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On postural reactions : contextual effects on perceptions of and reactions to postures

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On postural reactions:
Contextual effects on perceptions of and reactions to
postures

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Contextual effects on perceptions of and reactions to
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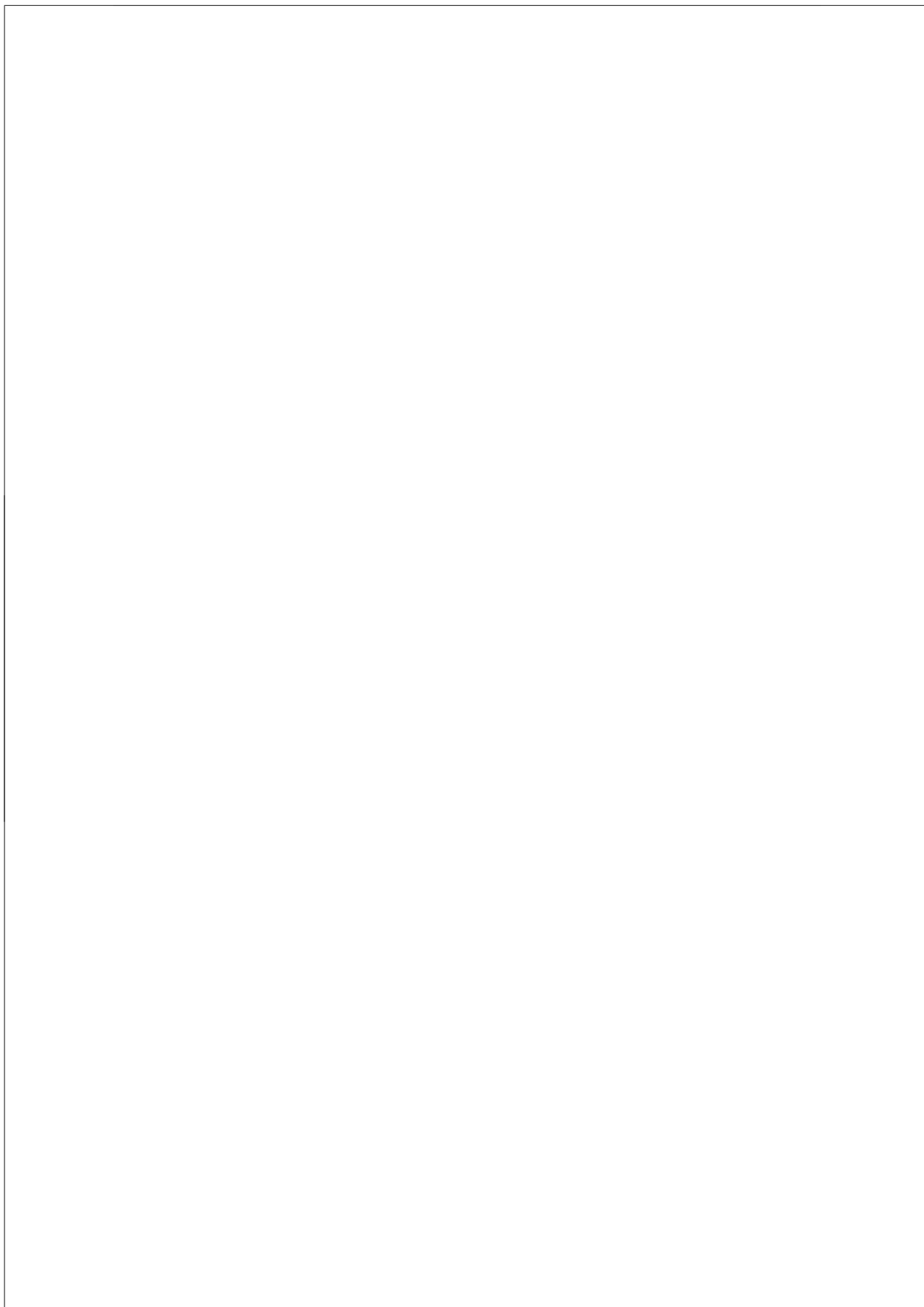
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1. Introduction

Whether it involves chatting with a friend or talking to a superior in a business meeting, communication is one of the most important elements of life. It provides us with the opportunity to express our ideas, feelings, concerns, and many more. Although percentages vary across studies, it is mostly agreed upon that a very large part of our communication is nonverbal (see e.g. Argyle, Salter, Nicholson, Williams, & Burgess, 1970). Nonverbal expressions have been the target of research for many years now and vary widely. Which facial expressions show which emotions? What can we deduct from people's body language? Can nonverbal expressions be used to examine whether one is truthful or lying? And how do people respond to the nonverbal expressions of others?

Nonverbal expressions serve an important communicative function. We use nonverbal expressions to communicate our feelings or thoughts, or to emphasize our social roles. One behavioral expression that is particularly useful in interpersonal communication is posture. People show expanded or constricted postures to show their dominance or submission towards others. These behaviors are especially interesting to examine since research has shown that dominance is very influential for interpersonal communication. For example, dominance is one of the two dimensions on which interpersonal relationships can be described (Wiggins, 1979) and on which people evaluate faces (Todorov, Said, Engell, & Oosterhof, 2008). The focus of this dissertation will therefore be on nonverbal expressions that display dominance, more specifically, on expanded and constricted postures.

Since nonverbal expressions are mostly shown in social settings, it is important to investigate reactions to and perceptions of these nonverbal expressions, as they can provide insight in the communicative function and effectiveness of these expressions. Although there have been a number of studies examining these nonverbal reactions, this research tends to

neglect an important part of these nonverbal communications; the context they are displayed in. The current dissertation aims to provide more insight in factors that influence people's nonverbal reactions and perceptions of the behavior and interaction in those situations.

Nonverbal reactions and context

One possible reaction to others' nonverbal displays is mimicry. Mimicry can be defined as "the imitation of others' nonverbal displays by an observer" and usually occurs outside conscious awareness (Hess & Blairy, 2001, p. 129). For example, if one person smiles, the other may respond by smiling back or when one person crosses her legs, the other may respond by also crossing her legs. Research has shown that people tend to mimic all sorts of behaviors, like facial expressions, postures, mannerisms, gestures, vocal expressions, accents, emotions, etcetera (for an overview see, Chartrand & Van Baaren, 2009). Mimicking others' nonverbal expressions has been shown to have many benefits. Research has demonstrated that mimicry has a function to bond (Chartrand & Bargh, 1999). Mimicking makes people feel closer to one another, like each other more, feel more empathy, and show more prosocial behavior towards others (e.g. Bernieri, 1988; Chartrand & Bargh, 1999; LaFrance, 1979; Lakin, Jefferis, Cheng, & Chartrand, 2003; Stel & Vonk, 2010; Van Baaren, Holland, Kawakami, & Van Knippenberg, 2004).

Another possible reaction to others' nonverbal displays is complementary behavior. Complementarity can be defined as showing the opposite behavior of what your interaction partner displays (Strong et al., 1988) and is regarded as an automatic reaction (Tiedens & Fragale, 2003). For example, Tiedens and Fragale (2003) found that people mostly responded to an expanded posture with a constricted posture, while people responded to a constricted posture with an expanded posture. Complementary behavior is usually only studied in the context of dominance and submission. Research has shown that —like mimicry— complementarity is highly beneficial for interpersonal communication. For example, people tend

to like each other more and people tend to feel more comfort and similarity towards their interaction partner when in a complementary interaction (Dryer & Horowitz, 1997; Tiedens & Fragale, 2003). Nonverbal behaviors might thus be mimicked or complemented which lead to more effective and positive communications.

Mimicking and complementing seem to have similar benefits for social interactions, while the actual behavioral reaction is different. This leads to the question when people tend to show mimicry and when they tend to show complementarity? One theory that provided some insight into this question is the Interpersonal Circumplex Theory (Carson, 1969; Kiesler, 1983; Leary, 1957, Wiggins, 1982). This theory states that behavior can be divided into two dimensions; the control dimension —comprising behaviors related to dominance— and the affiliation dimension —comprising behaviors related to connecting or distancing to others. One person's behavior will thus be judged on two dimensions: to what extent is this behavior dominant, and to what extent is it friendly. These two considerations are also thought to influence the reactions people display in response to this behavior. It has been suggested that behavior will be mimicked along the affiliation dimension and complemented along the control dimension (Orford, 1986).

Tiedens and Fragale (2003) confirmed that people tend to complement along the control dimension by showing that when a target displayed an expanded (dominant) or constricted (submissive) posture, people more often tended to complement than mimic those postures. Furthermore, Tiedens and Jiminez (2003) also provided support for this theory by showing that people —when asked to indicate how they would behave when interacting with a relevant relationship partner— tend to expect assimilation (mimicry) on the affiliation dimension and contrasting behavior (complementary behavior) on the control dimension. Previous research has thus shown that when behavior is related to dominance that behavior will be more likely complemented than mimicked.

It should be acknowledged, however, that especially dominance-related behaviors are usually embedded in a social context: there is one person that displays the behavior and another person to whom the behavior is displayed. The relation between those two persons may influence the behavioral reactions that are shown. For example, in everyday life it is highly unlikely that a person shows dominance in his behavior without there being some kind of social relation with the person to whom the dominance is displayed. Two factors that may influence these behavioral reactions are status and legitimacy.

Status

When studying the reactions to dominance related behaviors, it may be especially relevant to realize that such behaviors are often displayed in settings where social relations are salient. A boss may show a dominant posture to display his high status, or a child may show a submissive posture to confirm the superiority of his father. Dominant behaviors may be more prevalent among those high in status and submissive behaviors may be more prevalent among those low in status (Hall, Coats, & LeBeau, 2005). On occasion, however, the reverse may also be observed; low status members may show dominant behaviors, and high status members may show submissive behaviors (Huang, Galinsky, Gruenfeld, & Guillory, 2010; Rasmussen, 1984).

The idea that interpersonal status is an important moderator for behavior on the interpersonal circumplex model was already proposed by Orford (1986). Whether status is indeed a moderator for behavior on the control dimension has, however, not been thoroughly tested: The few studies that did examine the control dimension yielded mixed results on the effects of status (Moskowitz, Ringo Ho, & Turcotte-Tremblay, 2007; Tett & Murphy, 2002). It is therefore interesting to further examine the effect of status on nonverbal reactions.

Legitimacy

Not only the social role of the interaction partners may influence reactions towards dominance-related behavior. The legitimacy of these roles may provide important contextual information as well. Status hierarchies or status differences are not always accepted, for example when a nephew of the boss becomes manager without having any relevant experience. Research has suggested that in order to accept social roles (i.e. power differences) it is crucial that there is a legitimate basis for these social roles (Caddick, 1982; Tajfel & Turner, 1986; Turner & Brown, 1978). Thus, whether status differences are accepted will largely depend on whether people perceive the status differences to be fair. For example, one might not perceive the higher status of the boss's nephew as legitimate. This may lead employees to not accept the higher status of their new manager.

Furthermore, research has shown that, legitimacy does not only influence the acceptance of social roles; it also influences people's behaviors. People tend to show more behavior that fits their social role when an explanation is provided for the distribution of the social roles than when no explanation for the distribution is provided (Smith, Jost, & Vijay, 2008). One could argue that people's nonverbal reactions to a target may be influenced by the perceptions of legitimacy as well. For example, the employees may not only discard the higher status of their new manager, but also behave differently towards him than towards a manager with legitimate status. Thus, people may show different postural reactions towards a person with legitimate or illegitimate status. Therefore, it is important to take status legitimacy into account when examining nonverbal reactions.

Perceptions of postures in context

Besides examining the effects that the context (in the form of status and legitimacy) has on people's nonverbal reactions, it is also crucial to get a better understanding of what the effect

of the context is on the perceptions of the behavior and the interaction. Previous research has indicated that an expanded posture is seen as dominant and a constricted posture is seen as submissive (for an overview, see Hall et al., 2005). We argue that perceptions of these postures are more complex; the posture of an interaction partner may also influence perceptions of a person's behavior. When expanded or constricted postures are observed in a social context, perceptions of the dominance and/or submissiveness may be influenced by the extent to which postures align. In other words, the similarity versus dissimilarity of postures of interaction partners may provide important contextual information.

Research has shown that perceptions are strongly shaped by contrasts. For example, women are perceived as less attractive when accompanied by highly attractive others (Kenrick & Gutierrez, 1980). In similar fashion, one could argue that perceptions of postures in the interaction are also influenced by the contrast between the postures of the interaction partners. For example, an expanded posture may seem more dominant in the presence of a constricted posture than in the presence of another expanded posture. Since the contrast between the postures is much larger when postures are opposite rather than similar, this contrast may alter perceptions of the behavior and the interaction. Furthermore, similar to its influence on behavioral reactions, the status difference between two interaction partners may influence perceptions of dominance. An expanded posture displayed by a high status target may be perceived as more dominant than when displayed by a low status target.

In summary, it is important to examine the effects that the social context has on our nonverbal reactions and the perceptions of behavior and interactions to get a better understanding of these nonverbal expressions in social settings. In the following chapters, the focus will therefore be on the effects of the social context on reactions to nonverbal behavior and perceptions of that behavior and the interaction.

Overview of the chapters

In this dissertation, I will argue that the context in which nonverbal expressions are shown, influences the behavior people display in interactions and the perceptions they have of the behavior and the interaction. Below, I will describe the different chapters in this dissertation. Chapters 2 and 3 will focus on the influence of context on postural reactions, Chapter 4 will focus on the influence of context on perceptions of behavior and the interaction.

Chapter 2. Postural reactions in the context of status

In Chapter 2, the influence of status on postural reaction is investigated. Prior research showed that nonverbal behaviors (i.e., postures) tend to be complemented when they are related to dominance, and mimicked when unrelated to dominance (e.g. Orford, 1986; Tiedens & Fragale, 2003; Tiedens & Jiminez, 2003). In Chapter 2, attention is drawn to the fact that nonverbal behaviors are usually shown in context. Especially dominance related postures are often shown in settings in which status relations are salient. For example, dominance is more likely shown by a boss talking to an employee than by two friends. Therefore, it is argued that the status role of a target provides contextual information, which moderates the prevalence of mimicking and complementing behavior.

This was investigated in two studies in which a target's behavior *and* the relative status position were manipulated. In Study 2.1 this was done by having participants view a video of a high or low status target who displayed either a dominant or submissive posture. In Study 2.2 participants engaged in an actual interaction with a high or low status confederate who displayed a dominant or submissive posture. Then it was measured whether the participants mimicked or complemented the target's behavior and examined whether these reactions were dependent on target behavior and status role. Results demonstrated that postures were mimicked more when the target showed a submissive posture and complemented more when

the target showed a dominant posture, especially when the target had a high status role. These findings show that when examining the reactions to nonverbal behavior, it is important to take relative status differences into account.

Chapter 3. Postural reactions in the context of legitimacy

In Chapter 3, it was examined whether legitimacy of a status position influenced postural reactions. Research has shown that people mimic nonverbal behaviors of others (Chartrand & Van Baaren, 2009), but also that they complement behaviors of others (Orford, 1986; Strong, et al., 1988). And whether people tend to mimic or complement others' behavior is dependent on the dominance of a target's behavior (Tiedens & Fragale, 2003; Tiedens & Jimenez, 2003). In Chapter 3 it is argued that nonverbal reactions not only depend on dominance displays, but also on the legitimacy of the status and the willingness to accept these status differences.

In two studies it was examined whether a target's legitimate or illegitimate high status position influenced the extent to which this person is mimicked or complemented and whether acceptance mediates this effect. In Study 3.1, participants read a scenario on a target that had either legitimate or illegitimate high status. Participants' acceptance of the situation was measured. Then, participants were presented with images of two targets (with either similar or opposite postures) and were asked which of the situations (similar postures or opposite postures) would most likely portray an interaction between them and the target. In Study 3.2 participants read the same scenario as in Study 3.1. Then, participants were presented with a video fragment in which the high status target was shown. Participants' postural reactions were recorded while watching the video. After the video, acceptance was measured. Results demonstrated that participants mimicked more than they complemented when status was obtained legitimate than when it was obtained illegitimate, and that this was mediated by

acceptance. The current findings thus suggest that legitimacy of a high status person influences the nonverbal reactions that people show towards this person.

Chapter 4. Perceptions of postures

Chapter 4 addressed the question how people perceive expanded and constricted postures. Previous research has suggested that expanded or constricted postures are indicative of dominance of the target displaying the posture (Hall et al., 2005; Tiedens & Fragale, 2003). In Chapter 4, we argue that these inferences of dominance from such postures require a social context. For example, an expanded posture (arms wide, leaning backwards) could be perceived as a signal of being relaxed rather than as a display of dominance when the person displaying that posture is watching television. Since social interactions involve at least two persons, we examined the effect of the displayed behavior of the interaction partner. It was investigated whether contrast effects between postures (similar vs. opposite postures) in an interaction influence the perceptions of these postures.

In three experimental studies it was examined how an expanded or constricted body posture of an interaction partner influenced dominance and conflict avoidance perceptions of the target's posture and the perceptions of conflict in the interaction. In Study 4.1 participants engaged in an actual interaction with a confederate. The posture of the participant was manipulated to be expanded or constricted, without making participants aware of the effects this may have on dominance perceptions. Posture of the confederate was either similar or opposite to the posture of the participant. After the interaction, participants rated their perceptions of their own behavior and their perceptions of the interaction. In Study 4.2 participants viewed a video in which two people were engaged in an interaction. After viewing the video, participants rated the target's behavior. In Study 4.3, participants also viewed the video, but received information about the hierarchy prior to viewing the video. Results demonstrate that perceptions of dominance, conflict avoidance, and conflict were influenced by

the (dis)similarity of postures between interaction partners. When interaction partners showed contrasting postures, expanded postures were perceived as more dominant and less conflict avoidant, and conflict was perceived to be more intense. Based on these findings, we argue that it is important to take contextual cues like the behavior of an interaction partner and the hierarchical relation between the interaction partners into account when interpreting the meaning of expanded and constricted postures.

Chapter 5. Discussion

In chapter 5, I will discuss the results presented in this dissertation. First of all, I will summarize the findings described in Chapters 2, 3, and 4. Then, I will discuss these findings in the light of previous literature and provide implications and directions for future research. By doing so, I further develop the argument that it is important to consider the context in which behavior shown when examining perceptions of and reactions to nonverbal expressions.

As a final note to the reader, I would like to draw attention to the fact that Chapters 2, 3, and 4 are prepared as separate journal articles. Therefore, the chapters can be read independently. There may, however, also be some theoretical overlap between them. Furthermore, these chapters are the result of the collaboration with my supervisors and are therefore written in first-person plural.

2. Postural reactions in the context of status¹

Picture yourself in a work-related discussion with your employee. During this discussion, your employee is leaning backwards, making broad gestures. Now imagine the same situation, but this time the person you are having the discussion with is your boss. Would your reaction to the displayed behavior be the same in both situations?

Research has shown that nonverbal behavior elicits nonverbal reactions in others. Two seemingly opposing types of reactions to others' nonverbal behavior have been documented. On the one hand, research shows that people automatically mimic others (Chartrand & Bargh, 1999; Lakin, Jefferis, Cheng, & Chartrand, 2003), while on the other hand research also shows that people tend to complement others' nonverbal behaviors (Dryer & Horowitz, 1997; Strong et al., 1988). But when do people mimic and when do they complement? Prior research suggests that dominance related behaviors tend to be complemented, while behaviors that are *not* related to dominance are mimicked (e.g. Tiedens & Jimenez, 2003).

In the present article, we argue that not only displayed behavior, but also the context in which that behavior is shown might play an important role in predicting whether people mimic or complement the target's behavior. In this respect, we draw attention to the status context, i.e., the status relation between the target and the observer.

Mimicking versus complementing

Evidence for *mimicry* —"the imitation of other's nonverbal displays" (Hess & Blairy, 2001, p.129)— comes from studies showing that people mimic facial expressions, posture,

¹ This chapter is based on Mastop, Stel, and Van Dijk (2012a)

mannerisms, vocal expressions and many more (e.g., Chartrand & Bargh, 1999; Lakin et al., 2003; Van Baaren, Holland, Kawakami, & Van Knippenberg, 2004). Mimicking has many benefits; It increases liking, smoothness of the interaction, and helps people get emotionally attuned to each other (Bernieri, 1988; Chartrand & Bargh, 1999; LaFrance, 1979; Stel, Blascovich, et al., 2010; Stel & Vonk, 2010).

Besides mimicking, people also tend to *complement* other's behaviors; showing contrasting behaviors to other's nonverbal displays (Strong et al., 1988). Tiedens and Fragale (2003) demonstrated that people who displayed an expanded posture evoked a constricted posture in their interaction partner, while people displaying a constricted posture evoked an expanded posture in their interaction partner. Like mimicry, complementary reactions have positive consequences for social interactions. It has been shown to increase satisfaction with the interaction, increase mutual liking, increase feelings of comfort and similarity or equality to the interaction partner (Dryer & Horowitz, 1997; Tiedens & Fragale, 2003).

Since both mimicry and complementarity have similar benefits for social interactions while referring to different behavioral reactions, the question is when people tend to show mimicry and complementarity? To provide a first answer to this question Tiedens and Fragale (2003) investigated whether mimicry or complementary reactions are more common to dominance related behaviors (postures). The results indicated that dominance related behaviors are complemented more than they are mimicked. This finding is in line with the predictions of the Interpersonal Circumplex Theory (Carson, 1969; Kiesler, 1983; Leary, 1957; Wiggins, 1982). This theory states that behavior can be divided into two dimensions; the control dimension — comprising behaviors related to dominance— and the affiliation dimension —comprising behaviors related to connecting or distancing to others. Furthermore, it poses that behaviors will be mimicked along the affiliation dimension and complemented along the control dimension. The findings of Tiedens and Fragale (2003) indeed showed that (dominant and submissive)

postures—which can be defined as behavior along the control dimension—are complemented more often than they are mimicked.

Mimicking, complementing, and context

The findings of Tiedens and Fragale (2003) are important, because they showed that *in general* dominance related behaviors are complemented rather than mimicked. It should be acknowledged, however, that behaviors are usually embedded in a context. When studying the reactions to dominance related behaviors, it may be especially relevant to realize that such behaviors are often shown in contexts where status relations are salient. A boss may show dominant behavior to his employee, a father to his child, and the alpha male chimpanzee may show dominance to his troupe. Dominant behaviors may generally be more likely among those high in status; and submissive behaviors may be more prevalent among low status members. On occasion, however, the reverse may also be observed; low status members may show dominant behaviors, and high status members may show submissive behaviors.

The argument that interpersonal status is an important moderator for behavior on the interpersonal circumplex model was already made by Orford (1986). However, whether status is indeed a moderator for behavior *on the control dimension* has not been thoroughly tested. There has been some empirical research confirming that status plays an important role in nonverbal interactions in other domains. Status has been found to influence nonverbal reactions towards behaviors which are *not* classified on the control dimension. Brody and Stoneman (1981), for example, showed that higher or same aged peers were imitated more on food preferences than lower aged peers. Furthermore, Cheng and Chartrand (2003, exp. 2) found that people high in self-monitoring showed higher degrees of mimicry in face touching towards a high status than towards a low status other.

The few studies that did examine the control dimension yielded mixed results on the effects of status. Tett and Murphy (2002) examined whether people preferred complementary

or similar personality traits in people with varying status (superior, co-worker, or subordinate). For dominance traits no evidence was found that people prefer complementarity: participants showed an overall preference for similarity. Furthermore, Moskowitz, Ringo Ho, and Turcotte-Tremblay (2007) examined the degree of complementarity towards high, equal, or low status others on the control dimension using self-report measures (event-contingent recording). In their study, participants were asked to rate their social interactions during their daily life. Participants specified information about the setting and the status role, indicated how they perceived the behavior of others, and indicated how they reacted to that behavior during the interactions. The results showed that when the target was of high status (supervisor), participants indicated that they showed more complementary reactions in response to dominant and submissive behavior. Since this study examined self-reported behavior, the study's validity is dependent on participants' observation skills of their own and other's behaviors. Therefore, the results of this study may be prone to biases in perceptions (for example, people might be more aware of complementary behavior than of mimicry) and expectancies (as participants were asked to indicate social status and were then asked about their behavior towards this target).

Because the few previous studies on the effects of status on (behavioral) reactions along control dimension have yielded mixed findings, these studies alone do not provide a firm basis for hypotheses. Previous research on status has, however, suggested that high status targets are usually a focal point; people in a high status role are more likely to stand out and people pay more attention to such high status targets (e.g., Clark, Clark, & Polborn, 2006). Similarly, this could also be the case for dominant versus submissive behaviors; dominant behaviors might be more focal than submissive behaviors, especially when interpreted in the context of status. For example, it is not hard to imagine that when an alpha male chimpanzee shows dominant behavior, quick behavioral reactions (such as showing submission) are highly likely, but when this alpha male shows submissive behavior quick behavioral reactions (such as showing dominance) might be less likely to occur.

If people indeed focus more on the high status role and dominant behaviors, it may be expected that behavioral reactions that are normally shown towards behavior *on the control dimension* (complementarity; see Tiedens & Fragale, 2003) will become especially prevalent when people react to targets with high status or dominant behavior. Thus, it is expected that (a) people will show more complementary reactions than mimicry reactions when the target is high status rather than low status and (b) particularly so, when the target shows dominant rather than submissive behavior.

This expectation was investigated in two studies in which we manipulated a target's behavior *and* the relative status position in two experimental settings (using video's and live interactions with a confederate as target material) and measured whether participants' (complementary or mimicked) reactions were dependent on target behavior and status role. For this purpose, participants were placed in a situation in which they were confronted with either a boss or applicant (confederate) in a job interview, displaying either a dominant or a submissive posture.

Study 2.1

Method

Participants and design

Participants were 64 students from Leiden University (54 females, 10 males, $M_{age} = 20.41$ years, Range: 18 to 31 years). They received 2 Euros or credits for participating and were randomly assigned to the conditions of a 2 (role: boss vs. applicant) x 2 (displayed behavior: dominant vs. submissive) between-participants design.

Procedure

Participants were asked to imagine that they were about to have a job interview. Participants were told that before they would engage in this job interview, they were going to

watch a short video of their future interaction partner. Depending on role condition, participants were told that the person in the video was either the applicant (and thus that the participant was the boss) or boss (and thus that the participant was the applicant). Depending on the displayed behavior condition, participants watched either a video of a target displaying dominant behavior or submissive behavior (see materials). Before watching the video, participants were instructed to sit with their back against the chair. We told them that this was needed to ensure that every participant sat the same distance from the computer screen. This instruction was given to make sure all participants started with the same neutral posture. Participants were told that when the video started they were free to move as they pleased. While watching the video, participants were recorded using webcams in order to measure the amount of mimicry and complementary postural reactions. After the video, participants filled in a questionnaire (see materials). Finally, they were debriefed and thanked for participation.

Materials

Video. A video of approximately two minutes was constructed in which the target, a young man, was sitting at a table and was introducing himself. The man showed either a dominant or submissive posture. On the dominant video, the man's posture was expanded; on the submissive video, the man's posture was constricted (cf. Tiedens & Fragale, 2003). The video was played without sound, since we were interested in reactions to nonverbal behavior. Also, verbal expressions could have confounding effects on these reactions.

Questionnaire. The questionnaire contained a status manipulation check, for both the manipulated role and the displayed behavior. The status manipulation was measured by four questions ($\alpha = .75$) with regard to status perceptions of the target's status compared to their own status (e.g. "How high in status did you feel the person in the video was in comparison you?") and with regard to the status perception of the target's behavior (e.g. "How competent do you think the person is?") (cf. Tiedens & Fragale, 2003). We intently did not use a direct check of displayed behavior since asking participants directly about this behavior might inform them

about the goals of our study and therefore influence other measures.² All questions were asked on a 7-point scale.

Results

Manipulation checks. A 2 (role) x 2 (displayed behavior) univariate analysis of variance (ANOVA) with the status manipulation check as dependent variable showed two main effects of role and displayed behavior. Participants perceived the target to be relatively higher in status when the target was a boss ($M = 4.16$, $SD = 0.94$) as compared to when the target was an applicant ($M = 3.83$, $SD = 0.84$), $F(1, 60) = 4.11$, $p < .05$, $\eta^2 = .06$. Furthermore, participants rated the person in the video as higher in status when the target displayed a dominant posture ($M = 4.52$, $SD = 0.73$) compared to when the target displayed a submissive posture ($M = 3.48$, $SD = 0.75$), $F(1, 60) = 33.68$, $p < .001$, $\eta^2 = .36$. Both status manipulations thus were successful as they both independently influenced the perceptions of the status of the target according to our expectation.

Posture. Displayed behavior in the video was manipulated by varying the posture of the target: this posture could either be expanded (dominant posture) or constricted (submissive posture). Reactions to this behavior were scored as being similar as the target (mimicry) or opposite to the target (complementary) during the last 10 seconds while watching the video. As participants started sitting in a neutral position, we analyzed participant's end postures. There were problems with the video recordings of 8 participants due to which their behavior could not be coded, 13 participants did not respond to the behavior of the target and were therefore not

² In a pilot study, we directly tested the manipulation of displayed behavior. Participants watched the same video as used in Study 2.1 after which we measured the manipulation check of displayed behavior directly (e.g. "The target seems dominant to me.", $\alpha = .73$). This indeed showed a significant main effect of displayed behavior, $F(1, 35) = 26.83$, $p < .001$, $\eta^2 = .43$. When the target displayed a dominant posture, participants perceived this as more dominant ($M = 3.63$, $SD = 0.99$) than when he displayed a submissive posture ($M = 2.24$, $SD = 0.58$).

coded as showing mimicry or complementary behavior. Therefore, we were able to classify 43 participants as mimicking or complementing the posture of the target.

A binary logistic regression analysis with role and displayed behavior as independent and posture as dependent variables showed a significant main effect of displayed behavior, $B = 1.48$, $Wald = 5.06$, $p < .05$. The video in which the target displayed a dominant posture was complemented more (66.7% complemented vs. 33.3% mimicked); the video in which the target displayed a submissive posture was mimicked more (31.8% complemented vs. 68.2% mimicked). This occurred irrespective of the target's role: there was no interaction effect between role and displayed behavior, $B = -0.42$, $Wald = 0.10$, $p = .75$ (see also Table 2.1).

Table 2.1. Number of participants who mimicked or complemented the target's behavior by displayed behavior and target role. Between brackets the percentage of participants that either mimicked or complemented within that condition is presented.

Target role	Displayed behavior			
	Dominant posture		Submissive posture	
	Complement	Mimic	Complement	Mimic
Boss	6 (66.7%)	3 (33.3%)	4 (36.4%)	7 (63.6%)
Applicant	8 (66.7%)	4 (33.3%)	3 (27.3%)	15 (72.7%)
Total	14 (66.7%)	7 (33.3%)	7 (31.8%)	15 (68.2%)

Discussion

We expected that participants would (a) show more complementary reactions than mimicry reactions when the target had high status rather than low status and (b) particular so, when the target showed dominant rather than submissive behavior. Although we did not find an effect of status roles on the reactions of participants, we did find the expected effect of the displayed behavior; When the target showed dominant behavior, participants complemented this target more than when he showed submissive behavior. It seems to be the case that people

indeed focus more on dominant behavior when it is shown in the context of status and therefore show more complementary reactions.

However, there might also be other, more methodological, explanations for these findings. In particular, the results could also be explained by a low degree of variation of body posture between participants; participants in all conditions generally showed more submissive postures, which were identified as complementary when the target showed dominant behavior and as mimicry when the target showed submissive behavior. This could be caused by the fact that people may have a standard way to watch a video, thereby lowering the variation in our sample. Another explanation might be that participants did not feel the need to react to others' postural stance since they were not able to use their behavioral reaction to communicate or demonstrate their status in this non-interactive situation. To remedy this methodological limitation, and rule out that these findings are caused by the use of a video as target material, we conducted a second experiment in which we used an actual interaction instead of a video.

Study 2.2

Method

Participants and design

Participants were 99 students from Leiden University (76 females, 23 males, $M_{age} = 21.63$ years, Range: 18 to 29 years). They received 2 Euros or credits for participating and were randomly assigned to the conditions of a 2 (role: boss vs. applicant) x 2 (displayed behavior: dominant vs. submissive) between-participants design.

Procedure

The procedure of Study 2.2 was similar to the one used in Study 2.1, with the main difference being that participants now engaged in an interaction with a confederate (a young female). Thus similarly as in Study 2.1, participants were asked to imagine that they were going

to have a job interview. The person they were going to have this interview with was, depending on role condition, either an applicant (and thus that the participant was boss) or a boss (and thus that the participant was applicant). Participants sat across the confederate. The confederate was trained to act in a standard, yet natural way. Depending on displayed behavior condition, the confederate showed an expanded, dominant body posture or a constricted, submissive body posture. Verbal content was held constant within role condition. Across role conditions this was not possible, since the interaction was set up as an interview. We did, however, match the number of times and the approximate duration that the confederate spoke. When the confederate was interviewer, she had a list of questions that she asked the participant. When the confederate was interviewed, we provided the same questions to the participants as example questions to which the confederate had default answers. Furthermore, other facial and bodily expressions were kept constant. While interacting with the confederate, participants were recorded using cameras in order to record responses to the posture of the confederate. Finally, they were debriefed and thanked for participation.

Results

Reactions of participants were coded in the same way as in Study 2.1. Eighty-nine participants could be coded as displaying mimicked or complemented postures. Ten participants were excluded from analyses because they indicated that they knew the confederate. Therefore, the final sample of this study consisted of 79 participants. A binary logistic regression analysis with role and displayed behavior as independent and posture as dependent variable showed a significant main effect of displayed behavior, $B = 1.44$, Wald = 8.68, $p < .01$. Similar to Study 2.1, participants complemented the posture of the target more often when the target showed dominant behavior (64.3% complemented vs. 35.7% mimicked); posture was mimicked more often when the target showed submissive behavior (31.6% complemented vs. 68.4% mimicked).

Furthermore, a marginally significant interaction effect of status and displayed behavior on posture was found, $B = -1.95$, Wald = 3.62, $p = .06$. To interpret this interaction we analyzed results for target with submissive and dominant displayed behavior separately using Pearson Chi-Square analyses (χ^2). As in Study 2.1, when the target showed a submissive posture, participants mimicked rather than complemented this posture, regardless of role ($\chi^2(1, N = 37) = 0.30$, $p = .58$). However, when the target showed dominant behavior, reactions were moderated by status role. When the target showed dominant behavior she was complemented more often, but *only* when the target was a boss (high status), $\chi^2(1, N = 42) = 5.08$, $p < .05$. When the target was a boss (high status), participants mimicked rather than complemented the submissive posture and complemented rather than mimicked the dominant posture, $\chi^2(1, N = 37) = 11.56$, $p < .01$. Interestingly, however, when the target was an applicant (low status), the number of mimicry and complementary responses did not significantly differ between displayed behavior conditions, $\chi^2(1, N = 42) = 0.89$, $p = .35$ (See also Table 2.2).

Table 2.2. Number of participants who mimicked or complemented the target's behavior by displayed behavior and target role. Between brackets the percentage of participants that either mimicked or complemented within that condition is presented.

Target role	Displayed behavior			
	Dominant posture		Submissive posture	
	Complement	Mimic	Complement	Mimic
Boss	17 (81.0%)	4 (19.0%)	4 (25.0%)	12 (75.0%)
Applicant	10 (47.6%)	11 (52.4%)	7 (33.3%)	14 (66.7%)
Total	27 (64.3%)	15 (38.7%)	11 (29.7%)	26 (70.3%)

Discussion

The results of Study 2.2 confirmed our initial hypothesis. They showed that, as in Study 2.1, participants complemented dominant targets more and mimicked submissive targets more, regardless of status role. Replicating this effect of Study 2.1 in a real interaction strengthens the

idea that complementary reactions might indeed be more prevalent for dominant than for submissive behavior. Also, by replicating this finding we can rule out that our findings were caused by the use of a video as target material.

Additionally, the results of Study 2.2 demonstrate that status roles also (marginally) influence behavioral reactions. Dominant targets were only complemented more often when the target was a boss; when a high status target shows dominant behavior, complementary reactions are even more prevalent, while when the target shows submissive behavior complementary reactions are as likely as mimicry to occur. We elaborate on the implications of these findings in the general discussion section.

General discussion

The aim of this paper was to explore whether contextual factors such as status roles influence the nonverbal reactions people show in response to others' nonverbal behavior. As expected, our results showed that the context in which behavior is displayed influences the reactions people show to this behavior. People more often complemented dominant behavior, while they more often mimicked submissive behaviors. Additionally, when the target has high status, complementary reactions towards dominant behavior are even more frequent.

The results of the current study also support our rationale behind the hypotheses. We reasoned that dominant behavior (more than submissive behavior) and high status targets (more than low status targets) are more focal (i.e. Clark et al., 2006) and argued that people would therefore show more complementary behavior to dominant behavior and high status targets. Indeed, our results show that complementary reactions are most frequent when the target showed dominant behavior and had high status. This supports the idea that these high status cues are more focal and (default) reactions towards this behavior are more prevalent.

It should be noted that whereas in Study 2.1 results showed a main effect of displayed behavior, Study 2.2 additionally showed an interaction effect with status role. This difference in results between Study 2.1 and 2.2 may be explained by the different settings in the studies; in Study 2.1 participants responded to a target on a video while in Study 2.2 participants were engaged in a real interaction and responded to a face-to-face target. Since the setting of the first study was less interactive than the setting in the second study, the communicative function of the status role may have been less important. Although participants felt higher in status when the target had low status (as can be concluded from the manipulation checks), they might not have felt the desire to react with complementarity towards the dominant target. The communicative value of displaying status played a larger role in the second study, which might explain why we did find an effect of status role there.

By examining behavioral reactions while status role information is presented, our results extend the findings of Tiedens and Fragale (2003). They showed that displays of dominance and submissiveness are complemented more than they are mimicked. While this might thus be the case for situation in which no status information is present³, the current findings suggest that when status information is present, people might be more likely to complement dominant displays than submissive displays, since dominant behavior is more focal.

At this point, it is also appropriate to discuss some limitations. Since the current paper focused on investigating people's nonverbal reactions to status cues of others, we did not investigate the possible goals or motives that may be responsible for the reactions that people show. For example, comfort in the interaction might mediate the effects found the present study. Tiedens and Fragale (2003) already showed that people experience more comfort when

³ Another study by Pennings, Müller, Mastop and Stel (2011) demonstrated that when participants saw the same video as in Study 2.1 without status manipulation, effects of Tiedens and Fragale (2003) were replicated. When the target had a dominant posture, participants showed a more submissive posture ($M = -0.12$) than when the target has a submissive posture ($M = 0.17$), $F(1,86) = 11.34$, $p < .01$, $\eta^2 = .12$.

their behavior is complemented. It might be the case that experienced comfort is also higher when interacting with a dominant or high status other. Therefore, it might be interesting to investigate possible underlying mechanisms. Furthermore, future research could investigate whether there are also other contextual factors that might influence behavioral reactions. For example, behavioral reactions might be entirely different when a target has illegitimate status.

Taken together, our research shows that the context in which behavior takes place has an important impact on the nonverbal reactions people display towards this behavior. More precisely, we demonstrated that when status information is present, people complement dominant or high status others more frequently than submissive or low status others. The status context thus seems essential for the understanding of when people mimic and when they complement.

3. Postural reactions in the context of legitimacy⁴

When communicating with others we tend to show a lot of nonverbal behaviors. Sometimes, these nonverbal behaviors reveal how we feel about a situation. For example, when people feel their new boss is not fit for the job, they may not verbally express their discontent, but rather show facial or bodily expressions which indicate their disagreement with their boss' higher status. In the current article, we focus on people's tendency to mimic or complement the nonverbal behaviors of others.

Mimicry can be defined as "the imitation of others' nonverbal displays by an observer" (Hess & Blairy, 2001, p.129). Over the years it has been demonstrated that people mimic a variety of behaviors, such as facial expressions, posture, mannerisms, vocal expressions and many more (e.g., Chartrand & Bargh, 1999; Lakin, Jefferis, Cheng, & Chartrand, 2003; Van Baaren, Holland, Kawakami, & Van Knippenberg, 2004). Moreover, it has been shown that mimicry has several benefits; for example it increases liking, comfort and smoothens interactions (e.g., Bernieri, 1988; Chartrand & Bargh, 1999; LaFrance, 1979; Stel & Vonk, 2010).

Besides mimicking other people's behavior, people also show the opposite behavior. This behavioral response can be termed complementarity (Strong et al., 1988). In 1982, De Waal already described such behavior amongst chimpanzee colonies. When observing a chimpanzee display a dominant (expanded) posture, other chimpanzees responded by constricting their postures (which can be viewed as a submissive posture). More recently, Tiedens and Fragale (2003) demonstrated that displaying an expanded posture evoked a constricted posture in an interaction partner, while displaying a constricted posture evoked an expanded posture.

⁴ This chapter is based on Mastop, Stel, and Van Dijk (2012b)

Interestingly, complementing has similar benefits as mimicry. For example, it has been demonstrated that it can increase comfort and liking (e.g., Dryer & Horowitz, 1997; Tiedens & Fragale, 2003).

Research has thus shown that people either mimic or complement other people's behaviors, and that both can be beneficial to interpersonal relations. But when do people mimic and when do they complement? Recently, Tiedens and Fragale (2003) started to integrate the two views, examining mimicry and complementary behavior at the same time. Their results showed that people are more likely to complement rather than mimic behavior that is related to dominance. Thus, when one person displays a dominant (expanded) posture, this evokes a submissive (constricted) posture in another person and vice versa. The research of Tiedens and Fragale (2003) seems to indicate that when the target's behavior is related to dominance, people complement this behavior more than they mimic. But does the setting or context in which the behavior is displayed also influence whether people mimic or complement others?

Legitimacy

We argue that the context in which the (dominance) behavior is displayed also influences whether people mimic or complement. People do not perceive behavior separate from the context. For dominance-related behavior, the social role the person displaying the behavior has (e.g. does this person have high status?) and whether this role is legitimately obtained, is important contextual information. Status hierarchies or status differences are not always accepted; a legitimate basis for these differences is crucial for acceptance (e.g., Caddick, 1982; Tajfel & Turner, 1986; Turner & Brown, 1978). Thus, whether status differences are accepted will largely depend on whether people perceive the status differences to be legitimate. For example, when a nephew of the boss becomes manager without having any relevant experience, one might not perceive his higher status as legitimate. This perception of legitimacy could in turn affect nonverbal reactions.

When status differences exist and are legitimate, status roles are clear and people are likely to accept the situation as it is (Jost, Banaji, & Nosek, 2004). Previous research has showed that people feel more positive when status is fairly obtained (e.g., Thibaut & Walker, 1975) and that when situations are positive, people mimic more (Stel, Van Baaren, et al., 2010; Van Baaren, Fockenberg, Holland, Janssen, & Van Knippenberg, 2006). We therefore expect that when status is legitimate people will be more likely to mimic than to complement others' behavior. When status differences exist but are illegitimate, however, the reverse may be true; people are less likely to accept the situation as it is and may therefore be less likely to mimic than to complement the others' behavior than when status is legitimate. Thus, we hypothesize that legitimacy leads to more acceptance of the situation (Hypothesis 1), to more mimicry (than complementarity) of others' nonverbal behavior (Hypothesis 2), and that this effect of legitimacy on the nonverbal reactions is mediated by acceptance (Hypothesis 3).

The effects of legitimacy on the reactions towards a high status were examined by showing participants images of two stick figures in interactions (Study 3.1) or a video of a target (Study 3.2) with a dominant (expanded) or submissive (constricted) posture. We measured participant's reactions by asking them which behavior they think would be most likely to occur (Study 3.1) and assessed which behavior they actually showed (Study 3.2). Furthermore, in both studies we measured participants' acceptance of the (il)legitimate situation.

Study 3.1

In the first study, we presented participants with a scenario in which they faced a person who legitimately or illegitimately obtained a high status. We assessed participants' acceptance of the situation. Furthermore, we showed participants situations of two targets (with either similar or opposite postures) and asked the participants which of the situations (similar posture or opposite posture) would most likely portray an interaction between them and the target.

Method

Participants and design. Participants were 40 students (31 females, 9 males, $M_{\text{age}} = 23.00$ years, Range: 18 – 40 years) recruited at Leiden University. The design was a 2 (legitimacy: legitimate vs. illegitimate) between-subjects design.

Procedure. Participants read a scenario in which they were asked to imagine working in a team within a company. The scenario described a situation in which the leader of their team was about to retire and that, therefore, there was a job opening for team leader. Participants read that normally the position would be filled by the most senior member (in terms of years of employment in the team). Participants in the illegitimate status condition then read that one of the other members got the job, while the participant was the most senior member. Participants in the legitimate status condition read that one of the other members got the job and also was the most senior member.

Following this scenario, participants received two questions concerning the acceptance of the situation (e.g. 'to what degree would you accept the current situation?', $\alpha = .87$). Questions were answered on a 7-point scale. Furthermore, participants received two dichotomous questions. The first question showed two images of stick figures in an interaction (see upper part of Figure 3.1, with the team leader on the left and the participant on the right). In these images the posture of the team leader was expanded (dominant) and the posture of the participant was either the same (dominant) or opposite (submissive). Participants were asked to choose which of the two situations would most likely portray an interaction between them and their new team leader. The second question was similar to the first, except for the posture of the team leader, which was constricted (submissive) in both images (see lower part of Figure 3.1). This setup was used in order to have participants choose which reaction they would think as most likely, in response to both a dominant target and a submissive target. Similar to the manipulation of postures in the study of Tiedens and Fragale (2003), the expanded (dominant)

posture was characterized by a straight back, arms stretched wide and one leg crossed over the other, and the constricted (submissive) posture was an arched back with legs close together and arms in the lap. Also, seven questions were asked concerning the legitimacy manipulation (e.g. 'how fair did you think it was that the other person got the job?', $\alpha = .91$, 7-point scale).

Figure 3.1. Stick figures.

	Participant similar posture		Participant opposite posture	
Team leader dominant (question 1)				
	Team leader	Participant	Team leader	Participant
Team leader submissive (question 2)				
	Team leader	Participant	Team leader	Participant

Results

Manipulation check. To assess to what extent participants perceived the situation as legitimate, we performed a 2 (legitimacy) ANOVA with the legitimacy check as dependent variable. As expected, participants perceived the legitimate condition as more legitimate ($M = 4.95$, $SD = 1.22$) than the illegitimate condition ($M = 2.54$, $SD = 0.83$), $F(1, 38) = 52.95$, $p < .001$, $\eta^2 = .58$.

Acceptance. To investigate whether participants accepted the legitimate condition more than the illegitimate condition, we performed a 2 (legitimacy) ANOVA with acceptance as dependent variable. Confirming our first hypothesis, participants indicated they accepted the situation more in the legitimate condition ($M = 5.35$, $SD = 1.37$) than in the illegitimate condition ($M = 3.38$, $SD = 1.43$), $F(1, 38) = 19.90$, $p < .001$, $\eta^2 = .34$.

Posture. To examine whether our manipulation of legitimacy influenced choices people made between the situations portrayed in the images of the stick figures, we conducted two Chi-square analyses, one for each question.

Dominant target. When the target was dominant, there were no differences between conditions. In both the legitimate condition (13 vs. 7) and the illegitimate condition (8 vs. 12) participants more frequently chose the same rather than the opposite posture, $\chi^2(1, N = 40) = 0.11$, $p = .74$ (see Table 3.1).

Submissive target. When the target was submissive, all participants chose the same (mimicked) rather than the opposite (complemented) posture in the legitimate condition (20 vs. 0), while participants chose this same posture to a lesser degree in the illegitimate condition (13 vs. 7), $\chi^2(1, N = 40) = 8.49$, $p = .004$ (see Table 3.1).

Table 3.1. Number of participants who preferred similar (mimicked) or opposite (complemented) postures in response to the target in Study 3.1. Between brackets the percentage of participants mimicking or complementing within that condition is presented.

Target posture	Legitimacy			
	Legitimate		Illegitimate	
	Complement	Mimic	Complement	Mimic
Dominant target	7 (35%)	13 (65%)	8 (40%)	12 (60%)
Submissive target	0 (0%)	20 (100%)	7 (35%)	13 (65%)

Discussion

The results from Study 3.1 confirmed our first hypothesis by showing that people indeed accepted the legitimate condition more than the illegitimate condition. As expected, when the target was submissive, participants chose to show the same (mimicked) posture more in the legitimate condition than in the illegitimate condition. When the target was dominant, however, participants chose to show the same (mimicked) posture as frequently in the legitimate condition as in the illegitimate condition; in both conditions they preferred to show similar postures (mimic) than opposite postures.

Study 3.2

The question arises whether people actually show the behavior that they think would be most likely. Since mimicking or complementing other people's behavior usually occurs outside our conscious awareness, it might be the case that people's behavioral reactions are different than what they thought would be their most likely reaction. To examine whether the behavioral reactions people actually show are in accordance with their predictions, we conducted a second study. In this study, we investigated whether people's actual nonverbal behavior is similar to the choices participants made in Study 3.1. We also tested whether acceptance mediates these nonverbal reactions. Participants were shown a video and we assessed whether they mimicked or complemented the behavior of the target in the video.

Method

Participants and design. Participants were 98 first year students from Leiden University (68 females, 30 males, $M_{age} = 20.56$ years, Range: 17 – 33 years). They received € 2 or 1 credit (needed for a first year course) for participation. The design was a 2 (legitimacy: legitimate vs. illegitimate) x 2 (displayed behavior: dominant vs. submissive) between-subjects design.

Procedure. Participants read the same scenario as in Study 3.1 in which legitimacy of the target's status was manipulated. After the scenario, participants saw a video fragment of the job interview of their supposed new team leader. In the video, a man is sitting at a desk and, depending on the displayed behavior condition, is showing a dominant or submissive body posture. Participants were instructed to sit in a neutral posture before starting the video, but were free to move as soon as the video started. While participants watched the video, they were recorded with a webcam to observe their body postures. We coded participants' postures as submissive when the participants' posture changed from neutral to constricted while watching the video. Postures were coded as dominant when it changed from neutral to expanded while watching the video. Following the video, participants received the same questions as in Study 3.1 concerning the legitimacy manipulation (7 items, e.g. 'how fair did you think it was that the other person got the job?', $\alpha = .88$) and concerning the acceptance of the situation (2 items, e.g. 'to what degree would you accept the current situation?', $\alpha = .72$). Additionally, four questions were asked concerning the displayed behavior manipulation of the target in the video (e.g. 'how dominant do you perceive the target to be?', $\alpha = .88$). All questions were answered on a 7-point scale⁵.

Results

Of 98 participants eight were excluded from the following analyses: Six participants were excluded due to problems with the video-recordings, one participant because he/she did not

⁵ To investigate whether the results could also be explained by the perceived friendliness of the target we measured this in the questionnaire following the experiment (6 items, $\alpha = .85$). The manipulations, however, did not have an effect on perceived friendliness, $F < 1$. Therefore, perceived friendliness of the target cannot be an alternative explanation for the results.

watch the video and one participant since he/she indicated that he/she was not paying attention to the video.

Manipulation checks

Legitimacy. To examine whether the manipulation of legitimacy was successful, we performed a 2 (legitimacy: legitimate vs. illegitimate) x 2 (displayed behavior: dominant vs. submissive) ANOVA with the legitimacy manipulation check as dependent variable. Results showed only a main effect for legitimacy, $F(1, 86) = 73.82, p < .001, \eta^2 = .46$. Participants perceived the situation as more legitimate in the legitimate condition ($M = 4.13, SD = 1.13$) than in the illegitimate condition ($M = 2.39, SD = 0.78$).

Displayed behavior. To examine whether the manipulation of displayed behavior was successful, we conducted a 2 (legitimacy: legitimate vs. illegitimate) x 2 (displayed behavior: dominant vs. submissive) ANOVA with the manipulation check for displayed behavior as dependent variable. This analysis only showed a main effect of displayed behavior, $F(1, 86) = 21.40, p < .001, \eta^2 = .20$. When the target in the video displayed a dominant posture, he was perceived as more dominant ($M = 4.58, SD = 1.23$) than when he showed a submissive posture ($M = 3.13, SD = 1.69$).

Acceptance

To investigate whether participants indeed accepted the situation more in the legitimate condition than in the illegitimate condition, we performed a 2 (legitimacy: legitimate vs. illegitimate) x 2 (displayed behavior: dominant vs. submissive) ANOVA with acceptance of the situation as dependent variable. Results showed a main effect for legitimacy, $F(1, 86) = 17.55, p < .001, \eta^2 = .17$. As in Study 3.1 and confirming Hypothesis 1, when status was legitimate participants accepted the situation more ($M = 3.92, SD = 1.51$) than when status was illegitimate ($M = 2.70, SD = 1.24$).

Postures

Three participants were not included in the following analysis since their postures were not identifiable as mimicked or complemented postures. A logistic regression analysis with displayed behavior, legitimacy and the interaction of these factors, showed a significant main effect of legitimacy on the reactions of the participants (mimicry and complementarity), $B = 0.93$, Wald = 4.30, $p = .04$: As can be seen in Table 3.2, when status was legitimate participants mimicked the target more than they complemented (67.4% mimicry vs. 32.6% complementarity). When status was illegitimate participants did not significantly mimic more (54.6% mimicry vs. 45.5% complementarity).

Table 3.2. Number of participants who mimicked or complemented the target in Study 3.2. Between brackets the percentage of participants mimicking or complementing within that condition is presented.

Displayed behavior	Legitimacy			
	Legitimate		Illegitimate	
	Complement	Mimic	Complement	Mimic
Dominant	7 (30.4%)	16 (69.6%)	14 (63.6%)	8 (36.4%)
Submissive	7 (35.0%)	13 (65.0%)	10 (45.5%)	12 (54.5%)
Total	14 (32.6%)	29 (67.4%)	24 (54.6%)	20 (45.5%)

Mediation

To test whether this effect was mediated by the degree to which participants accepted the situation, we followed the steps proposed by Baron and Kenny (1986). Since the outcome variable (posture) is dichotomous while our mediator (acceptance) is continuous, we used a linear regression to test the effect of legitimacy on acceptance and logistic regressions for the other steps. A logistic regression analysis showed a significant effect of legitimacy on posture, $B = 0.91$, $SE = 0.44$, $p = .04$. Next, a linear regression analysis revealed a significant effect of legitimacy on the mediator acceptance, $B = 1.01$, $SE = 0.34$, $p < .01$. Finally, a logistic regression

analysis with legitimacy and acceptance as factors showed a significant effect of acceptance on posture, $B = -0.28$, $SE = 0.14$, $p = .05$. Moreover, the effect of legitimacy on posture was no longer significant, $B = 0.67$, $SE = 0.47$, $p = .16$.

To test whether this mediation was significant, we used a bootstrap method, as proposed by Preacher and Hayes (2008). This method has several advantages over other methods for testing mediation. For example, the method does not rely on the assumption of normality, the likelihood of Type I errors is reduced and is less problematic when working with small samples (Preacher & Hayes, 2004; 2008). With 5000 resamples, the confidence interval did not contain zero at the 95% level (indirect effect: $CI = -.75$ to $-.002$), indicating that acceptance was a mediator, $p < .05$. Thus, acceptance significantly mediated the effect of legitimacy on posture.

Discussion

Study 3.2 showed that legitimacy leads to more acceptance (confirming Hypothesis 1) and that people's nonverbal reactions were indeed influenced by the legitimacy; when the status of the target was legitimate, people mimicked this target's posture more than when the target's status was illegitimate (confirming Hypothesis 2). Furthermore, as was stated in the third hypothesis, this effect of legitimacy on nonverbal reactions was mediated by the degree to which they accepted this situation. When the target had legitimate status, people accepted this more and that led to more mimicked reactions, independent of displayed behavior.

General discussion

In the current research we examined whether status legitimacy influences acceptance of the situation and behavioral reactions towards postures of others. Study 3.1 demonstrated that people in the legitimate condition accepted the situation more than the illegitimate condition.

Also, participants indicated that, in a situation in which a target sits with a submissive posture, showing similar (mimicked) postures would be more likely when status was legitimate than when status was illegitimate. In a situation in which a target sits with a dominant posture, however, participants did not react differently when a target had legitimate or illegitimate status; for both situations participants thought showing similar postures was as likely as showing opposite postures.

The results of Study 3.2 showed a main effect of legitimacy on the behavioral reactions; participants mimicked more frequently when the status was legitimate than when it was illegitimate. Furthermore, this was mediated by acceptance of the situation.

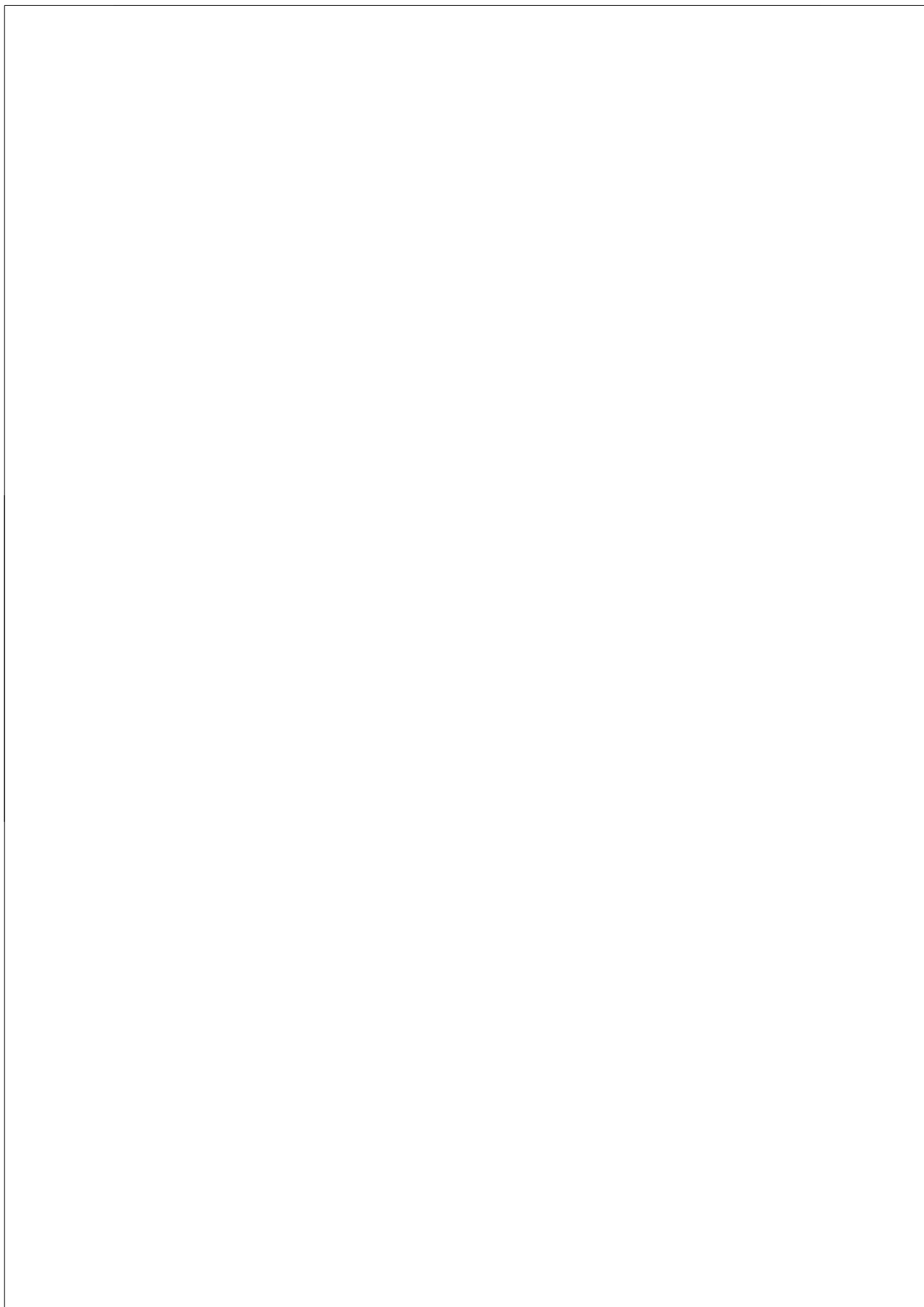
While the results for submissive target behavior are consistent across Studies 3.1 and 3.2, for dominant behavior they are not. In the first study the dominant illegitimate target was reacted to with more similar (dominant) postures, while participants' actual nonverbal reaction was complementary (submissive). To explain this difference, it is first of all important to acknowledge that in Study 3.1, participants indicated what they thought was the most likely reaction they would show in such situations, while in Study 3.2 participants' actual reactions were measured. People thus seem to be less accurate to predict their behavior in the specific situation in which they see an illegitimate high status target displaying dominant behavior. But why would that situation differ from the other situations? It may be the case that when a target has illegitimate status and displays dominant behavior, this is the only situation in which the target seems to seek conflict. When a target has illegitimate status and displays submissive behavior, the behavior may be interpreted as a means to show conflict avoidance with the participant, hence lowering perceptions of conflict. Also, when status is legitimate there is no reason to expect conflict. Thus, only when a target has illegitimate status and shows dominant behavior, people might have (consciously) perceived this to be a conflict and (therefore) indicated they would show a dominant posture in response. While people might say they would mimic this dominant behavior in the illegitimate condition, they seem not to do so when the

situation actually occurs. People thus indicate that they would encounter the conflict by showing dominant behavior in response, but when actually confronted with such a situation they rather avoid the conflict by showing submissive behavior instead.

The current findings suggest that, countering the general belief that behavior tends to engulf the field (Heider, 1958), in this setting the situation seems to be more important than the behavior that is shown; no effect was found of displayed behavior (in Study 3.2). Future research should investigate whether this finding will generalize to face-to-face interaction settings, since the communicative function of behavior might be more important in such settings. In the settings currently investigated, however, our research indicates that the situation may be more important than the displayed behavior of the target. Legitimacy influences —via acceptance— the degree to which people show similar or opposite postures as a target.

These findings can be interpreted as an addition to the existing knowledge on behavioral reactions in situations where target behavior is related to dominance. Previously it was shown that dominance displays are usually complemented (Tiedens & Fragale, 2003). Our results extend these findings by demonstrating that when information on status legitimacy of the target is provided, people are more likely to respond to this information than to the displayed behavior. Although in the current research we did not compare the results of our legitimacy manipulation with a control condition in which no legitimacy was manipulated, it is to be expected that this condition would replicate the findings of Tiedens and Fragale (2003).

In conclusion, our findings show that when a target's status is legitimate, people accept this situation more and therefore mimic the target's behavior more than when a target's status is illegitimate. People thus do not perceive behavior as separate from the context; when reacting to the other's behavior they take the social role a person fulfills and whether this role is legitimately obtained into account.



4. Perceptions of postures⁶

Imagine someone sitting with his arms wide, resting with his arm on the back of the chair next to him, legs crossed over each other, and leaning backwards. How would you perceive this person? Previous research suggests that you would perceive this person as dominant, since expanded (or open) postures are related to dominance (for an overview, see Hall, Coats, & LeBeau, 2005). A study of Tiedens and Fragale (2003, Study 1) provided compelling evidence for this idea by showing that participants perceived a confederate with an expanded posture as more dominant than a confederate with a constricted posture.

Note, however, that by itself expanded postures need not always be perceived as displays of dominance. Consider, for example, a person who adopts an expanded posture while sitting alone in his room, watching television. In such a context, an expanded posture (arms wide, leaning backwards) could be perceived as a signal of being relaxed rather than as a display of dominance. Inferences of dominance thus seem to require a social setting. But even then, we argue, context matters. In the present article, we draw attention to the social context provided by the interaction partner.

In social contexts, postures that may be linked to dominance or submissiveness, involve (at least) two persons: the person displaying the behavior and the person to whom the behavior is displayed (i.e., the interaction partner). We argue that perceptions of the dominance and/or submissiveness are a function of the extent to which postures align. In other words, the similarity versus dissimilarity of postures of interaction partners may provide important contextual information. An individual's expanded posture may for example be interpreted

⁶ This chapter is based on Mastop, Stel, and Van Dijk (2012c)

differently (in terms of dominance) when displayed in a context in which the interaction partner also displays an expanded posture than when displayed in a context in which the partner shows a constricted posture.

In many domains it has been demonstrated that contexts can influence perceptions by providing cues for comparison. For example, Kenrick and Gutierres (1980) showed that when men rated photos of average attractive females while watching a TV show with highly attractive women, the women on the photos were rated as much less attractive. Furthermore, research showed that people judged stimuli as weighing less when they received an anchor-weight that was much higher than the stimulus weight—a contrast effect (Sherif, Taub, & Hovland, 1958). In the following, we will argue that perceptions of postures of interaction partners are susceptible to a comparison process such that perceptions of dominance and submissiveness of interaction partners may be contrasted when postures are dissimilar rather than similar.

Nonverbal reactions

When interpreting expanded and constricted postures in the context of the posture of another person, it is important to note that people generally react to other people's postures by either showing a similar posture or an opposite posture. When people respond with the same behavior, this is often referred to as mimicry: "the imitation of others' nonverbal displays by an observer" (Hess & Blairy, 2001, p. 129). Responding with an opposite behavior to the behavior of a target is often referred to as complementary behavior (Strong et al., 1988). Complementary behavior seems to be most prevalent in situations related to dominance (e.g., Dryer & Horowitz, 1997; Tiedens & Fragale, 2003). This is also observed in animal behavior. De Waal (1982) was one of the first to observe opposite reactions in a chimpanzee troupe. When one chimpanzee showed an expanded posture, the others usually responded with a constricted posture. Interestingly, when another chimpanzee responded with an expanded posture, this usually led to violent conflicts. The perceptions of these expanded and constricted postures and the

interactions in which they are shown in may therefore be influenced by the nonverbal reactions of the interaction partner. While in human interactions mimicking an expanded posture may not necessarily lead to the same behavior as in the chimpanzee troupe, it may lead to increased perceptions of conflict in an interaction.

In the current research, we suggest that the contrast between postures in an interaction influences people's perceptions of the behavior in the interaction and of the interaction itself. An expanded posture might be perceived as a dominant posture and a constricted posture as submissive when the context of that behavior is not taken into account. However, we argue that since the posture of the interaction partner can provide contrast effects which can influence people's perceptions, these constricted and expanded postures will be perceived differently when taking into account the behavior of others in the interaction. In the current research, perceptions of the behavior of the target and the interaction were examined. More specifically, we examined perceptions of dominance and conflict avoidance of the behavior of a target and the amount of conflict that is perceived in an interaction.

Perceptions of dominance and conflict avoidance

First, we expect perceptions of dominance and conflict avoidance to be affected by the contrast between two postures. Expanded postures might not only be perceived as dominant, but also as less conflict avoidant, because an effective strategy is to avoid conflicts elicited by dominance displays. Similarly, constricted postures may not only be perceived as less dominant (or submissive) but also as more conflict avoidant.

Furthermore, as was shown in other domains (Kenrick & Gutierrez, 1980; Sherif et al., 1958), the interaction itself may provide cues for comparison such as the posture of an interaction partner. This posture can be used as a comparison with the posture of the target, and thereby provide a contrast effect. We argue that perceptions of dominance and conflict avoidance will be influenced by this contrast between the postures of the interaction partners.

Furthermore, we expect differences in perceptions of dominance and conflict avoidance to be larger when postures of the interaction partners are opposite rather than similar. More specifically, we expect an expanded posture to be perceived as more dominant and less conflict avoidant when the posture of the interaction partner is opposite rather than similar. A constricted posture will be perceived as more conflict avoidant and less dominant when the posture of the interaction partner is opposite rather than similar.

Perceptions of conflict

In addition to postures influencing perceptions of behavior, the perceptions of the interaction may be influenced by the contrast between the postures of the interaction partners as well. Since expanded and constricted postures are likely to influence dominance and conflict avoidance perceptions, it is also likely that these postures can influence perceptions of conflict in the interaction. More specifically, we expect that perceptions of conflict in the interaction are influenced by the contrast between the postures in the interaction. There are several possible hypotheses for the effects of these postures on conflict perceptions.

On the one hand, one could expect that the least conflict will be perceived when the contrast between the postures is large (when the interaction partner shows an opposite posture). This can be expected because people prefer opposite postures when one of the interaction partners shows an expanded or constricted posture (Tiedens & Fragale, 2003) and because people prefer to avoid conflicts, since conflicts involve negative affect (Barki & Hartwick, 2004).

On the other hand, one could also expect that when the contrast in postures between the two interaction partners is small (i.e. when the interaction partner shows a similar posture), postures are not perceived in terms of dominance. Furthermore, there may be less reason to perceive the situation as one of conflict than when the contrast is large and there is a clear

dominance hierarchy. Therefore, the least conflict may be perceived when the contrast between the postures is small.

These hypotheses were investigated by having participants engage in an interaction (Study 4.1) or by showing participants a video of an interaction (Studies 4.2 and 4.3) and examining their perceptions of the behavior (dominance and conflict avoidance) and the interaction (conflict). In Study 4.3, we additionally provided participants with information on the relative power between the two targets. This was done in order to examine whether a contrast in social roles —besides a contrast between postures— in an interaction also influences perceptions of the behavior and the situation.

Study 4.1

In the first study, participants engaged in an interaction with a confederate showing either an expanded or a constricted posture. During this interaction, participants were asked to sit in an expanded or constricted posture. We did so using an unobtrusive measure: We told participants that because we were interested in measuring their heart-rate that they should sit in a fixed (either expanded or constricted) position (cf. Tiedens & Fragale, 2003, Study 2). After the interaction we measured participants' self-perceptions of the degree to which they perceived their own behavior as dominant and conflict avoidant and measured their perceptions of the degree of conflict in the interaction.

Method

Participants and design. Participants were 54 female students from Leiden University ($M_{age} = 20.31$ years, Range: 17 - 24 years). Participants were randomly assigned to a 2 (participant posture: expanded vs. constricted) x 2 (confederate posture: similar vs. opposite)

between-participants design. Participants received credits (necessary for a first-year course) or € 3 for participation.

Procedure. Participants were informed that they were about to have an interaction with another participant (who was in fact a confederate). All participants interacted with a same sex (female) confederate. Then, they were led to another room, in which the confederate was already waiting.

To make sure that participants would not be suspicious about the posture fixation, a cover story was provided to participants. Participants were told that we were interested in measuring their heart rate during the interaction. Then, it was explained that the (bogus) heart rate meter, should be kept either above the heart (in the expanded posture condition) or below the heart (in the constricted posture condition). Following, it was stated by the experimenter that the easiest way to do that was to put the arm either on the back of the chair besides them (creating an expanded posture) or to put the arm on their lap (creating a constricted posture). The confederate either showed a similar or an opposite posture.

To make sure that all participants had a similar interaction with the confederate, the participant and confederate received 10 minutes to discuss a list of items they had received. This list was part of the *NASA Decision-Making Problem* (Cammalleri, Hendrick, Pittman, Blout, & Prather, 1973), which we adjusted slightly to fit the situation. In this task, participants had to imagine that they were an astronaut who has crashed on the moon far from the mother ship. There were fourteen items that survived the crash that could be used for surviving on the moon while walking to the mothership (e.g., water, a nylon rope, first aid kit, map of the moon surface, a compass). However, since it was not possible to take all 14 items, a ranking of importance was made. Both the participant and confederate received a ranking of items, supposedly constructed by an expert in the field, and were told to discuss their (different) lists. The participants all received the same list, and also the confederate always had the same list in every interaction.

After the interaction, participants were led back to their cubicle, where they filled in a short questionnaire. In the questionnaire, perceptions of dominance, conflict avoidance, and conflict were measured. Participants received four questions concerning their perceptions of their own dominance (e.g. 'To what extent do you think your behavior was dominant', $\alpha = .67$) and three questions measuring their perceptions on whether they were acting conflict avoiding (e.g. 'To what extent do you think you were avoiding a conflict with your interaction partner?', $\alpha = .82$, based on the conflict perceptions scale by De Dreu, Evers, Beersma, Kluwer, & Nauta, 2001). Furthermore, participants received eight questions about their perceptions of the degree of conflict (e.g. 'To what extent did you think there was a conflict between you and your interaction partner?', $\alpha = .79$). All questions were answered on a 7-point scale. Finally, demographic questions were asked, participants were debriefed, and thanked for their participation.

To check whether participants were aware of the manipulation of posture we asked them at the end of the experiment what they thought was the purpose of the study. Of all participants, none stated that they thought their posture was mimicked or complemented by the confederate. There were four participants that mentioned the word "postures" in their answer, but none mentioned that in the context of dominance or guessed in what way the postures were manipulated. Also, none of the participants indicated that they thought the heart rate meter was bogus or that it was used to manipulate their posture.

Results

Perceived dominance. A 2 (participant posture: expanded vs. constricted) x 2 (confederate posture: similar vs. opposite) ANOVA with participants' self-ratings of perceived dominance as dependent variable showed a significant interaction effect, $F(1, 50) = 5.28, p = .03, \eta^2 = .10$. As can be seen in Table 4.1, post hoc tests showed that participants with an expanded posture felt more dominant when the confederate had an opposite (constricted) posture ($M =$

4.52, $SD = 0.95$) than when the confederate had a similar (expanded) posture ($M = 3.70$, $SD = 0.86$), $p = .02$. Perceived dominance of participants with a constricted posture was not affected by whether the confederate was in a similar ($M = 4.50$, $SD = 1.01$) or opposite posture, ($M = 4.18$, $SD = 0.82$), $p = .35$.

Conflict avoidance. A 2 (participant posture: expanded vs. constricted) x 2 (confederate posture: similar vs. opposite) ANOVA with conflict avoidance as dependent variable did not show any significant effects, $F < 1$, ns (overall $M = 3.43$, $SD = 1.32$).

Table 4.1. Means (and standard deviations) of perceived dominance in Study 4.1. Means with a different subscript differ significantly $p < .05$.

	Participant expanded	Participant constricted
Interaction partner Similar	3.70 (0.86) _a	4.50 (1.01) _b
Interaction partner Opposite	4.52 (0.95) _b	4.18 (0.82) _b

Conflict perceptions. To examine to what degree participants experienced conflict, a 2 (participant posture: expanded vs. constricted) x 2 (confederate posture: similar vs. opposite) ANOVA with conflict perceptions as dependent variable was conducted. This analysis showed a significant main effect of participant posture, $F(1, 50) = 5.36$, $p = .03$, $\eta^2 = .10$. Participants perceived the situation as containing less conflict when they sat in an expanded ($M = 2.24$, $SD = 0.58$) than in a constricted posture ($M = 2.62$, $SD = 0.63$).

Discussion

The results of Study 4.1 demonstrated that perceptions of dominance were influenced by both the participant's own posture and the confederate's posture. When participants had an expanded posture, they felt more dominant when the confederate had an opposite (constricted) posture than when the confederate had a similar (expanded) posture. This shows that, as

expected, the posture of the interaction partner may serve as a contrast which influences self-perceptions of dominance.

Furthermore, the results showed that conflict avoidance perceptions did not differ between conditions. This may have been caused by the overall low perceptions of conflict; participants may not have viewed the interaction to contain much conflict and thus did not perceive their behavior to be conflict avoidant (when there is little conflict, there is little to avoid).

Finally, the results demonstrate that less conflict was perceived by participants with an expanded posture than participants with a constricted posture, regardless of the posture of the confederate. A post hoc explanation for this finding is that a constricted posture is usually seen as a more negative-associated posture (for example, a slumped posture is associated with sadness, Coulson, 2004) than an expanded posture, which has more positive associations (for example, signaling higher power and more freedom, Tiedens & Fragale, 2003; Weisfeld & Beresford, 1982). Therefore, people may resort to these associations and perceive less conflict when postures are expanded than when postures are constricted. From this finding one can conclude that while displaying an expanded posture can lead to conflict (De Waal, 1982), being the person with the expanded posture does not lead to feelings of conflict in the interaction but actually leads to lower perceptions of conflict.

The results of Study 4.1 showed that when participants' postures were manipulated to be expanded or constricted while a confederate showed similar or opposite postures, these postures affected self-perceptions of dominance and conflict in the interaction. This setup had the advantage that the posture of the participant was manipulated without the participant being aware of the association such postures have with dominance and conflict avoidance. A possible limitation, however, was that the setup did not allow us full control over the verbal interaction between the partners. It may therefore be beneficial to also test our hypotheses using a more controlled setting. To do this, we ran a second study in which the participants rated a pre-

recorded interaction from a third-person perspective. This not only enabled us to investigate whether perceptions are different from a third-person perspective than from a first-person perspective, but also to rule out that verbal content could have influenced participants' perceptions. Additionally, this controlled setting may increase the possibility to reveal effects for conflict avoidance.

Study 4.2

Participants were asked to judge videotaped interactions, in which a target displays an expanded or constricted body posture, while the interaction partner of the target displays either a similar or opposite posture. We asked participant to focus on one person in the interaction and only rate the behavior of that person (from now on called "the target") to keep the procedure for the participants simple as they could focus their attention to a single target rather than the relative differences. Participants' perceptions of dominance and conflict avoidance of the target and perceptions of conflict in the interaction were measured.

Method

Participants and design. Participants were 88 students from Leiden University (69 females, 19 males, $M_{\text{age}} = 19.16$ years, Range: 18 - 24 years). They received € 2 or 1 credit (needed for a first year course) for participation and were randomly assigned to a 2 (target posture: expanded vs. constricted) x 2 (interaction partner posture: similar vs. opposite) between-participants design.

Procedure. Participants were instructed to watch a short video. In this video, an interaction was shown between a target and interaction partner (both females). The posture of the target was either expanded or constricted, and the interaction partner's posture was either similar (i.e. both displayed an expanded posture or both displayed a constricted posture) or

opposite (i.e. the target displayed an expanded posture and the interaction partner displayed a constricted posture or vice versa). In the video the target sat at a table facing the interaction partner. The camera was placed in a way that both postures were clearly visible on camera. The conversation was muted to avoid verbal content to influence the manipulation. The target and interaction partner were of equal height, and wore similar clothing. Following the video, participants were asked to rate the target on dominance ($\alpha = .93$) and conflict avoidance ($\alpha = .96$) and the interaction on perceived conflict ($\alpha = .89$), using the same questions as were used in Study 4.1 but adjusted to fit the situation (i.e. using formulations like "the target" instead of "you"). Finally, demographic questions were asked, participants were debriefed and thanked for their participation.

Results

Perceived dominance. We examined participants' ratings of the dominance of the target with a 2 (target posture: expanded vs. constricted) x 2 (interaction partner posture: similar vs. opposite) ANOVA. Means and standard deviations are presented in Table 4.2. Our hypothesis was that an expanded posture is perceived as more dominant when postures are opposite than when postures are similar. The ANOVA showed a significant main effect for target posture, $F(1, 84) = 183.20, p < .001, \eta^2 = .69$. When the target displayed an expanded posture she was perceived more dominant ($M = 5.61, SD = 1.10$) than when the target displayed a constricted posture ($M = 2.49, SD = 1.46$). Furthermore, the analysis showed an interaction effect of target posture and interaction partner posture, $F(1, 84) = 34.52, p < .001, \eta^2 = .29$. The effect that the target was perceived as more dominant when showing an expanded posture than when displaying a constricted posture was stronger when the interaction partner displayed an opposite ($M = 6.13, SD = 0.76$ vs. $M = 1.63, SD = 0.66$), $p < .001$ than when she displayed a similar posture ($M = 5.13, SD = 1.16$ vs. $M = 3.35, SD = 1.53$), $p < .001$.

Table 4.2. Means (and standard deviations) of perceived dominance in Study 4.2. Means with a different subscript differ significantly $p < .05$.

	Target expanded	Target constricted
Interaction partner Similar	5.13 (1.16) _a	3.35 (1.53) _b
Interaction partner Opposite	6.13 (0.76) _c	1.63 (0.66) _d

Conflict avoidance. A (target posture: expanded vs. constricted) x 2 (interaction partner posture: similar vs. opposite) ANOVA with conflict avoidance as dependent variable was conducted. Means and standard deviations are presented in Table 4.3. Our hypothesis was that an expanded posture is perceived as less conflict avoidant when postures are opposite than when postures are similar. The ANOVA showed a significant main effect of target posture, $F(1, 84) = 96.86$, $p < .001$, $\eta^2 = .54$. When the target displayed an expanded posture she was perceived to be less avoidant ($M = 2.33$, $SD = 1.24$) than when she displayed a constricted posture ($M = 4.99$, $SD = 1.47$). Furthermore, there was a significant interaction of target posture and interaction partner posture, $F(1, 84) = 13.29$, $p < .001$, $\eta^2 = .14$. The effect that the target was perceived as less conflict avoidant when showing an expanded posture than when showing a constricted posture was stronger when the interaction partner displayed an opposite ($M = 1.81$, $SD = 0.76$ vs. $M = 5.48$, $SD = 1.16$), $p < .001$ than when she displayed a similar posture ($M = 2.81$, $SD = 1.41$ vs. $M = 4.50$, $SD = 1.60$), $p < .001$.

Table 4.3. Means (and standard deviations) of conflict avoidance in Study 4.2. Means with a different subscript differ significantly $p < .05$.

	Target expanded	Target constricted
Interaction partner Similar	2.81 (1.41) _a	4.50 (1.60) _b
Interaction partner Opposite	1.81 (0.76) _c	5.48 (1.16) _d

Conflict perceptions. A 2 (target posture: expanded vs. constricted) x 2 (interaction partner posture: similar vs. opposite) ANOVA with conflict perceptions as dependent variable

showed a significant main effect of target posture, $F(1, 84) = 22.23, p < .001, \eta^2 = .21$. When the target displayed an expanded posture less conflict was perceived ($M = 3.82, SD = 1.01$) than when the target displayed a constricted posture ($M = 4.74, SD = 1.03$), regardless of the posture of the interaction partner. There was also a main effect of interaction partner posture, $F(1, 84) = 26.87, p < .001, \eta^2 = .24$. When the interaction partner displayed a similar posture less conflict was perceived ($M = 3.79, SD = 1.02$) than when she displayed an opposite posture ($M = 4.80, SD = 0.97$). The interaction effect of the two factors was not significant, $F(1, 84) = 1.53, p = .22, \eta^2 = .02$.

Discussion

From the results of Study 4.2 one can conclude that, as expected, an expanded posture was perceived as more dominant than a constricted posture. More importantly, the hypothesis that the contrast between postures would influence perceptions of dominance and conflict avoidance was confirmed. Even when participants were asked to focus on one target rather than the relative difference between the targets, the posture of the interaction partner influenced perceptions. An expanded posture was perceived as even more dominant when the interaction partner displayed a constricted posture and a constricted posture was perceived as even less dominant when the interaction partner displayed an expanded posture. This indicates that people do not simply evaluate posture as an isolated behavior, but also take the posture of an interaction partner into account in their evaluations.

Conflict avoidance perceptions were also influenced by the contrast between the posture of the target and the posture of the interaction partner. An expanded posture was perceived as less avoidant than a constricted posture, but especially so when the interaction partner displayed an opposite posture; an expanded posture was perceived even less avoidant when the interaction partner showed a constricted posture and a constricted posture was perceived as even less avoidant when the interaction partner showed an expanded posture. A

constricted posture may thus signal conflict avoidance but the contrast with the posture of the interaction partner influences the degree to which it is perceived as conflict avoiding.

Our manipulations of posture also affected the perceptions of the interaction. Conflict was perceived to be lower when the target had an expanded rather than a constricted posture. Additionally, independent of the type of posture, perceptions of conflict were lower when the interaction partner displayed a similar posture than when the interaction partner displayed an opposite posture. These findings support our hypothesis that the perceptions of the interaction are influenced by the contrast between the postures. When the contrast between the postures was small (when postures were similar) participants perceived less conflict in the interaction.

The current research thus suggests that an expanded posture is not necessarily perceived as dominant and a constricted posture is not necessarily perceived as conflict avoidant. The posture of an interaction partner influences the degree to which the behavior is perceived as dominant and avoidant. Furthermore, the interaction partner's posture influences the perceptions of conflict in the interaction. The posture of the interaction partner, however, may not be the only contextual factor that influences perceptions of expanded and constricted postures. Especially behaviors that are related to dominance (like expanded and constricted postures) are likely to be shown in situations in which hierarchical differences exist between the interaction partners. These hierarchical roles may also provide a context which influences the perceptions of the behavior in the interaction and the interaction itself. To see how the hierarchical positions of the interaction partners—in addition to the postures of the interaction partners— influences perceptions of the behavior and the interaction, we ran a third study.

Study 4.3

There is a lot of research showing that there is a strong relationship between expanded postures and high hierarchical positions (Hall et al., 2005; Weisfeld & Beresford, 1982). For

example, when a person has a high hierarchical position that person is more likely to display an expanded posture (Leffler, Gillespie, & Conaty, 1982). These hierarchical roles are, however, not necessarily always congruent with the behavior that is displayed. For example, people in low hierarchical positions may want to show an expanded posture to display their dominance or competence or to challenge their superiors. Recently, it was demonstrated that postures and hierarchical roles can also have independent and interactive effects on perceptions and behaviors related to power (Huang, Galinsky, Gruenfeld, & Guillory, 2011). It may therefore be interesting to examine the effects of hierarchical positions—in addition to the postures of the interaction partners—on the perceptions of dominance, conflict avoidance and conflict.

Therefore, in Study 4.3 we examined whether adding information about the hierarchy (one target being higher in the hierarchy and the other being lower in the hierarchy) between the targets would influence observers' ratings of dominance, conflict avoidance, and conflict perceptions. Since we were interested in perceptions for both the target with the high hierarchical position and the target with the low hierarchical position, we examined perceptions for both targets in the interaction. As in Study 4.2, the targets displayed either an expanded or a constricted posture and interaction partners had either similar or opposite postures.

We expect that when the postures are congruent with their hierarchical position (i.e. an expanded posture for the target with a higher hierarchical position), postures will affect perceptions of dominance, conflict avoidance, and conflict, similar to Study 4.2. Dominance and conflict avoidance perceptions will be stronger when the postures were opposite rather than similar. Conflict will be perceived lower when the target has an expanded rather than constricted posture and will be higher when the other shows an opposite posture rather than a similar posture.

When postures are incongruent with the hierarchical position (i.e. an expanded posture for the target with a lower position) there are competing contextual cues that people may take into account in their perceptions of the behavior and situation. When an expanded posture is

shown by a target that is lower in the hierarchy, people may be less likely to perceive this expanded posture as dominant. Also, a constricted posture that is shown by a target that is higher in the hierarchy may be more likely to be perceived as dominant. Perceptions of dominance and conflict avoidance may therefore be less pronounced when postures and hierarchical position are incongruent. Perceptions of conflict, on the other hand, may be higher when posture and hierarchical position are incongruent rather than congruent, since one could conclude from the incongruency between the posture and hierarchical position that the hierarchy is out of balance. A target lower in the hierarchy displaying an expanded posture may, for example indicate that the targets are engaged in a competition for the high hierarchical position, or that the low hierarchical position target is challenging the high hierarchical position target.

Method

Participants and design. Participants were 80 students from Leiden University (59 females, 21 males, $M_{age} = 20.61$ years, Range: 18 - 43 years). Participants were randomly assigned to a 2 (posture of high hierarchical position target: expanded vs. constricted) x 2 (posture of low hierarchical position target: similar vs. opposite) between-participants design. Hierarchical role assignment was counterbalanced across targets.

Procedure. The procedure of Study 4.3 was similar to that of Study 4.2: Participants watched a video of two interaction partners who displayed either an expanded or constricted posture. Additionally, information on the hierarchy between both targets was presented before the video was displayed. Hierarchy was manipulated by informing participants that one of the targets was an intermediary (i.e. had a higher hierarchical position) and the other target was a

temporary worker (i.e. had a lower hierarchical position).⁷ It was counterbalanced which target was the intermediary and temporary worker. These roles were chosen because we expected students (our main sample) to be able to easily identify with both roles and because it is plausible that both roles are fulfilled by the (young) women in our target video. It was explained to participants that the video that they were about to view, displayed the intermediary and the temporary worker in a work discussion. The video allegedly depicted an intermediary who was evaluating the temporary worker and had the ability to judge whether she would make use of the temporary worker based on her previous performance.

After viewing the video, participants received the same questionnaire as in Studies 4.1 and 4.2, but now they received the questions for both targets in the video. Cronbach's alpha was: for dominance of the high hierarchical position target: .93; for dominance of the low hierarchical position target: .96; for conflict avoidance of the high hierarchical position target: .73; for conflict avoidance of the low hierarchical position target: .85; and for perceived conflict: .87.

Results

Perceived dominance. A 2 (posture of high hierarchical position target: expanded vs. constricted) x 2 (posture of low hierarchical position target: similar vs. opposite) x 2 (target: high hierarchical position vs. low hierarchical position) ANOVA with target as a within factor and

⁷ In a pilot study, we tested whether our manipulation of high and low hierarchical position was effective. Participants ($N = 17$) read the same scenario as in Study 4.3. Then they were asked on 7 -point scales how high in the hierarchy they perceived the intermediary (3 items, $\alpha = .75$) and the temporary worker (3 items, $\alpha = .74$). A paired sample t-test with intermediary and temporary worker scales as within factor, showed a significant difference on perceived hierarchical position, $t(16) = 8.97$, $p < .001$. The intermediary was perceived as higher in the hierarchy ($M = 5.14$, $SD = 0.93$) than the temporary worker ($M = 2.82$, $SD = 0.97$).

perceived dominance as dependent variable revealed a significant main effect of the posture of the high hierarchical position target, $F(1, 76) = 93.96, p < .001, \eta^2 = .55$. This main effect was qualified by a three-way interaction, $F(1, 76) = 69.52, p < .001, \eta^2 = .48$. To further examine this three-way interaction, we ran separate 2 (posture of high hierarchical position target: expanded vs. constricted) x 2 (posture of low hierarchical position target: similar vs. opposite) ANOVAs for both targets. Means and standard deviations are presented in Table 4.4.

Table 4.4. Means (and standard deviations) of perceived dominance for the high hierarchical position target (High HPT) and low hierarchical position target (Low HPT) in Study 4.3. Means with a different subscript differ significantly $p < .05$.

Perceptions for High HPT	High HPT expanded	High HPT constricted
Low HPT similar	4.71 (1.34) _a	3.57 (1.83) _b
Low HPT opposite	6.20 (0.61) _c	1.84 (0.95) _d
Perceptions for Low HPT	High HPT expanded	High HPT constricted
Low HPT similar	4.46 (1.66) _a	4.01 (1.75) _a
Low HPT opposite	1.55 (0.63) _b	6.46 (0.57) _c

High hierarchical position target. A 2 x 2 ANOVA with perceived dominance as dependent variable yielded a significant main effect of posture of the high hierarchical position target, $F(1, 76) = 95.66, p < .001, \eta^2 = .56$, and a significant interaction effect, $F(1, 76) = 32.54, p < .001, \eta^2 = .30$. The high hierarchical position target was perceived as being more dominant when displaying an expanded posture ($M = 5.44, SD = 1.28$) than when displaying a constricted posture ($M = 2.68, SD = 1.68$). The interaction showed, however, that this was especially the case when the interaction partner displayed an opposite posture: When postures were similar, the high hierarchical position target was perceived as more dominant when she displayed an expanded posture ($M = 4.71, SD = 1.34$) than when she displayed a constricted posture ($M = 3.57, SD = 1.83$), $p < .01$. When postures were opposite, perceptions of dominance were even stronger: the

high position target was perceived much more dominant when she displayed an expanded ($M = 6.20$, $SD = 0.61$) than when she displayed a constricted posture ($M = 1.84$, $SD = 0.95$), $p < .001$.

Low hierarchical position target. A similar pattern of results was found for the perceptions of dominance of the low hierarchical position target. A 2 x 2 ANOVA showed a significant main effect of posture of the high hierarchical position target, $F(1, 76) = 61.07$, $p < .001$, $\eta^2 = .45$, and a significant interaction effect, $F(1, 76) = 88.26$, $p < .001$, $\eta^2 = .54$. The low hierarchical position target was perceived as less dominant when the other displayed an expanded posture ($M = 3.04$, $SD = 1.93$) than when the other displayed a constricted posture ($M = 5.27$, $SD = 1.78$). The interaction indicated that this was especially the case when the low hierarchical position target displayed an opposite posture: When postures were similar, there was no difference in perceptions of dominance of the low hierarchical position target, $p = .26$. When postures were opposite, the low hierarchical position target was perceived less dominant when the other displayed an expanded posture ($M = 1.55$, $SD = 0.63$) than when the other displayed a constricted posture ($M = 6.46$, $SD = 0.57$), $p < .001$.

In sum, the three-way interaction demonstrates that when postures of the interaction partners were similar, the high hierarchical position target was perceived as more dominant when displaying an expanded posture than when displaying a constricted posture, while for the low hierarchical position target there was no difference whether she displayed an expanded or constricted posture.

When postures of the interaction partners were opposite and the high hierarchical position target displayed an expanded posture, the high hierarchical position target was perceived as more dominant while the low hierarchical position target was perceived as less dominant. When the high hierarchical position target displayed a constricted posture, this pattern was reversed.

Conflict avoidance. A 2 (posture of high hierarchical position target: expanded vs. constricted) x 2 (posture of low hierarchical position target: similar vs. opposite) x 2 (target: high

hierarchical position vs. low hierarchical position target) ANOVA with target as a within subject factor and avoidance as dependent variable revealed a significant main effect of the posture of the high position target, $F(1, 76) = 25.43$, $p < .001$, $\eta^2 = .25$. This main effect was qualified by a three-way interaction, $F(1, 76) = 51.33$, $p < .001$, $\eta^2 = .40$. To further examine this three-way interaction, we ran separate 2 (posture of high hierarchical position target: expanded vs. constricted) $\times$ 2 (posture of low hierarchical position target: similar vs. opposite) ANOVA's for both targets. Means and standard deviations are presented in Table 4.5.

Table 4.5. Means (and standard deviations) of perceptions of conflict avoidance for the high hierarchical position target (High HPT) and the low hierarchical position target (Low HPT) in Study 4.3. Means with a different subscript differ significantly $p < .05$.

Perceptions for High HPT	High HPT expanded	High HPT constricted
Low HPT similar	4.16 (1.37) _a	3.93 (1.32) _a
Low HPT opposite	3.28 (1.35) _b	5.02 (1.40) _c
Perceptions for Low HPT	High HPT expanded	High HPT constricted
Low HPT similar	3.60 (1.22) _a	4.28 (1.66) _a
Low HPT opposite	5.67 (1.17) _b	2.18 (0.78) _c

High hierarchical position target. A 2 $\times$ 2 ANOVA with perceived conflict avoidance as dependent variable showed a significant main effect of posture of the high hierarchical position target, $F(1, 76) = 6.12$, $p = .02$, $\eta^2 = .07$, and a significant interaction effect, $F(1, 76) = 10.41$, $p < .01$, $\eta^2 = .12$. The high hierarchical position target was perceived as being less avoidant when displaying an expanded posture ($M = 3.73$, $SD = 1.41$) than when displaying a constricted posture ($M = 4.49$, $SD = 1.45$). The interaction indicated, however, that this was especially the case when the interaction partner displayed an opposite posture: When postures were similar, there was no difference in perceptions of avoidance of the high position target, $p = .61$. When postures were opposite, the high position target was perceived as less avoidant when she displayed an

expanded posture ($M = 3.28$, $SD = 1.35$) than when she displayed a constricted posture ($M = 5.02$, $SD = 1.40$), $p < .001$.

Low hierarchical position target. A similar pattern of results was found for the perceptions of dominance of the low hierarchical position target. A 2 x 2 ANOVA yielded a significant main effect of posture of the high hierarchical position target, $F(1, 76) = 25.45$, $p < .001$, $\eta^2 = .25$, and a significant interaction effect, $F(1, 76) = 55.96$, $p < .001$, $\eta^2 = .42$. The low hierarchical position target was perceived as more avoidant when the other displayed an expanded posture ($M = 4.61$, $SD = 1.58$) than when the other displayed a constricted posture ($M = 3.21$, $SD = 1.66$). The interaction showed that this was especially the case when the low hierarchical position target displayed an opposite posture: When postures were similar, the low hierarchical position target was perceived marginally significant less avoidant when the other displayed an expanded posture ($M = 3.60$, $SD = 1.22$) than when the other displayed a constricted posture ($M = 4.28$, $SD = 1.66$), $p = .09$. When postures were opposite, the low position target was perceived as more avoidant when the other displayed an expanded posture ($M = 5.67$, $SD = 1.17$) than when the other displayed a constricted posture ($M = 2.18$, $SD = 0.78$), $p < .001$.

In sum, from the three-way interaction it can be concluded that when postures of the interaction partners were similar, for the high hierarchical position target there was no difference in perceived conflict avoidance whether she displayed an expanded or constricted posture, while for the low hierarchical position target there was a small difference such that when the high hierarchical position target displayed an expanded posture, the low hierarchical position target was perceived as less avoidant than when the high hierarchical position target displayed a constricted posture.

When postures of the interaction partners were opposite and the high hierarchical position target displayed an expanded posture, the high hierarchical position target was perceived as less avoidant while the low hierarchical position target was perceived as more

avoidant. When the high hierarchical position target displayed a constricted posture, this pattern was reversed: the high hierarchical position target was perceived as more avoidant while the low hierarchical position target was perceived as less avoidant.

Conflict perceptions. A 2 (posture of high hierarchical position target: expanded vs. constricted) x 2 (posture of low hierarchical position target: similar vs. opposite) ANOVA with conflict perceptions in the interaction as dependent variable only yielded a significant main effect for posture of the high position target, $F(1, 76) = 8.48, p < .01, \eta^2 = .10$. Less conflict was perceived when the high hierarchical position target displayed an expanded posture ($M = 3.65, SD = 1.00$) than when the high position displayed a constricted posture ($M = 4.29, SD = 0.97$). There was no main effect of the posture of the low position target, $F(1, 76) = 1.88, p = .18, \eta^2 = .03$, and no interaction effect between the posture of the low and high position target, $F(1, 76) = 0.46, p = .83, \eta^2 = .001$.

Discussion

The results of Study 4.3 replicated the effects of Study 4.2. In line with our hypotheses, the results demonstrated that targets were perceived as more dominant and less conflict avoidant when displaying an expanded posture than when displaying a constricted posture, and this effect was stronger when the interaction partner displayed an opposite posture.

In addition, the participants perceived less conflict when the high hierarchical position target displayed an expanded posture than when the high hierarchical position target displayed a constricted posture. Interestingly, the posture of the low hierarchical position target did not affect conflict perceptions. It thus seems to be the case that for perceptions of conflict in an interaction, the behavior of the high hierarchical position target is more influential than the behavior of the low hierarchical position target. A tentative post hoc explanation is that to determine the extent of conflict, people consider the behavior of the high hierarchical position target as more informative (e.g., Clark, Clark, & Polborn, 2006).

General discussion

Previous research has shown that expanded postures are usually perceived as dominant and constricted postures are perceived as submissive (Hall et al., 2005; Tiedens & Fragale, 2003). In the current research, we argued that the context in which those expanded or constricted postures are shown can provide cues for comparison. We examined two possible cues that may influence the perceptions of expanded and constricted posture; the posture of an interaction partner and the hierarchical relation between two interaction partners.

In Study 4.1 results demonstrated that participants with an expanded posture felt more dominant when the confederate (their interaction partner) had a constricted rather than expanded posture. Similar results were found in Studies 4.2 and 4.3, in which participants had to rate targets' behavior instead of their own behavior; results showed that an expanded posture was perceived as more dominant than a constricted posture and this effect was stronger when the interaction partner displayed an opposite posture. These findings confirmed our hypothesis that when the contrast between the postures is larger, perceived differences in dominance ratings are stronger. The results replicate earlier findings that an expanded posture is associated with more dominance than a constricted posture, but additionally show that the posture of an interaction partner influenced these perceptions.

Although we did not find any significant effects of postures on perceptions of conflict avoidance in Study 4.1, perceptions of conflict avoidance were affected by the contrast in postures in Studies 4.2 and 4.3. Results of Studies 4.2 and 4.3 confirmed our hypothesis by showing that a constricted posture was perceived as more conflict avoidant than an expanded posture and that this effect was stronger when the interaction partner displayed an opposite rather than a similar posture. A possible explanation for the differential findings on conflict perceptions, may be that in Study 4.1, where participants were actively involved in the

interaction, perceived conflict was low (Overall $M = 2.44$, $SD = 0.63$ in Study 4.1 vs. $M = 4.28$, $SD = 1.11$ in Study 4.2 and $M = 3.96$, $SD = 1.03$ in Study 4.3). It would, however, be interesting for future research to examine settings in which more intense conflict is evoked while people are actively involved in the interaction.

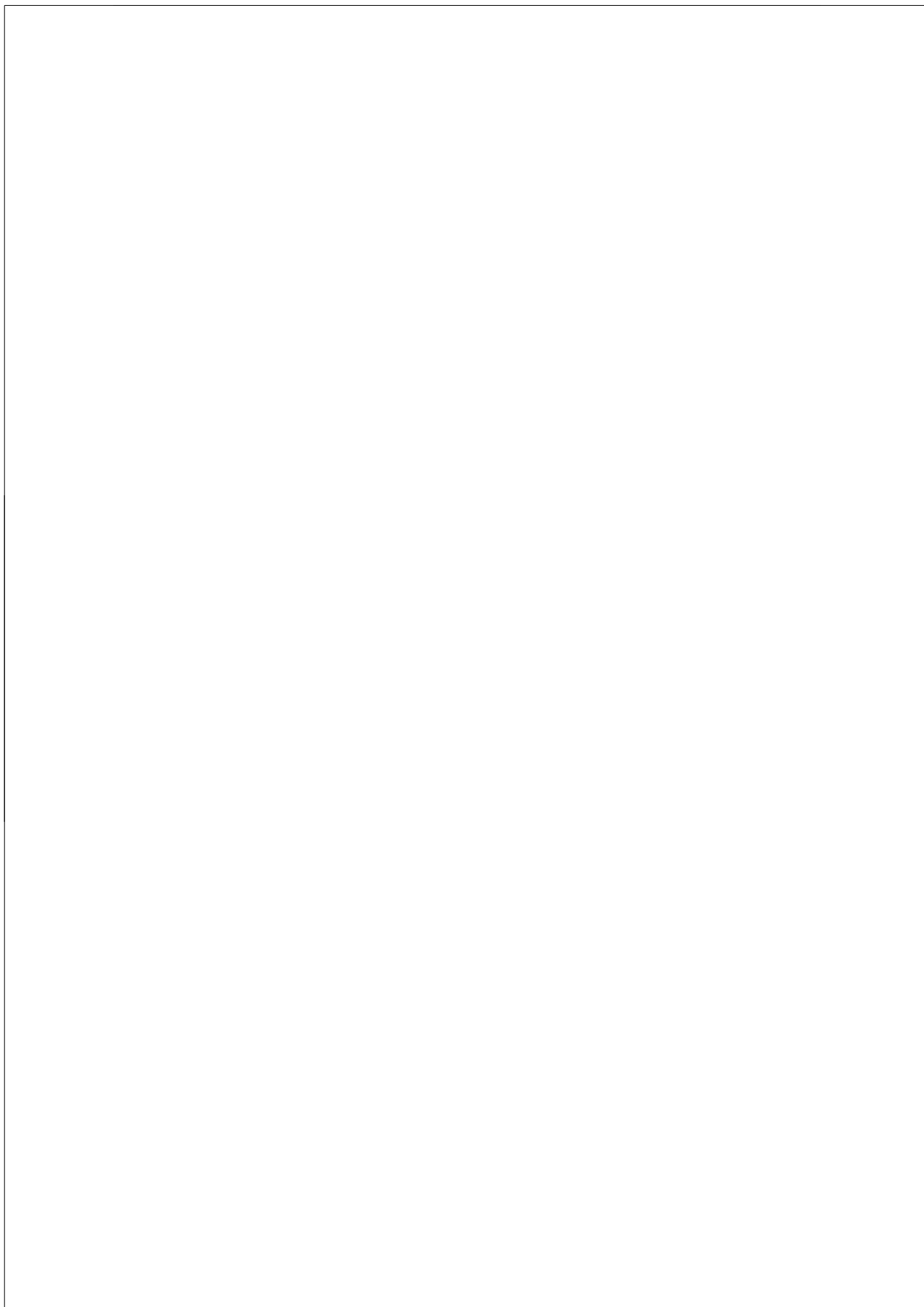
For conflict, all studies demonstrated that when the target displayed an expanded posture less conflict was perceived in the interaction. In addition, Study 4.2 showed that participants perceived less conflict when both interaction partners displayed similar postures than when they displayed opposite postures. This finding is interesting because previous research has suggested that complementary postures can lead to more experienced comfort (Tiedens & Fragale, 2003). It is difficult to provide a definite explanation for these different findings, but again we feel that the explanation may be one of perspective. In Study 4.2, the interaction was perceived from a third-person perspective, while in the study of Tiedens and Fragale (2003) participants were part of the interaction and were asked to provide a first-person perspective on how comfortable they felt. It therefore is conceivable that experiencing the interaction yourself or perceiving it without being part of the interaction, may lead to different results. Additionally, perceiving more or less conflict may not be similar to perceiving more or less comfort. What exactly leads to these differences in results can, however, not be answered based on the present results but should be investigated in future research.

Finally, in Study 4.3 results showed that perceptions of dominance and conflict avoidance were not influenced by the difference in hierarchy between the two targets, which indicates that these hierarchical roles may not influence the perceptions of the behavior. Although initially unexpected, this finding fits with a recent study showing that postures may be more influential than hierarchical roles on dominance related perceptions (Huang et al., 2011). Interestingly, the hierarchical positions did influence the perceptions of the interaction. Results revealed that an expanded posture only led to lower perceptions of conflict when it was displayed by the target with a high hierarchical position. As expected, while an expanded

posture led to lower perceptions of conflict when no information on hierarchical position was provided, this expanded posture did not lead to lower perceptions of conflict when it was displayed by a low hierarchical position target. This is in line with previous research that suggested that expanded postures displayed by a low hierarchical group member can lead to conflict (De Waal, 1982).

One limitation to the present findings is that we only used female targets in all studies. Although males are more likely to show dominance (e.g. Buss, 1981; Mehrabian, 1971), which would influence the overall perceptions of dominance and conflict, we do not have any reasons to expect that the postures of the interaction partner would influence the perceptions of the targets' behavior and the interaction differently. This, of course, needs to be tested in future research.

In sum, we can conclude that perceptions of dominance and conflict avoidance are indeed influenced by the contrast between the postures in an interaction. When the contrast between the postures was large (i.e. when the posture of the interaction partner was opposite) as opposed to small, expanded postures were perceived as more dominant and less conflict avoidant, and more conflict was perceived in the interaction. To interpret postures in terms of dominance, one thus needs to consider the situation. Nonverbal behavior —and especially nonverbal behavior related to hierarchical positions like expanded and constricted postures— is usually shown in complex social interactions. Ignoring this context while interpreting the meaning of these postures may therefore lead to different conclusions, since the context influences the perceptions of these postures. Future research may therefore take this social context into account and especially pay attention to the contrast between a target's posture and other interaction partners, as well as to the hierarchical relation between the interaction partners.



5. General discussion

The aim of the current dissertation was to provide more insight in people's nonverbal reactions and the perceptions of nonverbal behavior in interactions. I argued that not only nonverbal expressions, but also the context of the situation in which the nonverbal expressions are shown influence people's reactions and perceptions. Nonverbal expressions are particularly useful when shown in social interactions. It is therefore specifically interesting to investigate nonverbal behavior in social contexts, and to assess how social contexts shape nonverbal behaviors. Surprisingly, however, research has tended to ignore the social context when examining reactions to and perceptions of nonverbal expressions. Nonverbal reactions are mainly studied as isolated behaviors. On the one hand, one could argue that the advantage of this approach is that one can make clear predictions of which behavior leads to which response and how these behaviors are perceived. However, by leaving out the social context, one runs the risk that the insights are incomplete and at times even incorrect. If reactions and perceptions of nonverbal expressions are indeed influenced by the social context they are displayed in, it is important to include this context in our theorizing.

In this dissertation, it was therefore examined whether the context in which nonverbal expressions are shown influences the nonverbal reactions to and the perceptions of nonverbal behavior in interactions. More specifically, it was explored whether information of target's status and status legitimacy influence nonverbal reactions and whether these nonverbal reactions influence the perceptions of dominance, conflict avoidance, and conflict in the interaction. Since I am interested in whether status influences nonverbal displays of dominance and submission, I focused specifically on expanded and constricted postures. In Chapter 2, I examined the effect of status on people's nonverbal reactions. In Chapter 3, I investigated the

effect of status legitimacy on people's nonverbal reactions. In Chapter 4, I assessed whether people's perceptions of dominance and conflict were influenced by the postural reactions that people show. In this final chapter I will summarize the findings described in the empirical chapters and provide implications and directions for future research.

Summary of main findings

Chapter 2 addresses whether status influences postural reactions. We argued that the status role of a target provides contextual information, which moderates the prevalence of mimicking and complementing behavior. In two studies, we manipulated a target's behavior and relative status position. We assessed whether participants mimicked or complemented the target's behavior and examined whether these reactions were dependent on target behavior and status role. Results first of all showed that people more often complement dominant behavior, while they more often mimic submissive behaviors. Furthermore, the results also demonstrated that the context in which behavior is displayed indeed influences postural reactions; when the target has high status, complementary reactions towards dominant behavior are even more frequent than when the target has low status. This chapter showed that, instead of mainly reacting with complementary postures as previous research suggested, people take the social context in which nonverbal expressions are shown into account and adjust their nonverbal reactions accordingly. When status information is present, people tend to complement the dominant behavior of the high status target more, while they tend to mimic the submissive behavior of that high status target. Not complementing the submissive posture may be a way to keep the hierarchical positions intact. To be able to fully understand when people mimic and when they complement, it thus seems essential to consider people's status roles.

In Chapter 3, we examined the effect of status legitimacy on postural reactions. It was argued that not only the status of a target may influence nonverbal reactions, but that the

legitimacy of the status roles provides important contextual information as well. Research suggests that whether social roles are accepted, depends on whether there is a legitimate basis for these roles (e.g., Caddick, 1982; Tajfel & Turner, 1986; Turner & Brown, 1978). When people do not accept the social role (e.g. status role) of a target, this may lead them to behave differently towards that target than when they do accept this role. We therefore suggested that legitimacy of status roles influences people's acceptance of those roles and that this would influence the nonverbal reactions that people display. This was explored in two studies, in which a target had either a legitimate or illegitimate high status. Results indicated that people accepted the situation more when the target's status was legitimate and showed that people also mimic a target with legitimate status more than a target with illegitimate status. This chapter hereby demonstrates that legitimacy of a high status person influences people's nonverbal reactions towards this person.

Given that the context influences people's nonverbal reactions, we wondered whether this context would also influence people's perceptions of the behavior and the interaction. Therefore, in Chapter 4, we investigated people's perceptions of expanded and constricted postures while accompanied by a nonverbal reaction (similar or opposite posture). Previous research has suggested that expanded and constricted postures are indicative of the dominance of the target displaying the posture (Hall, Coats, & LeBeau, 2005; Tiedens & Fragale, 2003). We argue that these inferences of dominance from such postures are influenced by the social context in which the postures are displayed. More specifically, we argued that these postures are usually shown in a social context in which they have a communicative function. In the case of two interaction partners, it is important to take the postures of both interaction partners into account since the combination of both postures may influence the perceptions of these postures and the interaction. In Chapter 4, we investigated whether contrast effects between postures (similar vs. opposite postures) in an interaction influence the perceptions of these postures and the perceptions of the interaction. This was investigated in three experimental studies in which

perceptions of dominance, conflict avoidance, and conflict were measured. Results showed that these perceptions were influenced by the (dis)similarity of postures between interaction partners. When interaction partners displayed contrasting postures, expanded postures were perceived as more dominant and less conflict avoidant, and conflict was perceived to be more intense than when interaction partners displayed similar postures. This chapter demonstrates that the perception of expanded and constricted postures is influenced by the social context. The contrast between postures of two interaction partners influences whether people perceive expanded and constricted postures as dominant or submissive. Thus, it may not necessarily be the case that expanded postures are perceived as dominant and constricted postures as submissive. When evaluating and responding to postures, people take the context in which these postures are shown into account.

The results that are presented in these chapters provide support for the idea that the social context in which people display and react to nonverbal expressions, influences these reactions and the perceptions of the behavior and the interaction in which the behavior is displayed. Relative status and whether that status was legitimate influenced people's nonverbal reactions. Furthermore, the posture of an interaction partner and the relative status between two targets influenced people's perceptions of the posture and the interaction; dominance, conflict avoidance and conflict perceptions were affected by these contextual cues. Together, the research provided in this dissertation thus demonstrates that it is crucial to take the social setting in which nonverbal expressions are displayed into account if one wants to get a better understanding of people's nonverbal reactions and perceptions of the behavior and situation.

Implications and directions for future research

The current dissertation extends previous research. Previous research showed that people tend to complement expanded and constricted postures rather than mimic them

(Tiedens & Fragale, 2003). The current dissertation demonstrates that when taking into account people's relative status and status legitimacy, it becomes clear that postural reactions are influenced by the context in which the postures are displayed. People not always seem to prefer complementary postures over mimicked postures; they tend to prefer mimicking constricted postures when there are status differences (Chapter 2) and also mimic a target with legitimate status more (Chapter 3).

Furthermore, this dissertation may provide some implications for practical use. The research discussed in this dissertation provides a more detailed insight in how people perceive postures and how people respond to postures of others. In the experimental settings that were used in the research, I specifically aimed to use settings that were close to real-life situations (e.g. job interviews, discussions, scenarios about work settings). While this setup may have allowed more room for variation in target behavior, it has the advantage that the findings can easily be translated to real-life situations. The results reported in this dissertation also show that it is very important to do so; the context in which the behavior is displayed has a large impact on how people perceive the behavior and how they respond to it. It is therefore important for future research to take such contextual effects into account when aiming to provide more insight in how people respond in their daily life. The current research may be useful to a large variety of work settings. For example, gaining more insight in how people respond to and perceive expanded or constricted postures and which contextual factors influence these perceptions may be particularly useful for conflict mediators, intermediary agents or recruiters, or law enforcement professionals. This last group, for example, may be interested in signaling which postural behavior leads to feeling of conflict. Since these unconscious behaviors are probably displayed before a verbal conflict occurs, this may help in early identification of potentially harmful situations. The current dissertation provides ground for such research.

In this dissertation, I have provided insight in the effects that the social context has on nonverbal expressions and the perceptions of those expressions. I focused on the influence that

status and hierarchy related factors have on (expanded and constricted) postures, since postures are clear and overt nonverbal expressions that have often been linked to dominance. This does not mean, however, that postural expressions are the only nonverbal expressions that are influenced by the social context.

One other type of expression that is influenced by the social context is voice pitch. Research has shown that people with a low voice pitch are seen as more dominant and also feel more dominant (Puts, Hodges, Cardenas, & Gaulin, 2007; Stel, Van Dijk, Smith, Van Dijk, & Djalal, 2012). Also, in a correlational study it has been suggested that people tend to adjust their voice pitch to match their interaction partner's pitch and that this was moderated by status of the interaction partner (Gregory & Webster, 1996). It could therefore be argued that voice pitch will be influenced by the social context in similar fashion as expanded and constricted postures.

Another type of expression that may be influenced by social context is emotional expression. For example, research has shown that the expression of anger is positively associated with dominance while the expression of happiness is associated with less dominance (Hess, Adams, & Kleck, 2005). It may therefore be highly likely that whether people respond with angry or happy emotional expressions is also influenced by the social context in a similar way as postures are. For example, one could imagine that if one person with high status shows an angry expression, people are less likely to mimic that anger but show a complementary emotion instead, while when a person with low status shows an angry expression, people may be less likely to complement this emotional expression but respond with anger as well. In sum, although the focus of this dissertation is mainly on postural expansion and constriction, the effects of the social context may not be limited to these nonverbal expressions. Future research is needed, however, to further investigate the effects of the social context on behaviors such as vocal pitch and emotional expressions.

A wide variety in target material was used in the research reported in this dissertation to assess people's postural reactions and perceptions, such as scenarios, drawings, videos, and live

interactions with a confederate. Interestingly, the social context seems to moderate reactions more when using live interactions with a confederate than when using videos. For example, when using videos as target material as in Study 2.1, it was shown that people complemented dominant targets more and mimicked submissive targets, regardless of status roles. When participants interacted with a confederate as in Study 2.2, this effect was not only replicated but there was an additional interaction effect for displayed behavior and status role; dominant behavior was only complemented more often when the target was a boss. When a high status target displays dominant behavior, complementary reactions are even more prevalent, while when a high status target displays submissive behavior complementary reactions are as likely as mimicry to occur. This inconsistency could be noted as a limitation to the findings. It could also be argued, however, that this difference in results provides evidence that the social context is more important in interactive settings. When examining people's nonverbal expressions, we tend to find a stronger effect of the social context in the live interaction studies than in the studies in which we used video recordings. This is probably caused by the fact that nonverbal expressions are used to communicate with others. When there is no active communication people may be less likely to react to these nonverbal expressions. First of all, this provides evidence for the idea that people tend to display these behaviors in a social context and it is therefore also important to take this social context into account when examining the behavioral reactions that people show. Second, one could also argue that this social context thus has a bigger impact on the behavioral reaction when it involves a live interaction.

It would be interesting for future research to examine whether the social context is indeed less influential when people do not interact face-to-face. If this is the case, there could be important implications for current developments in society. Modern communication — especially work (and thus status-related) communication— is switching from face-to-face meetings to Skype or video meetings. Since in these video meetings the effect of the social context may be less influential than in live interactions, the nonverbal communication may also

become less effective. People may be less likely to notice subtle differences in their interaction partner's nonverbal communication, such as leaning backward or forward, and therefore also do not respond to this behavior (i.e. mimic or complement the behavior). This is important, because nonverbal communication and synchronization are essential in becoming more attuned to an interaction partner (LaFrance, 1979). When it becomes more difficult to do so because subtle movements may not be noticed, this may lead to less effective communication and possibly more misunderstandings between interaction partners. This may have negative effects on the work relation between the interaction partners.

In addition to the difference in nonverbal reactions for video and live interactions, nonverbal reactions also differed depending on whether people were part of the interaction versus observed the interaction. For example, in Chapter 3, participants were asked what they thought would be the most likely response in Study 3.1, while their actual behavior was measured in Study 3.2. This led to different reactions to the dominant target; In the first study people indicated that they would respond to the dominant illegitimate target with more similar (dominant) postures, while participants' actual nonverbal reaction was complementary (submissive). Furthermore, in Chapter 4 participants' perceptions of conflict differed when they were in the interaction (Study 4.1) from when they observed an interaction (Study 4.2); In addition to the finding that expanded postures led to lower perceptions of conflict (Studies 4.1 and 4.2), similar postures also led to lower perceptions of conflict when observing the interaction (Study 4.2). From these findings, one may conclude that people may have difficulty predicting their nonverbal reactions. People's inability to predict their behavior or perceptions may be influenced by the fact that mimicking and complementing tend to occur outside conscious awareness (Chartrand & Bargh, 1999; Tiedens & Fragale, 2003), leading them to be unaware of the behavior they show and thus leading to inaccurate predictions of what they would do in specific situations.

Additionally, one could argue that since the current findings show that these unconscious nonverbal reactions are moderated by the social context in which they are shown, our research seems to suggest that these nonverbal reactions may be goal-driven. People may have a goal to be liked, or to confirm the hierarchy, etc. This goal may (unconsciously) lead people to mimic or complement others. As our research shows that people alter their nonverbal reactions according to the situation, this seems to indicate that these reactions are goal-driven. For example, when a target has high status and shows a dominant posture, people may feel more need to confirm the hierarchy (by complementing the dominant behavior) than when the target has low status. When a target with legitimately obtained status leads to more positive perceptions of the situation, this may also lead to a greater need to be liked by this target. In turn, this goal to be liked may lead to mimicry; research has shown that mimicry occurs more frequently when people like each other than when they do not like each other (Stel, Van Baaren, et al., 2010). The idea that unconscious behaviors may be goal-driven also fits with previous research suggesting that automatic behaviors may be motivated or goal-driven (e.g., Bargh & Ferguson, 2000; Cesario, Plaks, & Higgins, 2006).

This leads to another interesting direction for future research. In the current research, we demonstrated that the context influences people's behavioral reactions. Building on this, future research may focus on the possible goals and motives that may be responsible for the reactions that people show. Since the current research indicates that people take the context in which behavior is displayed into account, one could argue that there may be goals and motives associated with this context that drive people's behavioral reactions. For example, people may have the goal to be liked by their boss. This would lead to other behavior than when people have the goal to show their competence to their boss. Chapter 2 and 3 showed that people alter their behavior when the relative status differs or when a target has illegitimate status. The next step would be to investigate what the main goals are that motivate showing either expanded or constricted postures. From previous research on mimicry we know that the goal to affiliate and

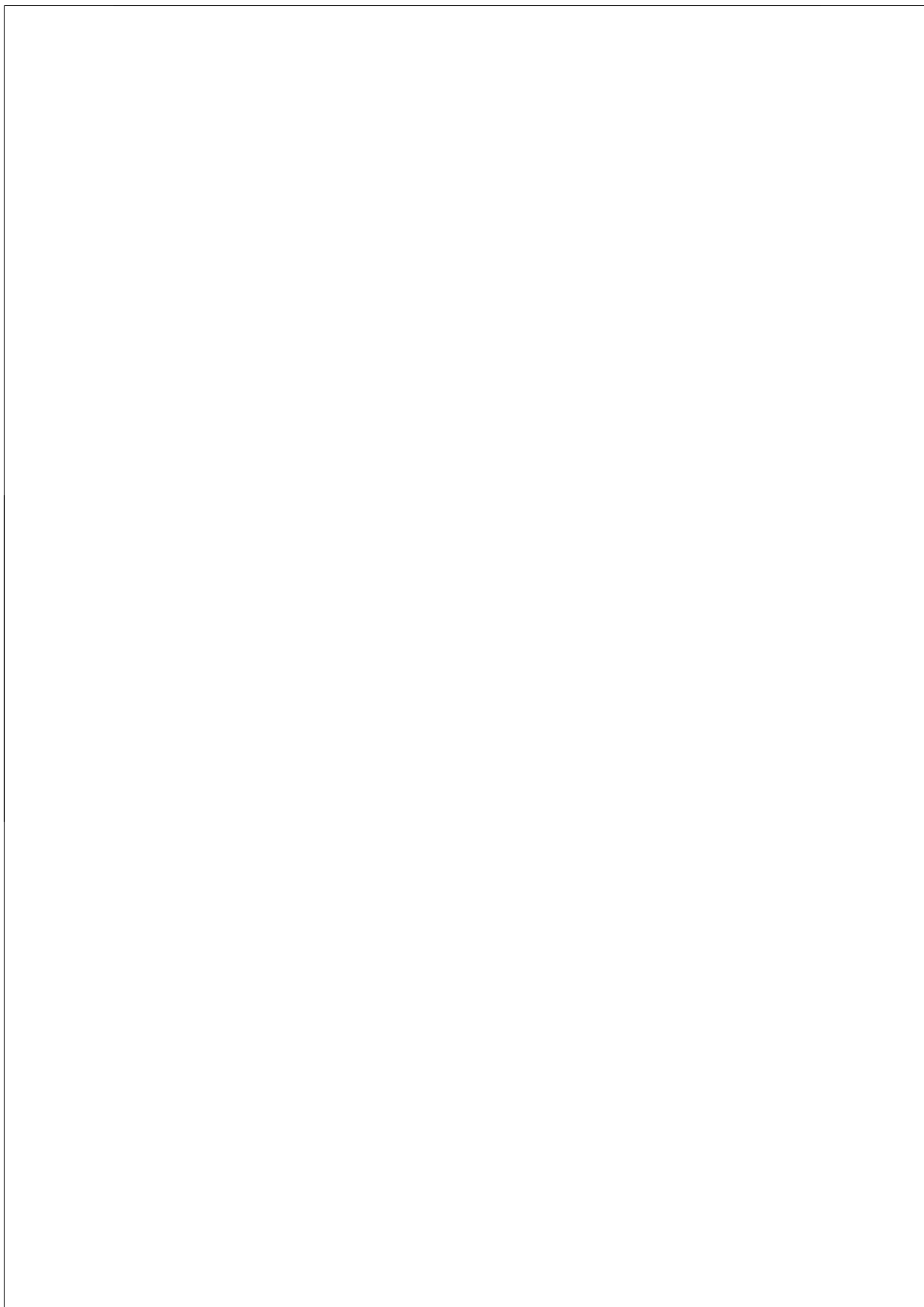
create bonds is proposed to be an important goal to mimic others (Chartrand & Bargh, 1999). While this may be the case in non-hierarchical settings, the question remains whether this is also a goal that people strive for in hierarchical settings. For example, people may have a goal to show their competence, to maintain their (legitimate) hierarchical position, or to get a desired negotiation outcome. While these motives can coincide with the goal to affiliate, most often they do not. Which goal is the most active in a certain setting may therefore influence behavioral reactions and future research should investigate how goals influence behavioral reactions.

Conclusion

To conclude, this dissertation demonstrates that social contexts influence people's nonverbal reactions. It was shown that people mimic or complement a target's expanded and constricted posture depending on the relative status position and on whether this status is legitimately obtained. Furthermore, this dissertation shows that social contexts, and more specifically the contrast between the postures of interaction partners, influence the degree to which people perceive postures as dominant and conflict avoidant. Also, the contrast influences the interaction in terms of the perceptions of conflict.

On a theoretical level, this dissertation adds to the existing knowledge about nonverbal behavior and perceptions of that behavior. We have shown that nonverbal reactions that are usually shown in complex social situations are also influenced by these settings. Furthermore, these reactions influence the perceptions people have about the behavior and situation. By showing this, we hope that future research will pay more attention to the situational settings that may influence their results. On a more practical level, this dissertation provides more insight to how people react to others in complex social settings and how these settings can influence perceptions. This knowledge may be used to obtain a better understanding of perceptions and

nonverbal reactions in everyday life and can be used to signal effectiveness of and possible problems in people's communication.



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Samenvatting

In dit proefschrift werd onderzocht hoe men reageert op lichaamshoudingen van anderen. Ik heb gekeken hoe de context waarin gedrag getoond wordt invloed heeft op de percepties van en reacties op lichaamshoudingen. Het doel was om meer inzicht te krijgen in non-verbale reacties en de percepties van non-verbaal gedrag in interacties.

Uit eerder onderzoek is bekend dat mensen elkaars gedragingen vaak imiteren (Chartrand & Van Baaren, 2009). Mensen gaan bijvoorbeeld zonder dat ze het zelf door hebben op dezelfde manier zitten als hun gesprekspartner of imiteren de handgebaren van anderen. We weten ook dat imiteren vele voordelen heeft; het zorgt er bijvoorbeeld voor dat men zich meer verbonden voelt, elkaar aardiger vindt, meer empathie voelt en meer prosociaal gedrag laat zien (Bernieri, 1988; Chartrand & Bargh, 1999; LaFrance, 1979; Lakin, Jefferis, Cheng, & Chartrand, 2003; Stel & Vonk, 2010; Van Baaren, Holland, Kawakami, & Van Knippenberg, 2004).

Onderzoek toont echter ook aan dat mensen elkaars gedragingen complementeren. Het gedrag van mensen is dan tegenovergesteld aan dat van hun gesprekspartner (Strong et al., 1988; Tiedens & Fragale, 2003). Een voorbeeld hiervan is wanneer men reageert op een brede lichaamshouding met een ineengedoken lichaamshouding. Ook complementeren heeft voordelen: mensen vinden elkaar bijvoorbeeld aardiger en voelen zich comfortabeler wanneer gedrag wordt gecomplementeerd (Dryer & Horowitz, 1997; Tiedens & Fragale, 2003). Het grote verschil tussen situaties waarin men imiteert en wanneer men complementeert is echter dat complementariteit vooral lijkt voor te komen in situaties waarin status of dominantie verschillen zijn tussen de interactie partners. Kenmerken van de relatie tussen twee personen kunnen de reacties die ze op elkaars gedrag hebben dus beïnvloeden. In dit proefschrift werd de relatie tussen non-verbale reacties en status onderzocht. Daarbij werd ook de legitimiteit van de statusposities in acht genomen.

In Hoofdstuk 2 werd de invloed van status op lichaamshoudingen onderzocht. Eerder onderzoek liet zien dat het afhangt van het type non-verbaal gedrag of dat gedrag geïmiteerd wordt of gecomplementeerd. Uitingen van dominantie, zoals brede of juist ineengedoken lichaamshoudingen, werden bijvoorbeeld vaker gecomplementeerd dan geïmiteerd, terwijl gedragingen die niet met dominantie te maken hebben (maar met affiliatie, zoals glimlachen) vaker geïmiteerd werden (e.g. Chartrand & Bargh, 1999; Orford, 1986; Tiedens & Fragale, 2003; Tiedens & Jimenez, 2003). In dit proefschrift wordt echter gesteld dat non-verbale reacties niet alleen beïnvloed worden door het type gedrag maar ook door de sociale context. De verwachting was dat de status positie van een persoon een dergelijke sociale context biedt. Verwacht werd dat die status positie de mate waarin mensen imiteren of complementeren zou beïnvloeden. Dit werd onderzocht in twee studies waarin het gedrag en de relatieve status positie van een persoon werden gemanipuleerd. Tijdens het onderzoek werd gemeten of de deelnemers de persoon imiteerden of complementeerden en werd gekeken of deze reacties afhankelijk waren van het gedrag en/of de status van de andere persoon. De resultaten lieten zien dat lichaamshoudingen meer geïmiteerd werden wanneer de ander een onderdanige houding had en meer gecomplementeerd werden wanneer de ander een dominante houding had. Bovendien bleek ook dat de context inderdaad invloed had op de non-verbale reacties; wanneer de ander een hoge status had complementeerden deelnemers nog vaker dominante (brede) houdingen dan wanneer de ander een lage status had. Dit onderzoek laat zien dat mensen rekening houden met de sociale context waarin non-verbaal gedrag getoond wordt en hun gedrag aanpassen op de situatie. Wanneer mensen informatie hebben over relatieve status posities zijn ze geneigd dominante houdingen van anderen met hoge status te complementeren, terwijl ze onderdanig gedrag van anderen met hoge status geneigd zijn te imiteren. Het niet complementeren van onderdanige houdingen (wat in eerder onderzoek niet gevonden werd) van een persoon met hoge status zou mogelijk een strategie zijn om de hiërarchie in balans te houden.

In Hoofdstuk 3 werd onderzocht of de legitimiteit van een status positie de non-verbale reacties op andermans lichaamshoudingen beïnvloed. Eerder onderzoek toonde aan dat een legitieme basis voor sociale rollen cruciaal is voor de acceptatie van die rollen (e.g., Caddick, 1982; Tajfel & Turner, 1986; Turner & Brown, 1978). Wanneer men de status positie van een persoon niet accepteert kan dit ook leiden tot andere non-verbale reacties dan wanneer men de status positie wel accepteert. De verwachting was daarom dat non-verbale reacties niet alleen afhankelijk zijn van de (relatieve) status positie van een persoon, maar ook van de legitimiteit van die status positie en de bereidheid om statusverschillen te accepteren. In twee studies werd onderzocht of een legitieme of illegitieme hoge status positie van een ander invloed heeft op de mate waarop deze persoon geïmiteerd of gecomplementeerd wordt en of acceptatie dit effect medieert. Resultaten lieten zien dat deelnemers meer acceptatie rapporteerden wanneer de ander legitieme hoge status had. Ook imiteerde men de persoon met legitieme hoge status meer dan een persoon met illegitieme hoge status. Non-verbale reacties werden dus beïnvloed door legitimiteit van de status positie van een persoon doordat de status positie meer geaccepteerd werd als die legitiem was.

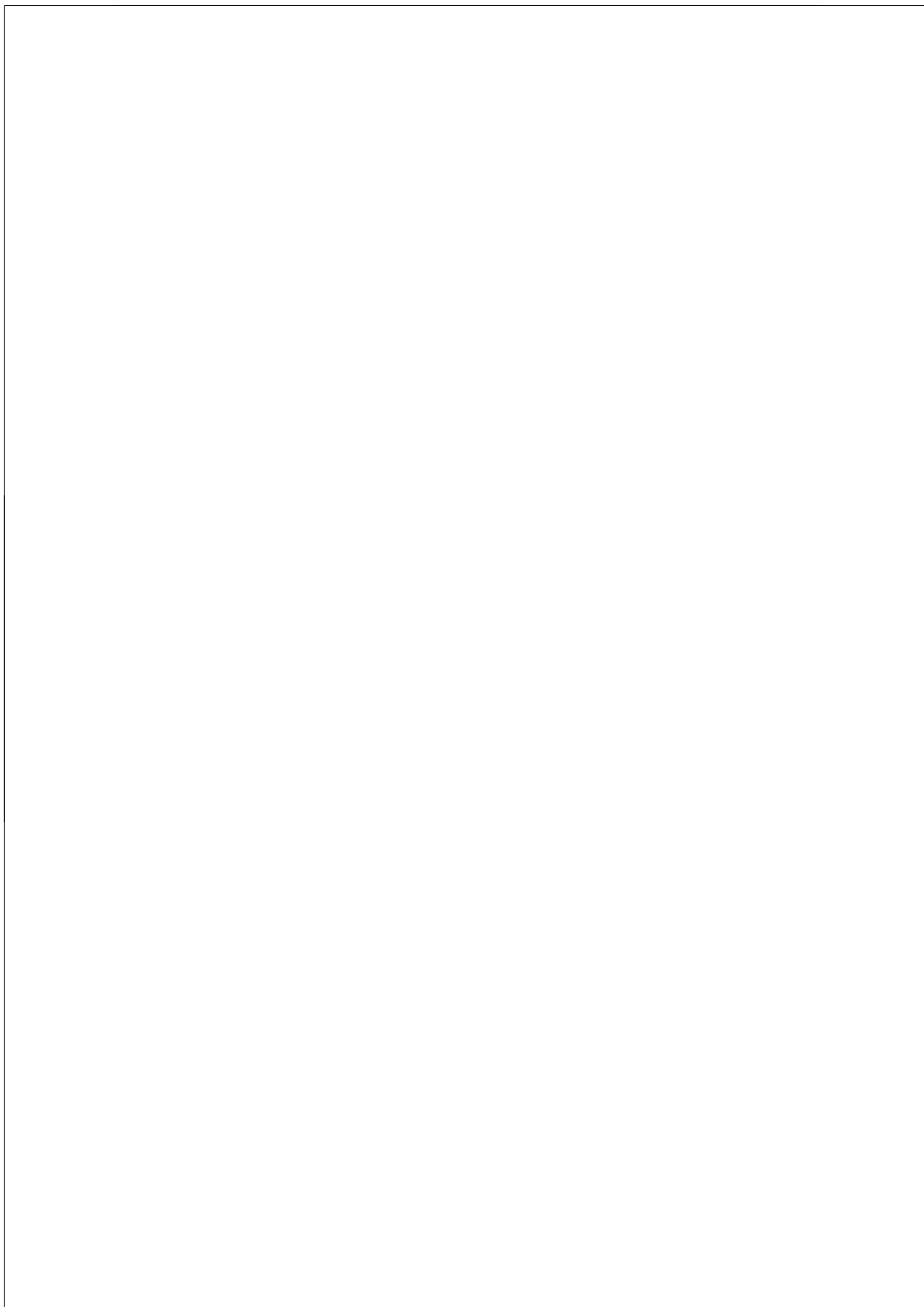
De resultaten van Hoofdstuk 2 en 3 tonen aan dat non-verbale reacties beïnvloed worden door contextuele factoren; of men imiteert of complementeert is afhankelijk van relatieve status posities en de legitimiteit van die status posities. Aangezien de context invloed heeft op non-verbale reacties zou die context ook invloed kunnen hebben op de percepties van en het gedrag in de interactie. Die vraag werd onderzocht in Hoofdstuk 4. Eerder onderzoek toonde aan dat brede en ineengedoken houdingen indicatief zijn voor de mate van dominantie van een persoon. Een brede lichaamshouding wordt gezien als dominant, en een smalle, ineengedoken houding als onderdanig (Hall et al., 2005; Tiedens & Fragale, 2003). In dit proefschrift werd verondersteld dat percepties van de mate van dominantie van dergelijke houdingen een sociale context nodig hebben. Een brede houding (armen breed, achteroverleunend) kan bijvoorbeeld gezien worden als een signaal dat iemand ontspannen is in

plaats van dominant wanneer die persoon de brede houding heeft tijdens het televisie kijken. Aangezien sociale interactie tenminste twee personen omvat, is in dit proefschrift onderzocht wat het effect is van de lichaamshouding van een interactie partner op de percepties van dominantie. Meer specifiek werd gekeken of contrast effecten tussen lichaamshoudingen (gelijke houdingen versus tegenovergestelde houdingen) invloed hebben op de percepties van mate van dominantie en conflict vermijding van een persoon. Ook werd gekeken of de percepties van conflict in de interactie beïnvloed werden door contrast effecten. Dit werd onderzocht in drie studies waarin de percepties van dominantie, conflict vermijding en conflict in de interactie gemeten werden. Uit de resultaten bleek dat percepties van dominantie, conflict vermijding en conflict beïnvloed werden door de (on)gelijkheid van de lichaamshoudingen. Wanneer de gesprekspartners tegenovergestelde houdingen hadden werden brede houdingen meer gezien als dominant, minder als conflict vermijgend en ook werd er meer conflict waargenomen dan wanneer ze gelijke houdingen hadden. Het contrast tussen lichaamshoudingen van gesprekspartners heeft dus invloed op de mate waarin mensen brede of ineengedoken houdingen interpreteren als dominant of onderdanig.

Conclusie

De resultaten beschreven in dit proefschrift leveren bewijs voor het idee dat de sociale context waarin mensen non-verbaal gedrag laten zien invloed heeft op de non-verbale reacties die men toont en op de percepties van het gedrag en de interactie waarin het gedrag getoond wordt. Relatieve status posities en of die status legitiem is heeft invloed op de non-verbale reacties. De lichaamshouding van een persoon en de relatieve status posities beïnvloeden de percepties van de lichaamshoudingen en de interactie; dominantie, conflict vermijding en conflict in de interactie werd beïnvloed door deze sociale signalen. Samenvattend toont dit proefschrift aan dat het van belang is om rekening te houden met de sociale context waarin

non-verbale expressies getoond worden wanneer men een beter begrip wil krijgen van non-verbale reacties en percepties van gedrag en situatie.



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Curriculum Vitae

Jessanne Mastop was born on the 26th of September 1984 in Utrecht, The Netherlands. She grew up in Bilthoven, where she also attended high school at 'Het Nieuwe Lyceum'. In 2002, at the age of 17, she went to Leiden University to study Psychology. Within four years she finished both the Bachelor in Psychology and Master in Social and Organizational Psychology. Her Master thesis on the effects of mimicking on the effectiveness of TV commercials was written under the supervision of Mariëlle Stel. When a PhD position became available at Leiden University not so long after graduating, she did not hesitate to apply. She started on the project on mimicking and complementing nonverbal behavior, under the supervision of Eric van Dijk and Mariëlle Stel. This project resulted in the present dissertation. Jessanne now works at ECN (Energy research Center of the Netherlands), where she investigates public perceptions and consumer behavior in the domain of energy saving and eco-friendly behavior.



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