The Aura of Charisma:

A Review on the Embodiment Perspective as Signaling

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Abstract

Charismatic leaders have consistently been shown to affect followers' performance, motivation, and satisfaction. Yet, what precisely constitutes charisma still remains somewhat enigmatic. So far, research has mainly focused on leader traits, leader behaviors, or the leader follower-relationship, and the subsequent consequences of each on followers' self-concepts. All of these approaches share the notion that leader charisma depends on an explicit interaction between leader and follower. With the present review paper, we extend extant theorizing by arguing that charisma is additionally informed by embodied signals that flow directly from either the leader or the immediate environment. We introduce the embodiment perspective on human perception and describe its utility for theoretically understanding the charismatic effect. Correspondingly, we review studies that show which concrete embodied cues can support the charismatic effect. Finally, we discuss the variety of new theoretical and practical implications that arise from this research and how they can complement existing approaches to charismatic leadership.

Keywords: charisma, charismatic leadership, embodiment, grounded cognition, signaling

Charismatic leaders inspire follower motivation, performance, and satisfaction (Babcock-Roberson & Strickland, 2010; Bass, 1985; Conger, Kanungo, & Menon, 2000; DeGroot, Kiker, & Cross, 2009; House, 1977; Howell & Frost, 1989; Jacobsen & House, 2001; Shamir, House, & Arthur, 1993). This influence partly derives from followers' perceptions that the charismatic leader possesses extraordinary abilities that exceed any regular expectation for a leader (Weber, 1925). However, charisma itself remains a rather elusive phenomenon (Antonakis, Bastardoz, Jacquart, & Shamir, 2016; van Knippenberg & Sitkin, 2013; Yukl, 1996), marked by varying definitions and conceptualizations that sometimes border on omnipotence and the presence of almost mystical powers (Bryman, 1992). Many of these follow from Weber (1925), who defined charisma as "a certain quality of an individual personality by virtue of which he is considered extraordinary and treated as endowed with supernatural, superhuman, or at least specifically exceptional powers or qualities" (p. 241).

Against this background, Antonakis and colleagues (2016) recently noted that, despite decades of research, the concept of charisma is still not well defined. In response, they drew from signaling theory (Spence, 2002) to define charisma as "values-based, symbolic, and emotion-laden leader signaling" (p. 17). Corresponding research into the behavioral iterations of such leader signals (i.e., what the leader says or does) predomininatly focused on leader rhetoric (e.g., Awamleh & Gardner, 1999; Holladay & Coombs, 1993; Howell & Frost, 1989). Yet, while research has pointed out that charismatic leaders are often described in terms of their physical attributes (Bryman, 1992), for instance, their facial properties (Bryman, 1992), facial expressions (Avamleh & Gardner, 1999), body posture (Bass, 1985), or their use of nonverbal tactics (Antonakis, Fenley, & Liechti, 2011; Frese, Beimel, & Schoenborn, 2003), and recent research suggests to investigate how perceived charisma relates to biological characteristics (Antonakis et

al., 2016), the symbolic signaling aspect of charisma that includes embodied cues beyond those displayed in rhetoric is still not understood very well. A symbol is "something that stands for or suggests something else by reason of relationship, association, convention, or accidental resemblance" (Merriam Webster, 2016). Symbols may stem from the leader's physicality, the leader's verbal and nonverbal behavior, but also from the environment. As such, irrespective of whether symbolic signals relate to the leader's rhetoric or messages, they may by themselves also influence whether followers perceive the leader as charismatic.

In order to extend our understanding of charisma signals, we draw on embodiment theory, a recent development in social and cognitive psychology, that suggests that some bodily cues can lead to inferences about individuals (Barsalou, 2008). By embodied cues, we refer to all potential cues that are grounded in bodily experience—in other words, bodily states can cause cognitive states and vice versa (Barsalou, 2008). Obvious examples include the difference between up and down, hot and cold, or light and dark. This perspective has been referred to as the embodiment perspective or grounded cognition perspective (Lakens, 2014; Niedenthal, 2007). As such, this theoretical fundament can help explain why some ostensibly insignificant leader signals (e.g., physical height) can have surprisingly strong effects on people's inferences of leaders. The purpose of our paper, then, is to review this literature and show how this perspective can extend our understanding of charisma. As such, we also advance the perspective on charisma beyond mere person-effects by adding that such signals do not need to stem from a person (i.e., the leader), but can also flow from the environment (e.g., temperature). In the following, we review how embodied cues—whether related to the leader (e.g., body height, posture, facial expression) or the environment (e.g., temperature, light, physical placement of the leader)—constitute important elements of leader charisma.

Our approach diverges from extant approaches, which often try to explain charisma in terms of how leaders and followers interact, whether that involves leaders' traits (Weber, 1925), specific behaviors (Bass, 1985; Fanelli & Misangyi, 2006; Gardner & Avolio, 1998; House, Spangler, & Woycke, 1991; Waldman & Yammarino, 1999), relation to followers (Bass, 1990; Howell & Shamir, 2005), or how they inspire changes in followers' self-image (Howell & Shamir, 2005; Shamir et al., 1993). Instead, our perspective overlaps with more recent insights, which reveal that perceptions of others occur very quickly and often unconsciously. Such perceptions are informed by people's external features as well as a variety of sensory, motor, and perceptual cues in the environment (Barsalou, 1999, 2008; Lakens, 2014). For example, people infer others' traits based on facial appearance in as little as 100ms (Willis & Todorov, 2006). Importantly, because judgments about people are deeply rooted in these seemingly superficial perceptions, they have a remarkable predictive value for later interactions (cf. parliamentary candidates, Antonakis & Dalgas, 2009), irrespective of whether they are always accurate (cf. Todorov, Olivola, Dotsch, & Mende-Siedlecki, 2015).

To support our embodied perspective, we first briefly review existing approaches to charisma and charismatic leadership. Next, we describe how an embodiment perspective can generally help explain the symbolic signaling of charisma. Subsequently, we review specific findings on the embodiment effects of physical cues in both the person and the environment. Finally, we discuss the implications for the literature on charismatic leadership, the possible ways that embodied signals can be processed, some recent criticism on empirical findings in this field of research, and potential boundary conditions for their effects.

In doing so, we offer several contributions to the literature. First, we complement the existing literature on leader charisma with an embodiment perspective that can explain how

perceptions of a charismatic "aura" arise even in the absence of a behavioral leader-follower interaction. Second, in contrast to previous reviews (Bonaccio, O'Reilly, O'Sullivan, & Chiocchio, 2016; Hall, Coats, & Smith LeBeau, 2005), our review is based on a coherent theoretical fundament that considers embodied cues in general (i.e., they can flow from the leader as a person and from the environment). Third, our approach of focusing primarily on objective embodied cues to explain leader charisma may fruitfully enrich future leadership research by addressing recent discussions on causality issues (Antonakis, Bendahan, Jacquart, & Lalive, 2010, 2014). Finally, our embodiment focus can explain why aspirational leaders may *do* everything right in terms of textbook knowledge on charismatic behaviors, but may find it hard to be *perceived* as charismatic. Indeed, building on models of categorization (Gilbert, Pelham, & Krull, 1988), we discuss how early impressions resulting from physical cues may relegate these leaders to a non-charismatic category (cf. Gray & Densten, 2007; Lord & Maher, 1991) that is difficult to escape. Or, as Antonakis and Jacquart (2012) phrased it, "Leaders who make it to the top may do so, not because of the skills they possess but because they 'look the role'" (p. 155). By the same token, our theoretical perspective reveals the usefulness of seemingly narcissistic behavior—such as that exhibited by Nicolas Sarkozy, former president of France, who frequently manipulated the perception of his height in order to appear taller than he actually is (Allen, 2009). Although our review may unwittingly inspire more practical applications of these tactics, we primarily hope to raise awareness of such manipulations among those who evaluate leaders.

Charismatic Leadership

Charismatic leadership has been a subject of growing interest in leadership research during the last few decades (Yukl, 2013), with different theoretical approaches coming to the fore in order to explain the underlying process (Babcock-Roberson & Strickland, 2010; Bass,

1985; Bono & Ilies, 2006; Brands, Menges, & Kilduff, 2015; Conger, Kanungo, Menon, & Mathur, 1997; DeGroot et al., 2009; House, 1977; Nohe, Michaelis, Menges, Zhang, & Sonntag, 2013). The conceptual interest in charisma can be traced back at least to the ancient Greeks, who provided the base word, *kharisma*, which means 'favor' or 'divine gift'. True to its origins, charisma has long carried a mystical connotation—in the Christian Bible, for instance, the Holy Spirit's charisma is associated with qualities such as prophecy, ruling, teaching, wisdom, and healing (Bryman, 1992). However, charisma did not truly enter the scientific purview until Weber (1925), who pioneered the argument that charisma can serve as a source of leader authority alongside tradition or law. Unfortunately, Weber's work focused heavily on magical, superhuman, or even divine abilities, which left the phenomenon of leader charisma without a clear definition for a long time (Bryman, 1992). In fairness, describing and defining charisma in terms of concrete variables has proven difficult (Willner, 1984). Even today, if our experience of teaching MBA and executive classes is any indication, many lay people struggle to verbalize what makes a person charismatic.

Conger and Kanungo (1987) tried to "strip the aura of mysticism from charisma" (p. 639) by describing it foremost as an attributional phenomenon. This attribution occurs because of some explicit leader behavior toward followers (e.g., challenge the status quo, promote an idealized vision, incur personal risk; Conger & Kanungo, 1987). These behaviors are assumed to activate and stimulate followers' self-concept: Individuals in the presence of a charismatic leader perceive themselves as better and belonging to something bigger (e.g., self-efficacy, collective efficacy; House, 1977; Shamir et al., 1993).

Though there are now myriad definitions of charisma, Antonakis and colleagues (2016) recently noted that most of these are problematic because they are imprecise and/or define

charisma by its antecedents, its effects, or via examples (MacKenzie, 2003). This, in turn, makes it impossible to theoretically develop and empirically test the construct. Therefore, Antonakis and colleagues (2016) provided a definition that is independent of its antecedents and/or outcomes. This definition conceptualizes charisma as a form of leader signaling, and the respective signals are based on values, symbols, and emotions (Antonakis et al., 2016). According to Spence (2002), "signals are things one does that are visible and that are in part designed to communicate" (p. 434). Whereas Spence's (2002) definition of signals refers to leaders' concrete and deliberate behaviors ("things that one *does* [..] that are *designed* to[…]", p. 434), signals can also refer to how one looks (physique, bodily characteristics). Thus, signaling may be better understood as a general process of communicating information (Antonakis et al., 2016); hence, we use the terms "signals" and "cues" interchangeably.

As such, signaling encompasses all the possible cues a leader actively or passively emanates, which provide the basis for followers' inferences about the leader. In that sense, other than Spence's rather narrow definition of a visible cue, it could be argued that any cue that is perceivable with our five senses (touch, hearing, taste, smell, sight) and interpretable in its meaning can function as a signal (e.g., temperature). As we describe in more detail in the sections that follow, such signals may also flow from the environment and—while not pertaining to the leader per se—may still influence followers' inferences about the leader's qualities. Of course, signals may convey honest information, but they could also be actively manipulated.

In leader signaling, values, symbols, and emotions are interrelated insofar as charismatic leaders communicate values in a symbolic way (e.g., by using metaphors) and express emotions that further underline the leader's belief in these values (Antonakis et al., 2016). As such, to the extent that followers agree with the leader's values, seemingly unrelated bodily cues such as

physical appearance, emotional display, or body language can induce the charismatic effect. Although not yet tested empirically, value alignment is thus a conceptual prerequisite for the charismatic effect—a position shared by Antonakis and colleagues (2016). This then implies that signaling also comes at some cost: Leaders have to live up to the values that they communicate, and if not, they will lose their credibility (Antonakis et al., 2016).

With regard to the symbolic aspect of leader charisma, Conger and Kanungo (1987) already acknowledged that leaders may actively use physical cues, such as appearance and body language, to transmit their vision and motivation. In addition, Antonakis and colleagues (2011) showed that non-verbal tactics like using body gestures, facial expressions, and an animated voice tone inform charisma. However, the field generally lacks a theoretical fundament to make sense of and understand these bodily and nonverbal signaling effects (for an exception, see Lord & Shondrick, 2011). This is surprising given that cognitive and social psychology provide not only ample evidence of such effects, but also a coherent research perspective for understanding them in the form of grounded cognition or embodiment theory (Barsalou, 1999; Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005). Consequently, the current review aims to provide a new perspective on charisma as signaling (Antonakis et al., 2016) by applying an embodiment perspective and reviewing the corresponding literature. In the following, we will introduce this perspective by outlining its basic premises. Then, we will review the findings from that literature to show how leadership research can achieve a deeper understanding of charisma's symbolic signaling effects.

We should note that, when referring to the cognitive process through which followers ascribe charisma to a leader, we follow Jacquart and Antonakis' (2015) use of the term "inferences" rather than Conger and Kanungo's (1987) use of the term "attribution". Whereas

Jones and Davis' (1965) theory of correspondent inferences is actually one type of attribution theory (Fiske & Taylor, 2013), our decision to use the term "inferences" is rooted in research that differentiates between inferences and attributions in how we judge others and interpret their behaviors (Erickson & Krull, 1999). Correspondent inferences refer to what a behavior/person is like (e.g., charismatic) whereas causal attributions refer to the cause of a particular behavior (Erickson & Krull, 1999). Moreover, individuals can draw inferences spontaneously without much cognitive effort. In contrast, causal attributions involve a multistage cognitive process (cf. Calder, 1977) and are thus more cognitively taxing (Martinko, Harvey, & Douglas, 2007) and less spontaneous (Erickson & Krull, 1999). Correspondingly, Lord and colleagues (Cronshaw & Lord, 1987; Lord & Maher, 1990) critiqued that this process is too effortful to be used for every judgment an individual makes. Indeed, Smith and Miller (1983) found that fast trait judgments could not be mediated by attributional reasoning (which was rather slow). Given that embodied cues are often processed automatically, and that most of the research we review addresses these as inferences, we use that term to describe how individuals infer leader charisma from embodied signals.

An Embodiment Perspective on Charisma

Recent developments in cognitive science have galvanized the idea of grounded cognition, sometimes referred to as embodiment theory (Barsalou, 2008). In contrast to previous theories of cognition (e.g., Fodor, 1987), this perspective argues that the brain's semantic memory system (i.e., knowledge, language) is connected to modal systems of perception (e.g., vision), action (e.g., movement), and introspection (e.g., affect) (Johnson & Rohrer, 2007). In other words, grounded cognition assumes that knowledge is stored modally rather than amodally. According to Barsalou (2008), amodal systems refer to "knowledge about experience in semantic

memories" (p. 618), whereas a modal system assumes that knowledge is also stored in the brain's systems "for perception (e.g., vision, audition), action (e.g., movement, proprioception), and introspection (e.g., mental states, affect)" (p. 618). An embodiment perspective aligns with this latter position, arguing that human cognition is grounded in the physical context of a person's body and the environment (Schubert & Koole, 2009). Hence, the acts of thinking about abstract concepts and processing social information closely interact with the physical experiences that ground the cognitive representations of concepts. Thereby, physical states become mentally associated with cognitive concepts. When one of the two is present—for instance, when a certain physical cue is seen or perceived—the other one (the cognitive concept) is likewise activated through bodily feedback (Schubert & Koole, 2009). An example is the connection between the physical experience of bodily contact and the cognitive concept of communal relationships, which both focus on commonalities (Schubert, Waldzus, & Seibt, 2008). Correspondingly, studies have shown that waitresses receive higher tips when they briefly touch customers on their hand or the shoulder (Crusco & Wetzel, 1984; Stephen & Zweigenhaft, 1986) because bodily contact signals connectedness (Schubert et al., 2008).

Such an understanding of cognition has important implications. First, it argues that bodily states or experiences can activate cognitive concepts. For example, the bodily experience of weight has an impact on how people attach importance or worth to something (Jostmann, Lakens, & Schubert, 2009). Second, thinking also involves a reenactment of the bodily states tied to the acquisition of knowledge. For example, if one is thinking of something frightening, the body tends to cringe; if one is thinking about a relaxing experience, the body relaxes as well.

Notably, though, this perspective does not assume that all cognitive processes have to be grounded in bodily states. Rather, cognition can be grounded in other ways such as situations and

reenactments. Importantly, this allowance suggests that situational cues, which are not directly tied to our bodily states, can also stimulate a cognitive process. Research in that tradition has, for instance, shown that people develop general associations between broader physical dimensions (e.g., spatial dimensions) and abstract concepts (e.g., time): The past is represented as behind one's body, whereas the future is associated with ahead of one's body, and the present is located within the space near and around one's body (Kranjec & McDonough, 2011). These associations generalize to other cues from the same dimension, so that the mental concept is activated when cues from that dimension are perceived.

Of course, the grounded cognition perspective is not a novel notion; it can be traced back to ancient philosophy. However, the concept garnered considerable scientific interest starting in the late 20th century, and has since found empirical support. Linguistics has been a forerunner in this regard, arguing that abstract concepts are grounded in metaphors based on embodied and situated knowledge (Lakoff & Johnson, 1980, 1999). In metaphors, concrete dimensions of embodied experience serve as structures to think about more abstract concepts. This link is then automated and influences cognition when certain physical cues are present. An example is the aforementioned connection between weight (concrete physical dimension) and importance (abstract concept): People 'weigh' different arguments, for instance, in order to evaluate their relative importance. Thanks to the development of these and similar ideas in cognitive science, there is now ample empirical support for the embodied or grounded cognition perspective (Barsalou, 2008; Glenberg, 1997; Niedenthal et al., 2005).

Such developments have not gone unnoticed in leadership research (recent examples include: Giessner & Schubert, 2007; Olivola, Eubanks, & Lovelace, 2014; Trichas & Schyns, 2012). Indeed, Lord and Shondrick (2011) explicitly list the embodiment approach as a new

perspective in their conceptual review of leadership research. In fact, they already speculated that an embodiment perspective may help explain "why charismatic leaders are able to inspire trust in and commitment to their vision" (p. 217).

Thus, we are not the first to note the influence of nonverbal cues in the domain of leadership (Bryman, 1992; Hall et al., 2005; Hamstra, 2014; Little, 2014; Todorov, Mandisodza, Goren, & Hall, 2005), nor the first to try to systemize the respective cues (Awamleh & Gardner, 1999; Carney, Hall, & LeBeau, 2005; Schubert & Giessner, 2008); however, previous efforts were solely focused on the person and did not account for environmental factors. More generally, all of them lacked a unifying theoretical lens, such as embodiment. In response, we offer such a theoretical lens of charisma that accounts for both the person and environmental factors.

Embodied Signals of Charisma

In the following sections, we review the concrete modal cues that leaders can actively or passively use in order to signal charisma. These signals may stem from both the leader's body and the environment, and followers may infer charisma from these signals. An overview of these cues can be found in Table 1[1].

Notably, these embodiment studies have not linked bodily cues to a measurement of charisma per se, but rather to a variety of person characteristics (i.e., inferences that followers may draw about a leader): for instance, power (Judge & Cable, 2004), dominance (Van Quaquebeke & Giessner, 2010), competence (Zebrowitz & Montepare, 2005), success (Todorov

[1] The studies on embodied cues that we review stem from a literature research using scientific databases and search engines, such as ISI Web of Knowledge, Google Scholar, or PsychArticles. The list of studies that we present in this review is not exhaustive, but provides illustrative examples. We selected these studies because they refer to clear bodily cues as part of their investigation and examined outcomes relevant for person perception/social judgment. The list also includes some recent failed replication studies.

et al., 2005), attraction (Fawcett & Markson, 2010), trustworthiness (Zebrowitz, Voinescu, & Collins, 1996), valence (Frank & Gilovich, 1988), or morality (Zhong & Liljenquist, 2006). In order to structure the multitude of findings for these signals, we group them along four broader categories: power, competence, warmth, and morality. *Competence* and *warmth* are the classic dimensions of social judgment. This research stream is concerned with the basic dimensions of human perception, that is, the broader categories that people have available to evaluate others (Cuddy, Fiske, & Glick, 2008; Fiske, Cuddy, & Glick, 2007). Researchers have introduced *morality* as a third dimension of social judgment (Leach, Ellemers, & Barreto, 2007). We added *power* as a fourth dimension because it is an important characteristic, particularly, in an organizational context. In the process of reviewing the embodiment literature, we found these four dimensions to be useful categories for building a comprehensive review. Having said that, it is important to note that the four categories do not collectively form leader charisma; they are purely intended to structure the review. Yet, the objective embodied cues we discuss may form additional bases upon which perceivers infer charisma. Hence, we argue that, to the degree that there is value alignment between leaders and their followers, all the bodily cues we review may serve as embodied signals of charisma and ultimately result in a charismatic effect.

Power

Power is "having the discretion and means to asymmetrically enforce one's will over entities" (Sturm & Antonakis, 2015, p. 139). In the sections that follow, we detail findings on the relationship between different embodied cues and power inferences.

General Physical Appearance

The concept of power is predominantly rooted in the vertical dimension of space (Giessner, Ryan, Schubert, & Van Quaquebeke, 2011; Schubert, Waldzus, & Seibt, 2011). A

meta-analysis by Judge and Cable (2004), for instance, showed that physical height is related to various success factors in organizational settings, such as social esteem, performance, income, and leader emergence – all of which could arguably be proxies of power. Along similar lines, Gawley, Perks, and Curtis (2009) found in a sample of Canadian workers that physical height positively correlated with holding a position of authority. In the effort to become a leader, physical height seems to be an advantage (Judge & Cable, 2004; Stogdill, 1948; Stulp, Buunk, Verhulst, & Pollet, 2013). Research in other areas suggests that height is related to inferences of dominance: Referees, for example, seem to be more likely to blame taller soccer players for ambiguous fouls than smaller players, suggesting that the taller player is perceived to be the dominant one (Van Quaquebeke & Giessner, 2010). Furthermore, referees tend to be taller than their assistants and taller referees seem to have more authority in controlling a soccer game (Stulp, Buunk, Verhulst, & Pollet, 2012). Meanwhile, shifts in power are often mentally represented as changes in estimated height (Holbrook & Fessler, 2013). Following Canada's 1988 federal election, for instance, people judged the election winner as taller after the election, but judged the losers as shorter than before the election (Higham & Carment, 1992).

According to an embodied perspective, height is just one potential cue deriving from a more abstracted and embodied dimension of vertical space (Giessner & Schubert, 2007). Consequently, the effect of height-related cues can also extend to the environment, with recent research showing that even subtle cues can have similar effects. For example, previous anecdotes suggest that television and print media actively use camera angles to characterize people as strong versus weak (Mandell & Shaw, 1973; Tiemens, 1970). In this vein, Giessner, Ryan, Schubert, and Van Quaquebeke (2011), analyzed archival data and conducted experiments in order to show that more powerful persons are often portrayed from below (so that one has to

look up to them), whereas less powerful persons are often portrayed from above (which is associated with looking down at them). This was particularly the case when the context of the picture referred to power, as in *Time* magazine's list of the 100 most influential people (Giessner et al., 2011). Such vertical angles in pictures seem to influence people's judgments of another's height and, by extension, their behavior towards others (Thomas & Pemstein, 2015). Given that physical height is such a strong predictor of power, leaders actively use and manipulate their perceived height to appear more powerful, especially in the political arena (Verser & Wicks, 2006). Case in point: Journalists repeatedly noted that the former French president Sarkozy wore shoes with high heels (Allen, 2009), made his taller wife wear long skirts so she could discreetly lower herself for official pictures, did not hire tall bodyguards, and surrounded himself with particularly small workers during a factory visit to a French automotive component supplier (Allen, 2009).

One explanation for the relationship between power and verticality (physical height, looking up to somebody) comes from the evolutionary perspective. During human evolution, height was an indicator of strength and, thus, an advantage that led to power. By the same token, as a recent article in *The Economist* points out, greater height in China also reflects greater income because richer people in the past had better living conditions (The Economist, 2014). Through such mechanisms, height can thus become a proxy for power. The height-power relationship also aligns with evolutionary leadership theory (King, Johnson, & Van Vugt, 2009; Van Vugt, 2006; Van Vugt, Hogan, & Kaiser, 2008), which claims that leadership emerges as a function of evolutionary demands. Alternatively, one could argue that this relationship is an outgrowth of childhood experiences: When humans are young and comparatively small, they literally look up to their parents who hold authority (power) over them (Schubert, 2005). Adult

humans then translate this groundwork into the various metaphors and cues that society uses to emphasize the connection between verticality and power: Monarchs are addressed as 'your highness', high-ranking officials typically have their offices at the top of the building, and winning athletes stand on the highest step of the podium (Schubert, 2005). Taken together, these findings suggest that the concept of power, when mentally activated by verticality and its symbols, shifts spatial attention in an early stage of information processing (Zanolie et al., 2012). These embodied signals can be part of the leader's physicality or the environment.

Face

One illustrative example of the relationship between facial signals and power can be found in numerous newspaper articles describing the prominent photo of U.S. President Barack Obama and his national security team watching the capture of Osama bin Laden in 2011. In the photo, Secretary of State Hillary Clinton can be seen covering her mouth—a striking gesture in contrast to other people in the room, who are largely either somber or curious (e.g., Blake, 2011). Although many people interpreted this gesture in combination with her facial expression as a sign of shock and anxiety, Hillary Clinton herself was quick to claim that she was trying to avoid coughing due to an allergy (for exemplary media coverage see Hudson, 2012). Regardless of whether this was true or not, the media coverage and subsequent downplaying effort suggest a concern for what the gesture communicated in terms of her power.

Evidence exists that facial cues are a strong factor in the perception of power (Aguinis, Simonsen, & Pierce, 1998; Trichas & Schyns, 2012). For example, Rule and Ambady (2008) let participants rate the photos of CEOs from the 25 highest- and 25 lowest-ranked Fortune 500 companies in 2006, finding a positive and significant relationship between judged power of the CEO and company profits (controlling for attractiveness, affective expression, and age). One

power cue that surfaced in that research was how much of a person's face is visible to an observer in relation to the rest of the body—a phenomenon called face-ism or facial prominence (Archer, Iritani, Kimes, & Barrios, 1983; Schwartz & Kurz, 1989; Zuckerman, 1986). On a photograph, for example, an observer would perceive a person as more powerful if the picture features a larger proportion of the face relative to the body. Similar to the use of camera angles, one can find ample evidence of this phenomenon in the media. One example would be cartoons of former U.S. President George W. Bush, which depicted more of his body and less of his face after he had started wars, a situation where he was perceived as less powerful (Calogero & Mullen, 2008). Similarly, because men are often assumed to be more powerful than women, research on sex differences finds that across different contexts (e.g., artwork, periodicals, drawings), pictures of men more often display more of their face and less of their body compared to women (Archer et al., 1983).

In addition to angles and proportions, facial expressions also play an important role in power inferences. For instance, people with lowered eyebrows are perceived as more dominant than people with raised eyebrows (Keating, Mazur, & Segall, 1977), whereas a relaxed-looking face is perceived as more powerful than a nervous-looking face (Aguinis et al., 1998). Meanwhile, people expressing anger are perceived as more powerful (Tiedens, 2001) due to the intimidating effect of an angry face (Clark, Pataki, & Carver, 1996). At the same time, people expressing sadness are perceived as weak and, thus, less powerful (Tiedens, 2001).

One explanation for the anger versus sadness effect is that the facial features of an angry face include more vertical lines (Aronoff, 2006) and verticality signals power (Schubert, 2005). Indeed, observers tend to interpret angular and diagonal configurations in a person's face as more threatening compared to curvilinear (round) patterns (Aronoff, Barclay, & Stevenson,

1988; Aronoff, Woike, & Hyman, 1992). Additionally, increasing the perceived height of a face increases perceived dominance (Re, DeBruine, Jones, & Perrett, 2013). Yet, how people evaluate certain facial features seems to be context-dependent (Re et al., 2013; Rule & Tskhay, 2014). A high facial width-to-height ratio (fWHR) usually signals aggressiveness; indeed, people with a high fWHR are perceived rather negatively (Hehman, Leitner, Deegan, & Gaertner, 2015).

Another facial indicator of power is visual dominance: How much people look at their interaction partner while they speak versus while their interaction partner is speaking. When exercising power in speech, people tend to look more at the other person when they speak compared to when the other person is speaking. But when exercising less power in a conversation, people do the opposite: They look more at their interaction partner while they listen compared to when they speak (Dovidio et al., 1988; Dovidio & Ellyson, 1982). This effect is potentially due to a threatened sense of personal space – a grounded bodily experience (Kleinke, 1986). Interestingly, case examples of charismatic leaders often refer to the intensity of the leader's eyes (Bryman, 1992).

Body Posture

The same geometrical patterns that convey emotions in faces can be found for body movements (Aronoff et al., 1992). In videos of ballet performances, Aronoff and colleagues (1992) found that dancers representing a threatening character used more diagonal poses and angular movements, whereas dancers representing a warm character used more round poses, arm displays and movements. Studies on body posture have produced similar findings: Less interpersonal distance (Dean, Willis, & Hewitt, 1975) and an open body posture are related to higher perceived power compared to a closed posture (Schubert et al., 2011).

Body posture also influences the development of social hierarchies. To illustrate this point, Tiedens and Fragale (2003) conducted an experiment in which participants sat opposite from a confederate sitting in either an expanded or a constricted pose. Participants tended to show a complementary posture, sitting in a constricted pose when the confederate sat in an expanded pose (and vice versa). Applied to a leader-follower situation, this implies that when a leader's posture is expanded, followers tend to adopt a more constrictive posture in return. Consequently, the leader will feel more powerful whereas followers will feel less powerful (Ranehill et al., 2015).

Voice

Vocal cues are another indicator that work alongside physical appearance to influence the perception of power (Hall et al., 2005; Klofstad, Anderson, & Nowicki, 2015). People tend to speak louder when they are either assertive, angry, or confident in their answers (for example, to trivia questions) (Kimble & Musgrove, 1988; Kimble & Seidel, 1991). Given that these emotions are related to dominant types of behaviors (Kimble & Musgrove, 1988), the power concept seems to be embodied in loudness. Moreover, amplitude and speech rate are also positively related to the perceived dominance of the speaker as they relate to similar, power-oriented emotional experiences (Harrigan, Gramata, Lucic, & Margolis, 1989), such as more frequently interrupting a conversation partner (Bilous & Krauss, 1988).

Likewise, people with a low-pitch voice are generally rated as stronger (Klofstad et al., 2015) and experiments show that people who believed themselves to be physically dominant (vs. less dominant) lowered (vs. raised) their voice pitch when speaking to a competitor (Puts, Gaulin, & Verdolini, 2006). These findings are just a snapshot of the many studies that show how vocal cues relate to power (cf. meta-analysis by Hall et al., 2005). Thus, power inferences

are based on signals that generally involve how the person appears (height, posture, facial expression) and what s/he sounds like.

Structural Environment

Through a series of laboratory studies, Schubert (2005) showed that environmental cues also activate our cognitive system. In one study, participants were presented with group labels referring to power (e.g., master, servant) on different vertical screen positions (i.e., upper part versus lower part of the screen), their task being to judge which groups were powerful versus powerless. Groups were identified more quickly when their vertical position (up vs. down) matched their power (high vs. low). In accordance with vertical position, powerful is associated with 'up' movements whereas powerless is associated with 'down' movements (Schubert, 2005).

Building on those findings, Giessner and Schubert (2007) showed that environmental information about vertical distance influences power inferences. To this end, they manipulated an organizational chart, which typically portrays hierarchical levels and lines of command in an organization. In one study, they varied the length of a vertical line connecting two levels in the hierarchy, finding that a longer line between leader and subordinate altered the perception of the leader's power. Notably, this effect did not occur if the horizontal line was expanded. In addition, participants placed the leader higher (lower) in the chart when they thought the leader was more (vs. less) powerful.

Yet the relationship between power and verticality also depends on the context and whether power differences are salient. Powerful groups are positioned higher in vertical space in the presence of powerless groups, but not in their absence (Giessner et al., 2011; Lakens, Semin, & Foroni, 2011). In other words, it seems the context must render power differences relevant before leaders can actively position themselves along the vertical dimension.

One way that organizations tend to contextualize verticality and size, and thus support impressions of power, is through certain symbols that signal prestige (e.g., large desks). To make this point apparent, Chen, Lee-Chai, and Bargh (2001) conducted an experiment in a professor's office and asked participants to sit either on the large professor chair behind the desk (signaling the idea of more power) or on a simple visitors chair across the desk (signaling the idea of less power). Participants in the professor's chair showed stronger activation of the cognitive concept of power than participants in the guest chair, suggesting that symbols of power relating to vertical size (in this case, higher vs. lower in the institutional hierarchy) activate power perceptions (Chen et al., 2001).

Taken together, inferences of power are embodied in several physical dimensions like verticality (height, facial features, vertical distance), posture, and vocal characteristics, but how do these signals (i.e., the bodily cues that were reviewed) relate to leader charisma? According to Antonakis and colleagues (2016), charisma is leader signaling, so followers need to first recognize the charismatic leader as a leader. The vertical dimension in space offers various possible signals that leaders can utilize in order to be perceived as a leader (i.e., the sender), whether that be via manipulating their perceived height or vertical distance from followers, or through the use of metaphors.

Competence

Competence is considered a core dimension of impression formation (Fiske et al., 2007), encompassing traits such as intelligence, knowledge, and creativity (Cuddy et al., 2008; Wojciszke, Bazinska, & Jaworski, 1998). Yet, despite the assumed complexity involved in an adequate judgment, people often make inferences on competence in a fraction of a second (Tskhay, Xu, & Rule, 2014; Willis & Todorov, 2006), using nonverbal cues to derive their

appraisal of others (Schubert et al., 2011). In the sections below, we review those cues that 'radiate' competence.

General Physical Appearance

Physical appearance plays a key role in competence inferences. For example, Todorov and colleagues (2005), asking participants to rate pairs of candidates for the U.S. Senate and House elections (years 2000-2004), found that perceived competence inferred from candidate photographs significantly predicted success in the election. According to Antonakis and Dalgas (2009), this ability to judge competence from facial appearance seems to be common to both children and adults. In their study, which compared how Swiss university students and Swiss children (aged 5-13) rated pairs of candidates from the 2002 French parliamentary run-off ballots, they found that both groups predicted the winning candidate in the same way. Their findings suggest that, in a political election at least, people base their judgments of competence on rudimentary heuristics—for instance, facial stereotypes (Ramsey, Langlois, Hoss, Rubenstein, & Griffin, 2004)—that already exist in childhood (Cogsdill, Todorov, Spelke, & Banaji, 2014; Sussman, Petkova, & Todorov, 2013).

These findings raise the question: What does a 'competent' physical appearance look like? Apparently, people are perceived as less competent when their face more closely resembles a baby face (Poutvaara, Jordahl, & Bergren, 2009; Zebrowitz & Montepare, 2005). A baby face (vs. a mature face) is typically more round and features large eyes, high eyebrows, a small nose, a high forehead, and a small chin (Berry & Zebrowitz McArthur, 1985; Zebrowitz & Montepare, 2005). Additionally, and congruent with the power cue, a larger face-to-body ratio in a picture inspires more perceived competence in the viewer (Schwartz & Kurz, 1989).

Moreover, a person's whole physical appearance and the way that person presents him-/herself in interactions with others influences perceptions of said person's competence. To illustrate this point, Tskhay and colleagues (2014) let participants rate short videos of orchestra conductors and encouraged them to concentrate on their first impression of the conductor. They found a significant relationship between perceived expressiveness of the conductor and the conductor's perceived level of success (i.e., competence). In addition, the perceived age of the conductor predicted participants' ratings of the conductor's success. Similarly, Barrett and Barrington's (2005) experiment, which involved manipulating a newspaper article, varied how favorable a political candidate looked in an article photo. In the favorable condition, he was smiling, shaking hands with a supporter, and accompanied by his attractive wife. In the unfavorable condition, the candidate looked annoyed while being interviewed by reporters around him. Participants rated the candidate as more competent in the favorable than in the unfavorable condition. Thus, body gestures convey certain emotional signals that will be interfered as competent or non-competent. Likewise, Murphy, Hall, and Colvin (2003) showed participants short social interactions between two persons and asked them to rate the pair's intelligence. Perceived intelligence ratings significantly correlated with the person's actual intelligence as measured prior. Here, perceived intelligence was significantly and positively related to longer eye-gaze, upright posture, and eye contact.

The literature also points to some overlap between embodied cues related to competence and those related to power. Faces, for instance, seem to be particularly strong cues for both power and competence. There also seems to be a connection between verticality and competence. When we 'hold someone in high regard', we usually consider this person as competent, whereas 'looking down on somebody' implies the opposite. Likewise, those at the

top of any ratings (e.g., companies, universities, sports teams) are those who perform exceptionally well and are thus considered more competent than those at lower positions in the ranking. However, to the best of our knowledge, this connection has not been empirically tested.

Meanwhile, the color red seems to bear some relationship to both power and competence: Red-haired women are perceived as more competent (Takeda, Helms, & Romanova, 2006), while men wearing red clothes (compared to blue or grey) are perceived as more dominant (Feltman & Elliot, 2011; Wiedemann, Burt, Hill, & Barton, 2015). Likewise, sports teams wearing red shirts are more likely to win than teams wearing other colors (Attrill, Gresty, Hill, & Barton, 2008; Feltman & Elliot, 2011). This association might come from the fact that angry faces often turn red. Although research exists regarding the effects of colors on emotions (Valdez & Mehrabian, 1994), more empirical testing is needed in the context of leadership that ties color effects to the embodied signaling of power and competence (cf. Amhorst & Reed, 1986).

In sum, there is evidence that embodied physical cues influence inferences of competence. It is important to note that followers infer competence via signals not only in distant relationships—for instance, when they rate political candidates with whom they do not verbally communicate—but also in closer ones where they, theoretically, have more sources of information than nonverbal signals (Tskhay et al., 2014). In terms of leader signaling, this implies that the impression leaders convey via nonverbal signals of competence – when aligned with the leader's values - is crucial for their reputation. These non-verbal signals encompass leaders' body language (e.g., expressiveness; Tskhay et al., 2014), their facial expression (Barrett & Barrington, 2005; Murphy et al., 2003), their posture, and color signals (e.g., through clothing).

Warmth

Warmth—defined as a trait that comprises kindness, friendliness, helpfulness, generosity, and trustworthiness—is central in how people perceive others (Asch, 1946; Cuddy et al., 2008; Fiske et al., 2007; Wojciszke et al., 1998). In first impressions, people infer warmth faster than any other trait (Willis & Todorov, 2006). Judging another person's warmth within a fraction of a second also reflects evolutionary demands, because people had to immediately determine whether another person is a friend or a foe and has good or bad intentions (Fiske et al., 2007).

General Physical Appearance

Similarity breeds interpersonal warmth. Whereas the similarity-attraction hypothesis often focuses on similarities in attitudes (Byrne, 1961), it also pertains to more physical attributes (Fawcett & Markson, 2010). Similarity has been shown to induce feelings of intimacy (Reis & Shaver, 1988) and psychological closeness (Aron, Aron, Tudor, & Nelson, 1991). As closeness is related to feelings of increased physical temperature (Lakoff & Johnson, 1999), similarity should be grounded in warmth. Indeed, a study by Ijzerman and Semin (2010) showed how similarity leads to the experience of increased room temperature. In addition, mimicry and synchrony are both related to affiliation (Hove & Risen, 2009), such that when people strive to create rapport with another person, they unconsciously mimic this person's gestures (e.g., face touch) (Lakin & Chartrand, 2003). This preference for physically similar others seems to be innate (Fawcett & Markson, 2010): Three-year-old children, for instance, choose to play with a similar rather than a dissimilar puppet, and this preference is stronger for stable dimensions (hair color) than for unstable dimensions (shirt color) (Fawcett & Markson, 2010).

Facial cues also affect inferences of warmth. For one, more symmetrical faces are perceived as more attractive and trustworthy (Jones et al., 2004; Zebrowitz et al., 1996).

Furthermore, people with a baby face, although scoring lower on competence ratings (Zebrowitz & Montepare, 2005), are perceived as warmer and kinder compared to people with more mature faces (Berry & Zebrowitz McArthur, 1985). Moreover, the expression of anger correlates negatively with trustworthiness (Richell et al., 2005); the same holds for a neutral face, whereas a smiling face increases trustworthiness (Krumhuber et al., 2007).

Structural Environment

Metaphors describing interpersonal relations such as 'holding warm feelings toward someone' or 'giving someone the cold shoulder' suggest that the abstract concept of interpersonal warmth is grounded in temperature perceptions (Ijzerman & Semin, 2009, 2010). Perceived physical warmth (as compared to coldness) does indeed lead to greater perceived social proximity and a stronger focus on relations (Ijzerman & Semin, 2009). People who experience physical warmth perceive others as warmer and friendlier, as well as show more prosocial behavior (Williams & Bargh, 2008). For instance, participants in an experiment who held a hot (vs. cold) therapeutic pad were more likely to choose a reward that was framed as a gift for a friend than a reward for themselves (Williams & Bargh, 2008).

Physical warmth also affects social comparison outcomes because it leads to a greater similarity focus and fosters assimilation with a comparison person (Steinmetz & Mussweiler, 2011). On a warm (vs. cold) day, participants in experiments rated objects as more similar, as well as rated their physical strength as more similar to a comparison person (Steinmetz & Mussweiler, 2011). In a leadership context, a warm (versus cold) physical context might incline followers to perceive themselves as more similar to their leaders. This is relevant because leaders derive part of their charisma from how well followers identify with them (Bryman, 1992)—a sentiment that largely rests on the experience of sameness (Hogg & van Knippenberg, 2003).

Experiences of physical coldness have the opposite effect and lead to feeling socially excluded (Zhong & Leonardelli, 2008). To illustrate, people estimate a room's temperature as lower after thinking about a situation of social exclusion; at the same time, being socially excluded leads people to prefer warm food and drinks (Zhong & Leonardelli, 2008).

As with other dimensions, the relationship between physical and interpersonal warmth has roots in people's early life experiences. Children experience physical as well as interpersonal warmth when their mothers hold them affectionately, thereby forming an association between the two sensations (Lakoff & Johnson, 1999). This also holds true for facial cues that affect warmth as well as competence perception. Probably unconsciously, a round face (baby face) reminds one of a baby that is cute, nice, and likeable, all of which activate the concept of warmth. By contrast, the more vertical lines in mature faces relate to experience and thus higher competence.

In sum, the physical dimensions of similarity and temperature seem to be related to the perception of interpersonal warmth. Charismatic perceptions of leaders might thus be elicited by such signals when the leader uses them in alignment with his/her values. For instance, leaders who emphasize communal values might want to underline their message with the respective embodied signals. That is, they might want to establish some form of similarity, whether through their clothes or their gestures, and also try to act in a warm rather than cold environment. Further, facial cues like a round face also seem to convey interpersonal warmth and, thus, may represent a relevant signal for leaders, although they are harder to actively manipulate.

Morality

Morality is defined as an abstract concept describing behavior or beliefs that people view as right versus wrong (Lakoff & Johnson, 1999). It comprises traits such as fairness, honesty, sincerity, and tolerance (Wojciszke et al., 1998) and is a major guiding value for people across

cultures (Schwartz, 1992). Leach and colleagues (2007) have shown that morality contributes to the positive evaluation of a person or a group. In the following, we review empirical findings for the relationship between physical cues and perceived morality.

General Physical Appearance

In terms of physical appearance, brightness and color—in other words, associations that accompany white versus black and light versus dark—shape our perceptions of someone as moral or immoral. Some prominent examples exist where the color white is used to demonstrate morality. The People's Action Party (PAP) in Singapore is also known as 'Men in White', because they wear white uniforms as a sign of being corruption-free (The Economist, 2006). Similarly, the party of Recep Erdoğan (12th president of Turkey) is called AKP—or AK Parti, and AK in Turkish means "white" or "clean" (The Economist, 2002). Significant religious figures, such as the pope, wear white in public. In metaphors and images, God is usually associated with light, often depicted as wearing white, whereas the devil is usually associated with darkness, often depicted as red or black (Meier, Robinson, & Clore, 2004). Moreover, the white wedding gown is a tradition rooted in purity notions. Research has shown that white/light/brightness is indeed related to 'being good', whereas darkness has negative connotations (bad, evil, immoral) (Frank & Gilovich, 1988; Meier et al., 2004; Stabler & Johnson, 1972). For example, Stabler and Johnson (1972) ran an experiment in which children heard positive versus negative self-statements and were then asked to indicate whether these statements were emitted from a white or a black box (loudspeaker) located next to them. The children more often associated positive self-statements with the white box and negative self-statements with the black box. In the domain of sports, research finds that when professional football and hockey players are rated, those players wearing a white uniform score lower on

malevolence than those in a black uniform (Frank & Gilovich, 1988; Webster, Urland, & Correll, 2012). Interestingly, black (vs. white) uniforms seem to elicit more aggressive behaviors (Webster et al., 2012), which seems to relate more to dominance and power. On a more abstract level, people categorize words faster when font color (white vs. black) matches word valence (positive vs. negative) (Meier et al., 2004).

Another cue related to morality is cleanliness, which derives from purity. The words 'clean' and 'pure' can be used to describe both a physical and moral state (Zhong & Liljenquist, 2006). We speak, for example, of 'a clean record', 'washing away our sins', or of immoral behavior that is described as disgusting. People can experience cleanliness and disgust after both physical experiences (e.g., feeling clean after taking a shower, feeling disgust when seeing rotten food) and moral experiences (e.g., having a clean conscience after saying the truth, feeling disgusted by cruel behavior). Across two experiments, Schnall, Benton, and Harvey (2008) found that mentally activating the concept of cleanliness or cleaning oneself after the experience of disgust reduces the severity of moral judgments. Meanwhile, participants in an experiment by Cramwinckel, De Cremer, and van Dijke (2013) felt dirtier after allocating (vs. not allocating) a financial bonus to a subordinate who showed unethical behavior. In a subsequent study, they manipulated dirtiness and let participants touch either a piece of fake fecal matter (dirtiness) or a hygienic cleansing wipe (cleanliness). Afterwards, they asked them to evaluate and assign a bonus to a subordinate who performed well on a task because he cheated. Participants in the dirtiness condition evaluated the subordinate's performance more positively and assigned a higher bonus than in the cleanliness condition, but only when the subordinate's immoral behavior did not serve their own interest (in other words, they gave a lower bonus when the behavior did serve their own interest). This finding suggests that self-interest is a boundary

condition for the effect exerted by embodied physical cues on moral behavior (Cramwinckel et al., 2013). Hence, we can contend that the physical concept of cleanliness is embodied in moral judgments (Cramwinckel et al., 2013; Schnall, Haidt, Clore, & Jordan, 2008).

Structural Environment

The vertical dimension of space not only plays an important role in people's judgments of power, but also serves as an indicator for morality. Metaphors with a moral connotation often refer to vertical position: We speak, for instance, of someone who is 'high minded' (moral) versus someone who is 'underhanded' (immoral). To substantiate this idea, Meier, Selbom, and Wygant (2007) conducted a word evaluation task, finding that participants evaluated positive (negative) words faster when they appeared at the top (bottom) of a screen, which is consistent with the connotation of 'up' as 'good' and 'down' as 'bad' (Meier & Robinson, 2004). This association is especially prevalent in metaphors referring to the divine (e.g., 'ascending to heaven', 'going down to hell'). On this point, Meier, Hauser, Robinson, Friesen, and Schjeldahl (2007) conducted six experiments with different dependent measures (implicit associations, encoding tendencies, memory, and social judgment), showing that divinity is mentally represented on the upper side of the vertical dimension. We see this reflected in how actual religious leaders present themselves: The pope usually speaks to an audience from an elevated position, just as many priests speak to the parish community from a pulpit. In both cases, people have to look up to them, which makes them appear not only more powerful, but seemingly closer to God and, by extension, more divine. This association between verticality and divinity is neatly captured by the Biblical story of the Tower of Babel, which theologians interpret as humanity's attempt to reach the level of godhood ("Tower of Babel," 2015).

In sum, embodied signals of purity (color, cleanliness) and verticality (up vs. down) lead to inferences of morality. Because charisma as signaling is value-based (Antonakis et al., 2016), and moral values are considered important for most people (Allison, Messick, & Goethals, 1989), it seems reasonable that leaders need to align the moral values they communicate verbally or through their actions with congruent embodied signals of purity and verticality. Such signals may come in the form of clothes (as in the aforementioned examples of political parties in Turkey and Singapore) or in the way leaders position themselves relative to followers (e.g., they could adopt an elevated position).

--- Insert Table 1 about here ---

Synthesis and Research Agenda

Leader charisma is a phenomenon that often carries almost mystical connotations (Antonakis et al., 2016). We sought to unravel such "mysticism" by reviewing the findings from embodiment research on physical cues (e.g., leader physical height, room temperature, facial features) and highlighting how such cues can add to the charismatic effect. In the following, we will first discuss the theoretical implications of such an embodiment perspective for research on leader charisma. Next, we draw from theories of information processing to elaborate on how followers make sense of embodied signals. In particular, we discuss how multiple (and potentially contradictory) signals are processed, and how followers' first impressions of the leader shape their later interactions. We then discuss the universality of some of the reviewed embodied signals and follow with practical implications for leaders and practitioners.

Implications for Research on Charisma and Charismatic Leadership

Our review on embodied signals of charisma contrasts with many previous approaches, which have mainly focused on leader behavior or leader-follower interactions (Bass & Avolio,

1993; Bass, 1985; Bono & Ilies, 2006; House, 1977; Howell & Frost, 1989; Shamir et al., 1993). Instead, we built on the most recent conceptualization of charisma by Antonakis and colleagues (2016), who refer to charisma as leader signaling that is based on values, symbols, and emotions. The embodiment perspective specifically explains the symbolic signals of charisma beyond those linked to rhetorical display (e.g., the use of metaphors). In contrast to approaches that rely on such explicit leader behavior, an embodiment perspective also accounts for seemingly unrelated signals that are grounded in humans' bodily experiences. As a result, it can help explain why followers often unconsciously and automatically categorize a leader as charismatic.

To further elucidate the "magic aura" of charisma, the embodiment perspective also illustrates why and when environmental cues may supplement those inherent to the leader persona to build the charismatic effect. As such, our approach is also congruent with recent theorizing that characteristics of the physical work environment (e.g., illumination, temperature, cleanliness, and distance) can influence organizational outcomes (Zhong & House, 2012). However, a question arises in this distinction between signals that flow directly from the leader and signals that flow from the environment: namely, whether environmental signals are actually "honest" signals, or should rather be termed "pseudo-charismatic" signals because the possibility to manipulate them suggests that they might be "dishonest" or non-natural. In this respect, we think it is important to note that even if such signals are actively manipulated, they are still signals of charisma based on the charisma definition (Antonakis et al., 2016). Thus, one should be careful with terms like "pseudo-charismatic signals" and rather refer to the respective signals using terms like orchestrated (vs. natural), or simply mention that they are actively manipulated (vs. not manipulated). Certainly, the possibility that such effects exist extends our future research perspective on studying charisma: For example, we can manipulate environmental signals in lab

settings, study their occurrences in the field, or perhaps control for them when studying personal charisma in field settings.

Another question that arises is how embodied signals explain inferences of charisma beyond the leader's message (e.g., values) and framing of that message (e.g., use of metaphor). On this point, Antonakis and colleagues (2011) conducted an experiment in which participants were videotaped before and after they received training on how to deliver a speech charismatically. The strategies that participants learned and employed in their speeches were mostly of a verbal nature (nine verbal and three nonverbal strategies). Additionally, many of the physical signals that we reviewed (e.g., height, facial characteristics, hair color) were constant between the two speeches. Still, participants were rated as significantly more charismatic after the training. Whereas the verbal signaling may have been sufficient to be perceived as charismatic (cf. Jacquart & Antonakis, 2015), there was also a positive relationship between the use of verbal signaling and the use of non-verbal signaling (Antonakis et al., 2011), which suggests that the two develop jointly. Thus, the stories presented in the speeches may have automatically activated emotions, gestures, and postures that were coherent with the stories' content. Consequently, the trained signaling may have been stronger because the values, symbols, and emotions were present and aligned. To our knowledge, this aspect of good storytelling has not been tested; thus, it would be exciting to explore how far storytelling itself produces embodied signals that align with the content.

Methodological Considerations of Studying Embodied Signals

In the context of measuring charisma, an embodiment perspective may also provide a solution to the endogeneity problems that have sparked recent discussion in leadership research (Antonakis et al., 2016, 2014). Endogeneity occurs when the relationship between an

independent and a dependent variable is due to other causes that are missing in the model, such as omitted variables, omitted selection, simultaneity, common-method variance, or measurement error (Antonakis et al., 2010). Not accounting for endogeneity leads to biased estimators (as opposed to consistent estimators, which converge to the true parameter in the population as the sample size increases), making it impossible for researchers to draw causal inferences from the data. Embodied signals—such as height, temperature, voice, or color—can be immune to endogeneity provided that they are measured objectively, do not correlate with error in the dependent variable, vary randomly in the population, and no endogenous selection has been made on them. If these requirements are met, embodied signals could be employed as instrumental variables that provide better estimates of the effects that perceptual/behavioral measures of leadership have on certain outcomes. This could ultimately help reduce bias in leadership research.

In this regard, it is also important to address the question of whether the estimated values of the dependent variable (y) are an accurate proxy of the true objective ratings (y*); in fact, they may not be accurate (cf. Todorov et al., 2015). For example, a person can be perceived as charismatic and subsequently emerge as a leader because of some exogenous embodied signals (e.g., objectively measured height), but the inferences (charisma) and consequences (leader emergence) may not address whether this person actually possesses intelligence or experience (cf. Antonakis & Jacquart, 2012).

Thus, the question of whether and how embodied signals accurately predict leader outcomes remains. Interestingly, a recent study by Elgar (2014) has shown that in contexts where a leader's competence can be perfectly observed, the leader's height does not predict leader outcomes. So height may only act as a signal for leadership in situations of imperfect

information: People may then give the taller person the benefit of the doubt, simply because more objective information is not available. In contrast, other embodied signals may actually be able to predict true underlying characteristics. For instance, body symmetry objectively predicts measured intelligence, presumably because both represent a general fitness factor (Prokosch, Yeo, & Miller, 2005).

The multitude of embodied signals that shape inferences of leader charisma give rise to another question, namely: How do different cues jointly shape followers' inferences of the leader? To date, most empirical studies in the embodiment literature have focused on the effect of one physical cue on only one or a few outcomes (Batres, Re, & Perrett, 2015). In reality, followers are confronted with copious physical stimuli that jointly characterize the leader and environment at the moment of interaction. Just recently, Batres and colleagues (2015) showed that there is perceptual cross-influence between the facial cues of masculinity, height, and age as they relate to perceived dominance. In an earlier study, Mehrabian and Ferris (1967) investigated how people perceive a person's attitude if it is simultaneously communicated through two channels (vocally and through facial expression). Both vocal and facial cues independently affected attitude perception, although the effect of the facial cue was significantly stronger than the effect of the vocal cue (Mehrabian & Ferris, 1967).

But what happens when signals are contradictory—for instance, when a leader with a baby face acts in a cold environment? The baby face signals interpersonal warmth (Zebrowitz & Montepare, 2005) whereas the cold environment fosters interpersonal distance (Ijzerman & Semin, 2009). Is there one effect that is stronger than the others or do they negate one another? Does it matter that one cue (baby face) pertains to the leader whereas the other one (temperature) describes the environment? How would baby face and temperature interactively explain

followers' inferences about the leader? How would the situation change if the environment was warm instead of cold? In the latter case, there would be two different signals that convey the same meaning. Would the two cues have an additive or even an exponential effect on followers' inference of the leader? On this point, it is worth questioning the vividness/salience of embodied signals and whether they need to be apparent in order to have their (desired) effects (Wagemans et al., 2012). For instance, is the height-power relationship as strong in the Netherlands, a taller society, as it is in other countries where people are generally shorter? There are many such interactions and combinations of embodied signals waiting to be illuminated in future research.

Relatedly, research on leadership perceptions has shown that people tend to perceive holistic patterns rather than individual variables when they characterize a person (Foti & Hauenstein, 2007; Smith & Foti, 1998). Consequently, it seems future research would be well advised to investigate such patterns of embodied and non-embodied signals using latent profile analysis (for continuous indicators) or latent class analysis (for categorical indicators) (Foti, Bray, Thompson, & Allgood, 2012). This approach may be a fruitful avenue to determining whether individuals manifest specific, but reoccurring "charisma profiles" that comprise embodied and other signals. Depending on the kind of communicated value(s) (cf. Schwartz, 1992; Van Quaquebeke, Graf, Kerschreiter, Schuh, & van Dick, 2014), different combinations of rhetorical, symbolic, and emotional signals may create discrete signals of charisma that are nonetheless holistic and coherent.

With regard to the measurement of embodied signals, future research should rely on signals that are exogenous and objectively measurable. Some embodied signals are relatively easy to capture—for instance, physical height, temperature, or colors. Other signals, such as the cues that make a face threatening, need more sophisticated approaches. Todorov and colleagues

(2015) provide an overview about extant data-driven methods for studying inferences from faces, such as using computer-generated faces or face averaging. Moreover, individuals can wear customized electronic devices such as sociometric badges or smartphones equipped with infrared sensors or Bluetooth in order to capture other aspects of embodied signaling, such as gestures and posture, as well as distance from and movement toward others (through a technique called reality mining) (Pentland, 2010). These devices have the advantage of recording embodied signaling in everyday interactions, and the ongoing advancement of such technology will allow researchers to more rigorously study such signals (Kozlowski, 2015; Pentland, 2010).

Processing of Embodied Signals

Future research may also want to more closely inspect how people process information derived from cues. In this respect, a useful and broader framework can be found in the body of research on Implicit Leadership Theories (Lord & Maher, 1991). According to one of its sub streams, i.e., leadership categorization theory (Lord, Foti, & De Vader, 1984; Lord, Foti, & Phillips, 1982), individuals implicitly compare a target person (i.e., a leader) to their prototype of an ideal (charismatic) leader (also coined "recognition-based information processing"). The better the match between the target person and the leader prototype, the more the target person will be perceived as a leader (Van Quaquebeke, Graf, & Eckloff, 2014). Based on Lord, Foti, and de Vader (1984), who reason that individuals have different prototypes for different kinds of leaders (e.g., religious vs. military leader), we expect that individuals may also develop specific prototypes of charismatic leaders. In general, such a prototype could encompass not only rhetorical qualities, but also physical characteristics (i.e., embodied signals). The first evidence of this possibility can be found in the early explorations of leader prototypes—which found masculinity, strength, and attractiveness to be components of people's leader prototype

(Offermann, Kennedy, & Wirtz, 1994)—as well as in more recent approaches, which consider facial features to be an important part of leader prototypes (Trichas & Schyns, 2012).

An information processing perspective on leader prototypes assumes that a prototype's attributes are mentally represented as an activity pattern in a connectionist network (Hanges, Lord, & Dickson, 2000; Lord, Brown, Harvey, & Hall, 2001). In such a network, individual processing units (comparable to neurons) are activated through incoming information (e.g., leader signals) (Bechtel & Abrahamsen, 2002). These units subsequently activate or inhibit connected units depending on whether the two units match or conflict (Lord et al., 2001). Thus, for a specific leader prototype (e.g., charisma prototype) to be activated, one or more connected units in the network need to be activated, which will then activate the whole network (Bechtel & Abrahamsen, 2002; for slightly different approaches, see also Dehaene, 2014; Freeman & Ambady, 2011). This process occurs automatically and can vary in the degree of consciousness (Hanges et al., 2000). With regard to leader charisma, the activation of a unit that represents an embodied signal (e.g., physical height) might indirectly activate other units of the charisma prototype that are cognitively connected but not necessarily present in reality. As such, many more charismatic qualities might be (falsely) attributed to a person who has clear embodied signals of charisma. In consequence, the alignment of rhetorical, emotional, and embodied signals could also render a specific charisma prototype more thoroughly activated.

Importantly, we argue that such a connectionist network of leader prototypes is not amodal in nature (i.e., only connecting abstract knowledge structures), but rather has a modal representation (i.e., connecting abstract knowledge with emotional and bodily experiences; Barsalou, 1999, 2008). Thus, the connections should extend to modal experiences and result in further activation of the prototype's components. One example of such a modal activation effect

might be the "awestruck effect" – which describes followers' tendency to suppress their own emotions in the presence of charismatic leadership (Menges, Kilduff, Kern, & Bruch, 2015). Other examples might include complementary posture effects (Tiedens & Fragale, 2003) or emotional contagion effects (Meindl, 1995). On this point, an embodiment perspective may provide a suitable theoretical fundament for investigating the outcomes of charisma—for instance, followers' emotional responses or physical positioning relative to the leader as a result of certain embodied signals. However, future research still needs to understand the underlying sequential inference processes. For instance, how long they take, how much awareness they require, or whether they include any rational reasoning or just simple and direct associations.

Another question that arises concerns the relationship of leader charisma with the four dimensions of power, warmth, competence, and morality which served as a structure for this review. A closer look reveals that these four dimensions might actually relate to leader charisma. For instance, Etzioni (1975) defined charisma as "the ability of an actor to exercise diffuse and intense influence over the normative orientations of other actors" (p. 305). Similarly, Bryman (1992) stated that "power is a critical element in the conception of charisma" (p. 52), suggesting that power might be an important outcome of charisma. Hence, once followers classify a leader as charismatic, they might infer other qualities as well, like competence, warmth, or morality, through a fill-in-the-blanks cognitive process (Cantor & Mischel, 1977). Thus, future research could test how inferences of charisma relate to social judgment.

A further point of consideration is that, in a leader-follower relationship, followers are confronted with leader signaling over time. Just as leader signals may or may not be aligned at one point of observation, the same may occur with sequential signals. The question is how "earlier" and "later" leader signals interact with each other or, put differently, how first

impressions shape followers' later perception of the leader. A useful model for approaching such questions is the one advanced by Gilbert and colleagues (1988). They argued that a person's perception consists of three sequential information-processing processes: 1) initial categorization, 2) characterization, and 3) correction. During stage 1, the perceiver (the follower) identifies the leader's attributes, such as the leader's physical height and facial features. In the second stage, the follower draws dispositional inferences about the leader (Gilbert, Krull, & Pelham, 1988)—for instance, that the leader is charismatic—which also influences the follower's perception of the leader's actual behavior. During the third stage, the perceiver adjusts the initial characterization based on additional information (Gilbert et al., 1988; Mann & Ferguson, 2015). Gilbert and colleagues (1988) contend that while the former two processes, categorization and characterization, are relatively automatic and happen without conscious attention, the latter process of correction is more effortful and complex.

This model suggests that followers could theoretically update or completely correct their initial categorization of the leader; yet this would require considerable cognitive effort, and there is thus a question if followers will follow-through. In light of the correspondence bias (Gilbert & Malone, 1995), it stands to reason that leaders will have an easier time seeming charismatic later on, even if their later behavior is uncharismatic, so long as followers initially perceived the leader as charismatic based on embodied cues. By the same token, person memory models suggest that people tend to rely on prior impressions due to their easy accessibility instead of processing new information, except for situations when new information is starkly inconsistent (Hastie & Park, 1986; Srull & Wyer, 1989). Thus, we expect that followers will very quickly develop an impression of the leader and later interpret leader behavior via that frame rather than revise their perception of the leader. This would suggest that the consequences of embodied cues

on leadership go above and beyond first impressions. As such, the question remains as to what the leader can do to change followers' early impressions in order to be perceived as more charismatic and whether there are factors that make followers more/less willing to alter their first impressions.

Universality and Replicability of Effects

Whereas some findings for embodied signals are strong and stable across studies (e.g., verticality and power), other findings are heterogeneous and contradictory, as the meta-analysis by Hall and colleagues (2005) highlights. Some effects were found in one study, but not in others: For instance, Poutvaara and colleagues (2009) did not find the negative effect of baby-facedness on election success that was previously suggested by Zebrowitz and Montepare (2005). Meanwhile, there has been ongoing debate about the failed attempts to replicate some of the published embodiment studies. For instance, Schnall and colleagues' (2008) findings on cleanliness and the severity of moral judgments could not be replicated (Johnson, Cheung, & Donnellan, 2014). Similarly, the "Macbeth effect" proposed by Zhong and Liljenquist (2006), which describes peoples' tendency to "wash away their sins" and seek to cleanse themselves when their moral self-concept is threatened, could not be replicated (Earp, Everett, Madva, & Hamlin, 2014; Fayard, Bassi, Bernstein, & Roberts, 2009). Further large-scale replication attempts also failed to replicate the relation of weight and power, as well as the association of physical warmth and interpersonal distance (Ebersole et al., 2016). Another debate involves Carney and colleagues' (2010) research on power poses and their effects on hormone levels (Ranehill et al., 2015). While it was possible to replicate the effect of power posing on self-evaluation, the finding that adopting a high-power pose (vs. a low-power pose) increases testosterone and lowers cortisol levels could not be replicated (Ranehill et al., 2015). Carney,

Cuddy, and Yap (2015) responded to this failed replication attempt by reviewing a total of 33 studies that successfully established the effect of power posing, and suggested a search for moderators. However, Simmons and Simonson (in press) highlighted the need to account for selective reporting; by means of p-curve analysis, they concluded that the 33 reviewed studies did not provide evidence for an effect unequal to zero when accounting for selective reporting.

In order to clarify the true effects of embodied signals, future research might either conduct meta-analyses on these effects, which should include unpublished findings, or further engage in pre-registered replication attempts with samples that have sufficient power for testing (Chambers, Feredoes, Muthukumaraswamy, Suresh, & Etchells, 2014; Nosek & Lakens, 2014).

At the same time, inconsistent findings and failed replication attempts suggest that future research may need to consider possible moderators in order to better understand these effects. The recent theoretical framework on charisma by Antonakis and colleagues (2016) might help in this regard, as it suggests that followers' charisma perceptions result from symbolic signals under a specific condition—namely, when the leader's and followers' values are aligned. Interestingly, a study by Djordejevic and Ijzerman (2015) could not replicate the finding that the weight of a book alters importance judgments (cf. Jostmann et al., 2009). However, post-hoc testing indicated that the association may exist only for those employees who value reading. Thus, the value fit between reading and the book cue resulted in the importance judgments.

To further investigate the universality of embodied signals and their boundary conditions, researchers should explore followers' relational models as a moderator (Fiske, 1992; Giessner & Quaquebeke, 2010). Relational Models Theory describes four ways of defining a social relationship (i.e., authority ranking, market pricing, communal sharing, and equality matching), each of which is related to specific behaviors that are normatively appropriate in that relationship

(Fiske, 1992). In light of our charisma definition and its emphasis on value-based, congruent signaling (Antonakis et al., 2016), a relational models perspective might explain that certain embodied signals are particularly effective for some followers because they fit with their relational model. Embodied signals of power, for instance, may be particularly effective for individuals whose relationship to the (charismatic) leader is defined by authority ranking, which entails asymmetrical interactions (Fiske, 1992; Giessner et al., 2011). Similarly, embodied signals of warmth such as similarity (Schubert, Waldzus, & Seibt, 2008) might be most effective when the relational model is communal sharing, which is defined by need satisfaction (Ijzerman, Janssen, & Coan, 2015; Schubert et al., 2008).

Culture is another possible moderator that needs investigation. So far, most studies on embodied cues have been conducted in Western cultures. However, Tskhay and colleagues (2014) state that some of people's nonverbal and implicit leadership beliefs are culture-specific. One example is the effect of speech rate and vocal relaxation. Whereas there is an overall positive relationship between speech rate and perceived power, studies with Korean perceivers revealed a negative relationship between speech rate and power (Hall et al., 2005). Similarly, research on leadership imagery has shown that people interpret the position of a leader in relation to a group differently depending on their cultural background: Whereas U.S. Americans represent a leader as standing in front of a group, Singaporeans represent a leader as standing behind a group (Menon, Sim, Fu, Chiu, & Hong, 2010). There is a similar issue with color: Whereas the color white stands for being morally worthy in Western cultures, some Asian cultures, such as Buddhists, wear white clothes as a sign of mourning. In Western cultures, by contrast, the color black stands for mourning. Another question is whether the relationship between physical warmth and interpersonal warmth holds true in countries marked by high heat

(e.g., Middle East, Africa) and where high temperatures are often perceived as unpleasant (cf. Zhong & House, 2012). Given these findings, cultural and geographical context could influence the effects of embodied signaling. In sum, the effect of cultural and behavioral differences on cue-based charisma inferences seems a fruitful avenue for future research. It may help us understand why certain leaders are thought of highly in some contexts and yet seem to completely clash with expectations in other situations. Furthermore, this avenue of research might potentially resolve some of the inconsistent empirical findings in the literature.

Practical Implications

Embodied signals, so we argue, form an integral part of charisma. From a leader's perspective, it is useful to recognize that subordinates' perceptions of them heavily depend on these embodied signals. As Lord and Shondrick (2011) point out, leaders need to align the impression derived from their embodied signals with the messages they send to followers if they want to effectively communicate their vision. In contrast, inconsistency in those messages (whether embodied or behavioral) might compromise one's efforts at effective leadership.

Moreover, leaders should be aware that embodied cues affect people even before concrete leadership (inter)actions take place (cf. Swider, Barrick, & Harris, 2016). Not all embodied signals are under the leader's control (e.g., the leader's innate physical characteristics, the location, the weather). Nonetheless, it seems worthwhile for leaders to consider what aspects are under their control and how they can leverage these in order leave a favorable first impression, which will ultimately influence how subordinates perceive their leadership at later stages (Gray & Densten, 2007; Kenney, Blascovich, & Shaver, 1994, Swider et al., 2016). It may behoove the providers of executive trainings to adjust their curricula accordingly.

Beyond leaders themselves, those who need to evaluate leaders (HR departments, journalists, voters, etc.) should be equally aware of these dynamics (Swider et al., 2016). Trying to disentangle a first impression from actual leadership qualities can be difficult because, as outlined above, these processes are often unconscious and automatic. Yet, being aware that certain embodied cues can distort one's impression formation might help to overcome biased decisions. Whereas it is possible to update and even reverse implicit evaluations from first impressions, this correction process requires perceivers to actively (re)consider the respective pieces of information (Mann & Ferguson, 2015). Given the high cognitive resources that a correction needs (Mann & Ferguson, 2015), organizations may benefit from raising awareness about biased first impressions before they happen (Pope, Price, & Wolfers, 2014). In response, observers could, for instance, pay special attention to physical cues, trying to compensate for their influence by holding as many variables constant as possible. For example, if the candidate is very tall, observers can keep more distance when they shake hands in order to reduce the angle from which they look up at the candidate. Additionally, some effort could be dedicated to always evaluating applicants at the same room temperature. Although this may sound a bit excessive, this very problem spurred the social media company Pinterest to introduce an Implicit Bias Training for managers to help them minimize such biases (Tsotsis, 2015). According to the popular tech blog Techcrunch, such trainings are becoming increasingly popular in Silicon Valley (Tsotsis, 2015) as part of an effort to 'separate fact from fiction' in the optimal development of talent. It remains to be seen, however, whether such trainings can effectively reduce respective biases (for instance, in hiring decisions; Zebrowitz, Tenenbaum, & Goldstein, 1991). History shows that disentangling the mind from the body is no easy task.

Conclusion

From the ancient Greeks to the 21st century, leader charisma has been an enigma associated with magic or even divine abilities. Accordingly, many theoretical approaches on charisma suffer from trying to define the concept by its antecedents or outcomes. In contrast, recent approaches seek to demystify leader charisma and explain its essence in terms of concrete behaviors and learnable skills (what a leader *does* and how the leader *is* like). In this context, the embodiment perspective is an additional lens that may help to explain charisma above and beyond the leader's messages and rhetoric. As such, this perspective adds an important piece to the puzzle that is charisma's "magic aura" (cf. Weber, 1925).

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Table 1

Overview of embodied signals of charisma.

Study	Embodied Signal	Key finding(s)
Power		
General physical appearance		
Judge & Cable (2004)	Physical height	Physical height is significantly related to workplace success (social esteem, leader emergence, performance, and income).
Stulp, Buunk, Verhulst, & Pollet (2013)	Physical height	Physical height of political candidates in U.S. elections is positively related to popular votes as well as to being reelected (for U.S. presidents).
Gawley, Perks, & Curtis (2009)	Physical height	Positive relationship between physical height and holding a position of authority for men but not for women.
Van Quaquebeke & Giessner (2010)	Physical height	Assumed foul perpetrators (stronger/dominant player) in soccer games were on average taller than their assumed victims.
Stulp, Buunk, Verhulst, & Pollet (2012)	Physical height	Referees in soccer games who have more power in controlling the game are taller than their assistants.
Holbrook & Fessler (2013)	Physical height and strength	A purported Islamic terrorist was perceived as physically smaller and weaker after the death (defeat) of Osama bin Laden has been made salient and priming a successful terrorist leader leads to more favorable estimates of a terrorist's physique.
Highham & Carment (1992)	Physical height	An election winner was judged to be taller after the election whereas the losers were judged to be shorter than before the election.
Stogdill (1948)	Physical height	A review of extant studies on leadership revealed a positive relationship between physical height and leadership.
Giessner, Ryan, Schubert, & Van Quaquebeke (2011)	Picture angle (perceived physical	Powerful persons are more often portrayed from below (appearing taller) whereas less powerful persons are more often portrayed from

	height)	above (appearing smaller).
Thomas & Pemstein (2015)	Camera angle (perceived physical height)	Differences in camera angle shape observers' perceived height of others and subsequently influence whether people act more (high camera angle) or less (low camera angle) against their own self-interest.
Verser & Wicks (2006)	Camera angle (perceived physical height)	On photographs, U.S. presidential candidate Gore was depicted more often from below than from above which made him appear taller than he actually is.
Mandell & Shaw (1973)	Camera angle (perceived physical height)	People perceive a person on TV more positively if that person is pictured from below (low camera angle).
Wiedemann, Burt, Hill, & Barton (2015)	Color	Men wearing red clothes are perceived as more dominant.
Feltman & Elliot (2001)	Color	Wearing red clothes increases perceptions of dominance and threat.
Face		
Aronoff (2006)	Facial characteristics	Facial characteristics of angularity and diagonality are related to perceptions of threat in that face.
Aguinis, Simonsen, & Pierce (1998)	Facial expression	A relaxed face, in contrast to a nervous-looking face, is associated with higher power.
Trichas & Schyns (2012)	Facial expression	The better the match between an individual's inferences from a target person's facial expression and that individual's implicit leadership theories, the more leader-like the target person is perceived to be.
Zuckerman (1986)	Face-to-body ratio in pictures	Persons in photographs with high face-to-body ratio were rated higher on dominance.
Calogero & Mullen (2008)	Face-to-body ratio in pictures	Cartoons of former U.S. president George W. Bush depicted more of his body and less of his face (low face-to-body ratio) when he was perceived as less powerful (after starting wars).

Rule & Ambady (2008)	Facial appearance	Positive relationship between perceived power-traits based on CEO's facial appearance and company profits.
Keating, Mazur, & Segall (1977)	Shape of eyebrows	Persons with lowered-eyebrows are perceived as more dominant than persons with raised eyebrows.
Tiedens (2001)	Emotion expression	Expressing anger is associated with high social status, expressing sadness is associated with low social status.
Aronoff, Barclay, & Stevenson (1988)	Facial features	Faces appear more threatening when they contain more angular and diagonal features and fewer curvilinear features.
Re, DeBruine, Jones, & Perrett (2013)	Face shape	Increasing the perceived height of a face increases perceived dominance.
Rule & Tskhay (2014)	Facial appearance	The economic context (e.g., a financial crisis) affects how a leader's facial appearance influences the perception of that leader.
Hehman, Leitner, Deegan, & Gaertner (2015)	Facial width-to-height ratio (fWHR)	Individuals with higher fWHR are perceived as physically stronger and more aggressive.
Dovidio & Ellyson (1982)	Visual dominance	Persons exhibiting high visual dominance (ratio of time spent looking at the interaction partner while speaking compared to the time looking while listening) are perceived as more powerful compared to moderate or low levels of visual dominance.
Dovidio, Ellyson, Keating, Heltman, & Brown (1988)	Visual dominance	Participants with high power showed high visual dominance and participants with low power exhibited low visual dominance.
Body posture		
Aronoff, Woike, & Hyman (1992)	Body movements	In videos of ballet performances, dancers representing a threatening character used more diagonal poses and angular movements.
Dean, Willis & Hewitt (1975)	Interpersonal distance	Subordinates who start a conversation with a superior keep more interpersonal distance than superiors who initiate the interaction. Interpersonal distance increases with rank differences.

Carney, Hall, & Smith Le Beau (2005)	Body posture	High-power individuals, compared to low-power individuals, are believed to display a rather open body posture (standing upright, leaning forward, orientation toward conversation partner).
Tiedens & Fragale (2003)	Body posture	Participants paired with a confederate exhibiting a dominant, expanded (vs. submissive) posture adjusted their stance to a more constricted (expanded) posture.
Carney, Cuddy, & Yap (2010)*	Body posture	Adopting a high-power pose (open, expansive) compared to a low-power pose (closed, contractive) leads to increased feelings of power.
Voice		
Kimble & Seidel (1991)	Loudness, response latency	Assertive or confident people speak louder and respond faster.
Kimble & Musgrove (1988)	Loudness	Assertive individuals speak louder (and more) than unassertive individuals.
Harrigan, Gramata, Lucic, & Margolis (1989)	Amplitude, speech rate	Amplitude and speech rate are positively related to the perceived dominance of the speaker.
Bilous & Kraus (1988)	Interruptions	More interruptions are associated with higher perceived dominance.
Klofstad, Anderson, & Nowicki (2015)	Voice pitch	Political candidates with a low-pitch voice are perceived as stronger.
Puts, Gaulin, & Verdolini (2006)	Voice pitch	Men with a low-pitch voice are rated as more dominant; participants in an experiment who believed themselves to be physically dominant (vs. less dominant) lowered (vs. raised) their voice pitch when they spoke to a competitor.
Structural environment		
Schubert (2005)	Vertical position	Power is mentally represented along the vertical dimension in space. Higher power is associated with a higher (vs. lower) vertical position

		and upward (vs. downward) movements.
Giessner & Schubert (2007)	Vertical distance	The longer the line in an organizational chart and, thus, the greater the vertical difference between leader and subordinate, the more powerful the leader is perceived to be; participants tend to place a leader higher in the chart when they think this leader is powerful.
Lakens, Semin, & Foroni (2011)	Vertical position	The relationship between vertical distance and power is moderated by the salience of power differences and is stronger when power differences are salient.
Chen, Lee-Chai, & Bargh (2001)	Vertical size	Participants sitting in a large professor's chair behind a desk (vs. a simple visitor's chair across the desk) showed a stronger activation of the cognitive concept of power.
Zanoli, van Dantzig, Boot, Wijnen, Schubert, Giessner, & Pecher (2012)	Vertical position	Participants identify words describing a powerful (vs. powerless) person faster when the vertical position (up vs. down) of the word matches the power of the person (high power and up, low power and down).
Competence		
General physical appearance		
Willis & Todorov (2006)	Facial appearance	Participants drew inferences about a person's competence from a picture in as little as 100ms.
Todorov, Mandisodza, Goren, & Hall (2005)	Facial appearance	Inferred competence from the facial appearance of U.S. congressional election candidates predicts election outcomes with above-chance accuracy.
Antonakis & Dalgas (2009)	Facial appearance	Adults and children seem to use the same cues in judging competence from facial appearance. Swiss university students predicted the winner of a political election in the same way children did.
Cogsdill, Todorov, Spelke, & Banaji (2014)	Facial appearance	Adults and children show consensus in judging competence from faces.

Sussman, Petkova, & Todorov (2013)	Facial appearance	Positive relationship between competence ratings based on facial appearance by U.S. participants and election outcomes for political candidates in Bulgaria.
Poutvaara, Jordahl, & Bergren (2009)	Facial appearance (Babyface)	Negative relationship between facial features of a babyface (vs. a more mature-looking face) and competence ratings for political candidates in Finland.
Archer, Iritani, Kimes, & Barrios (1983)	Face-to-body ratio in pictures	Face-to-body ratio in a picture is positively correlated with attributed intelligence.
Schwarz & Kurz (1989)	Face-to-body ratio in pictures	Persons presented with a high (compared to low) face-to-body ratio in pictures are rated as more competent.
Tskhay, Xu, & Rule (2014)	Expressiveness, age	Perceived expressiveness and age of orchestra conductors predicts how successful they are.
Barrett & Barrington (2005)	Physical attractiveness	Favorable (vs. unfavorable) presentation of a political candidate in a newspaper article predicts how competent this candidate is rated by participants in an experiment.
Murphy, Hall, & Colvin (2003)	Posture, gaze	Positive relationship between intelligence ratings and longer eye-gaze, more eye contact, and an upright posture.
Takeda, Helms, & Romanova (2006)	Color	Red-haired women are overrepresented and blonde-haired women are underrepresented in corporate leadership positions in the U.K.
Attrill, Gresty, Hill, & Barton (2008)	Color	Teams wearing red shirts in English football teams (8 cities, 55-year time period) performed better than teams wearing other shirt colors.
Amhorst & Reed (1986)	Color	Male evaluators rated women wearing dark jackets (vs. light jackets) as more competent.
Warmth		
General physical appearance		
Fawcett & Markson (2010)	Similarity	Children prefer to play with a puppet that is similar (vs. dissimilar) to

		their own physical appearance.
Hove & Risen (2009)	Mimicry, synchrony	Positive relationship between both mimicry and synchrony and affiliation.
Lakin & Chartrand (2003)	Mimicry	When people aim to achieve rapport with another person, they mimic this person's gestures.
Jones, Little, Feinberg, Penton-Voak, Tiddeman, & Perrett (2004)	Symmetry	Male faces that are highly symmetric are rated as more attractive than faces that are less symmetric.
Zebrowitz, Voinescu, & Collins (1996)	Symmetry	Positive relationship between facial symmetry and perceived honesty of the rated person.
Berry & Zebrowitz McArthur (1985)	Facial appearance (Babyface)	People with a babyface are perceived as warmer and kinder relative to people with more mature faces.
Richell, Mitchell, Peschardt, Winston, Leonard, & Dolan et al. (2005)	Emotion expression	Negative relationship between expressing anger and trustworthiness.
Krumhuber, Cosker, Marshall, & Rosin (2007)	Emotion expression	A smiling face is associated with higher trustworthiness compared to a neutral-looking face.
Structural environment		
Ijzerman & Semin (2009)	Temperature	Perceived physical warmth leads to greater perceived social proximity and a stronger focus on relations.
Ijzerman & Semin (2010)	Similarity/Temperature	Higher perceived similarity leads to higher perceived ambient temperature.
Williams & Bargh (2008)	Temperature	Experiencing physical warmth (vs. coldness) through holding a warm (vs. cold) object causes people to perceive others as warmer and friendlier and show more prosocial behavior.
Steinmetz & Mussweiler	Temperature	On a warm (vs. cold) day, participants rated objects as more similar and rated their physical strength as more similar to a comparison

(2011)		person.
Zhong & Leonardelli (2008)	Temperature	Thinking about a situation of social exclusion (vs. inclusion) leads to lower estimates of room temperature. Being socially excluded leads to greater preference for warm (vs. cold) food and drinks.
Morality		
General physical appearance		
Meier, Robinson, & Clore (2004)	Brightness	When evaluating words, participants categorize words faster when word valence (good vs. bad) matches font color (light vs. dark) than when there is a mismatch between the two.
Frank & Gilovich (1988)	Color	Professional sport teams with black uniforms are penalized more often than teams with non-black uniforms. Switching from non-black to black uniforms is accompanied with an increase in penalties. Referees judge players in black uniforms more harshly, but these players also seem to play more aggressively.
Stabler & Johnson (1972)	Color	Children associate positive statements with a white box and negative statements with a black box.
Webster, Urland, & Cornell (2012)	Color	In the National Hockey League (NHL), teams wearing black jerseys were penalized more often than teams with others jerseys, suggesting that black jerseys are perceived as more aggressive than other colors.
Zhong & Liljenquist (2006)*	Cleanliness	Positive association between physical and moral purity. Participants who thought or wrote about an unethical (vs. ethical) incident came up with more cleaning-related words in a word completion task and showed a greater demand for cleaning products.
Schnall, Benton, & Harvey (2008)*	Cleanliness	Mentally activating the concept of cleanliness or cleaning oneself after the experience of disgust reduces the severity of moral judgments.
Schnall, Haidt, Clore, & Jordan	Cleanliness	Experimentally inducing feelings of disgust leads participants to

(2008)		make more severe moral judgments (compared to control groups).
Cramwinckel, De Cremer, & Van Dijke (2012)	Cleanliness	Participants who touched a dirty (vs. a clean) object evaluated the performance of a subordinate who cheated more positively and assigned a higher bonus to him/her, but only when no self-interests were involved.
Structural environment		
Meier, Selbom, & Wygant (2007)	Vertical position	Participants in an implicit association task evaluated positive (negative) words faster when they appeared at the top (bottom) of a screen.
Meier & Robinson (2004)	Vertical position	Participants evaluate positive (vs. negative) words faster when they appear at a higher (vs. lower) position on a computer monitor.
Meier, Hauser, Robinson, Friesen, & Schjeldahl (2007)	Vertical position	The concept of divinity (God-Devil) is mentally represented on the vertical dimension (up-down). God is associated with a high vertical position and the Devil is associated with a low vertical position.
(Failed) Replication Attempts		
Johnson, Cheung, & Donnellan (2014)	Cleanliness	Replication of Schnall, Benton, & Harvey (2008): Could not replicate the finding that physical cleanliness leads people to make less severe moral judgments.
Earp, Everett, Madva, & Hamlin (2014)	Cleanliness	Replication of Zhong & Liljenquist (2006): Failed to replicate the relationship between physical and moral cleanliness.
Fayard, Bassi, Bernstein, & Roberts (2009)	Cleanliness	Replication of Zhong & Liljenquist (2006): Failed to replicate the relationship between physical and moral cleanliness.
Ranehill, Dreber, Johannesson, Leiberg, Sul, & Weber (2015)	Body posture	Replication of Carney, Cuddy, & Yap (2010): Adopting a power pose leads to self-reported feelings of power but no effect on hormone

		levels.
Ebersole et al. (2016)	Weight	Replication of Jostmann, Lakens, & Schubert (2009): Could not replicate the relationship between perceptions of weight and perceptions of importance.
Djordejevic and Ijzerman (2015)	Weight	Replication of Jostmann, Lakens, & Schubert (2009): Could not replicate the finding that the weight of a book leads to importance judgments, but post-hoc testing indicated that the association may exist only for those who value reading.
Ebersole et al. (2016)	Temperature	Replication of Szymkow, Chandler, IJzerman, Parzuchowski, & Wojciszke (2013): Could not replicate the relationship between physical and interpersonal warmth.

Note. Because the studies we reviewed do not link embodied cues to a measurement of charisma as such, but rather to a variety of person characteristics, we group them along four broader categories: power, competence, warmth, and morality. In the process of reviewing the embodiment literature, these four dimensions have surfaced as useful categories for building a comprehensive review. However, we do not claim that the four categories jointly form leader charisma. Instead, we argue that, to the degree that there is value alignment between a leader and his/her followers, all these bodily cues can serve as embodied signals of charisma. In light of recent debates on (failed) replication attempts, we marked studies that were subject to failed replication attempts with an asterisk (*).