prejudice, we first computed difference scores by subtracting the reaction times on the elderly/positive from the elderly/negative trials (see Table 1). Next, we subjected these difference scores to a 2 (role: sender vs. recipient) x 2 (stories: positive vs. negative) between-subjects ANOVA. The only effect was the predicted two-way interaction,  $F(1, 48) = 4.59$ ,  $p < .05$ ,  $\eta^2 = .09$ . Senders of positive stories showed a positive implicit attitude towards elderly people, as they reacted faster on elderly targets when these had been paired with positive rather than negative targets.



Table 1: *Mean Differences and Standard Deviations of Reaction Times Between Elderly Targets After Combination with Negative Versus Positive Targets as a Function of Role and Stories.*

Role	Stories	
	Positive	Negative
Sender		
<i>M</i>	+ 33 ms	- 62 ms
<i>SD</i>	75 ms	214 ms
Recipient		
<i>M</i>	- 67 ms	+ 20 ms
<i>SD</i>	147 ms	142 ms

Senders of negative stories, in contrast, showed the opposite pattern. The implicit attitude of recipients of positive stories was negative. They reacted slower on elderly targets when these were combined with positive rather than negative targets. This was reversed for recipients of negative stories. According to simple effects analyses, none of the difference scores differed significantly from zero (all  $ps > .10$ ). Likewise, none of the simple main effects of stories within the roles of sender or recipient was significant (both  $ps > .10$ ). Neither were the simple main effects of role within positive or negative stories (both  $ps > .10$ ). Results were identical after log and inverse transformations of reaction times.

We entered several covariates, like valence of the stories, mood, or need for structure, but did not find a significant effect on reaction times or on the interaction.

*Communication and explicit prejudice.* Participants' explicit attitudes towards elderly people were subjected to a 2 (role: sender vs. recipient) x 2 (stories: positive vs. negative) between-subjects ANOVA. No significant effects were found. Moreover, the correlation between responses on the explicit attitude measure and reaction times on the ST-IAT was not significant ( $r = .04$ , ns).

### *Discussion*

Although the simple effects on implicit prejudice were not significant, we were able to demonstrate the higher order interaction between communicative role and message valence. Compared to recipients of the same stories, senders of positive stories had a more positive attitude than senders of negative stories.

We would like to argue that these effects are due to the activation of congruent information for senders after having formulated a message (Carroll, 1978; Gregory, Cialdini, & Carpenter, 1982; Sedikides, 1990), and to psychological reactance for recipients (Brehm & Brehm, 1981; Wright et al., 1992).

Interestingly, the effect of communication on implicit prejudice seems to be a rather universal process. Although we measured several individual difference measures that are known to affect the strength of people's prejudice in order to control for possible

moderation or mediation (see footnote), none of these variables showed reliable effects. The same was true for features of the stories. Most important, we ruled out the possibility that the results can be explained by effects of the communication task on mood.

We also demonstrated that indirect measures of prejudice may cast a different picture than explicit measures. Whereas we found reliable effects on the former, no effects emerged on the latter. Furthermore, implicit and explicit attitudes were not correlated, which suggests that both measure different constructs.

As Study 3.1 showed the predicted higher order interaction, but failed to yield significant simple effects, in Study 3.2 we tested the effect of communication on implicit prejudice with the same communication paradigm, but a different measure of implicit prejudice, namely an affective priming task (APT; Fazio et al., 1995). The procedure of the IAT asks participants to group the target category with positively or negatively evaluated objects, thereby creating an explicit link between them. The procedure of the APT avoids this explicit link by simply priming with the target category and then presenting the object that participants are asked to react on. Therefore, the target category may be processed even more passively, and reactions may be even harder to control than in an IAT.

## Study 3.2

This study added three methodological modifications to Study 3.1. First, we analyzed the relation between communication and implicit prejudice with a different measure, namely an affective priming task (APT; Fazio et al., 1995). Second, within the APT, we did not only prime participants with the target category of elderly people (about which they had written or read a message), but also with Germans. Adding a second prime enabled us to demonstrate that the communication task did not make participants more positive or negative in general, but that it was a specific effect on participants' attitudes towards the target category. We chose for Germans as second prime, because a pilot study had shown that in our population the general attitude towards Germans was about the same as for elderly people. Both were evaluated somewhat negatively. Third, explicit prejudice was measured with the motivation to respond without prejudice scale (Plant & Devine, 1998).

### *Method*

*Participants and design.* Participants were 40 undergraduate students from the Radboud University Nijmegen (29 female, 11 male; average age = 21 years), who received € 2. They were randomly assigned to a 2 (role: sender vs. recipient) x 2 (stories: positive vs. negative) x 2 (prime: elderly people vs. Germans) mixed-model design with repeated measures on the last variable.

*Procedure and materials.* Upon arrival, participants were explained that they would be taking part in a number of unrelated computerized experiments. First, they worked

on the same communication task as in Study 3.1. Then, we administered the same mood questionnaire as in Study 3.1.

The first dependent variable was the reaction times on an APT (Fazio et al., 1995). Each trial started with a forward mask that consisted of a row of Xs for 500 ms. Next, the prime was presented for 300 ms, which was either the word 'Elderly' or the word 'German'. After a backward mask for 200 ms, the target word appeared, and stayed on the screen until participants pressed a key on the keyboard before them. Targets were five positive (e.g. beautiful) and five negative (e.g. bad) adjectives, as well as five positive (e.g. love) and five negative (e.g. pain) nouns. Each one was paired twice with each of the two primes in random order, which resulted in a total of 80 trials. Participants were asked to indicate as fast and accurately as possible whether the target word was positive or negative by pressing the respective key.

We did not find effects of the communicative roles or the valence of the message on the explicit prejudice questionnaire in Study 3.1. Therefore, we administered the internal and external motivation to respond without prejudice scale (Plant & Devine, 1998) as explicit measure of prejudice in the present study. Finally, participants answered the same general information questions as in Study 3.1.

Similar to Study 3.1, two raters scored the stereotypicality and the valence (1 = stereotypical/very negative, 7 = counterstereotypical/very positive) of the stories.

## Results

*Content of the stories.* A one-way ANOVA with stories as factor on length, stereotypicality, and valence of the stories revealed only an effect on valence. Positive stories ( $M = 6.07$ ,  $SD = 0.64$ ) were scored as describing the main character in more positive terms than negative stories ( $M = 2.57$ ,  $SD = 0.61$ ),  $F(1, 18) = 217.44$ ,  $p < .01$ ,  $\eta^2 = .89$ . Stereotypicality and valence were not correlated ( $r = .09$ , ns; interrater reliability  $r = .76$ , and  $r = .85$ , respectively.). Moreover, writing two positive stories ( $M = 4.66$ ,  $SD = 1.87$ ) was not more difficult than writing two negative stories ( $M = 5.22$ ,  $SD = 2.28$ ),  $F(1, 18) < 1$ , ns.

*Communication and prejudice.* In order to analyze whether the communication task affected participants' implicit prejudice towards elderly people, we computed difference scores on the trials with elderly people and those with Germans as prime by subtracting the reaction times on positive targets from those on negative targets. All trials with fault responses, as well as those with response latencies that deviated more than three standard-deviations from the overall mean, were not included in this analysis. Then, we conducted a 2 (role: sender vs. recipient) x 2 (stories: positive vs. negative) x 2 (prime: elderly people vs. Germans) mixed-model ANOVA on these difference scores, with repeated measures on the last variable. We found the predicted Role x Stories x Prime interaction,  $F(1, 36) = 7.57$ ,  $p < .01$ ,  $\eta^2 = .17$ .

Breaking this three-way interaction down for elderly and German primes revealed that there was only a Role x Stories interaction after the former prime,  $F(1, 36) = 16.56$ ,  $p < .01$ , but not after the latter,  $F(1, 36) < 1$ , ns.

Table 2: *Mean Differences and Standard Deviations Between Reaction Times on Negative and Positive Targets as a Function of Role and Stories.*

Role	Stories	
	Positive	Negative
Sender		
<i>M</i>	+ 61 ms* <sub>a</sub>	- 60 ms* <sub>b</sub>
<i>SD</i>	73 ms	57 ms
Recipient		
<i>M</i>	57 ms* <sub>b</sub>	+ 11 ms* <sub>a</sub>
<i>SD</i>	96 ms	61 ms

Note. \*  $p < .05$ .

Cells with different subscripts differ significantly from each other at  $p < .05$ .

Concerning reaction times after the prime with elderly people, simple effects analyses revealed that both the effect of stories was significant within both the role of sender,  $F(1, 36) = 13.39, p < .01, \eta^2 = .27$ , and recipient,  $F(1, 36) = 4.38, p < .05, \eta^2 = .11$ . Senders of positive stories had a more positive attitude towards elderly people than senders of negative stories, whereas the reverse was true for recipients of positive and negative stories (see Table 2).

Moreover, the effect of role was significant within both positive,  $F(1, 36) = 12.29, p < .01, \eta^2 = .26$ , and negative stories,  $F(1, 36) = 4.92, p < .05, \eta^2 = .12$ . Senders of positive stories had a more positive attitude towards elderly people than recipients of the same stories. At the same time, senders of negative stories had a more negative attitude than recipients of the same stories (see Table 2).

Finally, the difference scores between reaction times on positive and negative targets were significant for senders of positive  $F(1, 36) = 6.19, p < .05, \eta^2 = .15$ , and negative stories,  $F(1, 36) = 7.31, p < .01, \eta^2 = .17$ , as well as for recipients of positive stories,  $F(1, 36) = 6.11, p < .05, \eta^2 = .15$ . They were not significant for recipients of negative stories,  $F(1, 36) < 1, ns$ . Results were identical after log and inverse transformations of reaction times.

Similar to Study 3.1, variables that we added as covariates had no effect.

*Communication and explicit prejudice.* Responses on the two subscales of the internal and external motivation scale to respond without prejudice (Plant & Devine, 1998) were subjected to a 2 (role: sender vs. recipient) x 2 (stories: positive vs. negative) between-subjects ANOVA. No effects were found, however (all  $F$ s  $< 1, ns$ ).

*Discussion*

We were able to replicate the results we had found with an ST-IAT in Study 3.1 with even more reliable effects on an APT. Unlike Study 3.1, where only the higher order interaction reached statistical significance, in Study 3.2 we obtained completely

crossed simple effects between senders and recipients of positive and negative stories. Senders' prejudice assimilated towards the content of the message, whereas that of recipients contrasted away from it.

We were also able to demonstrate that the communication manipulation did not change participants' general response pattern towards positive and negative targets, but that it specifically affected implicit prejudice towards the target category of the communication task, in this case elderly people. Only when participants had been primed with elderly people, the predicted effects emerged. When primed with Germans, a category that is generally evaluated about equally as elderly people, no significant effects were observed.

Also replicating the results of Study 3.1, no reliable effects were found on an explicit measure of prejudice, in this case the internal and external motivation to respond without prejudice scale (Plant & Devine, 1998), which further supports our reasoning that indirect measures may be more sensitive to spontaneous changes in people's attitudes, especially when socially sensitive issues are involved, such as people's prejudices.

Studies 3.1 and 3.2 clearly demonstrated the opposite effects that communication can have on the implicit prejudice of senders and recipients of a message. Therefore, Study 3.3 had a different emphasis. As one function of attitudes is to guide behavior (Eagly & Chaiken, 1998), the final objective was to examine the relationship between communication and approach or avoidance of the target category.

### Study 3.3

With Study 3.3 we aimed to analyze if the differences between senders' and recipients' prejudice that we had found in Studies 3.1 and 3.2 would translate into behavior. Attitudes are supposed to serve as a means to categorize objects into positive and negative stimuli, to evaluate them in terms of good and bad (Eagly & Chaiken, 1998). Through this link, attitudes acquire a survival function, because they inform us whether it is better to approach or to avoid a stimulus (Eiser, Fazio, Stafford, & Prescott, 2003). Therefore, attitudes are supposed to guide our behavior to a certain degree. Research has shown that this is especially true for strong attitudes (Petty & Krosnick, 1995).

Thus, as communicating about a group of people can influence the attitude towards this group, it can also be predicted to affect participants' approach or avoidance tendencies. In order to investigate this, we measured seating distance as a function of participants' communicative role and the valence of the message (Holland, Roeder, Van Baaren, Brandt, & Hannover, 2004; Macrae, Bodenhausen, Milne, & Jetten, 1994).

#### *Method*

*Participants and design.* Participants were 40 undergraduate students from the Radboud University Nijmegen (29 female, 11 male; average age = 22 years), who

received € 2. They were randomly assigned to a 2 (role: sender vs. recipient) x 2 (stories: positive vs. negative) between-subjects design).

*Procedure and materials.* First, participants worked on the same communication task as in the first two studies, except that the main character was German. Then, we asked participants some general questions concerning their age and gender, and senders answered the question how difficult it had been to write two stories (1 = very easy, 9 = very difficult).

In the next phase, the experimenter asked participants to take a seat in the waiting room. On the way there he mentioned that another participant was already waiting there to continue with the experiment, and that this participant was German (gender was matched with participants' gender). We chose for Germans as target group, because there are a lot of German students at Radboud University Nijmegen, so that participants would not wonder why there was a German participant waiting. When participants arrived at the waiting room, there was a bag and a jacket lying on the first chair on the left-hand side. The experimenter explained that these must belong to the other participant, who would soon come back, and asked participants to take a seat. After a short delay, he came back and wrote down on which of the five free chairs each participant was sitting.

In the final phase, participants returned to their cubicle, where they answered a mood-questionnaire and the same question concerning their explicit attitude as in Study 3.1. Then, they were debriefed and paid.

Similar to Study 3.1 and 3.2, two raters scored the stereotypicality and the valence (1 = stereotypical/very negative, 7 = counterstereotypical/very positive) of the stories.

## Results

*Content of the stories.* We conducted a one-way ANOVA with stories as factor on the valence, stereotypicality, and length of the stories. The only significant effect was that on valence,  $F(1, 18) = 207.75, p < .01, \eta^2 = .88$ . Positive stories described the main character in more positive terms ( $M = 6.20, SD = 0.71$ ) than negative stories ( $M = 1.95, SD = 0.60$ ). Stereotypicality and valence were not correlated ( $r = .05, ns$ ; Interrater reliability  $r = .84$ , and  $r = .93$ , respectively.). Senders did not find it more difficult to write two positive than two negative stories ( $F(1, 18) < 1, ns$ ).

*Communication and seating distance.* The main goal of this experiment was to analyze if the opposite effects of communication on senders' and recipients' implicit prejudice that we had found in Studies 3.1 and 3.2 could be replicated with a measure of behavior. Therefore, we subjected participants' seating distance scores to a 2 (role: sender vs. recipient) x 2 (stories: positive vs. negative) between-subjects ANOVA. The only effect was the predicted Role x Stories interaction,  $F(1, 36) = 6.94, p < .05, \eta^2 = .16$ . According to simple effects analyses, the effect of stories was significant within the role of recipient,  $F(1, 36) = 6.17, p < .05, \eta^2 = .15$ , but not within that of sender,  $F(1, 36) = 1.54, p > .20$ , although means were in the predicted direction. Recipients sat closer to the German participant after a negative rather than positive message (see Table 3).

Table 3: *Means and Standard Deviations of Seating Distance Towards the German Participant as a Function of Role and Stories.*

Role	Stories	
	Positive	Negative
Sender		
<i>M</i>	2.80 <sup>a</sup>	3.10 <sup>a</sup>
<i>SD</i>	0.63	0.57
Recipient		
<i>M</i>	3.20 <sup>a</sup>	2.60 <sup>b</sup>
<i>SD</i>	0.42	0.52

*Note.* Cells with different subscripts differ significantly from each other at  $p < .05$ .

Moreover, the effect of role was significant within negative stories,  $F(1, 36) = 4.29$ ,  $p < .05$ ,  $\eta^2 = .11$ , and there was a trend in the expected direction within positive stories,  $F(1, 36) = 2.74$ ,  $p = .10$ . Recipients of negative stories sat closer to the German participant than senders. The reverse was true for senders and recipients of positive stories (see Table 3). We did not find effects of covariates in this study.

*Communication and explicit prejudice.* The responses on the questionnaire about participants' explicit attitude about Germans were subjected to a 2 (role: sender vs. recipient)  $\times$  2 (stories: positive vs. negative) between-subjects ANOVA. We only found a significant main effect of role. Senders had a more positive attitude towards Germans ( $M = 6.7$ ) than recipients ( $M = 5.1$ ),  $F(1, 36) = 11.32$ ,  $p < .01$ ,  $\eta^2 = .24$ . Seating distance and participants' explicit attitude towards Germans were not correlated ( $r = .09$ , ns).

### *Discussion*

The interaction effect from Studies 3.1 and 3.2 was replicated with a behavioral measure. This time the effect on recipients was stronger than that on senders. Consistent with the suggestion that attitudes serve to guide approach or avoidance behavior, we were able to show that manipulations of the communicative context that can lead to opposite effects for senders' and recipients' implicit prejudice, can also have corresponding effects on related behavior. Specifically, compared to sending negative and receiving positive messages, sending positive and receiving negative messages led to more positive attitudes, and also to a reduction in interpersonal distance towards the target person. To our knowledge, this is the first demonstration of differences in senders' and recipients' preference for interpersonal distance towards a member of a target group following a communication about that group.

Whereas we did not find any significant effects of communicative roles and message content on explicit measures of prejudice in Studies 3.1 and 3.2, this time we only found a theoretically irrelevant main effect for roles, such that senders had a more positive attitude about the target group. Similar to the results of Studies 3.1 and 3.2,

responses on the explicit attitude measure were not correlated with the preferred seating distance.

## General Discussion

The present experiments served several objectives. Most basically, we wanted to draw attention to the importance of people's communicative roles in interpersonal communication with regard to prejudice. Although interesting and important on a theoretical as well as applied level, this topic has rarely been explored to date.

We asked participants to either write two stories about a member of a target category, or to read these same stories, and we found that senders' implicit prejudice and behavioral tendencies assimilated towards the content of the message, whereas that of recipients contrasted away from it. In Study 3.1, this was shown with elderly people as target category, and with an ST-IAT as dependent measure. Relative to recipients, senders had a more positive attitude towards elderly people after a positive rather than negative message. Study 3.2 replicated this finding with an APT as dependent measure, which led to even more reliable results. Using an APT, which is presumably even less controllable than an IAT, supported our conclusion that communication affects senders' and recipients' implicit prejudice. Whereas an IAT explicitly asks participants to group a target category with positive or negative targets, an APT measures implicit associations more indirectly by simply priming with the target category and then presenting the target that participants have to react on. In contrast to an IAT, there is no mention of the relation between the category and the target in the APT-procedure. Therefore, the category will probably be processed even more passively in an APT.

Moreover, we showed that our results were specific for the target category that had been described in the message by adding Germans as a second prime within the APT. Since reaction times towards Germans were not affected by the manipulations, we were able to rule out the explanation that the communication task made participants more positive or negative in general. Study 3.3 showed that the differential cognitive consequences also translated into behavior. Senders of a positive message about Germans subsequently sat closer to a German person than senders of negative messages. The opposite was true for recipients.

The conclusion that senders assimilate towards the content of the message and recipients contrast away from it is further supported by a meta-analysis on the data of all studies presented. We decided to conduct this analysis because results were not completely consistent across our studies. Although the higher order interaction was significant in all three experiments, simple effects analyses showed less consistent results. In Study 3.1, none of the simple effects was significant, whereas they were all significant in Study 3.2. In Study 3.3 only two of four simple effects were significant.

In order to make the results comparable, the difference scores of Studies 3.1 and 3.2, as well as the seating distance scores from Study 3.3 (all predicting the same interaction between sending and receiving a message and the content of the message) were first



converted to z-scores within each experiment, and then combined into an overall ANOVA, with experiment number as between-subjects factor (Rosenthal, 1991). The Role x Stories interaction was the only significant effect,  $F(1, 120) = 25.15, p < .01, \eta^2 = .17$ . Simple effects analyses showed that the effect of stories was significant within both the role of sender,  $F(1, 120) = 13.21, p < .01, \eta^2 = .10$ , and recipient,  $F(1, 120) = 10.40, p < .01, \eta^2 = .09$ . Whereas senders assimilated towards the content of the message, recipients showed contrast. Moreover, the effect of role was significant within positive,  $F(1, 120) = 14.89, p < .01, \eta^2 = .11$ , and within negative stories,  $F(1, 120) = 10.43, p < .01, \eta^2 = .08$ . Senders of positive and recipients of negative messages had a more positive attitude than senders of negative and recipients of positive messages. The Role x Stories x Experiment interaction was not significant,  $F(2, 120) < 1, ns$ , so that we concluded that the general pattern of means was identical across studies.

A plausible explanation for the observed contrast effect is psychological reactance (Brehm & Brehm, 1981). The reception of the message might have led to the impression that the sender was trying to influence the recipient's attitude. The impression that one is being manipulated typically leads to reactance, as well as to attitudinal and behavioral changes in the opposite direction. Receiving a message about a member of a social category that describes this person in positive or negative terms might also instigate this process, and result in respective attitude change. Supporting our analysis, experiments on the relation between communicative roles and stereotyping (Chapter 2 of the present dissertation), demonstrated that the contrast effect disappeared when recipients were under cognitive load while reading the message, which supposedly made it harder for them to counteract the senders' impression of the target.

We measured the effects of communication on prejudice with indirect as well as with explicit measures. Although most past research on the relation between communication and attitudes has mainly relied on explicit measures, we argued that indirect measures may be more appropriate tools, because of their greater sensitivity to detect spontaneous changes in participants' prejudices (see Blair, 2001). The results of the present experiments support this reasoning. Whereas we found the predicted interaction between the effects of communicative roles and message content on indirect measures in all three experiments, no effects at all were observed on explicit measures in two of three experiments. In the third experiment, there only emerged a theoretically irrelevant main effect for communicative roles, such that senders had a more positive attitude than recipients. Moreover, we did not find a significant correlation between responses on indirect and explicit measures in any of the three experiments, which supports our suggestion that both measure different kinds of attitudes. Whereas explicit measures allow participants to consciously control their response, indirect measures largely reduce this possibility. Therefore, explicit measures may be biased more strongly by effects like social desirability or the retrieval of participants' long-term attitude. Responses on indirect measures are less susceptible to these processes (Steffens, 2003), and are therefore better suited to explore spontaneous changes in people's attitudes.

In experiments on the effects of forewarning on persuasion, two kinds of forewarning have been used. One procedure is to forewarn recipients about the sender's intention to manipulate them (Freedman & Sears, 1965; Petty & Cacioppo, 1979; Zuwerink &

Devine, 1996). This procedure has been shown to cause contrast effects in attitude change on explicit measures (Heller, Pallak, Picek, 1973; Kiesler & Kiesler, 1964). The other procedure, which we employed in our experiments, is to forewarn recipients of the content and the position of the message. This method can be regarded a weaker and more natural manipulation (Chen et al., 1992; Papageorgis, 1970). It does not lead to contrast effects on explicit measures, however. To date, only an attenuation of the persuasive appeal was found. Moreover, it was consistently found that a delay of several minutes between the communication and the attitude measurement was required for resistance to persuasion to be observed (Freedman & Sears, 1965; Hass & Grady, 1975), presumably because it took recipients some time to formulate counterarguments. In our experiments with indirect measures as dependent variables, we found this resistance without a delay period, and this resistance even led to contrast effects, not just to an attenuation of the sender's influence. Maybe counterarguing is required for conscious resistance against an attempt to persuade, but not for resistance on the more basic unconscious, associative level.

It should also be noted that recipients showed contrast after positive as well as negative messages. In former experiments, resistance to persuasion was found after a message that favored a counterattitudinal position. Since it is unlikely that our subjects always happened to hold attitudes that opposed the message, this is evidence that it was more important to resist the persuasive message than to hold a specific attitude.

In sum, we plead for the use of indirect measures to investigate the consequences of communication. Using explicit measures, researchers typically found compliance with senders' intentions (Chen et al., 1992; Johnson & Izzett, 1972; Ward & McGinnies, 1974), which is the opposite of what we found. Indirect measures may be more sensitive to the consequences of processes like reactance, enabling us to explore as yet undiscovered effects of interpersonal communication.

The present experiments also shed light on the relation between conscious, volitional cognitive structures, and more implicit, unconscious ones, which may be able to interact (Strack & Deutsch, 2004). Since implicit structures are not capable of negation, unless it has been practiced extensively (Deutsch, Gawronski, & Strack, 2006), psychological reactance must rely on conscious deliberations (Brehm & Brehm, 1981). It seems likely that such conscious activation of message incongruent cognitions spills over to implicit attitudes, which is subsequently reflected in indirect measures, such as an APT or an ST-IAT.

We did not only compare the direction, but also the strength of the effects on senders and recipients with each other. Across the studies presented, these effects were significant and about equally strong, which supports our notion that it is worthwhile to observe both parts of a communicative dyad within one paradigm. A message does not only seem to influence the recipient, but it also affects cognitions of the sender.

In conclusion, our studies show that senders' influence on recipients may not always be straightforward. Although senders may intend to change the recipients' point of view in their own direction, this may backfire, and motivate recipients to alter their opinion to oppose senders' intentions. This may especially be true for sensitive issues like prejudice, which may prompt recipients to defend their own standpoint.

## CHAPTER 4

### General Discussion



With the present dissertation we aimed to gain insight into the effects of communicative roles on stereotyping and prejudice. Having described our experiments in detail in chapters 2 and 3, we will now give a brief summary of the main findings. We will also discuss the theoretical and methodological implications and limitations of our experiments, and make suggestions for future research on the relation between communication and social cognition, which are derived from this discussion.

## Main Findings

We hypothesized that communicating about the behavior of a member of a social category would have opposite consequences for senders' and recipients' implicit beliefs about this category. Specifically, we predicted that senders would assimilate towards the content of the message, whereas recipients would contrast away from it.

The experiments in chapter 2 tested this prediction for the accessibility of stereotypes. Participants first wrote or read two short but true stories about a person who behaved stereotypically or counterstereotypically. Then, they took a measure of stereotype accessibility (a lexical decision task in Experiments 2.1 and 2.2, and a false memory test in Experiment 2.3). Results confirmed our hypotheses. Senders showed more stereotype accessibility after they had sent a stereotypic rather than counterstereotypic message, whereas the reverse was found for recipients. Although the higher order interaction between communicative role and message content was reliable in all three experiments, simple effects differed across studies, such that sometimes the effect was stronger for senders, and at other times it was stronger for recipients. In a meta-analysis on the data of all three experiments, the predicted higher order interaction emerged, as well as a full-crossed pattern of simple effects. The factor experiments (1 – 3) had no significant effect. Therefore, we concluded that the pattern of results was similar in all three studies. In order to test whether recipients' contrast effect was due to psychological reactance, we focused on recipients (who read the same messages as recipients in Experiment 2.3) in Experiment 2.4. Since the execution of reactance requires some cognitive capacity, we argued that putting recipients under load would make this harder or even impossible, so that the contrast effect would no longer be observed. Participants who had read the message without load showed the typical contrast effect, whereas those who had to solve a concurrent task exhibited an assimilation effect, which did not reach statistical significance, though.

The experiments in chapter 3 focused on the effects of communicative roles on prejudice and behavior. We predicted that senders of positive messages would hold more positive implicit attitudes towards the target group than senders of negative messages, and the reverse for recipients of the same messages. We also employed explicit measures of prejudice in order to compare responses on these measures with those on indirect ones.

Across three studies, these predictions about implicit prejudice were confirmed. Experiments 3.1 and 3.2 demonstrated this by measuring prejudice with indirect measures, namely an implicit association test, and an affective priming task. In Experiment 3.3

we measured interpersonal behavior by observing participants' seating distance from a member of the target group. We found that senders of positive messages sat closer to a German participant than senders of negative messages. This difference was not significant, however. Recipients, on the other hand, showed a significant contrast effect. They sat closer to the German participant after a negative rather than positive message. Similar to the experiments in chapter 2, we conducted a meta-analysis on the data of all three experiments, because simple effects were inconsistent across studies. In some experiments, the effect on senders was stronger, whereas in other experiments, that on recipients was stronger. Similar to the results of the meta-analysis reported in chapter 2, the predicted higher order interaction emerged, as well as a full-crossed pattern of simple effects. Again, the factor Experiments (1 – 3) had no significant effect, which indicated that the pattern of results was similar in all three studies.

Concerning explicit prejudice, we did not find any reliable effects of the communication task on explicit measures in Studies 3.1 and 3.2. In Study 3.3 there emerged a main effect of role. Irrespective of message content, senders reported a more positive attitude towards Germans than did recipients. Furthermore, implicit and explicit prejudice did not correlate in any of the three studies, which underscores that both measure different aspects or kinds of attitudes.

## Implications of the Presented Experiments

### *Concerning senders*

We confirmed the findings from earlier research on the effects of communication on cognition. Using explicit measures, it has repeatedly been demonstrated that sending a message can lead to thoughts that are more consistent with the content of this message (Higgins & Rholes, 1978; Janis & King, 1954; Zajonc, 1960). For instance, Janis and King (1954) asked the senders in their experiment to give a talk on a university matter. This talk had been worked out by the researchers, and supported a position that challenged the senders' original opinion. Nevertheless, Janis and King (1954) found that senders' opinions shifted in the direction of the arguments provided by the talk. We replicated this result with indirect measures, which showed that this shift might occur, because sending a message results in higher accessibility of the message content (Gregor, Cialdini, & Carpenter, 1982). Sending a stereotypic description of a member of a social category subsequently resulted in faster reaction times on stereotypic stimuli, whereas sending a counterstereotypic description slowed reaction times down.

### *Concerning recipients*

It is usually assumed (and has sometimes also been demonstrated) that communication serves as a means to transfer stereotypes and prejudices from senders to recipients (Maass, 1999; Wigboldus & Douglas, 2007). Recipients are expected to take over the impression conveyed by senders. The current experiments show that this is not

necessarily true. Although recipients were affected by the content of the message, their responses did not comply with senders' intentions, but opposed them, at least when assessed with indirect measures. For instance, receiving a message that described positive behavior of a member of a social category, subsequently led to more negative associations with this category. To our knowledge, this is the first demonstration of a contrast effect as recipients' default response to a communication about stereotypes and prejudice. Further analyses revealed that this contrast effect may have occurred, because recipients' counteracted senders' intentions, as they did not want to be influenced by senders, but wanted to form their own opinion. Therefore, they may have retrieved instances from memory in which a member of the target category displayed opposite behavior as described by senders. However, retrieval is an effortful process, and its execution should be obstructed when cognitive resources are depleted, for instance by the performance of a concurrent task. Our results confirmed this reasoning. Under cognitive load, recipients showed the same assimilation effect as senders. Without load, they exhibited contrast.

This is important news for senders who pursue the goal of influencing recipients' beliefs. As the current studies make clear, this effort may backfire. Recipients should not be regarded as passive addressees, but as active interpreters of a message (Festinger & Maccoby, 1964). This is especially important for public campaigns that aim to reduce stereotyping and prejudice in a society. Although it is beyond the scope of this dissertation to make concrete recommendations for the design of successful public campaigns, our results suggest that it may not suffice to just provide examples of positive counterstereotypical group members.

## **The Sender, the Message, and the Recipient**

Communication involves three parts: a sender, a message, and a recipient. However, research on the effects of communication on stereotypes and prejudice has mainly focused on the content of the message. This may be due to the strong impact of the findings from the linguistic category model on the attributional properties of verbs and adjectives (Semin & Fiedler, 1991), as in studies on the linguistic intergroup bias and the linguistic expectancy bias (Maass, 1999; Wigboldus & Douglas, 2007). Since the current studies have revealed the strong influence that communicative roles may exert on social cognitive processes, future research may dedicate more attention to this largely neglected subject.

Another important aspect of the present research concerns the paradigm that we used to investigate the influence of communicative roles on stereotyping and prejudice. Research on persuasion has demonstrated how and when senders and recipients may change their mind. However, these studies examined the effects of communication either only on senders (Gordijn, Postmes, & De Vries 2001; Higgins & Rholes, 1978; Sedikides, 1990) or only on recipients (Bohner, Ruder, & Erb, 2002; Brock, 1967; Chen, Reardon, Rea, & Moore, 1992; Johnson & Izzett, 1972; Roskos-Ewoldsen, Bichsel, & Hoffman, 2002; Ward & McGinnies, 1974; Worchel

& Brehm, 1970). Exploring the consequences for senders and recipients within one paradigm has several advantages. First, for the sake of efficiency, one can draw conclusions about both senders and recipients within one experiment. Second, it offers the opportunity to compare senders' and recipients' reactions under exactly the same conditions, because one may hold all variables constant, except the communicative roles. Therefore, the direction and strength of the effects on senders and recipients become directly comparable. Experiments that focus either on senders or recipients exclude this possibility, because usually the communicative content differs across studies. Senders in one experiment communicate about other subjects than recipients in another experiment, which makes results less comparable. Even if subjects are the same, the exact message content still differs, while even subtle differences in the phrasing of a message can exert a powerful influence on people's stereotypes and prejudices (Maass, 1999; Wigboldus & Douglas, 2007). To prevent this, each sender in the current experiments formulated one message, which was then passed on to just one recipient. This paradigm made senders' and recipients' responses more comparable, because they were exposed to identical message contents.

## Using Explicit or Indirect Measures

Depending on whether the constructs of interest are assessed with explicit or indirect measures, researchers may come to different conclusions, because both measures may reflect different parts or kinds of attitudes (Fazio & Olson, 2003). When people are directly asked about their attitude, they have full control over their answer, and therefore they may consciously recollect their long-term attitude, which may be relatively stable across situations (Dovidio & Gaertner, 2004). Indirect measures, such as reaction time measures, may be better suited to discover short-term fluctuations in people's attitudes. They restrict conscious control of the responses to a large degree, so that participants cannot rely on their general long-term attitude, but have to react more on spontaneous impulses (Cunningham, Preacher, & Banaji, 2001). These impulses have repeatedly been shown to be subject to short-term situational influences (see Blair, 2001). For instance, Dasgupta and Greenwald (2001) found that confrontation with positive and negative group members affected participants' responses on indirect measures. Participants who had been presented with positive Black and negative White individuals, subsequently showed less prejudiced reactions towards Blacks on an implicit association test than those who had been presented negative Black and positive White individuals. This effect held up even 24 hours later. Since social psychological studies usually do not intend to survey people's general long-term attitudes, but to examine how specified factors influence people's cognitions, we plead for the use of indirect measures in research on stereotyping and prejudice.

Indirect measures offer yet another advantage over explicit ones: it is harder, although not impossible, to fake them (Steffens, 2003). The exploration of



spontaneous changes in cognitive constructs may not only be hindered when participants declare what they consider their genuine explicit attitude, but also when they report attitudes that they do not hold at all. For instance, when ethnic attitudes are concerned, considerations of social desirability may cause participants to give liberal answers, even when in reality they hold racist beliefs (Dovidio & Gaertner, 2004). Since participants have more control over their answers on explicit than indirect measures, these considerations may bias the former more than the latter.

## How (Explicit) Reactance Causes (Implicit) Contrast Effects

It has previously been assumed that the implicit and explicit cognitive system may interact (Strack & Deutsch, 2004), and our experiments may provide a good example of this interaction. We have argued that recipients contrasted away from the content of the message because of psychological reactance (Brehm & Brehm, 1981), which is usually regarded as an explicit process. It represents defiance of external influences, and it is carried out when people perceive that their individual freedom is threatened. We have further demonstrated that reactance can have implicit cognitive consequences as assessed with indirect measures of associative strength. We assume that this process works as follows. When recipients believe that senders want to influence their impressions of another person or group, they may feel that it is necessary to guard against this influence. As a consequence, they may recollect instances where this person or members of this group behaved differently or even in opposite ways, which may render these behaviors more accessible. As Bassili and Brown (2005) argued, people may possess an associative cognitive network in which social stimuli are connected with different representations of traits, behaviors, attitudes, and emotions. Depending on internal or external cues, different elements of the whole network will become more or less accessible. These differences in accessibility will subsequently be reflected on indirect measures of associative strength.

In order to illustrate this mechanism, we will again describe the study by Dasgupta and Greenwald (2001) that we already explained above. The authors showed how prejudiced responses towards Blacks can be modified by exemplars of liked and disliked Blacks and Whites. One of the liked Black individuals was Will Smith. Thinking about this famous actor will probably remind people that he is successful in his job, and that he has made several funny movies. They may also remember that they enjoyed his movies, and that he made them laugh a lot. As a result, a positive attitude towards Will Smith will be activated. When people retrieve even more instances of positively evaluated Black individuals, the higher accessibility of this specific set of exemplars will (at least temporarily) make the evaluation of the whole category more positive, so that the judgment at hand becomes more favorable, too (Smith & Zárate, 1992).

## What's Next?

### *Which processes cause the observed effects?*

The present thesis introduced the new finding that the same message can affect senders' and recipients' stereotypes, prejudice, and behavior in opposite ways. Whereas senders assimilated towards the content of the message, recipients contrasted away from it. The causes of these effects were only partially investigated, however. We demonstrated that recipients only show contrast when they possess sufficient cognitive capacity while they process the message. Under cognitive load, they showed the same assimilation effect as senders. Therefore, we concluded that recipients are motivated to resist the impression conveyed by senders, but that this resistance is an effortful process that demands some cognitive capacity if it is to be executed successfully. These conclusions are in line with our hypothesis that psychological reactance determines recipients' responses. More evidence is required, though, to validate this explanation.

Concerning senders, we derived several processes from the existing literature that have been shown to influence senders' beliefs, but we did not investigate which of these processes was responsible for the assimilation effect. It would surely be important to clarify this. An important first step would be to examine whether it matters if senders communicate self- or other-generated messages. Although researchers have found assimilation for both self-generated (Gordijn et al., 2001), as well as other-generated messages (Janis & King, 1954) with explicit measures, we are not aware of a study that compared the consequences of this difference. Such a comparison may restrict the possible mechanisms behind the effect. For instance, retrieval-induced forgetting would be excluded from the potential causes, if the results did not show a difference between self- and other-generated messages, because this process requires active retrieval of information. In a second step, one might test which of the potential mechanisms is (or are) the causal one(s) by specifically analyzing whether they are or are not present.

### *Which role does message content play?*

With the current thesis we aimed to stress the importance of communicative roles for stereotype activation and prejudice. Therefore, message content was not manipulated. All participants briefly communicated about the behavior of a member of a social category. Thus, although there exist several other ways to communicate stereotypes and prejudice, our conclusions are valid only for this specific communicative content. It is not clear whether we would have found the same results if the message had had a more persuasive instead of descriptive content. A persuasive message might convince recipients more easily of the correctness of the senders' point of view, so that assimilation might occur instead of contrast.

It is known that more subtle manipulations of message content are also able to affect people's cognitions (Maass, 1999; Wigboldus & Douglas, 2007). Therefore, it may be interesting to combine our line of research, which focuses on the effects

of communicative roles on stereotyping, prejudice, and behavior, with research that investigates the consequences of differences in linguistic abstraction of the message content. Orthogonally manipulating communicative role and linguistic abstraction would enable researchers to observe how these variables may interact.

## **Concluding Remarks**

To summarize, we found clear evidence for opposite effects of communicative acts on senders' and recipients' stereotyping, prejudice, and intergroup behavior. Whereas senders assimilated towards the content of the message, recipients contrasted away from it. We suggested that senders aim to convince recipients of their point of view, and that they thereby corroborate their own beliefs. Recipients, on the other hand, were considered be motivated to maintain their freedom, which causes them to form an impression that opposes the one conveyed by senders. These processes seem to be universal, because we did not find moderating variables, neither individual differences, nor features of the messages.

To go back to the opening paragraph of this thesis, you should think twice about portraying your grandparents in a too positive light. Recipients of your message may come to very different conclusions about elderly people than you might want.



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# Summary





The present dissertation provides insights into the effects of communicative roles (whether one is the sender or the recipient of a message) on stereotyping and prejudice. Several researchers have suggested that communication plays a crucial role in these intergroup phenomena. It has generally been assumed that communicating stereotypes and prejudices serves to maintain them. Thus, recipients of a message that contains stereotypic or prejudiced information have been predicted to take over the impressions conveyed by senders, so that these impressions will eventually be shared by all members of a group. Moreover, it has repeatedly been demonstrated that senders can also influence their own beliefs when passing on their impressions, such that they shift into the direction of the advocated position. Whereas we agreed with the latter line of reasoning, we regarded the former interpretation as too narrow. In our view, this argument neglects that people generally want to prevent being influenced by others, but that they want to form their opinion independently. Instead of agreeing with them, recipients may form impressions that oppose those of senders.

## How Communication May Affect Senders and Recipients

### *Processes That May Act on Senders*

It is a well-established phenomenon that sending a message leads to a shift in senders' beliefs in the direction of the content of the message, regardless of whether the message was self-generated or other-generated. When trying to persuade recipients of their point of view, senders inadvertently convince themselves that their opinion is correct. Several processes may account for this finding, two of which will now be described briefly: cognitive tuning, and cognitive dissonance.

Cognitive tuning may bias senders' organization of the available information. Senders' task in a communication is to pass information on in a coherent and comprehensible way. In order to perform this task, they will try to form a clear impression for themselves, which leads to an integration and unification of the facts. Information that challenges the impression formed is predicted to be neglected or discounted, so that this impression remains stable. Concerning person perception, when senders pass on descriptions that are relevant for the formation of stereotypes or prejudice, they should form impressions of the groups involved that converge with the content of the descriptions.

According to cognitive dissonance theory, senders may change their attitude in order to reduce or prevent unpleasant tension. This tension is predicted to arise when people's behavior does not match their attitudes, and it may be reduced when they change their attitude to bring it in line with their behavior. Therefore, communicating positive or negative person descriptions is predicted to result in respective shifts in senders' attitudes towards this person.

## SUMMARY

### *How recipients may defend their independence*

According to psychological reactance theory, people want to think, act, and feel as they themselves want to. When they feel that this freedom is threatened, they become motivated to defend their independence. As a result, they are predicted to change their behavior in the direction opposite to senders' intentions. Applied to the relation between communication and the activation of stereotypes and prejudices, this means that a message that confirms stereotypes and prejudices will lead to less corresponding beliefs than a message that negates them.

This interpretation is in line with predictions that the cognitive tuning approach makes for recipients. In a communication, recipients must try to integrate and understand the information provided by senders. Therefore, they have to remain mentally flexible, which makes them more susceptible to external influences. However, when they realize that the information challenges their own opinion, they are predicted to try and defend it. Instead of staying open-minded, recipients may dismiss all information that poses a threat to their attitude. Instead, they may become more convinced of their own attitude.

## **How to Measure the Consequences of Communication**

Traditionally, researchers have investigated the effects of communicative acts with explicit measures. For the following reasons, we employed indirect measures in the present experiments. First, because of social desirability considerations, participants may not report their true beliefs on explicit measures. Indirect measures are less susceptible to these concerns. Reactions on indirect measures are less controllable than those on explicit ones, and therefore the former are less prone to faking than the latter. People may also be completely unaware of their beliefs, which makes it impossible to report them on explicit measures. Awareness is not necessary for effects to be found on indirect measures, however. Finally, we wanted to prevent participants from recollecting their long-term beliefs, because the objective of the present experiments was to detect spontaneous changes in participants' beliefs. The reduced controllability of responses on indirect measures limits participants' capability of relying on their long-term beliefs, which may be relatively resistant to change. Therefore, indirect measures may be better suited to investigate spontaneous fluctuations in people's beliefs, because participants have to react more on momentary impulse.

## **Main Findings of the Present Dissertation**

### *Effects of Communicative Roles on Stereotype Activation*

The experiments in chapter 2 examined how sending or receiving a message about a member of a social category influences subsequent stereotype activation. The procedure

of these studies generally consisted of two parts, namely the communication part, and the measurement of the resulting stereotype accessibility. During the communication part, senders wrote two self-generated stories, in which a member of a social category behaved stereotypically or counterstereotypically. Each story was then read by one recipient. This yoked design enabled us to hold the message content constant between senders and recipients. To date, research on the effects of communicative roles on stereotyping and prejudice has focused either on senders or recipients, but has not compared the effects on both roles involved within one study. This made it impossible to compare the effects on senders and recipients, because the topics of the communications differed across studies. Even if the topics were the same, the exact content of the messages still differed. Since even subtle differences in wording have been shown to affect person perception, only a paradigm that holds the message content identical for senders and recipients offers the opportunity to directly compare their reactions. After the communication task, stereotype accessibility was assessed with a lexical decision task or a false memory paradigm. Both paradigms used a priming procedure to measure stereotype accessibility. Stereotype accessibility was indicated by faster processing of stimuli that were consistent with the prime (primed lexical decision task), or by recognizing stereotypic stimuli, although they had not been presented before (false memory paradigm).

Experiments 2.1, 2.2, and 2.3 demonstrated that communication can have opposite consequences for senders' and recipients' stereotype accessibility. Senders showed more stereotype activation after a message that depicted the main character in stereotypic rather than counterstereotypic terms (assimilation). Recipients, on the other hand, displayed more stereotype activation after a counterstereotypic compared to a stereotypic message (contrast). Experiment 2.4 demonstrated that the contrast effect on recipients disappeared when they were put under cognitive load. In this case, they showed a non-significant tendency for the same assimilation effect as senders. Without load, the typical contrast effect was found. These findings suggest that resisting the influence of a message is an effortful process. It seems that recipients are motivated to oppose the impression conveyed in the message, but that they must also possess sufficient cognitive capacity to execute their opposition. Only when they possess both the motivation and the capacity to do so will their impressions contrast away from senders' intentions.

### *Effects of Communicative Roles on Prejudice*

The experiments in chapter 3 applied the general procedure of those in chapter 2 on the measurement of prejudice as well as on intergroup behavior. In the experiments presented in this section, participants were no longer asked to communicate about (counter)stereotypic behavior of a member of a social category, but about positive or negative behavior. Then, either prejudice was measured with reaction time measures, namely an implicit association test and an affective priming task (Experiments 3.1 and 3.2), or participants' seating distance was assessed (Experiment 3.3). Results paralleled those of the studies on stereotype activation. Senders tended to assimilate towards the

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content of the message, whereas recipients contrasted away from it. Thus, senders had a more positive attitude towards the target category (or sat closer to a member of this category) after they had sent a positive rather than negative message, whereas the reverse was true for recipients.

## Conclusions

Together, these experiments demonstrate that the communicative role can affect people's stereotype activation, prejudice, and intergroup behavior in opposite ways. Whereas communication has traditionally been interpreted as serving the maintenance of stereotypes and prejudice by passing them on from senders to recipients, our studies lead to different conclusions. In these experiments, senders primarily strengthened their own belief in the advocated position. Describing (counter)stereotypical behavior of an outgroup member lead to enhanced accessibility of the respective constructs. In other terms, senders assimilated towards the content of the message. Recipients, on the other hand, contrasted away from the message content. To our knowledge, this is the first demonstration of contrast as recipients' default reaction in person perception following a communication about stereotypes or prejudice. This contrast effect was presumably caused by recipients' motivation to counteract senders' point of view, so that they were able to defend their independence.

## **Samenvatting**



Het huidige proefschrift geeft inzicht in de effecten van communicatieve rollen (of men de zender of de ontvanger is van een boodschap) op stereotypering en vooroordelen. De meeste onderzoekers gaan er van uit dat communicatie een cruciale rol speelt bij deze intergroepsprocessen. Over het algemeen wordt aangenomen dat het communiceren van stereotypen en vooroordelen er voor zorgt dat ze in stand worden gehouden. Ontvangers van een boodschap met stereotypische of bevooroordeelde informatie worden geacht de indrukken over te nemen die door zenders worden gecommuniceerd, zodat deze indrukken uiteindelijk door alle leden van een groep gedeeld worden. Onderzoek heeft verder laten zien dat zenders ook hun eigen opvattingen kunnen beïnvloeden wanneer zij hun indrukken communiceren, zodat zij ook zelf in de richting van het gecommuniceerde standpunt schuiven. Hoewel wij het eens zijn met de redenering betreffende zenders, vinden wij dat het betoog betreffende ontvangers tekort schiet. Volgens ons gaat deze redenering voorbij aan het feit dat mensen over het algemeen niet door anderen willen worden beïnvloed en dat zij hun mening zelf willen vormen. In plaats van het met de zender eens te zijn zouden ontvangers juist tegenovergestelde indrukken kunnen vormen.

## Hoe Communicatie Zenders en Ontvangers kan Beïnvloeden

### *Processen die Zenders Kunnen Beïnvloeden*

Het is een bekend fenomeen dat het zenden van een boodschap ertoe leidt dat de zender zijn opvatting verandert in de richting van de inhoud van de boodschap, onafhankelijk van of de boodschap door de zender zelf of door anderen werd gegenereerd. Wanneer zenders proberen ontvangers van hun standpunt te overtuigen, bewijzen zij tegelijkertijd voor zichzelf dat hun mening correct is. Een aantal processen zou dit effect kunnen veroorzaken, waarvan er twee kort zullen worden besproken: “cognitive tuning” en cognitieve dissonantie.

Cognitive tuning kan de organisatie van de informatie waar zenders over beschikken vertekenen. De taak van zenders tijdens communiceren is informatie op een coherente en begrijpelijke manier door te geven. Om deze taak uit te kunnen voeren proberen zij voor zichzelf een duidelijke indruk te vormen, wat tot een integratie van de informatie leidt. Voorspeld wordt dat feiten die de gevormde indruk in twijfel kunnen trekken genegeerd worden, zodat deze indruk intact blijft. Cognitive tuning zou ook een rol kunnen spelen bij persoonswaarnemingen. Als zenders beschrijvingen van een persoon doorgeven die relevant zijn voor het vormen van stereotypen en vooroordelen over die persoon, dan vormen zij een indruk die overeenstemt met deze stereotypen en vooroordelen.

Volgens cognitieve dissonantie theorie zouden zenders hun mening kunnen aanpassen om onplezierige spanning te reduceren of te voorkomen. Deze spanning zou ontstaan wanneer het gedrag van mensen niet spoort met hun attitude, en het zou onder andere gereduceerd worden door het aanpassen van de attitude, zodat die weer overeenstemt met het gedrag.

### *Hoe Ontvangers hun Onafhankelijkheid Verdedigen*

Volgens psychological reactance theory willen mensen denken, handelen en voelen zoals zij dat zelf willen. Wanneer zij denken dat deze vrijheid bedreigd wordt, raken zij gemotiveerd om hun onafhankelijkheid te verdedigen. Als gevolg hiervan veranderen zij hun gedrag in de tegengestelde richting als bedoeld door de zender. Toegepast op de verhouding tussen communicatie en de activatie van stereotypen en vooroordelen betekent dit dat een boodschap die stereotypen en vooroordelen bevestigt tot minder stereotyperingen en vooroordelen leidt, terwijl een boodschap die tegen stereotypen en vooroordelen ingaat juist voor een hogere toegankelijkheid van stereotypen en vooroordelen zorgt. Deze interpretatie is in lijn met de voorspellingen van cognitive tuning theory voor ontvangers. Tijdens een communicatie moeten ontvangers proberen de informatie die zij van de zender krijgen te integreren en te begrijpen. Daarom moeten zij mentaal flexibel blijven, wat hun vatbaarder maakt voor externe invloeden. Echter, als zij zich realiseren dat de informatie tegen hun eigen mening ingaat, wordt voorspeld dat zij hun mening gaan verdedigen. In plaats van open te staan voor nieuwe argumenten zijn ontvangers geneigd alle informatie tegen te spreken die hun attitude bedreigt, zodat zij uiteindelijk juist meer overtuigd zijn van hun eigen mening.

### **Hoe de Gevolgen van een Communicatie Moeten Worden Gemeten**

Onderzoekers hebben de effecten van communicatie meestal met expliciete maten gemeten. Om de volgende redenen hebben wij in de huidige experimenten indirecte maten gebruikt. Ten eerste kan sociale wenselijkheid ertoe leiden dat proefpersonen op expliciete maten niet hun ware opvatting rapporteren. Indirecte maten zijn minder vatbaar voor deze overwegingen, omdat responsen op indirecte maten minder controleerbaar zijn dan responsen op expliciete maten. Mensen kunnen zich echter ook helemaal niet bewust zijn van hun opvatting, zodat zij niet in staat zijn hen in expliciete maten te rapporteren. Om effecten op indirecte maten te vinden is het niet nodig dat respondenten zich van hun opvatting bewust zijn. Tenslotte wilden wij voorkomen dat deelnemers hun lange termijn opvattingen uit hun geheugen konden ophalen, omdat het doel van de huidige experimenten het opsporen van spontane veranderingen in de opvattingen van de deelnemers was. De verminderde controleerbaarheid van de responsen op indirecte maten maakt het voor deelnemers moeilijker terug te vallen op hun lange termijn opvattingen, die relatief stabiel kunnen zijn. Daarom zijn indirecte maten beter geschikt om spontane fluctuaties in de opvattingen van deelnemers te onderzoeken, omdat zij meer op basis van momentane impulsen moeten reageren.



## De Meest Belangrijke Resultaten van het Huidige Proefschrift

### *Effecten van Communicatieve Rollen op Stereotype-Activatie*

De experimenten in hoofdstuk 2 onderzochten hoe het zenden of ontvangen van een boodschap over een lid van een sociale categorie de activatie van stereotypen beïnvloedt. De procedure van deze studies bestond uit twee delen, namelijk de communicatie taak en de meting van de toegankelijkheid van stereotypen. Tijdens de communicatie taak schreven zenders twee zelfgegenereerde boodschappen, waarin een lid van een sociale categorie stereotypisch of counterstereotypisch gedrag vertoonde. Ieder verhaal werd vervolgens door één ontvanger gelezen. Het gebruik van dit zogenaamde gekjutte design, waarin altijd één zender en één ontvanger aan elkaar gekoppeld werden, maakte het mogelijk de inhoud van de boodschappen gelijk te houden voor zenders en ontvangers. Onderzoek over de effecten van communicatieve rollen op stereotypen en vooroordelen heeft zich tot nu toe gericht op zenders óf op ontvangers, maar heeft de effecten op beide betrokken personen niet binnen één experiment met elkaar vergeleken. Dit maakte het onmogelijk de responsen van zenders en ontvangers direct met elkaar te vergelijken, omdat de onderwerpen, waar over gecommuniceerd werd over studies heen verschilden. Zelfs als de onderwerpen hetzelfde waren, verschilde de exacte inhoud van de boodschappen nog steeds. Aangezien zelfs subtiele verschillen in woordgebruik de waarneming van personen kunnen beïnvloeden, bood alleen een paradigma dat de inhoud van de boodschap voor zenders en ontvangers constant hield de mogelijkheid de responsen van beide partijen rechtstreeks met elkaar te vergelijken. Na de communicatie taak werd de toegankelijkheid van stereotypen bepaald met een lexical decision task of met een false memory paradigm. Beide paradigma's maken gebruik van een priming procedure om de toegankelijkheid van stereotypen te meten. Hogere toegankelijkheid werd aangegeven door snellere verwerking van stimuli die consistent waren met de prime (lexical decision task), of door het herkennen van stereotypische stimuli, hoewel zij niet eerder werden aangeboden (false memory paradigm).

Experimenten 2.1, 2.2 en 2.3 lieten zien dat communicatie tegengestelde gevolgen kan hebben voor de toegankelijkheid van stereotypen van zenders en ontvangers. Zenders vertoonden meer stereotype-activatie wanneer de boodschap de hoofdpersoon in stereotypische dan in counterstereotypische termen beschreef (assimilatie). Daarentegen vertoonden ontvangers meer stereotype-activatie na een counterstereotypische dan na een stereotypische boodschap (contrast). Experiment 2.4 liet zien dat het contrast-effect voor ontvangers verdween wanneer zij onder cognitieve load werden gezet. In deze conditie vertoonden zij hetzelfde assimilatie-effect als zenders. Zonder load werd het typische contrast-effect gevonden. Deze resultaten suggereren dat het cognitieve inspanning kost de invloed van een boodschap te vermijden. Ontvangers lijken gemotiveerd te zijn de indrukken tegen te gaan die in de boodschap worden overgebracht, maar het lijkt er ook op dat zij over voldoende cognitieve capaciteit moeten beschikken om hun weerstand ook uit te kunnen voeren. Alleen als zij zowel over voldoende motivatie als over voldoende cognitieve

capaciteit beschikken, zullen de indrukken van ontvangers contrasteren met de intenties van zenders.

### *Effecten van Communicatieve Rollen op Vooroordelen*

In de experimenten in hoofdstuk 3 werd de deelnemers niet meer gevraagd over (counter)stereotypisch gedrag van een lid van een sociale categorie te communiceren, maar over positief of negatief gedrag. Vervolgens werden vooroordelen gemeten met behulp van reactietijd metingen, namelijk een implicit association test en een affective priming task (Experimenten 3.1 and 3.2), of intergroepsgegedrag werd bepaald door zitafstand te meten (Experiment 3.3). De resultaten lieten hetzelfde patroon zien als in de studies over stereotype-activatie. Zenders assimileerden met de inhoud van de boodschap, terwijl ontvangers contrasteerden. Zenders hadden een positievere attitude ten opzichte van de doel categorie (of zaten dicht bij een lid van deze categorie) na een positieve dan negatieve boodschap, terwijl ontvangers het omgekeerde patroon lieten zien.

## **Conclusies**

De huidige experimenten laten zien dat de communicatieve rol de activate van stereotypen, vooroordelen en intergroepsgegedrag op tegengestelde wijze kan beïnvloeden. Terwijl meestal wordt verondersteld dat communicatie ervoor zorgt dat stereotypen en vooroordelen in stand worden gehouden door het doorgeven van standpunten van zenders aan ontvangers, leiden onze experimenten tot andere conclusies. Zij maken duidelijk dat zenders met name hun eigen opvattingen bevestigen. De beschrijving van (counter)stereotypisch gedrag van een lid van een andere groep leidt tot verhoogde toegankelijkheid van de respectievelijke constructen. In andere woorden, zenders assimileren naar de inhoud van de boodschap. De reacties van ontvangers contrasteren daarentegen met de inhoud van de boodschap. Voor zover ons bekend, is dit de eerste keer dat contrast als de standaard reactie in persoonswaarneming werd gemeten als gevolg van een communicatie over stereotypen en vooroordelen. Dit contrast-effect wordt vermoedelijk veroorzaakt doordat ontvangers over de motivatie en de cognitieve capaciteit beschikken zich tegen het standpunt van de zender te verzetten, zodat zij hun onafhankelijkheid kunnen verdedigen.

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Dirk Mooren,  
Oktober 2007



## Curriculum Vitae

Dirk Mooren was born in Kleve, Germany, on September 1, 1972. After receiving his Abitur in 1993, he worked at the tour operator 'alltours', before starting to study psychology at the University of Nijmegen in September 1996, where he received his Master's Degree in social psychology in February 2000. After a year as post-graduate student at the University of Amsterdam, he returned to Nijmegen, where he finished the present thesis on the relation between communication and stereotyping and prejudice.





