Marianne Schmid Mast and Gaëtan Cousin

20 Power, dominance, and persuasion

Abstract: The goal of this chapter is to bring together several strands of research that focus on the role of nonverbal behavior in 'verticality', namely power, dominance, and persuasion. After having clarified the terminology, we provide an overview of research findings pertaining to the expression and perception of verticality, using the Brunswikian lens model as an organizing theoretical framework. As we point out, research notably shows that the number of nonverbal cues used by perceivers to infer verticality clearly exceeds the number of nonverbal behaviors related to actual differences of power or dominance. However, even if perceivers use more nonverbal cues than those actually related to verticality, their perceptions can still be accurate. In the second part of the chapter, we refine the analysis by including moderating effects of individual characteristics such as gender, personality, and cultural background on the expression and perception of power, dominance, and persuasion. In closing the chapter, we synthesize the main findings and point out the need for the field to go beyond cross-sectional designs and to test more systematically for causal influences in future studies.

Keywords: power, dominance, persuasion, verticality, social influence, control, nonverbal behavior, gender, personality, cultural background

"When two persons interact, they continually negotiate two major relationship issues: how friendly or hostile they will be with each other, and how much in charge or control each will be during their transactions" (Kiesler and Auerbach 2003: 1712). Social interactions can be mapped onto two main dimensions that are perpendicular to each other: the *affiliation* dimension – also called the horizontal dimension (Hall, Coats, and Smith LeBeau 2005), which is characterized by friendliness and warmth on the one end of the dimension and by hostility and aggression on the other end; and the *control* dimension – also called the vertical dimension – which relates to differences in power, dominance, and influence among two or more social interaction partners (Kiesler and Auerbach 2003; Moskowitz 1993; Tiedens and Jimenez 2003; Wiggins 1979).

The vertical dimension of social interactions is present in nearly every social context. We live in a hierarchically organized society in which a member of the parliament is considered a higher status person than a janitor. We are confronted with hierarchies at our workplace when interacting with superiors, peers, and subordinates. Even among friends and family members the power dimension often plays a role. Not all hierarchies are explicit such as they appear in a company's

organizational chart. Many hierarchies are more subtle, for instance as when an individual succeeds in convincing his or her group of friends to go watch a particular movie.

The vertical or hierarchy dimension affects how we relate to others and it thus greatly impacts on real world outcomes. As an example, the status difference between an airplane captain and the other cockpit members (first officers and flight engineers) can entail ineffective communication leading to human error and ultimately to catastrophe. When an airplane crashes because the higher power position of the captain does not encourage the crew members to voice their concerns or observations about flight irregularities, the hierarchical relationship can contribute to disaster.

To maximize effective communication among members possessing different levels of power or status, not only the verbal content of a message is important but also the way the information is conveyed nonverbally. In the present chapter, we will focus on how the vertical dimension is linked to nonverbal behavior. We will review the expressed nonverbal behavior of people who differ on the vertical dimension and the perception of verticality based on the observation of people's nonverbal behavior. We will also discuss whether people are accurate in judging others' power and dominance. We will present the nonverbal behaviors that are associated with persuasion and we will talk about how nonverbal dominance affects interpersonal relationships and interactions. Finally, we will review individual characteristics that have been shown to moderate the expression or perception of power and dominance.

1 Definition of the terms used to describe the vertical dimension

We focus on the interpersonal or dyadic aspect of the vertical dimension (verticality), by which we mean interpersonal differences in *power* and *dominance* and their manifestations among two or more social interaction partners (Schmid Mast 2010). We will use *power* as an umbrella term encompassing structural power (see below), status, leadership, and authority, and define it as the extent to which an individual exerts control or influence over another person (Schmid Mast, Jonas, and Hall 2009). We will use *dominance* as a term describing the behavior of someone who has power or who seeks power (Schmid Mast 2010).

Although individual terms are used inconsistently in the literature, some uses are more common than others in a given context. As an example, to describe the power an individual has because he or she possesses a certain function or position within a hierarchy (e.g., first officer), the term power or *structural power* is commonly used (Ellyson and Dovidio 1985). The power an individual possesses because of being a member of a specific social group is usually called *social power* or *status*

(Pratto et al. 1994; Sidanius et al. 2004). As an example of the latter, women generally possess less status than men. Status is also used sometimes to describe an individual's earned respect within a group.

Dominance – which describes the behavior of someone who has power or who seeks power (Schmid Mast 2010) – can be specific to a situation or can be an enduring characteristic of the person. In the latter case, one usually uses the term *personality dominance* (Ellyson and Dovidio 1985). We apply the term dominance behavior to any behavior *aiming at* gaining or maintaining influence over others. Note, however, that some authors (e.g., Burgoon, Buller, and Woodall 1996) reserve the term dominance behavior for behavior associated with *success* in establishing control or influence over others. Moreover, there are a number of behaviors that are generally understood as dominance behaviors such as extended amounts of speaking time in social interactions (Schmid Mast 2002) or interruptions (Ferguson 1977; Goldberg 1990) because they are either more likely to be expressed by high ranking individuals or because people generally consider them as indicative of high status or dominant individuals.

We use the term *persuasion* to describe a process by which a person exerts control or influence over another by means of communication (O'Keefe 2002). The term persuasive communication refers to a process by which someone succeeds in or *aims at* altering another person's attitudes or behaviors. Persuasive communication can be seen as a form of power (when successful, i.e., when resulting in persuasion), or as a form of dominance (when persuasion is only intended but not, or not yet, achieved).

2 Verticality and nonverbal behavior

The Brunswikian lens model (Brunswik 1956) is a useful framework to discuss how the vertical dimension is expressed in nonverbal behavior and how different nonverbal behaviors are perceived to be related to verticality. In the lens model, there are two perspectives, the one of the target who possesses some sort of actual power or dominance (i.e., structural power, status, personality dominance) and the one of the perceiver who observes the nonverbal behavior of the target and interprets it with respect to actual power and dominance.

As an example, individuals who differ in organizational status participate in a business meeting and show differences in nonverbal behavior. The high status person might take much of the speaking time and he or she might approach others more closely. This describes the link between a person's actual power and his or her nonverbal behavior, reviewed in more detail in the section *The expression of verticality*. If a new employee joins the meeting without prior knowledge of the organizational status of each person, the new employee typically observes the nonverbal behavior of each of the people present in the meeting and tries to infer the

relative status of each person. This relation will be reviewed in the section on *The perception of verticality.* Whether or not such inferences are accurate is a different question altogether. To illustrate, if the new employee observes that one person in the meeting talks much more than all the others and that this person is also looked at by the others for extended periods of time, the new employee might infer that the observed person is the superior of the others. If the observed person really is the superior of the others, the employee's assessment corresponds to this fact and is thus accurate. Accuracy will be discussed in the section on *Accuracy and verticality.*

2.1 The expression of verticality

How do people who are high on the vertical dimension – e.g., because they occupy a high status position or because they possess a dominant personality – use nonverbal behaviors? A meta-analysis (Hall, Coats, and Smith LeBeau 2005) summarized studies linking nonverbal behavior to different definitions of verticality: structural power (e.g., rank in an organization), socio-economic status, assigned status (e.g., in a laboratory experiment), or personality dominance. This meta-analysis showed that high power individuals (or more precisely: those high in verticality of any type), compared to low power ones, have more open body positions (arms and legs), maintain closer interpersonal distance (when sitting or standing next to someone), speak more loudly, and interrupt others more often. Noteworthy, *no* differences in smiling and in the amount of gazing between high and low power individuals emerged. There is no evidence either that high and low power individuals differ with respect to the following nonverbal behaviors: raised/lowered eyebrows, nodding, self-touch, hand and arm gestures, postural relaxation, overlaps, pausing and latency to speak, back-channel responses, laughter, speech errors, and rate of speech.

Several studies show that high power individuals are more likely than low power individuals to stare directly and unwaveringly at others and that they usually break eye contact last (Burgoon et al. 1996). High power individuals show more *visual dominance* (Exline, Ellyson, and Long 1975), which is the ratio of the percentage of looking while speaking to the percentage of looking while listening. In other words, when speaking, high power individuals look at the interaction partner a higher percentage of the time and when they listen to the low power interaction partner, they tend to look away a higher percentage of the time. High power individuals are less likely than their counterparts to initiate formal touches (like handshaking), but they are more likely to initiate informal touch (like touching the other's arm or shoulder) (Hall 1996). People high in personality dominance perform less object manipulation than people how in personality dominance (Gifford 1994), maybe because they are more relaxed and less anxious. Finally, a meta-

analysis showed that high power individuals talk more in interactions than do low power individuals (Schmid Mast 2002).

It has to be noted that verticality can take on many different forms (e.g., being a superior, a teacher, a politician, having a dominant personality, influencing one's friends) which do not all have to be related to a specific nonverbal behavior in the same way. As an example, the operationalization of verticality is a moderator of the association between power and voice loudness in the above-mentioned meta-analysis: People high in personality dominance speak more loudly than people low in personality dominance, but white collar workers, although higher in verticality than blue collar workers, speak more softly than the latter.

Also, verticality can be associated with many different proximal states (e.g., social motives and emotional states), which in turn typically influence nonverbal behavior. In other words, predictions about the verticality-nonverbal behavior link may not be very informative for specific interactions (Hall et al. 2005). To illustrate, people in high power positions may experience positive emotions (proximal state) more than people in low power positions because powerful people usually are admired and praised more than are powerless people. So, if high power individuals approach others more closely than low power individuals do, it is possible that they do this because of their positive affect rather than because of their high power. Future research will face the difficult challenge of testing if power still has predictive validity with respect to a person's nonverbal behavior when proximal states are controlled for.

2.2 The perception of verticality

There is a striking contrast between the nonverbal cues that characterize people with actual high power and high dominance, and the nonverbal cues people use to infer the power and dominance in others. While only a very limited number of nonverbal behaviors are indicative of actual power and dominance (Hall, Coats, an Smith LeBeau 2005), many more cues are used by perceivers to infer them. We will now review those nonverbal cues related to *perceived* power or dominance.

Different research paradigms have been used by researchers to study perceivers' perception of a target's power or dominance: schematic faces, photographs of facial cues (e.g., smiling versus non-smiling, direct vs. averted gaze), photographs of naturalistic interactions, video clips of interactions, or face-to-face interactions. Hall, Coats, and Smith LeBeau's (2005) meta-analysis revealed that many nonverbal behaviors were perceived as indicators of power or dominance: looking at the other more, being more facially expressive, smiling less, lowering the eyebrows more, nodding more, touching the other more, less self-touch (e.g., touching one's nose, lips, other hand, or face less often), making more hand and arm gestures, shifting one's position more frequently, showing less bodily relaxation (e.g., having

an upright position), and standing closer to the other. Voice related cues were also important: speaking more loudly, varying one's tone of voice more, speaking in a lower voice (independently of gender), speaking faster but with a more relaxed tone of voice (although there were cultural differences), interrupting the other more, pausing less and hesitating less, making fewer speech errors and fewer filled pauses (e.g., "uh"), laughing more often, and interrupting the other more.

The visual dominance ratio – i.e., looking relatively more while speaking than while listening (Exline et al. 1975) – has also been related to perceived dominance. It has been shown that the more a person watches an interaction partner he or she talks to, the more powerful this person is perceived, and that the more a person watches his or her interaction partner when listening to the interaction partner, the *less* powerful this person is perceived (Dovidio and Ellyson 1982).

According to the authors of the above-cited meta-analysis (Hall et al. 2005), stereotypes may explain why there are many fewer behaviors actually related to verticality than behaviors that are perceived as indicators of verticality. Indeed, when trying to infer a person's power or dominance, people use nonverbal cues they stereotypically associate with power and dominance. That people have clear beliefs about the nonverbal expression of verticality has been documented in the literature (Carney, Hall, and Smith LeBeau 2005). People believe that high power individuals, as compared to low power ones, look at others more and engage in more visual dominance (i.e., looking while speaking but not while listening), touch others more and "invade" their space more often, touch themselves less (e.g., arms, chin), are more expressive and expansive, have more erect postures and do more forward lean. People also expect differences in emotional displays between high and low power individuals: They think that high power individuals show anger and disgust more often than low power individuals, and that high power individuals show fear and sadness less often (Carney, Hall, and Smith LeBeau 2005). These explicit beliefs are very similar to the behaviors that people perceive as dominant or as indicative of power. People thus seem fairly conscious about the behaviors on which they rely when forming an impression about a person's power or dominance.

2.3 Accuracy and verticality

Since there is a discrepancy between the nonverbal behavior associated with verticality and the nonverbal behaviors perceived as signs of verticality, one might ask whether perceivers are accurate in judging signs of power in others. The answer is yes and research shows that people are able to correctly detect who is the superior and who is the subordinate in photographs (Barnes and Sternberg 1989). Also, the status of university employees can be assessed accurately based on photographs of two employees of differing status interacting (Schmid Mast and Hall 2004). Similarly, observers are above chance level when inferring the socio-economic status of individuals on the basis of 1 min video excerpts (Kraus and Keltner 2009).

Personality dominance seems to be perceived relatively accurately as well. People are able to accurately detect an expresser's assertiveness based on 1 min videotaped interaction excerpts (Schmid Mast et al. 2003). Similarly, a study using the Social Dominance Orientation (SDO) Scale (Pratto et al. 1994), which measures the extent to which an individual prefers social groups to differ in status and thus endorses a social hierarchy, shows that people are generally able to accurately detect the level of a target's SDO from a 30 sec silent video excerpt, especially when the targets are men (Yeagley, Morling, and Nelson 2006).

Research on actual and perceived power shows that even when people use non-diagnostic cues (i.e., cues that are not related to *actual* differences along the vertical dimension) to infer power in others (Hall, Coats, and Smith LeBeau 2005), yet their inferences can still be correct (e.g., Barnes and Sternberg 1989; Schmid Mast and Hall 2004). One reason for this apparent paradox may be that perceivers use different or additional nonverbal cues that are indicative of actual power to infer power but that the researchers did not assess those cues. Any given study necessarily measures a limited number of nonverbal behaviors, while the list of behaviors potentially related to power is endless. Relevant cues may thus not have been assessed by the researchers although they are available to perceivers for their inferences.

Alternatively, observers might use a more Gestalt-like impression to assess a target's power which could be a complex combination of different nonverbal cues (i.e., behavioral composites). Research linking verticality to nonverbal behavior has generally studied single nonverbal cues separately. However, some cues may show no relation to power when studied in isolation, but may reveal an influence if studied together. Such simultaneous behaviors or patterns of cues are called "behavioral composites" (Hall, Coats, and Smith LeBeau 2005; Knapp and Hall 2010; Richmond and McCroskey 1987). It has been shown, for instance, that the behavioral composite of eye contact, smiling, vocal expressiveness, hand gestures, bodily relaxation, direct orientation, and close physical distance is related to actual assertiveness, while these behaviors are not related, or not as strongly, to assertiveness when considered individually (Prisbell 1985). In a similar way, the behavioral composite of touching, pointing at the other, invading space, and standing over the other has been related to perceived dominance, while these behaviors are not as strongly related to perceived dominance when considered individually (Henley and Harmon 1985). Not many studies have examined behavioral composites to date, which might be considered as a shortcoming of existing research.

However, Hall, Coats, and Smith LeBeau's (2005) meta-analysis showed that the correlation between perceived and actual effect sizes regarding the link between verticality and nonverbal behavior were fairly substantial across cues. Perceived verticality revealed bigger magnitudes, which might be because stereotypes regarding the links between verticality and nonverbal behavior are stronger than reality, but the pattern of magnitudes across cues suggests sensitivity in the

perceivers (i.e., good match between perceptions and actuality in the correlation sense). In other words, it seems that perceivers have a rather good sense of the pattern between verticality and nonverbal behavior, although they exaggerate its magnitude.

Regarding the link between power and nonverbal accuracy, an additional question can be asked: Is it the high or the low power individuals who are more nonverbally accurate? On one hand, low power people might be more interpersonally accurate than high power people because the former are more motivated to correctly read the nonverbal signs of their superior (e.g., in order to detect signs of approval or disapproval) (Fiske and Dépret 1996; Goodwin et al. 2000). On the other hand, for successful leadership, it seems important to allocate the right task to the right person at the right time, and, to do so, a superior can profit from being able to correctly read the (nonverbal) signs of his or her subordinates. Research shows that effective leadership is positively related to individual consideration (Bass et al. 2003) and emotional intelligence (Caruso and Salovey 2004), both related to sensitivity to the nonverbal cues emitted by others. Moreover, there is accumulating evidence that high power people are more accurate at detecting others' emotions and thoughts than low power people are (Schmid Mast, Jonas, and Hall 2009).

3 Nonverbal behavior and persuasion

Persuasion as communication through which a person exerts control or influence over another is an important means to create and maintain verticality. As an example, a politician generally needs persuasive communication to convince his or her voters to reelect him or her. We will focus here on the nonverbal correlates of persuasive communication.

It seems that for persuasion, nonverbal communication has less impact than verbal communication (Burgoon 1985; Burgoon, Birk, and Pfau 1990; Petty and Cacioppo 1986; Schmid Mast 2010). Nevertheless, research shows that the verbal content of a speech is not the only contributing factor to the persuasiveness of a speaker. Nonverbal behavior of the speaker also plays an important role. According to the Elaboration Likelihood Model of Persuasion (ELM) (Petty and Cacioppo 1986), the lower the motivation to consciously process information (e.g., because of small stakes or low interest) or the lower the cognitive resources of the perceiver (e.g., because of little knowledge or intelligence), the more important the speaker's nonverbal behavior becomes in the persuasive process. The person using persuasive communication is called the speaker or the source. Research demonstrates that the nonverbal behavior of the source affects how credible the source is perceived, which in turn affects how persuasive the message is (Burgoon et al. 1990). As an example, speech rate of the source has shown to affect a message's effective-

ness in terms of persuasion: Faster speech rate increases the credibility, perceived expertise, and confidence in the source, which augment a message's effectiveness, thus persuasion (Brown 1980).

Research investigating the effect of nonverbal behavior on persuasion has shown that people who are more persuasive make longer eye contact (Burgoon, Birk, and Pfau 1990; LaCrosse 1975; Maslow, Yoselson, and London 1971; McGovern 1977; Mehrabian and Williams 1969; Timney and London 1973; Young and Beier 1977), smile more (Burgoon, Birk, and Pfau 1990), are more facially expressive (Burgoon, Birk, and Pfau 1990; Edinger and Patterson 1983; Forbes and Jackson 1980; Mehrabian and Williams 1969), make more affirmative head nods (Mehrabian and Williams 1969), gesture more (Edinger and Patterson 1983; Forbes and Jackson 1980; Mehrabian and Williams 1969), use fewer adaptor behaviors (e.g., scratching, rubbing one's hands) (Mehrabian and Williams 1969), more object-adaptors (e.g., playing with a pen) (Burgoon, Birk, and Pfau 1990), lean backwards less, stay closer to their interaction partner, are moderately relaxed (Mehrabian and Williams 1969), have less postural rigidity (Maslow et al. 1971), and perform more random body movements (Burgoon, Birk, and Pfau 1990; Young and Beier 1977).

People who are more persuasive also touch others more. Many studies show that touch (most commonly operationalized through a brief touch on the other's hand, arm, or shoulder) positively influences the probability for the recipients to comply with a request or to follow advice given by the person who touches them (Hertenstein 2011). For instance, it has been shown that people who are touched by a confederate while being asked to sign a petition sign more often than people who are not touched (Willis and Hamm 1980). Also, restaurant clients who are touched by the waiter follow more often the waiter's suggestion than clients who are not (Guéguen, Jacob, and Boulbry 2007). In the same vein, patients who are touched by their physicians follow the physician's recommendations regarding the medication more than patients who are not (Guéguen, Meneiri, and Charles-Sire 2010).

Vocal and paralinguistic characteristics are also associated with persuasion: People who are more persuasive answer more quickly, make less pauses, their speech is more fluent (Burgoon, Birk, and Pfau 1990; Erickson et al. 1978; Hollandsworth et al. 1979), and they speak at a faster rate (Apple, Streeter, and Krauss 1979; Mehrabian and Williams 1969; Miller et al. 1976). Interestingly, a highly dominant nonverbal behavior (operationalized by the authors as loud voice, angry tone, pointing at the other, constant eye contact, and stern facial expression) seem to reduce a communicator's ability to persuade to the same extent as a submissive nonverbal behavior (operationalized as a soft, pleading voice with many hesitations and stumbles, slumped posture, nervous hand gestures, and averted gaze) does. This is in comparison with a more moderate form of dominance (operationalized as moderate voice volume, firm tone of voice, few hesitations, rapid rate of speech, upright posture, calm hand gestures, and a moderately high amount of

eye contact) (Carli, LaFleur, and Lowber 1995). In other words, too much or too little dominance may be equally detrimental to a communicator's persuasiveness.

Associations between specific nonverbal behavior cues and persuasion are sometimes difficult to interpret. For instance, why do affirmative head nods relate to persuasion? To understand some associations, it is necessary to know intermediate perceptions, i.e., how specific behaviors relate to certain perceptions, and how these perceptions then lead to persuasion. These intermediate perceptions are called "proximal percepts" by some authors (e.g., Burgoon, Birk, and Pfau 1990). Burgoon, Birk, and Pfau (1990) demonstrated that persuasion is associated with the proximal percepts of the speaker's competence, sociability, character (perceived honesty and caring), composure (calm), and dynamism, which were measured with the scale of McCroskey, Holdridge, and Toomb (1974). Perceived competence was positively influenced by speech fluency, by pitch variety, by smiling/facial pleasantness, and by facial expressiveness. Perceived sociability was positively influenced by speech fluency, pitch variety, eye contact, smiling/facial pleasantness, facial expressiveness, illustrator gestures, body tension, and random trunk and limb movement. Perceived character (honesty and caring) was positively influenced by vocalic pleasantness cues (voice quality), eye contact, smiling, and facial expressiveness. Perceived composure was positively influenced by speech fluency and smiling. Perceived dynamism was not influenced by any of the investigated behaviors.

Note, however, that – with the exception of studies on touch – most of the existing research in this field uses a correlational approach, which does not allow for causal inferences and implies the risk of confounds. Does looking at the interaction partner have a direct influence on one's persuasiveness or is it the case, for instance, that people who are more persuasive are generally more self-confident and therefore look at others more easily? Future research will have to use experimental designs and manipulate the source's nonverbal behavior in order to answer this question. Furthermore, potential interaction effects between the verbal and the nonverbal content on a speaker's persuasiveness have generally been neglected.

Research on persuasion nevertheless shows that nonverbal behavior can affect persuasion. Although the effects of nonverbal behavior on persuasion are most likely not direct (they depend on proximal percepts), they affect the outcome of a social interaction in that a change of a person's attitudes or beliefs is entailed. A nonverbal behavior that is linked to persuasion can be seen as a dominance behavior (because it aims at influencing a person's internal states). In this sense, the attitude change as a result of persuasive nonverbal communication can be seen as an outcome of nonverbal dominance. Besides attitude change, there are other outcomes of nonverbal dominance; we will review some of them now.

4 Nonverbal dominance and social interaction outcomes

We have previously seen that there is a long list of nonverbal behaviors observers use to infer the power of their social interaction partners. We could therefore call these behaviors nonverbal dominance behaviors because they evoke the perception of dominance in the observer. When confronted with an individual who displays nonverbal dominance, many different aspects of the outcome of this social interaction can be affected. The extent to which a social interaction partner shows nonverbal dominance will affect how much we like him or her and how we evaluate him or her, among other aspects. We cannot provide a comprehensive literature review of outcome effects of nonverbal dominance but we will provide some illustrative examples.

Research on perceived attractiveness has shown that the expression of nonverbal dominance (operationalized by the researchers through a relaxed, asymmetrical posture, backward leaning, high rate of gesturing, low rates of head nodding) increased the perceived attractiveness of men but that it had no influence on the perceived attractiveness of women (Sadalla, Kenrick, and Vershure 1987) (note that postural relaxation has not emerged as an expression of dominance in the meta-analysis of Hall, Coats, and Smith LeBeau 2005). Nevertheless, depending on how nonverbal dominance is operationalized, it can also have negative implications for romantic relationships. Nonverbal dominance expressed through negative and intrusive touch of the partner and not allowing the partner to touch or sort cards in a task was related to poorer romantic relationship quality (defined as the presence of partner aggression and verbal argument) (Ostrov and Collins 2007).

Liking of an interaction partner depends on the complementarity between the interaction partners' respective dominance behavior: In a study where nonverbal dominance was manipulated by posture (i.e. postural expansion for high dominance and postural constriction for low dominance), participants who displayed complementarity in nonverbal behavior (i.e., a high dominant individual facing a low dominant individual) liked each other more than individuals who were constrained to mimic each other's nonverbal behavior (i.e., individuals who were both high dominant or both low dominant) (Tiedens and Fragale 2003).

Nonverbal dominance not only affects the way we relate to others (romantic interest, relationship quality, and liking) but also how we evaluate them. As an example, nonverbal dominance (loud and angry voice, knitted brows, glaring stare, muscle tension, and pointing gestures) in leaders, as compared to a more neutral behavior (well moderated tone of voice, moderate eye contact, relaxed facial expressions, and normal upright posture) led to lower evaluations of competence and leadership (Driskell and Salas 2005).

In the field of physician-patient communication, physician nonverbal dominance (e.g., talking more, adopting a dominant tone of voice) has been related to

lower patient satisfaction (Bertakis, Roter, and Putnam 1991; Burgoon et al. 1987; Hall et al. 1994), and especially when nonverbal dominance is expressed by female physicians (Schmid Mast, Hall, and Roter 2008). However, patients tolerate more physician dominance when the physician-patient relationship is good (Kaplan, Greenfield, and Ware 1989; Kiesler and Auerbach 2003).

These examples show that nonverbal dominance can have both positive and negative effects on social interaction outcomes. It has to be noted, however, that the operationalization of nonverbal dominance varies importantly from one study to another in terms of which nonverbal behaviors are investigated and in terms of how intensely the nonverbal behavior is expressed. Moreover, the effects of nonverbal dominance on social interaction outcomes might not be linear. Maybe a nonverbal behavior that is *moderately* dominant (e.g., a superior who behaves in a self-assured way) produces better effects than a nonverbal behavior that is either very low or very high in dominance (e.g., a superior who is either very submissive or very authoritarian).

5 Individual characteristics related to verticality

Although research has identified many nonverbal behaviors that are related to power, dominance, and persuasion, individual characteristics clearly affect the expression and perception of verticality. In this section, we will review the role of gender, personality, and cultural background. One needs to keep in mind that there are other individual characteristics that can affect the verticality-nonverbal behavior link and that individual characteristics are not the only moderators between nonverbal behavior and verticality. For instance, nonverbal dominance of the interaction partner affects an individual's own dominance reactions. Two individuals interacting with each other generally achieve contrast in their dominance behaviors: If A behaves in a high dominant way, B is likely to behave in a less dominant way (Sadler et al. 2009; Schmid Mast, Hall, and Roter 2008; Tiedens and Fragale 2003). Interactional and situational characteristics must be taken into account as well when studying expressed and perceived verticality.

5.1 Gender

Research shows that men endorse hierarchies more than women do (Pratto, Stallworth, and Sidanius 1997; Schmid Mast 2005). In interactions, men behave more dominantly than women, are more competitive, are more motivated to become leaders, and actually emerge more often as leaders (Eagly et al. 1994; Golub and Maxwell Canty 1982; Hegelstrom and Griffith 1992; Megargee 1969). Male leaders also behave more dominantly than female leaders (Eagly and Johnson 1990) and

men use more direct techniques of influence than women (Bjorkqvist, Lagerspetz, and Kaukiainen 1992). Research in the field of social influence also shows that men are more influential than women (e.g., on the decisions taken in groups after verbal persuasion attempts), even if there are many moderators of this influence (Carli 2001).

According to certain authors (e.g. Henley 1977), existing gender differences in nonverbal behavior are explained by gender differences in power. However, research in the field of nonverbal behavior does not fully support the idea that men behave more dominantly than women. Although some nonverbal behaviors related to actual power are shown more often by men than by women (men use more expansive body positions, they speak in a louder voice, they speak more, and they interrupt others more frequently) (Hall 2006), there are a number of nonverbal behaviors related to actual power that are shown more often by women than by men. For instance, women have more expressive faces and stand at closer interpersonal distances (Hall 2006), both behaviors generally expressed more by high as compared to low power individuals. It seems that the relation between power, gender, and nonverbal behavior is more complex and merits closer inspection (see also Chapter 21, Hall and Gunnery, this volume).

An explanation for the fact that gender differences in nonverbal behavior do not simply reflect power differences is that women and men might use different nonverbal behaviors to express their power or dominance and that one and the same nonverbal behavior is used by women and men to express different things. For instance, certain nonverbal behaviors may be used to express dominance in men but not in women. Expressivity might be used to convey involvement in women whereas men might use it to convey dominance. Or, close interpersonal distance might be used to express affection in women and to express dominance in men.

Also on the level of perceived dominance, gender plays a role. Men are *perceived* as more dominant than women (Schmid Mast 2004), and people seem to pay more attention to signs of dominance in men than in women (Maner, DeWall, and Gaillot 2008). More importantly, gender of the target moderates whether and to what extent certain nonverbal behaviors are perceived as dominant. As an example, people attribute different levels of dominance to facial emotion displays (i.e., expressions of happiness, anger, disgust, sadness, and fear shown in photographs) depending on the gender of the actor (Hess, Blairy, and Kleck 2000), which may be due to gender-specific expectations regarding the expression of emotions and/or dominance. In the same vein, research in the field of physician-patient communication suggests that the same behaviors (e.g., speaking much, speaking in a loud voice, frowning, little gazing at the patient, or little smiling) are more strongly perceived as dominant when expressed by a female rather than by a male physician (Schmid Mast et al. 2011).

Furthermore, people sometimes use different and sometimes opposite behaviors to infer power or dominance of men and women. For instance, perceivers rely

more on downward head tilt and lowered eyebrows when assessing the status of women than when assessing the status of men (Schmid Mast and Hall 2004). Crossed arms, frowning, and fidgeting are perceived as indicators of low assertiveness when expressed by men, while they are perceived as indicators of high assertiveness when expressed by women (Schmid Mast et al. 2003). This suggests that the meaning attributed to nonverbal cues may depend on the gender of the expresser. For instance, fidgeting may be perceived as a sign of social anxiety when expressed by men – and thus related to low status – while it may be perceived as a sign of energy and involvement when expressed by women – and thus related to high status.

Depending on the gender of the speaker, dominant verbal and nonverbal communication styles have different outcomes (Carli 2001). People tolerate dominance in women less than in men (Carli 2001), and a dominant communication style leads to more negative evaluations along several social dimensions when expressed by women rather than men (Keating 2004). For instance, women who exert more visual dominance are liked less than men who exert the same level of visual dominance, and visual dominance reduces women's influence on the audience while it increases men's influence (Copeland, Driskell, and Salas 1995).

Gender is thus not only a moderator of how verticality is expressed and perceived, but gender also affects how nonverbal dominance translates into interaction outcomes such as how persuasive a message from a woman or a man is.

5.2 Personality

People who occupy the same hierarchical position do not all behave in the same way and this is also true for nonverbal behavior. Personality dominance can affect to what extent a person expresses his or her power position. With respect to speaking time, a study showed that high power individuals talked for the same amount of time in a social interaction regardless of whether they were high or low in personality dominance, while low power individuals differed in their talk time depending on their personality dominance (Schmid Mast and Hall 2003): Individuals scoring high in personality dominance talked more (equally much as the high power individuals) than the low personality dominant individuals. Personality dominance also seem to interact with status and gender (three-way interaction) in predicting nonverbal behavior: For women in subordinate positions, those who are high in personality dominance smile less than those who are low in personality dominance, while no such effect can be seen in men (Schmid Mast and Hall 2004).

Moreover, personality dominance can be expressed in different ways. One distinction can be made between sociable and aggressive dominance. Sociable dominance is characterized by positive attitudes toward others, a central position in groups, a strong need to influence others, a high self-esteem, and an independent

and active attitude; aggressive dominance is characterized by negative attitudes toward others and by a strong motivation to realize one's aims, even at the expense of personal relationships (Kalma, Visser, and Peeters 1993). Sociable and aggressive dominance are related differently to nonverbal behavior: A higher score of sociable dominance is associated with longer speaking times, more looking at others while talking, a more frequent use of a 'prolonged gaze pattern' (i.e., maintaining eye contact with the other for some seconds after stopping talking to signal to others that it is their turn to talk), and more gesticulation; a higher score of aggressive dominance, on the other side, is associated with more looking around during discussions (e.g., at papers, or at another person than the one who is talking) and in particular with less looking while listening, with more raised eyebrows, and with more interruption of the other (Kalma, Visser, and Peeters 1993).

Personality dominance in perceivers is also a moderator of how a target's dominance is perceived. Depending on their personality, people vary in their perception of the same individuals (Kenny et al. 1992) and about 10% of the variance in the perception of a target's dominance ("agency") is attributable to the perceivers' idiosyncratic characteristics (Moskowitz and Zuroff 2005). Furthermore, people seem to pay attention to characteristics in others that are salient in their own personalities (Battistich 1980; Battistich and Aronoff 1985; Hirschberg and Jennings 1980). For instance, men (but not women) who strive for power and are high on personality dominance perceive more power-related thoughts and feelings in others than men who are aversive to power and low in personality dominance (Schmid Mast, Hall, and Ickes 2006). Also, with respect to attention to nonverbal behavior, research suggests that high dominant individuals tend to focus more than low dominant individuals on nonverbal dominance cues in others (Battistich and Aronoff 1985; Hirschberg and Jennings 1980).

Also in persuasion, individual differences of the receiver affect which nonverbal behavior is more effective for persuasion. Following a regulatory-fit theory approach, Cesario and Higgins (2008) showed that when the message source used an eager communication style (i.e., gestures with animated and broad opening movements, hand movements openly projecting outward, forward-leaning body positions, fast body movement, fast speech rate) or a vigilant communication style (i.e., gestures showing precision, slightly backward-leaning body positions, slower body movement, slower speech rate) – while holding the content of the message constant – persuasion depended on the promotion-focus (i.e., tendency to engage in tasks with eagerness) or prevention-focus (i.e., tendency to engage in tasks with cautiousness) of the recipient. Persuasion was more effective when there was fit, that is, when the promotion-focused perceivers watched the eager expresser and when the prevention-focused perceivers watched the vigilant expresser.

To conclude, depending on the interaction between personality dominance and power position, people express different types of nonverbal behavior and a perceiver's own personality dominance influences the way he or she perceives the

nonverbal behavior expressed by others and the way he or she is affected by persuasive communication.

5.3 Cultural background

It is interesting to ask if, and to what extent, the expression and perception of verticality are cultural. In a study conducted with German, American, and Arab samples (Bente et al. 2010), participants were asked to recognize the status (employee vs. supervisor) of individuals who interacted and who were of the same nationality as the participant. Status could only be recognized above chance-level in the German sample. In the American and Arab samples, the status could not be detected by the participants. In some cultures (e.g., German culture), power position by nonverbal behavior may thus be more clearly expressed and perceived than in others (e.g., American, Arab).

People's judgments of *dominance* seem partly universal and partly cultural. Caucasian and Chinese men and women looking at photographed faces of individuals from both cultures that varied in nonverbal behaviors (i.e., direct or averted gaze; up, straight, or down head position) perceived men of both cultures as more dominant than women, which suggests a universal effect of gender on perceived dominance. However, participants perceived the faces of their own cultural group as more dominant than the ones of the other cultural group, which also suggests a culture bias in dominance perception (Bridge et al. 2007).

Even if there might be some constants across cultures (e.g., men being perceived as more dominant than women), studies on cultural moderators of the link between verticality and nonverbal behavior indicate that culture has an influence on the way people express and perceive power positions based on nonverbal cues.

6 Conclusions

Research shows that differences in verticality correspond to differences in nonverbal behavior. People in higher power positions or with a more dominant personality have more open body positions, maintain closer interpersonal distance, are more facially expressive, speak more loudly, and interrupt others more often than people in lower power positions or with a less dominant personality. However, many other nonverbal cues (e.g., looking at others more, smiling less, lowering the eyebrows more) are used by perceivers to infer power and dominance from the behavior of an expresser, which corresponds to people's beliefs (stereotypes) about the associations between power/dominance and nonverbal behavior. Interestingly, even if perceivers use more nonverbal cues than those actually related to verticality, their perceptions can still be accurate.

Nonverbal dominance behavior not only affects dominance perception but also other outcomes of social interactions. As an example, complementarity in nonverbal dominance among social interaction partners makes for more mutual liking, nonverbally dominant men are more attractive romantic partners, and leaders who are too dominant are perceived as less competent. Nonverbal behavior linked to persuasion can also be regarded as nonverbal dominance. Individuals who make longer eye contact, smile more, and are more facially expressive are more persuasive. Nonverbal behaviors conveying competence, sociability, caring, honesty, composure, and dynamism seem to enhance a source's persuasiveness.

Individual characteristics – like gender, personality, and cultural background among others – moderate the expression and perception of power and dominance, as well as outcomes of social interactions. As such, they must be taken into account when trying to understand expressed and perceived verticality, as well as their influences on the interpersonal level.

7 Future directions

Research has tested an array of different nonverbal behaviors in relation to power and dominance, but these typically remain on a correlational and descriptive level. We lack an understanding of why certain behaviors relate to verticality and why others do not. For instance, why do people higher on the vertical dimension have more expressive faces? And why are people who gesture more perceived as more dominant? Studying mediators of the expression or perception of power and dominance are needed in order to understand why certain behaviors are used to convey or to infer power. Some suggestions come from the fields of ethology and evolutionary psychology. Burgoon and Dunbar (2006), for instance, suggest that dominance behavior in animals (and maybe in humans) aims at conveying a sense of physical potency that enables the more potent ones to exert control over the other individuals. This potency would be expressed (and perceived) through behaviors and physical characteristics that communicate dynamism and strength (e.g., erect posture, gestures, expressivity, or fast speech rate), threat (e.g., absence of smiling, lowered eyebrows), and/or maturity (e.g., height, mature face). Indeed, animals that have or seek power over others are more likely to be (and to be perceived as) strong rather than weak, dynamic rather than limp, to threaten their opponents in case of conflict rather than to submit, and to be mature rather than individuals at the early stage of their development (Burgoon and Dunbar, 2006). This could explain, to some extent, certain expressions and perceptions of power and dominance in human societies as well. However, one must also keep in mind that human hierarchies are more complex than animal ones (e.g., human ones do not rely as much on physical strength). Several other factors such as, for instance, perceived competence or perceived self-confidence, will have to be further considered as potential

mediators of the link between nonverbal behavior and the vertical dimension of human interactions.

Future research will also face the challenge to operationalize the constructs of power and dominance more clearly and more systematically than in the past. The operationalization of dominance, in particular, differs in important ways from one study to another. For instance, Driskell and Salas (2005) operationalize nonverbal dominance as a loud and angry voice, knitted brows, glaring stare, muscle tension, and pointing gestures, while Ostrov and Collins (2007) operationalize it with negative and intrusive touch of the interaction partner. Furthermore, dominance is often defined in its aggressive form, while the sociable form of dominance is rarely considered (e.g., Sadalla et al. 1987). This is an important issue, because differences and inconsistencies in the definition and operationalization make the comparisons between studies, as well as their synthesis, difficult and imprecise.

Much research is needed to obtain more information on how contextual as well as individual factors moderate the link between nonverbal behavior and verticality. While the influence of some individual characteristics (e.g., gender) have been documented to a certain extent, others still need more in-depth investigation (e.g., personality, attitudes, cultural background). In the same vein, contextual influences need to be more systematically investigated. Expressions and perceptions of dominance and power may differ in important ways depending on the nature of the relationship (e.g., professional, hierarchical, romantic), on the social motives (e.g., goals, desires) of the interaction partners, as well as on their emotional state (e.g., joy, irritation). To illustrate, someone who tries to influence a friend in a decision may behave nonverbally very differently than a superior who argues with an employee about a task that needs to be accomplished. Also, a superior high in personality dominance may argue with this employee in a different way than a superior who low in personality dominance, and a superior who wants to keep all his employees may behave differently than a superior who wants to reduce their number. To date, the information we have about contextual influences on the expression and perception of power and dominance is still very scarce.

Most probably, methodological innovations will be part of future research in the field. As an example, computer-mediated automatic coding of nonverbal behaviors related to power and dominance is being developed and may facilitate the work of researchers in the field of nonverbal behavior: Settings are developed that enable automatic coding of dominance patterns, for instance in group conversations (Jayagopi et al. 2009), and will provide the basis for the analysis of temporal patterns of nonverbal behavior and of nonverbal composites. Along with clear-cut definitions of the concepts, strong designs, and consciousness of individual and contextual influences, they will enable future researchers in this field to better understand the nonverbal nature of the crucial dimension of power and dominance in interpersonal interactions – and their consequences on our social life.

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