THE EVOLUTIONARY ORIGINS AND PSYCHOLOGY OF

CHARISMATIC LEADERSHIP

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In the years since I first began studying the psychology of charisma, I’ve discovered something about human nature so universal that it’s begun to resemble something like those natural laws that the “harder” sciences are supposed to hold such a monopoly on. What I’ve noticed is this – no matter the country I’m currently in, what time of day it happens to be, the surrounding circumstances, or the nature of my relationship with the questioner – within minutes of uttering the words “charisma” I can reliably expect to hear the following four words, almost verbatim: “so… what is it?” The motivations behind this question differ - ranging from good-natured curiosity to combative sarcasm - but from my perspective, it feels inescapable, something like the ticking countdown set in motion by an insect accidentally triggering the bait of a Venus Flytrap before the eventual snap!

To this law I would also add one additional observation (a corollary perhaps) which is the unusual degree to which most people are willing to endure even the most long-winded, carefully phrased, overly complicated, contextualized, and comprehensive answer that follows in order to share their own thoughts, feelings and experiences.

The reason, I think, has to do with the fundamentally mysterious nature of charisma. It’s contradictory: sometimes inspiring and emotional, occasionally dangerous and revolutionary. It’s slippery: some people certainly have it, and sometimes you can even describe why, others are certainly missing it, but it’s difficult to pin down a cause….

Maybe you can already see where I’m heading with this. Over the next hundred pages or so I will present the results of some of my best attempts at explaining what charisma is, why it’s important, and where it may have come from. Hopefully the clock is already ticking.
- PROLOGUE –
FROM THE VOTING BOOTH TO THE BREAKFAST TABLE
What did you have for breakfast this morning? Did you have time to ensure it contained the recommended variety of high-fiber and nutrient-rich whole grains, fruits, nuts, eggs, and dairy? Or were you one of millions of others, with an inbox full of email and a bowl full of Honey Nut Cheerios? It might come as no surprise that even though most of us are aware that sugar-coated flakes shouldn’t really be part of a healthy balanced breakfast, they somehow manage to sneak their way into the bottoms of our shopping carts anyway. This may seem a trivial matter, but we’ll show how the psychology that motivates us to buy a particular kind of cereal can be ‘scaled’ up to the level of global politics, so we’ll move on to that bigger picture.
In the same year that the cereal box above was printed, during a speech at the Democratic National Convention in 1956, Adlai Stevenson made a remark which would prove to be remarkably prescient just one election cycle later. “The idea” he said, “that you can merchandise candidates for high office like breakfast cereal — that you can gather votes like box tops — is, I think, the ultimate indignity to the democratic process.”

An evolutionary perspective on human behavior suggests that nearly all of our choices are influenced by a set of psychological heuristics - “quick and dirty” decision rules which enabled our ancestors to solve similar problems in their environments, and allowing them to conserve brainpower which might be better spent elsewhere. Let’s begin with a look at some of the factors that might be affecting our breakfast choices – after all, we have to start somewhere!

The Importance of Context. If there’s one thing that social psychology can say for certain, it’s that context matters. In this case, there are plenty of factors to consider. We may be simply too tired to devote sufficient cognitive effort or willpower to a particular problem, or we may decide it’s not really important enough to warrant further consideration. When it comes to getting us through daily tasks, our ability to switch on the “autopilot” can be incredibly useful, but oftentimes we may forget to turn it off. When it comes to politics, an evolutionary perspective suggests that we should be much more likely to pay attention to our leaders when faced with challenges that require us to coordinate our behavior at a group level. Previous research has found that more masculine-looking leaders are preferred in contexts of intergroup competition, while feminine-looking leaders are preferred for intragroup cooperation (Spisak, Homan, Grabo & Van Vugt, 2012). Additionally, younger leaders have been shown to be preferred in contexts of change or exploration, while older
leaders were preferred in contexts of stability or exploitation (Spisak, Grabo, Arvey & Van Vugt, 2014).

**Prototypes.** Often when confronted with choices, we may unconsciously decide to stick with the safe and familiar choice. In this example, our previous experience may lead us to view a bowl of cereal as a kind of prototype which we can fall back on when necessary. As mentioned before, we also have prototypes for the kinds of leaders we follow in these different situations.

**Cues and Signals.** Our brains are designed to process such an enormous range of information from the physical world that it’s easy to understand why our decisions are inordinately affected by outward appearances rather than the underlying qualities. Here we might think of the brightly-colored backs of a cereal boxes like the one above as cues conveying information about what’s we can expect on the inside. When these correlations are due not just to chance but are put there by design, it’s more appropriate to describe them as signals. In the case of cereal, the evidence of design is quite clear – advertisers are fighting a battle for the attention of parents and children alike, and each box can be seen as waging its own miniature media blitz designed to help distinguish it from the competition.

When it comes to leadership, this distinction is less clear. Cues like height, size, and facial appearance can affect how we feel about others from the moment we see their faces. We can also use appearance to draw inferences about how someone is likely to behave, but how can we truly know whether such information is reliable? Just as exactly what constitutes a perfect breakfast is incredibly complicated and ever-changing, knowing whom to trust in politics today is an incredibly complicated business. Many of us don’t have time to become engaged in politics, so we rely on what information we have. And what we do have is a system of
followership heuristics which evolved to help us choose between potential leaders in domains much less complicated than those we face today. And, just as the bright colors and enthusiastic slogans of breakfast cereals can override our considered approach to a healthy diet, the dazzling smiles and well-groomed hair that have become increasingly typical in American politics may be affecting our decision-making in ways we’re not fully aware of.

What I find remarkable about Stevenson’s analogy (between pushing empty calories on consumers and marketing candidates to voters) is that just 4 years later, the United States would witness one of the most iconic examples of charismatic influence in the form of the Nixon-Kennedy debates. In one sense, this marked the point at which modern politics and advertising became inexorably entangled. But, my goal in this thesis is to demonstrate that the interplay between appearance, context, cues and signals has given rise to a set of evolved followership heuristics which continue to influence us to this day.
- CHAPTER 1 -

GENERAL INTRODUCTION
Every age needs men who will redeem the time by living with a vision of the things that are to be.

~Adlai Stevenson

Historians, philosophers and scientists alike have always been fascinated by the idea that certain individuals are endowed with unique gifts for leadership, and that those “great men” are the driving force behind many of the world’s major events. Since it was first coined by Saint Paul nearly two thousand years ago, the word “charisma” has been used to describe some kind of special quality that allowed these leaders to move the hearts, minds and feet of their followers.

One of the most fascinating aspects about the concept of charisma is that it has managed to retain the aura of mystery – and even the supernatural – which it was intended to convey when the term was first coined over two millennia ago. Historically, charisma was often the province of royalty or religious leaders, who were thought to possess divinely granted gifts, enabling their followers to achieve exceptional or supernatural feats. The power of charisma made it possible for generals to lead armies that could conquer nations, or for priests to inspire believers to construct monumental structures that would take the work of generations to complete. In modern lay terms, charisma has become a more down-to-earth – typically characterized as a personality trait related to charm, magnetism, or likeability (Beyer, 1999).
It has since become a key part of the vocabulary we use to describe others, and currently the term is often used to describe politicians, celebrities, and athletes. In the realm of politics, for example, elections may be won or lost according to whether a candidate can project the kind of charismatic appeal that convinces voters they are the kind of leader they’d “like to have a beer with.” To stretch the meaning even further, conservationists also leverage the appeal of “charismatic species” such as the panda to garner support for their cause – rightly judging that images of the naked mole rat are less likely to stir the emotions of the masses.

Moving past its origins and semantic fuzziness, however, one encounters an enormous literature devoted to a particular conceptualization of charisma which has become an increasingly popular topic of investigation in both the scientific literature and management journals over the course of the last few decades (Lowe & Gardner, 2001; Van Knippenberg & Sitkin, 2013; Antonakis, Bastardoz, Jacquart & Shamir, 2016). The present article will attempt to remain within the confines established by this literature – though suggesting places where it may be expanded or areas which may have been overlooked – but it is important to keep in mind that this discussion takes place within a larger context. The more narrowly one defines charisma the more it appears to be reducible to an interesting scientific puzzle for psychologists to unravel, or a management skill through which corporations can increase their bottom line, but it would be a mistake to underestimate its relevance to society as a whole. In fact, as our population continues to expand and our susceptibility to charismatic leaders shows no signs of diminishing, it seems inevitable that more attention will need to be given to the question of how some individuals are able to achieve such extraordinary influence over others – and whether or not something needs to be done about it.
The concept of charisma has long historical roots – dating back to the Greek word charis meaning charm, beauty or allurement (Machlachlan, 1996) – but its exact meaning has been subject to debate ever since. In the scientific literature, these often take the form of active critiques and review articles, but they also develop in parallel, with researchers approaching the topic with different assumptions and from different theoretical perspectives. This opens up increasingly large divisions between disciplines that make the idea of conciliation – and, presumably, a comprehensive understanding of charismatic leadership – elusive. This is by no means unique to the field of leadership studies, as evolutionary psychologists Cosmides, Tooby & Barkow (1992) point out:

“Every field has holes and gaps. But when there are causal links that join fields, the holes that exist in one discipline can sometimes be filled by knowledge developed in another. What the natural sciences have discovered is that this is a process with positive feedback: The more that is known – the more that can be simultaneously brought to bear on a question- the more that can be deduced, explained, and even observed.”

For the scientific method to function properly, researchers must come to a consensus regarding how to define a construct such as charisma so that others can work under the same operationalization, challenge any unproven assumptions, and replicate the results of experiments. It is here that the current lack of conceptual clarity becomes problematic, since ultimately a satisfactory answer to the question “what is charisma?” should take the form of an empirically testable theory that can (1) explain how and why certain individuals emerge as charismatic leaders while others do not, (2) make falsifiable predictions about the effects of
charismatic leaders on followers, and (3) identify the underlying functions, processes, and psychological mechanisms on which it relies.

The following chapters are based on papers that have been published or are currently under review at various academic journals that attempt to answer these questions.

As a guide to this dissertation as a whole, this section will summarize these articles based on their aims and outcomes, based largely on the abstracts of the articles—references and further details can be found in the individual chapters themselves. At the end of this section, I will provide a glossary of key terms that will be found throughout the rest of the manuscript.

Chapter 2 describes an evolutionary perspective on charismatic leadership, arguing that charisma has evolved as a credible signal of a person’s ability to solve a coordination challenge requiring urgent collective action from group members. I suggest that a better understanding of charisma’s evolutionary and biological origins and functions can provide a broader perspective in which to situate current debates surrounding the utility and validity of charismatic leadership as a construct in the social sciences. I outline several key challenges which have shaped our followership psychology, and argue that the benefits of successful coordination in ancestral environments has led to the evolution of context-dependent psychological mechanisms which are especially attuned to cues and signals of outstanding personal leadership qualities. I elaborate on several implications of this signaling hypothesis of charismatic leadership, including opportunities for deception (dishonest signaling) and for large-scale coordination.

Chapter 3 replicates findings from previous research on the evolutionary contingency hypothesis of leadership emergence, but extends it to show that when we see the right person in the right place, they are not only preferred as leaders but granted more charisma (Van Vugt
& Grabo, 2015). Using artificially masculinized versus feminized versions of the faces of the candidates for the 2016 US Presidential Elections, I demonstrate that different contextual cues produced systematic variation in both preferences for and personality impressions of leadership. I describe results of an online study (N=298) demonstrating that followers who perceived a match between the contextual prime (intergroup conflict or cooperation) and a leader candidate’s relevant physical cues (masculinized or feminized versions of their faces) both (a) preferred them as leaders, (b) rated them more positively on personality attributes commonly associated with effective leadership such as trustworthiness, warmth, and competence, and charisma.

Chapter 4 addresses one of the fundamental challenges to understanding our evolved psychology, using charisma to explain one means by which cooperative or prosocial behaviors can be maintained despite the immediate temptation to free-ride. I propose that charismatic leadership and followership can be best understood as a product of this recurrent, fitness-relevant selection pressure for adaptations that effectively promoted and sustained prosocial behaviors within groups. I describe charismatic leadership and followership as a dynamic process in which leaders signal their ability to benefit the group by increasing the perceived likelihood that cooperation will succeed. A charismatic leader is one who is able to attract the attention of other group members and serve as a focal point for aligning and synchronizing prosocial orientations in followers, suppressing sensitivity to cooperative risks, and enhancing the salience of perceived cooperative rewards. I hypothesize that exposure to such individuals will activate heuristics causing participants to behave more prosocially. The results of three economic experiments (N=500) provide behavioral evidence for the “charismatic prosociality” hypothesis through the use of the Trust, Dictator, and Stag Hunt Games.
Chapter 5 replicates and extends previous literature on the evolutionary contingency hypothesis of leadership emergence (Van Vugt & Grabo, 2015). Using artificially masculinized versus feminized versions of the faces of the candidates for the 2016 US Presidential Elections, I found that different contextual cues produced systematic variation in both preferences for and personality impressions of leadership. I describe results of an online study (N=298) demonstrating that followers who perceived a match between the contextual prime (intergroup conflict or cooperation) and a leader candidate’s relevant physical cues (masculinized or feminized versions of their faces) both (a) preferred them as leaders, (b) rated them more positively on personality attributes commonly associated with effective leadership such as trustworthiness, warmth, and competence, and charisma.

Chapter 6 provides a general summary of the findings and an overview of what the past few years of studying charismatic leadership has taught me; in it I outline how the outcome of this research has contributed to the current literature, and highlight avenues for further research based on both my own work and some of the more recent lines of research which have begun to take off along these lines.
GLOSSARY OF KEY TERMS

Ancestral Environment / EEA: The environment in which an adaptation evolved, including selection pressures that were necessary for its development and proper functioning. Most evolutionary psychologists argue that many unique human psychological mechanisms evolved during the Pleistocene - a period beginning around 2.5 million years ago and ending 12,000 years ago with the agricultural revolution.

Collective action problem: Also known as a social dilemma. Refers to a range of situations in which individuals stand to benefit through cooperation, but are confronted by disincentives such as free-riders, asymmetrical payoffs, or the inability to direct the actions of larger groups.

Charismatic Leadership: A form of leadership which can be conceptualized as a signaling process whereby an individual conveys their ability to solve an urgent coordination challenge. The signals (both verbal and nonverbal) allow the charismatic leader to attract attention, reinforce social norms and a sense of collective identity, and strengthen the beliefs of followers that their cooperation will be reciprocated.

Correlate: An observable feature or behavior of an organism which reliably correlates with an underlying attribute (which could not otherwise be observed).

Cue: A correlate which is reliably perceived by others, and which influences their behavior.
**Signal:** A cue which is reliably perceived by others, and which influences their behavior and has been favored by natural selection because it provides fitness benefits to both senders and receivers.

**Heuristic:** Relatively fast and efficient decision-making rules which enable people to make decisions, come to judgments, and solve problems, even when such situations are complex or there is insufficient information to find the optimal outcome.

**Internal Regulatory Variable:** Any of a number of evolved variables which indirectly regulate cognition and behavior by indexing values necessary for “higher-level” behavior-controlling and computation-controlling procedures.

**Proximate Explanation:** An explanation for an observed trait, behavior, or adaptation which describes its causation (the specific stimuli which produce it) or ontogeny (how it develops over time).

**Ultimate Explanation:** An explanation for an observed trait, behavior, or adaptation which describes its survival or reproductive value (how it increased reproductive success) or evolution (how it arose in the species over time).
- CHAPTER TWO -

THE EVOLUTIONARY ORIGINS OF CHARISMA: A THEORETICAL EXPLORATION

1 This chapter is published as:
The primary aim of this chapter will be to highlight some of ways in which our current knowledge of charismatic leadership can be clarified by adopting the perspective of evolutionary psychology (Van Vugt, Hogan & Kaiser, 2008), in particular evolutionary signaling theory (Maynard Smith & Harper, 2003). I begin with a targeted review of those areas that have been identified by ourselves and others (Antonakis, Bastardoz, Jacquart & Shamir, 2016) as the most significant challenges. I identify theoretical and methodological issues which cast doubt on the utility of many of the observations, experiments, and interventions that can be found in the existing literature, and how the tension between the many competing approaches has given rise to a proliferation of different approaches to its study. Finally, I highlight some of the advantages which result from defining charismatic leadership as a signaling process (Spence, 1974; Jacquart & Antonakis, 2015), and point out several key areas in which the conceptualization of “signals” employed by economists and game theorists can be clarified and augmented with insights from the literature on signaling in evolutionary biology (Maynard Smith & Harper, 2003).

Using concepts drawn from the evolutionary biological literature, I categorize previous approaches to understanding charisma according to the level of analysis they address – whether they provide proximate or ultimate explanations. Next, I go into detail regarding the difference between correlates, cues, and signals, and how these core concepts employed in the study of animal behavior may have important implications for charismatic signaling in humans. I discuss the possible adaptive benefits of charismatic signaling by drawing attention to an often-overlooked coordination problem, referred to as the “Stag Hunt” game by game theorists, and suggest that the mechanisms through which charismatic signals can improve group coordination provides a model for the evolution of charismatic leadership in humans. Finally, I conclude with a discussion of the implications of the charismatic signaling
hypothesis of leadership, identify key questions which have yet to be resolved, and propose several issues I feel are important enough to merit future research.

**EARLY APPROACHES TO UNDERSTANDING CHARISMA**

Although the concept of charisma dates back to antiquity, the modern resurgence of interest in the study of charismatic leadership is typically credited to the theories of sociologist Max Weber, who described it as one of the three sources of authority which exert the most powerful influences on society (Weber, 1947). He characterized the charismatic form of leadership as being primarily driven by a belief in the unique and exceptional qualities of one particular individual, and suggested that it was often associated with rapid and radical societal changes. For Weber, the power of charismatic leadership – the “authority” which such figures are granted – could be best understood at the societal or institutional level. Weber’s theory has since been expanded upon by numerous researchers seeking to draw a causal link between attributions of charisma to particular individual leaders and broader, societal-level factors, such as the perception of external threat or internal crises (e.g. Jermier, 1993; Spencer, 1973). For the purposes of the present article I will not attempt to reiterate the long history of the scientific study of charisma – there remains very little to say that has not been covered in the exhaustive critiques already published in the management and leadership literatures (cf Yukl, 1999; Van Knippenberg & Sitkin, 2013; Antonakis, Bastardoz, Jacquart & Shamir, 2016). It is perhaps enough to say that since Weber scholars in numerous fields have continued to adapt and refine the various theories of charisma, and to make additions to the broader body of empirical observations from the vantage points of their own disciplines.
As with all scientific traditions, researchers and disciplines vary in how they conceptualize a construct as complex as charisma, and its meaning is often determined by the specific assumptions they hold, the importance they place on its various components, and the goals they hope to achieve in their research program (Heusinkveld, Benders & Hillebrand, 2016; Hempel, 1965). Thus, theories tend to differ in the emphasis they place on one or more of these various components. In the case of charisma, these can be broadly categorized into four main areas of inquiry: (1) individual traits: a set of unique skills and abilities possessed by a particularly charismatic leader (e.g. Judge, Piccolo, & Kosalka, 2009; Foti & Hausenstein, 2007), (2) follower behaviors: how and why followers are motivated to seek out such leaders and grant charisma to them as a result (e.g. Meindl, Eich, & Dukerich, 1985), (3) organizational or contextual influences: the degree to which leaders interact with the needs and goals of followers and organizations (e.g. Gardner & Avolio, 1999) and (4) outcomes: linking leader charisma to measures of success such as increased team productivity or job satisfaction (e.g. Lowe et al., 1996; Pillai et al, 2003; Shamir, 1994). Ideally, these various approaches would tend to move closer to one another over time, eventually coalescing into something resembling the shared knowledge base found in physics or biology.

Unfortunately, we have yet to converge on a “Standard Science Model” of charismatic leadership, but I argue that an evolutionary perspective represents the most likely means by which these different branches can be brought closer together. This is primarily because evolutionary theory provides a framework for describing both how charisma works and potentially why charismatic leadership has been selected for in human evolutionary history. Using the knowledge we have of the conditions in which early human societies evolved (Johnson & Earle, 2000), as well as the kinds of recurrent challenges that leadership and
followership appear best suited to solve, my approach can help to explain (1) why followers tend to direct their attention toward potential leaders in situations requiring coordination, (2) when our evolved heuristics make it more likely that groups will converge on a particular solution to a coordination problem, and (3) how charismatic individuals in particular can rapidly get individuals to converge on a particular solution (Spisak, O’Brien, Nicholson & Van Vugt, 2015).

SHORTCOMINGS OF PRIOR APPROACHES

As I have outlined above, it is not unusual for the meaning of a scientific concept like charisma to shift and change over time, as researchers borrow, modify, and add to the definitions proposed by their predecessors (cf.; Bass, 1985; Conger & Kanungo, 1987; House, 1977). However, this does become problematic when it leads researchers to continually “reinvent” charisma rather than directly engaging with the definitions proposed by other researchers. The various lenses through which charismatic leadership has been studied range from primarily theoretical approaches – such as social identity theory (Shamir, House & Arthur, 1993) – to more empirical traditions – such as the MLQ questionnaire measures developed by Burns (1978) and Bass (1985), which have come to dominate the study of charismatic leadership in organizations. In between have been a number of “hybrid” theories such as those proposed by House (1977) and Jacquart & Antonakis (2015), which do aim to bridge this divide. However, over the past few years there has been a growing concern among researchers that unless these different approaches can be integrated – at both the theoretical and operational levels – the field as a whole may be approaching a dead-end.

I agree that there is no compelling reason for conserving the overly complicated and competing theoretical explanations of charismatic leadership theory as they currently exist.
To do so requires an unnecessary amount of tinkering, readjustment, and a lack of parsimony that does not appear to be justified by the merits of any one of these various formulations or approaches. Instead, as more insights and tools from a variety of disciplines, including the biological, cognitive, and neurosciences, are added to our conceptual toolbox, the core concept of charisma will become clearer, opening up the possibility for consilience (Wilson, 1998). With this in mind, rather than reiterate the various shortcomings which have been identified and comprehensively addressed in recent reviews (e.g. Van Knippenberg & Sitkin, 2013; Antonakis, Bastardoz, Jacquart & Shamir, 2016) our aim in this article is to show what unique contributions an evolutionary perspective can make to understanding charismatic leadership.

The main contribution concerns the key role that group coordination has played in the story of human evolution, and how leadership and followership strategies enable human groups to coordinate effectively and efficiently in response to recurrent adaptive challenges such as hunting or warfare (Van Vugt & Ahuja, 2010). In the next section I will present a brief overview of the evolved psychological mechanisms which enable humans to achieve rapid and large-scale coordination, and how these adaptations for leadership and followership have played a role in our species’ transition from the small-scale societies of antiquity to the globe-spanning civilizations we find ourselves in today (Kenrick, Li, & Butner, 2003; Sober & Wilson, 1998; Von Rueden & Van Vugt, 2016) – with a key role for charismatic individuals in scaling up groups.

AN EVOLUTIONARY PERSPECTIVE ON (CHARISMATIC) LEADERSHIP

Evolutionary Leadership Theory (Van Vugt, Hogan & Kaiser, 2008) provides a unified theoretical framework for understanding leader-follower relations as fundamentally arising
from repeated selective pressures to make individually and collectively beneficial decisions in situations requiring coordination (e.g., hunting, warfare, group movement). It provides a solid theory from which to draw predictions, and opens up a larger “toolbox” which researchers can utilize to test competing hypotheses about leadership emergence, ranging from anthropological data (e.g. Bowles, 2009; Von Rueden & van Vugt, 2016) to agent-based simulations (e.g. David-Barrett & Dunbar, 2012; Sharpanskykh & Spisak, 2011), to models drawn from economics and game theory (Hooper, Kaplan & Boone, 2010; Tooby, Cosmides & Price, 2006). Our aim in the present article is to show how an evolutionary perspective can provide an explanation broad enough to encompass the wide range of interesting and unique aspects which differentiate charismatic leadership from other forms of leadership.

As a first step, I believe it is important to draw a clear distinction between theories which attempt to explain the how of charisma (e.g. How does charisma arise? How does it enable some individuals to influence the behavior of others? What are the underlying mechanisms?) and the why of charisma (e.g. What, if any, is the evolved function of charisma such that it contributed to the survival and reproductive success of ancestral humans?). In the biological sciences, the former are commonly labeled proximate explanations whereas the latter are referred to as ultimate explanations. This approach toward understanding a particular trait or behavior is generally attributed to the 20th-century ethologist Nicholas Tinbergen, whose thinking was in turn profoundly influenced by the debates which took place in biology following the widespread acceptance of Darwin’s theory of evolution by natural selection. At the time, some of his contemporaries – eager to incorporate Darwin’s new and exciting ideas – had begun to move away from the meticulous note-taking and observation which had typically characterized their discipline and to propose increasingly speculative and often unscientific explanations for why animals behaved the way they did (Buller, 2005).
Tinbergen, however, was able to synthesize these two trends by recognizing that the wealth of empirical observations gathered by generations of field researchers were essential to understanding a behavior’s causation (the specific stimuli which produce it) and ontogeny (how it develops over time), which he labeled proximate explanations. Once these first two had been made sufficiently clear, it was often easier to make informed hypotheses about the behavior’s survival value (how it increased reproductive success) and evolution (how it arose in the species over time), which he termed ultimate explanations (Tinbergen, 1964). This systematic approach has been shown, time and again, to generate insights and testable predictions which a purely descriptive or theoretical approach may have been unlikely to arrive at alone.

We suggest that researchers attempting to understand charisma and charismatic leadership today, armed with several decades worth of theoretical and inductive work to draw on, are now in a position to start answering these questions scientifically. So far I have briefly alluded to some of the factors which have been proposed as potential explanations for the emergence of charismatic leadership. The societal factors first identified by Weber, for example, suggest that the proximate cause of charisma can be primarily explained by factors in the environment around a leader such as an imminent crisis like warfare or a natural disaster – a perspective often referred to as the “state” view. “Trait” theories, on the other hand, begin with the assumption that charisma can be explained by identifying some set of unique or exceptional personal qualities which distinguishes such individuals and ultimately explains their success. While these two approaches may at first appear completely incommensurable (Kuhn, 1962), in a broader sense they represent two equally important proximate explanations of charisma. However, from our perspective, neither one of these provides a complete explanation. I suggest that what is missing from both accounts is an
understanding of why our followership psychology has been shaped in such a way as to be open to charismatic influence from leaders. The leader index is an attempt to explain why followers are susceptible to leaders. As outlined in Figure 1, I propose that charisma is best understood as the result of an interplay between evolved followership mechanisms, contextual factors, physical and social cues from potential leaders, and active signaling on the part of the potential leader – the sum of which constitutes their charisma.

THE LEADER INDEX -
A CONCEPTUAL MODEL OF CHARISMATIC LEADERSHIP.

Leadership and followership, at the proximate level, consist of a set of psychological mechanisms which enable an individual – the potential follower – to make automatic, rapid and reasonably accurate assessments of the leadership potential of different individuals, based on any available sources of information (Spisak, Homan, Grabo & Van Vugt, 2011; cf “model-ranking” in Henrich, Chudek & Boyd, 2015). There is substantial evidence that such mechanisms are already present in young children who can quite accurately infer leadership ability from access to facial cues only (Antonakis & Dalgas, 2009; Cogsdill, Todorov, Spelke, & Banaji, 2014). Since leadership potential cannot be directly observed, I propose that our followership psychology has evolved to register cues relevant to determining leadership potential, and use them to compute a “leader index” based on the perception of (a) external factors embedded in the environment (e.g. war, peace, stability, change, movement) which determine the kind of coordination challenge the group is facing, (b) physical cues of leadership potential (e.g. height, attractiveness, formidability and facial appearance), and (c) social cues (e.g. reputation, network size, and signaling abilities). Together these variables should reliably predict who emerges as leader in particular situations. In evolutionary
psychology, this computational mechanism – the leader index – is characterized as an “internal regulatory variable” (Tooby & Cosmides, 2008). Evidence has been found for the existence of such indices in the human mind, for instance, when estimating one’s genetic relatedness to another group member (the kinship index; Lieberman, Cosmides & Tooby, 2007) or the ability of individuals to inflict costs on others (the formidability index; Sell, Cosmides & Tooby, 2009). Like the “kinship” and “formidability index” the leadership index can be conceived as an evolved computational mechanism which allows individuals to assess and compare individuals on the basis of whether they are able or willing to provide coordination benefits. This computation is thus an essentially quantitative measure which can be continuously updated in the mind as new information arrives, for example, a personal interaction with the aspiring leader, a TV-interview, or news report. Because they are tracking the leader index of others, followers are able to rank potential leaders and decide whom to follow in any given situation. In the following section, I will elaborate on this model and identify some of the major factors which serve as inputs into this computation.

**Figure 1** – A conceptual model of the Charismatic Leader Index as an internal regulatory variable.
To begin with an example of how contextual features interact with cues of leadership to activate a specific followership psychology, consider a situation in which one group is confronted with the need to defend themselves against another. Such intergroup conflict has played a significant role in the story of human evolution; evidence suggests that coalitionary violence was common in our species (Bowles, 2009). War is a high-risk, high-reward strategy, in which the victors benefit from access to the territory and potential mating partners of other groups and thus has important reproductive consequences (Wrangham, 1999a). Thus, it should come as no surprise that the perception of such conflict has been shown to influence leader preferences across multiple studies – with followers preferring individuals who possess cues or send signals indicating their ability or willingness to protect the ingroup (Little, Burriss, Jones & Roberts, 2007; Spisak, Grabo, Homan & van Vugt, 2012).

Specifically, followers prefer leader candidates whose facial or bodily features demonstrate a higher degree of masculinity – e.g. a pronounced jaw, prominent supraorbital ridge, and a wider nose. These physical features result from increased levels of testosterone, which itself has been shown to increase the likelihood of engaging in aggressive, dominating behaviors (Apicella, Dreber, Campbell, Gray, Hoffman & Little, 2008; Carré et al., 2009; Stenstrom, Saad, Nepomuceno & Mendenhall, 2011). For instance, high testosterone men behave more aggressively as group leaders in simulated war games (Johnson et al., 2006).

To go into just a bit more detail, evolutionary signaling theory describes the relationship between an observable feature (such as facial masculinity) and an otherwise imperceptible underlying quality (ability or wiliness to engage in aggressive actions) as a correlate. When this correlation is perceptible to others, and reliably influences their preferences, then it can
be properly considered a cue. This distinction helps to clarify both when and why we often observe systematic variation in leadership preferences – both contextual and individual cues act as inputs into the leader index of followers, allowing people to draw inferences about the likely actions of potential leaders.

**SIGNALING**

Above I have argued that facial masculinity (and physical formidability) function as cues that a potential leader possesses underlying qualities which make it more likely they will successfully coordinate action in particular contexts (e.g., protecting the group when it is under attack). Paying attention to such cues increases the survival chances of followers, which is how such followership mechanisms evolve (Van Vugt & Ronay, 2014). Yet there are many physical cues which are ultimately irrelevant to the survival of followers (e.g., a leader having brown or blue eyes). It is only when the former criterion is met – that is, when a cue has been selected by evolution because it increases the survival and reproductive chances of both senders (aspiring leaders) and receivers (followers) – that a cue can properly be described as a signal (Scott-Phillips, 2008; Henrich, 2009). In the animal world, a classic example is the peacock’s tail, which is so large that it makes a male peacock more vulnerable to predators and parasites. The tail is therefore a correlate of genetic quality, and a signal because this information has fitness benefits for both males who display them and females who use them to discriminate between potential mating partners.

Some examples of leader cues or signals that are ubiquitous in interactions with followers include behavioral mimicry (e.g. mutual exchanges of smiles and head nods), activity level (clear indications of interest and excitement), influence (e.g. when one individual alters the speech or posture of another), and consistency (e.g. demonstrating expertise through smooth
and fluid speech or movement; Pentland, 2010). As I will demonstrate in the following section, many these cues or signals align closely with the qualities of charismatic individuals. However, before reaching this conclusion, I will highlight some of the specific cues and signals which I propose are most relevant to an understanding of charisma.

**Context.** An evolutionary psychology perspective makes clear that leader preferences should vary with the adaptive coordination challenges that groups are facing. The leader index scores of individuals – and their charisma ratings – should vary with the extent to which they can help groups overcome a specific challenge. This means that some cues that are relevant in warfare such as facial masculinity may not be relevant when choosing a peacetime leader (Spisak et al., 2012). While our ancestral environment was one in which human groups were under constant threat of violence, the level of intragroup cooperation made possible during times of peace has ultimately allowed human groups to thrive (Wright, 2001). Like many other social species, human groups are characterized by high levels of voluntary food sharing, communal parenting, and infant care from older siblings, mating partners, and grandmothers, all of which typically coincide with strong pair-bonding and family groups (De Waal, 1996). Our theory thus predicts that the perception of contextual factors which make the potential benefits of cooperation more salient constitute another major input into the leadership index. It is worth noting that many of the most iconic examples of charismatic leaders in recent history, such as John F Kennedy (“Ask not what your country can do for you…”), Martin Luther King (“I have a dream…”) or Barack Obama (“Yes We Can…”) were extraordinarily effective at signaling the both the urgency and the need for intragroup cooperation.
As a different example, consider a time of transition. Sometimes groups need to change in order to survive – for example, a decrease in available local resources may force them to explore unknown territory, and scout for new sources of food or shelter. Age, and particularly young age, may be a cue to the ability of potential leaders to successfully coordinate group transition as younger leaders are likely to be more open-minded and take greater risks. In the context of change, therefore, our leader index may be more strongly influenced by cues of youth – and charisma is likely to be attributed to leaders who exhibit cues of increased strength, stamina, and physical ability – all qualities which would have historically increased the likelihood that younger leaders could direct such changes successfully (Spisak, Grabo, Arvey & Van Vugt, 2013). In modern society, evidence suggests that entrepreneur leaders are younger, while the boardrooms of Fortune 500 companies are more likely to be made up of older individuals (http://beta.fortune.com/fortune500/).

**Formidability.** Individuals who are taller and physically stronger than their peers, for example, may have a higher leader index because they are expected to have greater success in physical combat, in punishing defectors, and attracting the attention of followers – these are all important leader characteristics in ancestral environments (see Blaker et al., 2013; Von Rueden & Van Vugt, 2016 for extensive reviews). Interestingly, there is evidence taller leaders are deemed more charismatic by followers (Hamstra, 2014).

**Facial appearance.** Much of the research in this area suggests that followers pay particular attention to information signaled through facial features (Little, Jones & DeBruine, 2011) and expressions (Masters, Sullivan, Lanzetta, McHugo & Englis, 1986). Perceptions of facial attractiveness and health also can serve as signals of one’s leadership potential in physically demanding environments (Spisak et al, 2014), and more specific features have
been shown to rapidly influence perceptions of personality attributes such as warmth, competence and trustworthiness (Todorov, Mandisodza, Goren & Hall, 2005). Research on the evolutionary psychology of leadership continues to uncover new ways in which our evolved psychology makes use of the wealth of information conveyed by our faces (for a review, see Van Vugt & Grabo, 2016).

**Attractiveness.** Many researchers have noted that a leader’s charisma is highly correlated with physical attractiveness (Kniffin, Wansink, Griskevicius & Wilson, 2014). From an evolutionary psychology perspective, this relationship is most likely due to a combination of several factors – first and foremost that a more attractive face is more likely to attract the attention of group members, a hypothesis supported by evidence that physical attractiveness is positively related to social skills (Feingold, 1992). Furthermore, this “halo effect” seems to begin very early in life, as even infants spend more time fixated on attractive versus unattractive faces (Langlois et al., 1987; Young & Bruce, 1998).

From an evolutionary perspective, why would we attribute charisma to attractive looking faces? It may be that facial symmetry (which is highly correlated with attractiveness) functions as a cue for “good genes”. Indeed, evidence suggests that in environments where disease concerns are more prevalent, leaders tend to be more physically attractive on average (White, Kenrick & Neuberg, 2013). It could be that an attractive-looking candidate is preferred in physically challenging environments, especially when there is greater distance between leaders and followers and personal information about the leaders is lacking (see Antonakis & Jacquart, 2013). In our modern media-saturated world most voters are inundated with images of leader candidates, but have relatively little access to information that would have been available in the small-scale societies in which humans evolved (such as
information about coalition size or information gained from face-to-face interactions). Absent these cues, physical attractiveness may now exert a disproportionate influence on leadership emergence that may not reflect its relative importance in our ancestral environment, where it served primarily as a cue of genetic quality and health.

If this is the case, then our theory would predict that attractiveness should (a) matter more in predicting leadership in physical domains (sports, army) and (b) influence followers more who have little knowledge about the leaders. Indeed, Lawson et al. discovered among US-voters that facial appearance of political candidates was more influential among voters who had little political knowledge but who watched a lot of television. In summary, an evolutionary approach suggests that the relationship between attractiveness and charismatic leadership may be more than a simple “halo effect” (cf Verhulst, Lodge & Lavine, 2010).

Coalition size. Finally, evidence from small-scale societies indicates that a great deal of the influence and charisma that leaders have also depends on social factors such as their coalition size (i.e. the size of one’s family or network of exchange partners; von Rueden, Gurven, Kaplan & Stieglitz, 2014), and heredity (a leader’s children often inherit the status and social contacts of their parents, and leaders with greater social networks are indeed granted more prestige (Glowacki & von Rueden, 2015)

A SIGNALING APPROACH TO CHARISMA

We now turn to the definition, origin, evolved function of charismatic leadership. A charismatic leader is defined as an individual who signals their ability (and willingness) to swiftly mobilize group action in the face of an urgent coordination challenge (e.g., movement, warfare, conflict management). Before discussing the origin and evolved
functions, let’s look at some of the proximate mechanisms through which charismatic leaders exert their influence on followers.

**Attracting attention.** First and foremost, leaders signal information simply by expending greater amounts of energy to attract the attention of others – for example, one of the most effective ways to direct group movement might be simply pointing excitedly toward a source of food or a potential aggressor (surgency; Pentland & Heibeck; 2010). Anecdotal evidence suggests that possessing particularly unique physical features, such as Abraham Lincoln’s elongated face or Rasputin’s piercing eyes, may also affect charisma as a result of their attention-grabbing ability. This hypothesis is further supported by evidence suggesting that greater degrees of fluctuating asymmetry are associated with increased scores on measures of transformational leadership (i.e., charisma) as well as effectiveness (Senior, Martin, Thomas, Topakas, West & Yeats, 2012). With the development of language, however, human signaling has become orders of magnitude more complex and nuanced when compared to those found in other species. Numerous studies have shown that the ability to control one’s expressions, voice pitch, pace, and so on are positively related to leadership emergence (Klofstad, Anderson & Peters, 2012).

**Arousing emotions.** While an individual who possesses extraordinary rhetorical abilities may be more likely to influence the behavior of others, truly charismatic leaders are able to make use of these skills to convey the urgency of the challenge facing the group and inspire them to collective action (Conger, 1991; Awamleh & Gardner, 1999). Consider the example of the “prophet of doom,” a type of religious leader who in every generation can be found warning others that the end is near. By setting the stakes so high, such leaders are more likely to not only attract the attention of others; but are frequently able to persuade their followers
into acts that would be unthinkable to most of the individuals themselves. Finally, recent research has also demonstrated that there are a number of specific verbal tactics such as the use of lists and metaphors that can directly influence attributions of charisma (Frese, Beimel & Schoenborn, 2003; Antonakis, Fenley & Liechti, 2011).

Articulating a vision, invoking shared norms and collective identity. These tactics are typically directed toward the articulation of a “vision,” beginning with a description of the situation as it currently stands, and then identifying the ways in which it could be improved through collective action. Perhaps the most famous example of this is the “I have a dream” speech, in which Martin Luther King, Jr. laid out a powerful vision of “collective possible future selves” which ultimately become a reality within a generation (Stam, Lord, Van Knippenberg & Wisse, 2014). Such signals are amplified when charismatic leaders are able to reinforce norms that are relevant to the situation, and draw attention to shared symbols in a collective setting which further facilitates coordination (Bulbulia & Frean, 2010). When a leader gives a speech in the presence of a crowd, they signal both their understanding of the problem at hand and their willingness to act as “first mover” in resolving the social dilemma (Levati, Sutter & Van der Heijden, 2007). From the Greek Agora to modern social media, leaders have made use of whatever technologies are at hand to ensure that their message is delivered to as many listeners as possible. The communal nature of such communication makes it easier to persuade each listener that others around them are more likely to behave as they would when such norms are salient in their own minds. This shared knowledge makes it easier for followers to coordinate, as it increases trust and the perceived likelihood that others will respond similarly (Henrich, Chudek & Boyd, 2015; Balliet, 2010; Dirks & Ferrin, 2002).
Charismatic leaders, therefore, function as focal points in coordination games through which individuals and groups can identify and align themselves with communal goals, and strengthen their sense of a shared identity (Dal Bó & Dal Bó, 2014). When a leader is able to engage the emotions and motivations of a group in this way, the strength of the signal appears to be amplified, and this positive or negative affect can quickly become contagious by spreading through the group (Shamir, House & Arthur, 1993).

To sum up, I argue that charismatic leadership is best viewed as an active signaling process (Pentland, 2010) whereby an individual – often initially as a result of possessing a set of identifiable physical or social cues which indicate leadership potential – is able, through both verbal and nonverbal signals, to attract the attention of followers, engage and synchronize their emotions, offer a vision, reinforce cultural norms and a shared sense of identity behind which a group of followers can rally.

**THE STAG HUNT GAME: THE FUNCTION OF CHARISMATIC LEADERSHIP**

Thus far I have outlined (a) the ways in which context, physical and social cues may play a role in increasing one’s leadership index, (b) argued that charisma is a generalized cue that followers use to assess someone’s ability to coordinate swift and urgent group action, and (c) identified some strategies that individuals use to signal their charismatic appeals. Let’s now turn to discuss the evolutionary origins of charismatic leadership. I will argue that charisma signals have been selected for because they increase the likelihood of successful coordination among groups of followers facing an urgent challenge. Charismatic influence can be either a direct or indirect process. A leader who is able to engender a sense of identification among followers and then acts as a “first mover” – leading by example – is exerting a direct influence on the outcome of followers. Indirectly, however, a charismatic leader often serves
as a focal point, whose public speeches and symbolic actions serve to change or align followers’ beliefs about what other followers are likely to do. In both cases, I argue that what makes charismatic leadership such a powerful influence is that it consists of signals that enable groups to better coordinate in response to a range of urgent adaptive challenges (like war, peace, or group movement), and increase confidence that such cooperation will result mutually beneficial outcomes. To the extent that the charismatic influence attempt succeeds such leaders will be granted status and prestige by followers (the-service-for-prestige theory; Price & van Vugt, 2014), which in turn feeds back into their leader index, in the form of enhancing their index.

Signaling theory (Maynard Smith & Harper, 2003) suggests that followers have evolved to pay attention to charismatic leaders, especially in situations requiring urgent coordination, because it results in mutually beneficial outcomes. It was the philosopher Rousseau who first described a coordination problem, now commonly referred to as the Stag-Hunt game, which might provide a model for the evolution of charismatic leadership. In the metaphor he gave, he describes a situation in which two (or more) players have decided to hunt a stag, which requires them to cooperate. Unlike the Prisoner’s Dilemma, in which the rational choice is to defect, in the Stag Hunt the rational choice is for players to coordinate with each other (whether it is hunting the hare or the stag). Game theorist Skyrms (2001) describes the options of the game (here between two players, but the n-version is essentially the same):

“A player who chooses to hunt stag takes a risk that the other will choose not to cooperate in the Stag Hunt. A player who chooses to hunt hare runs no such risk, since his payoff does not depend on the choice of action of the other player, but he foregoes the potential payoff of a successful stag hunt. Here rational players are pulled in one
direction by considerations of mutual benefit and in the other by considerations of personal risk.”

Figure 2 – The payoff matrix of the “Stag Hunt” game

The question, then, is when individual agents move from the Hare equilibrium to the Stag equilibrium - which is superior in terms of outcomes. The two major factors that limit the likelihood of success are that: (1) players have incomplete information about the actions of the other, so that even a well-intentioned player may choose incorrectly, and (2) while both outcomes are not equally desirable. Given this lack of information, the temptation will arise to defect to the inferior outcome (Hare) unless one has reason to believe the other will not do the same. In this urgent hunting problem, we find a clear illustration of how the qualities which characterize a charismatic leader make them uniquely capable of increasing the likelihood that their followers will successfully coordinate to achieve the collectively beneficial outcome. By attracting attention, they ensure that their message is spread throughout the group so that it becomes rational to assume that – whoever one’s partner is – they too are likely to have heard the same speeches, felt similar emotions, shared a similar vision, and been reminded of the same norms of behavior. These different qualities may vary in the degree to which they act in concert to produce this outcome.
Previous research has demonstrated that even minimal exposure to charismatic signals (i.e. watching short video clips of a charismatic speaker) can promote cooperation between strangers in trust and dictator games as well as increase coordination between players in Stag Hunt game (Grabo & Van Vugt, 2016). Charismatic leadership thus moves group to a cooperative equilibrium from which everyone in the group (including the leader and followers) benefit. In light of the complexities of this game, the most important factor that increases the likelihood of successful coordination is the belief each player holds about what other players in the game will choose (Bulbulia & Sosis, 2011) and the result that charismatic leaders increase the trust among followers. In the next few chapters we will demonstrate the results of empirical studies which examine what takes place in the minds of followers when they are presented with charisma.
- CHAPTER THREE –

THE EVOLUTIONARY CONTINGENCY HYPOTHESIS
One of the questions often asked about charismatic leaders is whether they are born or made – are some people simply destined to become leaders, or were they just in the right place at the right time? While there can be no doubt that the most successful charismatic leaders often possess unique skills and personality attributes which contribute to their remarkable success, it is equally important to understand how their emergence is influenced by the environment around them. Leaders such as Winston Churchill and Che Guevara, for example, rose to power during times of crisis; the necessities of war and revolution created an urgent need for a strong, dominant figurehead. Meanwhile, during the same century, both Martin Luther King and Mahatma Gandhi were also confronted with crises but gained their appeal by promoting peaceful opposition instead. What are the common threads that can help us to tie together these seemingly contradictory stories?

In this chapter I investigate this variation in charismatic attributions from the perspective that such leaders are both born and made, and that our ability to lead and follow is ultimately an adaptation which enables human groups to cope with various coordination challenges such as warfare, peacekeeping, group movement and resource acquisition (Van Vugt et al., 2008).

**HYPOTHESES**

Thus far I have explained that leadership preferences can be both domain-general and context-specific, and that leadership emergence can be influenced by the perception of contingent matches between specific contextual and physical cues. From this perspective, I propose that charismatic attributions can be best understood as a consequence of this signaling process, and that charismatic leadership is a particular style which makes use of these attributions to promote coordination. In order to test this theory, the present studies made use of experimental designs and procedures which enabled us to manipulate both the
information conveyed by the facial appearance of leader candidates and the contexts in which they were perceived. Across both studies, I predict that the perception of such contingent matches will influence not only who followers prefer, but also how charismatic these leaders are seen.

The Evolutionary Contingency Hypothesis. The perception of a congruent match between contextual and facial cues will increase leadership preferences. Specifically, in Study 1 we predict that participants will prefer leaders with more masculine faces in a wartime context, but more feminine faces in the context of peace (H1a). In Study 2, we predict that participants will prefer leaders with older faces in the stability context, but younger-looking leaders in the context of change (H1b).

Inferring Charisma from Contingency. Again, in Study 1 we predict that participants will rate leaders with more masculine faces as higher in charisma in a wartime context, but find more feminine faces more charismatic in the context of peace (H2a). In Study 2, we predict that participants will rate leaders with older faces as more charismatic in the stability context, but find younger-looking leaders more charismatic in the context of change (H2b). Finally, across both studies we predict that these charismatic attributions will mediate the relationship between context and leadership preferences (H3).

METHODS AND PROCEDURE

Our first aim in the present studies was to replicate and extend previous findings in the growing literature on facial appearance and context-specific leadership preferences. Our experimental design made use of methods and materials developed in prior research to investigate whether the perception of a match between environmental context and facial cues would cause followers to view such leaders as more charismatic. As the procedure for both
studies was identical, I will begin with a general description of the research design before continuing to the materials.

**GENERAL METHODS.**

Our first aim in the present studies was to replicate and extend previous findings in the growing literature on facial appearance and contingent leadership preferences. Our experimental design made use of methods and materials developed in prior research to investigate whether the perception of a match between environmental context and facial cues would cause followers to view such leaders as more charismatic. As the procedure for both studies was identical, we will begin with a general description of the research design before continuing to the materials.

Participants in both studies were recruited online via Amazon’s Mechanical Turk crowdsourcing platform (MTurk). After clicking the survey link, they were presented with an informed consent form which provided the terms of their participation, and an overview of the study explaining that they would be asked to vote in a hypothetical election.

**Context Manipulation.** Participants were randomly assigned to read one of two vignettes which described the current state of the country in which the elections were to take place, both of which have proven to be effective manipulations in previous research. In Study 1, these consisted of either a War or Peace prompt (Spisak, Honan, Grabo, & Van Vugt, 2012), while in Study 2 the text stressed the need for either Change or Stability (Spisak, Grabo, Arvey & Van Vugt, 2014). In the first round, these faces were presented above a slider with which participants could indicate their general preferences for either candidate. These faces were then presented once more, this time alongside a 6-item charisma scale, which asked
participants to indicate which of the faces was best described by each of the items. Finally, after giving their demographics, participants were debriefed and compensated.

**Initial Leadership Preferences.** Participants were shown a sequence of face pairs, side-by-side versions of the same face which were artificially manipulated to look either more masculine, feminine (Study 1), older or younger (Study 2) via the methods described in the following section. Their initial task was to indicate which version of the face they would prefer to vote for given the circumstances described in the preceding vignette. Faces were presented in random order, with the two versions counterbalanced so that they were equally likely to appear on either the right or left side of the screen.

**Charisma ratings.** After completing the leadership preferences task, participants read the vignette a second time to remind them of the context, and were again presented with the face pairs. This time they were asked to indicate (on a scale of 1=better description of the face on the left to 6=better description of the face on the right) which of the faces was better described by each of the 6 items which comprised our charisma scale, examples of which include “appears able to attract attention,” and “appears able to engage people’s emotions through speech or action (See Appendix 1 for full items).” Note that it was not possible to choose the midpoint of the scale, so participants were forced to choose one of the two options.
PARTICIPANTS AND MATERIALS

STUDY 1.

A total of 349 American adults (184 male, 156 female; Mage = 34.19) were recruited via Amazon’s Mechanical Turk crowdsourcing platform (MTurk) and randomly assigned to either the war (N=172) or peace condition (N=177).

Faces of leader candidates. Facial stimuli were selected from a database created by the experimenters specifically for use in facial morphing research, initially consisting of 29 portrait photographs of Dutch male participants enrolled in an MBA course at Nijenrode Business School. This sample was selected because the majority of participants had already attained leadership or management positions in their respective organizations, and were significantly older than the university population often used in previous research. Photographs were taken in controlled circumstances so that possible confounding factors such as lighting, camera height, and distance could be held constant.

However, in order to avoid participant fatigue from being asked to rate such large samples, a total of 8 representative faces were selected as final inputs for the masculine / feminine transformation. In line with previous experiments measuring masculinity preferences (DeBruine, 2013), the faces were then transformed using Psychomorph Online software toward either a prototypically male or female face to create both masculinized and feminized versions of the original photograph (DeBruine & Tiddeman, 2015).

Contextual Prompts. Participants were randomly assigned to either the war or peace condition, which consisted of one of the following short vignettes:
War Prompt. Your country of Taminia is at war with the neighboring country of Robania. It has been an aggressive, costly and competitive war with neither side willing to concede. Recently, your enemy Robania has increased their forces and intensified their bombing raids. This has made everyone exceptionally concerned for their safety. You and your fellow citizens of Taminia are determined to establish dominance over Robania in order to protect your lands, resources, and people. Currently, your country is in the middle of a presidential election. You will be shown a number of faces, each with two different versions side-by-side. Your task is to indicate which version of the candidates' face you prefer as a leader in a time of war.

Peace Prompt. Your country of Taminia has fallen into an economic recession and the two major political parties are experiencing internal differences. As a result, the people are strongly divided on what course of action is necessary to restore Taminia. Recently, disagreements between rival party members have become hostile; with small pockets of violence occurring throughout the country. This has caused a growing threat of civil war. However, the general consensus is to avoid internal fighting and resolve disputes without hostility. The citizens of Taminia prefer a wise strategy that includes compromise and cooperation. Currently, your country is in the middle of a presidential election. You will be shown a number of faces, each with two different versions side-by-side. Your task is to indicate which version of the candidates' face you prefer as a leader in a time of peace.

STUDY 2

Participants. 221 American adults (130 male, 91 female; Mage=34.40) were recruited via MTurk and randomly assigned to either the change (N=112) or stability condition (N=109).
**Faces of leader candidates.** Facial stimuli were taken from the neutral expression pose of the Computer Vision Laboratory face database, the selection and manipulation of which yielded 4 pairs of faces which were manipulated to look either or younger or older (Spisak, Homan, Grabo, & Van Vugt, 2012 for details).

**Contextual Prompts.** Participants were randomly assigned to either the change or stability condition, which consisted of one of the following short vignettes:

**Change Prompt.** Imagine you are a citizen of the (fictional) country of Taminia, which is currently facing turbulent times. At the moment elections are being held, and there are two main candidates to choose from whose messages are very similar. Both of their campaigns have focused on the need for rapid and systemic change at all levels of government. Both candidates have pledged to increase funding for crowdsourcing and encouraging entrepreneurship in economic sectors such as alternative energy, space exploration, and innovative research in biology and computing. These candidates have also pledged to radically improve some aspects of the existing transport infrastructure by focusing on new developments such as drones and self-driving vehicles to help modernize the economy. Based on the appearance of the candidate, please select the leader that you would be most likely to vote for to encourage change and rate your degree of preference.

**Stability Prompt.** Imagine you are a citizen of the (fictional) country of Taminia, which is currently facing turbulent times. At the moment elections are being held, and there are two main candidates to choose from whose messages are very similar. Both of their campaigns have focused on the need for stability and conservation at all levels of government, as well as maintaining the traditions and culture upon which the country was founded. Both candidates have pledged to increase funding for programs to make better use of existing energy sources
such as oil and natural gas, as well as toward traditionally stable sectors of the economy such as manufacturing and agriculture. These candidates have also pledged to dramatically increase funding for the maintenance and improvement of large infrastructure projects such as roads, bridges and railways. Based on the appearance of the candidate, please select the leader that you would be most likely to vote for to promote stability and rate your degree of preference.

**ANALYSES & RESULTS**

Although the initial presentation of the faces in both studies was counterbalanced so that faces were randomly presented on either the left or right side of the screen, responses were subsequently recoded for easier interpretation. In Study 1, higher scores indicated a preference for the more masculine candidate, while for Study 2 higher scores indicated a preference for the older candidate.

**STUDY 1**

**General Leadership Preferences.** I first conducted a one-sample T-test comparing general preferences against the scale midpoint of 3.5, which reflects no average preference between masculine and feminine versions of the face. Results indicated that across conditions, on average participants preferred a more masculine version of the leader candidate (M= 3.72, SD=.73; t[349]=5.62, p<.001.

Next, I sought to replicate previous findings on contingent preferences by conducting a univariate GLM with condition as the independent variable and the mean masculinity preference as the dependent variable. Results indicated a significant effect of condition on masculinity preferences (F[1,347]=50.28, p<.001, ηp2=.13). Further analysis demonstrated
that the observed effect was primarily driven by an increase in preferences for masculine
faces in the war condition, which differed significantly from the scale midpoint reflecting no
preference (M=3.99, SD=.72, t[171]=8.87, p<.001), whereas preferences for feminine faces
in times of peace did not (M=3.46, t(176)=-.361, p=.72), and therefore participants had no
preference for masculine versus feminine faces.

**Charisma and Congruency.** To determine the effect of condition on charisma ratings, I
first created a composite score of the 6 individual items comprising our charisma scale
(α=.95), again with higher values indicating that participants attributed more charisma to
masculinized versions of leader candidates. I then entered these charisma ratings as the
dependent variable in a univariate GLM, with condition as the between-subjects factor. The
results were in line with our hypothesis, demonstrating that participants attributed
significantly more charisma to congruent pairings than incongruent pairings. Overall the
charisma ratings for masculine faces in times of war (M=3.74, SD=.62) differed significantly
from charisma ratings for female faces in times of peace (M=3.58, SD=.63; F[1,347]=6.16,
p=.014; see Table 1 for individual descriptive statistics). Including sex and gender in the
model did not significantly affect the results (f[1, 335]=5.36, p=.02).

The fact that condition affected both charisma and masculinity preferences was consistent
with a mediation hypothesis. To formally test this hypothesis, I tested whether context (war
or peace) influences preferences (masculine or feminine through the mediation of charismatic
attributions using the SPSS PROCESS macro (Preacher & Hayes, 2008). Charisma ratings
partially mediated the effect of context on masculinity preferences, as indicated by an indirect
effect whose 95% confidence interval did not overlap with zero (LL = -.17, UL = -.02). A
direct effect of condition on masculinity preference (that is, an effect independent of charisma
attributions) remained (LL = -.56, UL = -.31). Hence, charisma attributions partially, but not fully, mediated the effect of condition on masculinity preferences.

**STUDY 2**

**General Leadership Preferences.** I first conducted a one-sample T-test comparing general preferences against the scale midpoint of 3.5, which reflects no average preference between younger and older versions of the face. Results indicated that across conditions, on average participants preferred a younger version of the leader candidate (M=2.98, t(221)=-6.55, p<.001).

Next, I sought to replicate previous findings on contingent preferences by conducting a univariate GLM with condition as the independent variable and the mean score of combined face preferences as the dependent variable. Results indicated a marginally significant effect of condition on general leadership preferences (f[1,219]=3.52, p=.06, ηp2=.016). Further analysis demonstrated that the observed effect was primarily driven by an increase in preferences for younger faces both in the change (M=2.7, SD=1.49; t[112]=-5.52, p<.001) and stability conditions (M=3.07, SD 1.23; t(109)=-3.65 p<.001).

**Charisma and Congruency.** To determine the effect of condition on charisma ratings, I again created a composite score of the 6 individual items comprising our charisma scale (α=.95, see Table 2 for individual descriptive statistics), this time with higher values indicating that participants attributed more charisma to older versions of leader candidates. I then entered these charisma ratings as the dependent variable in a univariate GLM, with condition as the between-subjects factor. The results were in line with our hypothesis, demonstrating that participants attributed significantly more charisma to congruent pairings than incongruent pairings. Overall the charisma ratings for younger faces in times of change
(M=2.62, SD=1.15) differed significantly from charisma ratings for older faces in times of stability (M=3.03, SD=.90; F[1,219]=8.58, p<.01). Including sex and gender in the model did not significantly affect the results (F[1,216]=9.92, p<.01).

Charisma ratings fully mediated the effect of context on age preferences, as indicated by an indirect effect whose 95% confidence interval did not overlap with zero (LL =.12, UL = .58). A direct effect of condition on age preference (that is, an effect independent of charisma attributions) did not remain (LL = -.28, UL = .29). Hence, charisma attributions fully mediated the effect of condition on age preferences.

**DISCUSSION**

The present study sought to test the prediction that participant’s leadership preferences and attributions of charisma would vary systematically in response to both (1) the context in which leadership selection occurred and (2) information signaled by facial attributes of the candidates. The results of two studies were consistent with this hypothesis, demonstrating that overall such congruent pairs (e.g. masculinized face in the war condition, older face in the stability condition) were indeed both preferred as leaders and attributed more charisma. Furthermore, these charisma ratings partially (Study 1) and fully (Study 2) mediated the relationship between condition and general preferences.

**Strengths and Weaknesses.** The study of charisma is an inherently tricky task, as evidenced by the numerous review articles which have been dedicated to identifying conceptual and methodological flaws in previous attempts to build a “grand unified theory” of charismatic leadership. One of the benefits of confining the scope of our research to the influence of factors such as context and facial appearance is that it allows for a level of experimental control which field studies cannot. The use of static images of faces, while
representing an extremely conservative manipulation of charisma even in comparison to short video clips or trained actors (Antonakis, Fenley & Liechti, 2011), does have the advantage of leaving very little room for potential confounds. That I was able to confirm our hypotheses using only subtle manipulations of facial features is a promising sign, and future research should certainly seek to find further evidence through the use of more powerful manipulations of charisma.

A second problem arising from this proliferation of charismatic leadership theories is that it is unclear exactly how it can best be operationalized. While it should be noted that high internal reliability of the 6-item Charisma scale employed in the present study might raise doubts regarding its discriminant validity, I believe that the scale may prove useful for researchers seeking a concise and easily interpretable scale for measuring attributions of charisma. However, it remains for future work to determine its effectiveness, preferably in conjunction with the use of more information-rich stimuli such as audio or visual recordings.

I have so far demonstrated a number of physical attributes which function as cues of leadership ability such as age, masculinity and attractiveness. However, our theory suggests that such features, along with the information conveyed via their speech and actions, could potentially function as a signal in this more limited sense, given that the process of leadership and followership appears to have fitness benefits for both leaders and followers. Charismatic leaders, for example, can benefit from their signaling via enhanced prestige and status, which can subsequently affect their reproductive success (Price & van Vugt, 2014; Von Rueden, Gurven, Kaplan & Stieglitz, 2015; Henrich, Chudek & Boyd, 2015). While the issue of group or multilevel selection is contentious, it appears there are several plausible scenarios in which groups composed of individuals who were better able to make use of such signals to...
coordinate their behavior could reap fitness benefits compared to those less able to do so (Spisak et al, 2015; Glowacki & Von Rueden, 2015). As a final note, signals can be considered either honest or dishonest; honest signals increase the fitness of the receiver, while dishonest signals may do so temporarily but ultimately threaten the system as a whole. It is interesting to note that this distinction aligns quite closely with that made between socialized and individualized forms of charisma made in the organizational literature (Brown & Trevino, 2006). Honest signaling and socialized charisma, for example, both function to improve the fitness or well-being of senders and receivers, while dishonest signaling and individualized charisma are ultimately harmful to the fitness or well-being of the senders.

I believe there are many potential benefits to be gained by adopting this perspective on signaling theory, both in helping to clarify our current understanding of the charismatic leadership process, and in identifying potential avenues for future research. For example, one question which arises from this distinction between cues and signals concerns their relative importance as determinants of charismatic attributions. Attractiveness, for example, while functioning as a cue for general leadership ability, might be of particular importance as a signal of one’s ability to successfully resolve physical challenges. Future research might aim to investigate the strength of these relationships, comparing the effects of attractiveness across both domain-general and context-specific conditions.
Table 1 – Descriptive statistics of charisma attributions by condition in Study 1. Higher values indicate the personality characteristic is more descriptive of the masculinized version.

<table>
<thead>
<tr>
<th>Charisma Rating</th>
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<th>Mean</th>
<th>SD</th>
<th>F</th>
<th>P</th>
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<tbody>
<tr>
<td>Attract Attention</td>
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<td>War</td>
<td>3.79</td>
<td>.69</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>177</td>
<td>Peace</td>
<td>3.60</td>
<td>.67</td>
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<td></td>
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<td>Total</td>
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</tr>
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<td>177</td>
<td>Peace</td>
<td>3.60</td>
<td>.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>349</td>
<td>Total</td>
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<td>.70</td>
<td>8.09</td>
<td>.005</td>
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<tr>
<td></td>
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<td>Peace</td>
<td>3.58</td>
<td>.69</td>
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<td>.68</td>
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</tr>
<tr>
<td>Warm</td>
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Table 2 – Descriptive statistics of charisma attributions by condition in Study 2. Higher values indicate the personality characteristic is more descriptive of the older face.

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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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</tr>
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<td>Total</td>
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<td>1.268</td>
<td>5.270</td>
<td>.023</td>
</tr>
</tbody>
</table>

APPENDIX 1 – CHARISMA SCALE ITEMS

1. Appears able to attract attention.
2. Appears able to engage people’s emotions through speech or action
3. Appears able to inspire people around him to take action
4. Appears to have a vision for the future
5. Appears to be a warm and likeable person
6. Appears to be an enthusiastic person with a lot of energy
APPENDIX 2 – EXAMPLE OF FACE PAIRING IN STUDY 2

As a citizen of Taminia, which of these two faces would you prefer as a leader during times of stability?

---

Strong preference for the face on the left
Moderate preference for the face on the left
Slight preference for the face on the left
Slight preference for the face on the right
Moderate preference for the face on the right
Strong preference for the face on the right
- CHAPTER FOUR -

EFFECTS OF CHARISMA ON PROSOCIAL BEHAVIOR

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2 This chapter is published as:
One of the defining features of human psychology is our remarkable willingness to behave prosocially toward others, to cooperate and coordinate in response to the many challenges which confront us as a species. The adoption of flexible strategies for leadership and followership is a key adaptation which enables this rapid and efficient coordination to persist -- even as populations continue to grow larger and less kin-based -- than those of our hunter-gatherer ancestors.

Charismatic leadership has played a major role in the history of Western culture and thought for millennia, and yet it remains uniquely difficult to define. At first glance, the differences between any two charismatic leaders appear far too numerous to be reduced to some common element. To St Paul, who coined the term over 2,000 years ago, charisma was an inexplicable gift from the divine. For Max Weber, the sociologist who brought the term back into vogue at the turn of the last century, charismatic leaders were treated as though possessing “supernatural, superhuman, or at least specifically exceptional powers (Weber, 1947).”

The aim of this article is to demonstrate that the extraordinarily powerful psychological effects of charismatic leadership can be explained without recourse to divine intervention. Instead, I propose that an explanation of the origins and functions of charismatic leadership can be grounded in an understanding of our evolved psychology, and can provide additional insight into the nature of the many mechanisms that sustain the large-scale cooperation necessary for human societies to flourish.

Ever since Darwin there has been an enormous amount of interest in the origins of human cooperation. The question has been approached through the lens of disciplines such as evolutionary biology (Nowak, 2013; Bowles & Gintis, 2011), social psychology (Van Lange,
Balliet, Parks & Van Vugt, 2014), political science (House, Spangler & Woycke, 1991) and religious studies (Norenzayan & Shariff, 2008; Bulbulia & Frean, 2010). Such efforts have resulted in a proliferation of tools and models which can help to explain how our psychology, language, and institutions have been contributed to the development and stabilization of cooperative behaviors and in human societies. Our theory proposes that charismatic leadership and followership are an important part of this larger story, one which remains a uniquely effective dynamic process allowing groups to adapt to the specific challenges confronting them. The present article will argue that a fuller understanding of the evolution of cooperation must include not only the history of the evolved biological and physical mechanisms that have allowed cooperation to flourish, but also the crucial role that leadership has played in embodying and giving agency to them.

I begin with a brief overview of how charismatic leadership can add to existing theory about the origins of human prosociality and cooperation. Next, I zoom in on the defining characteristics of charismatic leadership and embed the concept of charisma within an evolutionary framework. I suggest that charismatic leadership signals an opportunity for cooperation and review the existing literature. Finally, I present our hypothesis about how charisma can promote prosociality among strangers, and the results of three studies which tested this hypothesis through the use of charismatic stimuli and experimental economic games.

**EVOLUTIONARY ORIGINS OF LEADERSHIP**

Leadership has been around for a long time, and can be seen in a wide range of non-human species, suggesting that it is a biological adaptation that predates our own evolution (King, Johnson, & Van Vugt, 2009). While human leadership today is strongly hierarchical,
the available evidence suggests this was not the norm in the environment in which humans evolved. Our hominin ancestors existed in small bands of egalitarian hunter-gatherers for millions of years prior to the invention of agriculture (Boehm, 2001), and evidence from modern hunter-gatherer tribes indicates that this egalitarianism was maintained over generations by the development of leveling mechanisms which mitigated the risks of exploitation by individual members (Fehr & Fischbacher, 2003; Henrich et al, 2001). The evolution of theory of mind and complex language are often suggested as the key adaptations that enabled this surprising success, allowing for the development of reputation, gossip and collective punishment (Dunbar, 2003). Their role as leveling mechanisms contributed to the creation of a social environment unlike that of most other primates, one in which the reputational consequences and potential for punishment made selfish behaviors more likely to damage genetic fitness than to enhance it (Nowak, 2013). Our ancestors appear to have successfully balanced the complicated cost-benefit analysis of selfishness versus cooperation through the use of collectively enforced leveling mechanisms, without the need for the kinds of formalized institutions I see in modern societies.

While these leveling mechanisms would have applied to all members of the group they would have been of particular importance for individuals who drew the most attention, attempted to influence others, and took risks in proposing solutions to challenges facing the group. Any would-be leader of a group would have faced the most scrutiny from followers with a strong interest in avoiding exploitation by dominant leaders (Price & Van Vugt, 2014). This strong resistance to granting status or prestige to individuals who attempt to exert power through dominance alone has been referred to as the “reverse dominance hierarchy” (Boehm et al, 1993; Henrich et al, 2001).
However, even the smallest and most egalitarian of groups must have relied on the special abilities of specific group members to overcome recurrent fitness-relevant challenges such as the need for migration during times of fluctuating resource availability, or the need to coordinate to wage war or defend against rival groups (Van Vugt & Ahuja, 2010). In any human society there are also inevitable and recurrent challenges to intragroup stability, such as conflicts between individual members, or disagreements about the proper response to a challenge such as the distribution of scarce resources. Previous authors have suggested that over the course of our evolution this would have led to potential fitness benefits for individuals who were willing to help solve such problems, to function as “persuaders” or “choreographers.” While such individuals may not have accrued direct benefits in the manner of a dominant leader simply gaining access to resources through physical or social dominance, they may have increased their fitness indirectly via the accumulation of prestige (Henrich & Gil-White, 2001; cf. service-for-prestige; Price & Van Vugt, 2014).

It is precisely this form of leadership, and the types of abilities it necessitates, which I identify as the key components of charismatic leadership. I suggest that the abilities necessary to acquire influence and gain consent among followers, in the pursuit of cooperative goals and in the absence of coercive measures or institutions, represent the key components of charismatic leadership. This is an interpretation of charisma which provides both the proximate and ultimate explanations which are largely absent from the kinds of theories which have been developed in the traditional definitions that are presented by organizational theorists (see Van Knippenberg & Sitkin, 2013). In the next section I will outline some of the assumptions and supporting evidence that form the basis of an evolutionary hypothesis of charismatic leadership.
LEADERSHIP AND FOLLOWERSHIP HEURISTICS

While charismatic leadership represents a novel area of investigation for evolutionary psychology, there is reason to believe that, like other leadership and followership behaviors, it is an evolved strategy for coordination that operates via the activation of evolved, context-specific heuristics resulting from recurrent fitness-relevant selection pressures facing ancestral humans (King, Johnson & Van Vugt, 2009; Price & Van Vugt, 2014; Van Vugt, Hogan & Kaiser, 2008). This evidence suggests that humans have an evolved capacity to coordinate their activities with others, and follow particular influential individuals in response to specific challenges (Dyer, Johansson, Helbing, Couzin & Krause, 2009).

Previous research on leadership emergence has shown that followers are strongly influenced by a range of physical cues, such as the relative height (Blaker, Rompa, Dessing, Vriend, Herschberg & Van Vugt, 2012) or physical attractiveness of leader candidates (Little, Burriss, Jones, & Roberts, 2007; Goktepe & Schneier, 1989). Followers prefer more masculine leaders in times of war, but more feminine leaders during peacetime (Spisak, Homan, Grabo & Van Vugt, 2012), and older leaders are preferred in times of stability compared to younger leaders in times of change (Spisak, Grabo, Arvey & Van Vugt, 2014). Finally, verbal cues such as voice pitch (Tigue, Borak, O’Conner, Schandl & Feinberg, 2012) also predict leadership emergence in groups. Taken as a whole, this literature suggests that leadership and followership in general rely on the detection of relatively static biological cues to facilitate coordination in group activities. In the following section, I make the claim that charismatic leaders are uniquely effective at increasing prosocial behaviors within a group because they employ verbal and nonverbal tactics which actively signal their ability -- and willingness -- to resolve group challenges.
LEADERSHIP AND COOPERATION

So far I have argued that leadership is a key adaptation that allows human groups to mobilize and respond to the wide variety of challenges that confront them, and that this response often involves rapid and large-scale coordination. In this section I will argue that the contexts in which charismatic individuals are best suited to lead are situations which require group members to behave prosocially, either through altruism toward individuals, or cooperation in the context of group coordination games.

While there is a wealth of evidence suggesting that any form of communication between participants before playing an economic game can have dramatic effects on subsequent behavior (Dawes, McTavish & Shaklee, 1977; Balliet, 2010), recent work has also demonstrated that there are unique ways in which leadership in general can contribute to cooperation. For example, groups in which leaders act as solitary punishers of free-riders are able to achieve similar levels of cooperation as those in which punishment is done by all individuals, and in fact show greater profits (O’Gorman, Henrich & Van Vugt, 2009). Leaders can also increase cooperation when given the chance to act as “first movers” in economic games (Cartwright, Gillet & Van Vugt, 2013).

A brief survey of the evidence from the management literature further suggests that many of the core aspects of charismatic leadership are uniquely effective at promoting prosocial behaviors. For example, charismatic leadership has been shown to increase organizational citizenship behaviors – voluntary actions which individuals perform to contribute to overall organizational effectiveness (Podsakoff, MacKenzie, Moorman & Fetter, 1990). A recent meta-analysis has also shown that charismatic leadership increases team performance more strongly than individual performance, indicating a direct link between charismatic leadership
and increased interpersonal cooperation (Wang, Oh, Courtright & Colbert, 2011). Indeed, there are a number of psychological mechanisms which have been implicated in the charismatic leadership process over the past few decades. *Individualized consideration* on the part of a charismatic leader has been shown to decrease feelings of social distance, which can cause more prosocial behavior in economic games (Rigdon, Ishii, Watabe & Kitayama, 2009). Such leaders also benefit from the process of *emotional contagion*, in which the optimism and positive affect displayed by the leader directly increases positive affect in followers (Bono & Ilies, 2006; Walter & Bruch, 2009). Visionary leaders have also been shown to extend the *shadow of the future* for followers, increasing the likelihood that they will make short-term sacrifices to benefit the organization in the long-term (Joireman, Kamdar, Daniels, & Duell, 2006). These are just a few of the many lines of research which provide empirical support for the hypothesis that charismatic leadership is uniquely effective at promoting a variety of prosocial behaviors. Our studies extend these lines of research by studying charismatic leadership in settings with rigorous experimental control, and by offering an overarching evolutionary framework to distill hypotheses.

**UNDERSTANDING CHARISMATIC LEADERSHIP**

While the concept of charisma has attracted an enormous amount of attention from a wide range of social theorists (Potts, 2009), the examples above demonstrate that it has been of particular interest to organizational scientists seeking to understand how managers can operate more effectively. In the business world, charisma has been an attractive concept to leadership researchers mainly as it has the potential to increase performance in teams and departments (Awamleh & Gardner, 1999; Bass, 1985). It should be noted that the specific names which researchers use have changed throughout the last few decades; originally
labeled charismatic leadership following Weber’s formulation, it has been variously referred
to as transformational, visionary or neo-charismatic leadership (for an overview see Solinger,
in press). While there have been numerous criticisms about the ability of these various
theories to produce a satisfactory explanatory model, in a broad sense there is a consensus
about its defining features. Charisma is typically defined as a set of behaviors and qualities
that allow individual leaders to most effectively achieve the goals of an organization (e.g.
increased productivity, employee satisfaction, organizational commitment), and especially
over and above the influence of more “transactional” forms of leadership which emphasize
These qualities can be broadly described as attracting attention and influencing others,
responding to environmental or contextual cues, providing a vision, emphasizing collective
identity, and motivating followers both intellectually and emotionally (see Antonakis, Fenley

Using the terminology of evolutionary psychology, I define charismatic leadership as a
signaling process in which a leader conveys their ability to solve coordination and
cooperation challenges in groups. This process is context-dependent, but fundamentally
consists of (1) attracting attention to recruit followers, (2) making use of extraordinary
rhetorical abilities and knowledge of cultural symbols and rituals to inspire and offer a vision,
(3) minimizing the perceived risks of cooperation, and (4) aligning these followers toward
shared goals.

As described in section 1.2, charismatic leaders can attract attention by possessing
particular physical cues that are generally indicative of leadership potential, such as being
taller or more attractive than average. Such individuals may possess particular cues which are
contextually relevant, for instance appearing older, more masculine, or even more unusual when such traits are perceived as beneficial by followers (Senior et al, 2012). Charisma may also result from the accumulation of prestige in valued group domains (e.g., hunting skills, diplomacy), or through the use of “credibility-enhancing displays” (Henrich, 2009).

Second, charismatic leaders make use of extraordinary rhetorical skills to inspire others to action. Recent research has demonstrated that there are a number of specific verbal tactics that can directly influence the perception of charisma, which I have included in our studies (Antonakis, Fenley & Liechti, 2011). These tactics are typically directed toward the articulation of a “vision,” beginning with a description of the situation as it currently stands, and then identifying the ways in which it could be improved through collective action. Perhaps the most famous example of this is the “I have a dream” speech, which laid out a powerful vision of “collective possible future selves” that (Stam, Lord, Van Knippenberg & Wisse, 2014). Good orators are able to reinforce norms that are relevant to the situation, and draw attention to shared symbols in a collective setting.

Third, when a leader gives a speech in the presence of a crowd, they act as a sort of first mover, giving some assurance to each listener that others around them are more likely to behave as they would when such norms are salient in their own minds. This shared knowledge makes it easier for followers to behave prosocially, as it increases trust and the perceived likelihood that others will respond similarly. Finally, charismatic leaders serve as focal points for aligning individual and group goals, and creating a sense of shared identity. When a leader is able to engage the emotions and motivations of the group, this positive (or negative) affect can be contagious (Walter & Bruch, 2009).
THE CHARISMATIC PROSOCIALITY HYPOTHESIS

Both charismatic leadership and prosociality can take many forms, and so the present studies made use of a range of stimulus materials and economic games as behavioral measures. Our aim throughout was to reduce the complexities of charismatic leadership to measurable effects on behavior in well-studied economic games. Our charismatic manipulations were therefore selected for their applicability in online and laboratory settings, making use of video clips and writing prompts which were administered individually to participants. Behavior was subsequently measured while playing one-shot dictator, trust, and stag hunt games to find converging support for our hypothesis.

Across the three studies, the charismatic prosociality hypothesis predicts that participants in the charismatic conditions will behave more prosocially than those in the non-charismatic conditions, as measured by their allocations in economic games. Specifically, I predict that participants primed with charisma will: (a) send more money to others in an anonymous one-shot Dictator game, (b) return a larger percentage of the amount they receive as Trustees in the Trust Game, and (c) choose the cooperative option in the Stag Hunt game more often than participants in the non-charismatic condition.

STUDY 3

Study 3 made use of an online sample to test the prediction that exposure to a charismatic individual would increase participants’ prosociality toward strangers. Charisma was manipulated between subjects by presenting short (5-6 minute) video clip of a speaker, which had been pilot rated as either high or low in charisma. After viewing the video, prosociality was measured via analyzing behavior in the Dictator and Trust Games.
METHODS

Participants were 131 American adults participants (63 male, 68 females; $M_{age}=33.72$) recruited via Amazon’s Mechanical Turk crowdsourcing platform (MTurk). All participants participated voluntarily after reading the informed consent, were debriefed following the experiment, and received $1.00 for their participation. Participants were randomly divided between the charismatic condition ($N=66$) and the non-charismatic condition ($N=65$).

Selection and pilot ratings of stimulus materials. A total of 8 “TED talks” were initially selected as potential charismatic and non-charismatic priming materials (http://www.ted.com). TED talks are produced and distributed by the same organization, and are therefore virtually identical in terms of production values, lighting, crowd size, and context. They are also immensely popular and widely shared online, due to the oratorical abilities of the speakers and the typically inspiring nature of the ideas they present. This combination of control over exogenous factors along with demonstrated ability to attract attention and inspire listeners is what suggested these videos as the ideal stimulus materials. The initial selection process was conducted by the lead researcher and a group of four undergraduate psychology students. After being familiarized with the charisma literature, they were instructed as a group to select a total of 20 videos which were agreed to be equally enjoyable overall, but divided a priori into either highly charismatic or low-charismatic categories. Finally, after viewing and comparing all 20 of these initial videos, the two most charismatic and two least charismatic videos were ultimately selected to be piloted by a larger sample.

Subjective ratings of charisma by a separate sample To confirm our prediction that these videos would differ significantly in their perceived charisma, a separate group of 93
participants was subsequently recruited via MTurk. Each participant was shown two videos, one charismatic and one non-charismatic, and asked to rate the speakers on a total of seven items. The first five consisted of attributes most commonly associated with charisma (i.e. "charismatic," "inspiring," "likable," "enthusiastic," and "warm"), while the last two were intended to capture more general features of social cognition which been previously shown to strongly influence leadership perceptions (i.e. "trustworthy" and "competent"; see Todorov, Mandisodza, Goren & Hall, 2005; Todorov, Pakrashi & Oosterhof, 2009). The results of this pilot study were in line with our a priori selection, and resulted in the selection of the video rated highest in charisma (M=6.05, SD=.87) and the video rated lowest in charisma (M=5.03, SD=1.20) as the final stimuli. These two videos differed significantly on both the single-item rating of perceived charisma (t[93]=-3.46, \(p<.01\)) and the composite score of the four subsequent charismatic items (t[92]=-4.53, \(p<.001\)), but not on perceived trustworthiness or competence.

After the initial selection process and subsequent subjective ratings, I sought to further confirm that the speakers were demonstrably different in their manipulation of charisma by measuring their use of “Charismatic Leadership Tactics” (CLTs). CLTs are a set of specific verbal and nonverbal cues and behaviors which have been shown to significantly increase ratings of charisma in real-world contexts (Antonakis, Fenley, & Liechti, 2011), and which therefore provides the most objective, unambiguous, and easily replicable measure of charisma for our purposes. Verbal tactics include the use of rhetorical devices such as metaphors, stories and anecdotes, while nonverbal tactics involve the use of body gestures and facial expressions that express emotions while making the leader more persuasive and memorable.
Participants (n=43) were recruited online via MTurk. Each participant viewed either the charismatic or non-charismatic video, which was divided up into shorter segments of roughly 60 seconds (with some slight variation to avoid cutting off sentences). After each segment, participants were asked to rate the video on all 10 of the CLTs. Due to differences in the nature of the individual items, these were assessed on two separate scales, which I labeled tactics versus ratings. The tactics items were assessed using the following wording: “In the last minute, did the speaker make use of any of the following tactics?” The ratings items were worded: “In the last minute, how well would you rate the speaker in terms of his: Body Gestures, Facial Expressions, etc.” The results of this confirmatory experiment revealed significant differences in the average CLT ratings between the charismatic (M=6.20, SD=.44) and non-charismatic (M=5.70, SD=.53; F[1,43]=11.57, p<.01, η²=.28) videos. However, contrary to our expectations, participants did not report seeing a significant difference in the use of CLT tactics between conditions. Some possible reasons for this null finding are presented in the discussion section.

**Prosociality in Dictator and Trust Game.** Following the charismatic or non-charismatic video, all participants were given instructions for the One-Shot Anonymous Dictator (Hoffman, McCabe, & Smith, 1996) and Trust Games (Berg, Dickhaut & McCabe, 1995) in randomized order. Participants were asked to imagine they had been paired with a stranger and given an endowment of €10 or €5 respectively.

**Additional Variables.** I also included various other measures in our studies, such as positive affect and self-reported religiosity, which were not of interest to the present research and therefore unreported.
RESULTS

Prosociality in the Dictator Game. As predicted by the charismatic prosociality hypothesis, participants in the charismatic condition gave more in the dictator game (M=5.00, SD=2.70) than participants in the non-charismatic condition (M=4.02, SD=1.90; F[1,129]=5.81, p=.017, η²=.04).

Trust Game. I compared the Trustor’s behavior in the Trust Game between the charisma conditions. As expected, participants in the charismatic condition did not make significantly different offers in the Trust game (M=2.87, SD=1.74) than participants in the non-charismatic condition (M=2.62, SD=1.63; F[1,129] =0.71, p=.40, η²<.01 ).

STUDY 4

While the results of Study 3 provided initial support for the effect of charisma on prosocial behavior, it also raised two important questions which I was unable to address. First, how would these results translate into real-world behavior? Second, while the charismatic manipulation did not affect the behavior of Trustors, I was unable to determine whether it might lead to more prosocial behavior on the part of the Trustees. To address these potential limitations, Study 4 made use of a laboratory sample to conduct a real-world Trust Game using actual money.

Upon entering the laboratory, participants were escorted to a private cubicle until a second participant could be recruited. Once paired with another player, participants were randomly assigned to either the charismatic or non-charismatic condition, which were identical to those used in Study 1. Next, they were given written instructions for the Trust Game and asked to complete a manipulation check to ensure comprehension. Finally, after
watching the video clip participants were given endowment of €10, and randomly assigned to play the role of either Trustor or Trustee in a one-shot, anonymous Trust Game.

METHODS

Participants were 64 undergraduates (28 males, 26 females; M_\text{age}=24.00) recruited via flyers or for course credit for a laboratory study at the VU University, Amsterdam. All participants participated voluntarily after reading the informed consent. In addition to a minimum payment of €3.50 for participation, participants could earn up to €15 based on the results of the Trust Game.

Trust Game. Participants were randomly assigned to the role of Trustor or Trustee in the Trust Game. The experimenters followed a double-blind procedure ensuring that neither participants nor experimenters were aware of how much money was being transferred. Participants were clearly informed that there would be one single round of the game, no face-to-face interaction with their partner and that their anonymity would be strictly protected.

RESULTS

Positive Affect. Participants who viewed the charismatic video reported increased positive affect from before viewing the video (M=5.13, SD=.95) to afterwards (M=5.40, SD=.92; t[32]=−2.10, p=.04). Participants who viewed the non-charismatic video reported no significant difference in Positive Affect from time 1 to time 2.

Prosociality in the Trust Game. I analyzed the behavior of Trustees – the amount Player B returned of the initial offer sent by Player A. In the charismatic condition Trustees were significantly more prosocial in the percentage returned (M=.45, SE=.07) versus the non-charismatic condition (M=.28, SE=.05; F[1,31]=3.53, p=.035, \eta^2=.11). In line with our
hypothesis, and consistent with Study 1, there was no difference in the amount sent by Trustors in the charismatic condition (M=2.90, SD=1.98) versus non-charismatic condition (M=3.47, SD=1.47; F[1,31] =.83, p =.37, η²=.03).

STUDY 5

Study 5 was designed with two goals: to test the generalizability of the previous results with a different charisma manipulation, and to include an additional economic game which better models the type of coordination challenges that charisma appears suited to resolve. To address the question of generalizability, I made use of a different charismatic manipulation than the video primes which participants viewed in Studies 3 and 4. Instead, I asked participants to recall an extremely charismatic person, especially one who was a leader of a group to which they belong. They were prompted to take a few minutes and picture this person as clearly as they could -- imagine what they look like, sounded like, when they last saw them, and something memorable about them. Participants were then asked to describe this person in more detail, including their relationship, whether the person could be described as a leader, and whether they were particularly inspiring to them. Finally, they were asked to give a list of words they would use to describe this person. In the control condition, both the prompts and questions were identical except that participants were asked to describe an acquaintance with them they had interacted in a professional way, for example a hairdresser or a server in a restaurant.

Our second aim was to test the hypothesis that priming participants with charismatic leadership would not only increase their prosociality in terms of altruistic donations, but would also make them more likely to behave cooperatively than in the control condition. I
therefore included the Stag Hunt as an additional economic decision task, which presented participants with clearer distinction between cooperative and non-cooperative behavior.

**METHODS**

Participants were 305 adults (168 males, 137 females; M<sub>age</sub>=35.37) recruited via Mechanical Turk. Participants gave informed consent, were debriefed following the experiment and paid $1.00 for participation. To increase engagement with the economic games, participants were also informed that the points they received as a result of their performance would be entered as individual tickets into a lottery with the chance to win one of five $20 Amazon Gift Certificates. The lottery was conducted randomly after data collection was completed, and to ensure anonymity participants were awarded via their MTurk Worker ID numbers.

**Charismatic Manipulation.** Participants in the charismatic condition were prompted to recall an interaction with a particularly charismatic person from their own experience, or to recall an attribute this person displayed which was particularly salient. Then, I asked them to briefly describe in their own words what made this person particularly charismatic, and to list a few key words that could describe them. In the control condition, participants were asked to imagine an acquaintance, for example someone with whom they had recently interacted with in a professional manner. Following this, in both conditions, participants rated the individual they were thinking of on a brief scale meant to ensure that there were measurable differences in the attributes of the charismatic versus non-charismatic targets. These items included how effectively the person in question was able to: attract and hold attention, engage emotions through speech or action, inspire others to take action, and provide a vision for the future.
They were also asked to rate them on warmth, competence, trustworthiness and enthusiasm. All answers were provided on 5-point Likert-type scales.

**Dictator Game.** As in the previous experiments, participants were asked to play the Anonymous One-Shot Dictator game with an endowment of 10 tickets.

**Trust Game.** Participants played the role of both Trustor and Trustee in the Trust Game. In order to investigate potential differences in reciprocation which might result from differences in initial offers, Trustee behavior was measured via three items. Participants were asked to imagine their partner had sent either the minimum (1), half (5) or all (10) of their tickets. They were then asked how many of these tickets they would like to send back.

**Stag Hunt.** Finally, participants were presented with a description of the Stag Hunt Game, often referred to as a “coordination game,” in order to test whether the charismatic leadership prime would affect the likelihood of choosing the cooperative option over the self-interested one (Skyrms, 2004). Participants were given a description of the game and asked to indicate whether they would prefer to hunt a stag, which would succeed only if the other player did so as well, or a hare, which guaranteed a smaller reward regardless of the other player’s decision.

**RESULTS**

**Ratings of charismatic versus non-charismatic “targets.”** As a manipulation check, I created composite ratings for the charismatic attributes and general personality attributes, to ensure that participants reported higher scores in both categories for the person they were asked to imagine in the charismatic versus non-charismatic condition. Results confirmed that the manipulation was effective, with participants in the charismatic condition reporting higher
average ratings on the charismatic attributes ($M=4.39$, $SD=.51$) than those in the non-charismatic condition ($M=3.89$, $SD=.69$; $F[1, 304]=50.22$, $p<.01$, $\eta^2=.14$).

**Prosociality in the Dictator Game.** As predicted by the charismatic prosociality hypothesis, participants in the charismatic condition gave more in the dictator game ($M=4.29$, $SD =2.61$) than participants in the non-charismatic condition ($M=3.62$, $SD =2.24$; $F[1,305]$, $p =.02$, $\eta^2=.02$).

**Prosociality in the Trust Game.** Consistent with previous results, I found that the charismatic manipulation had no significant effect on the amount participants sent in the role of Trustor. In both conditions, the average amount sent was approximately 4.40 tickets. Participants were also asked to indicate how they would respond to three offers: 1, 5, and 10 tickets. While there were no differences in the amount returned when Trustees received initial offers of 1 or 10 tickets, of particular interest to our hypothesis is how participants responded to the median offer of 5 tickets. In this case, participants in the charismatic condition returned an amount which was larger at a marginally significant level ($M=5.92$, $SD=2.47$) than participants in the non-charismatic condition ($M=5.35$, $SD=2.73$; $F[1,304]=3.70$, $p=.056$, $\eta^2=.01$).

**Prosociality in the Stag Hunt Game.** As predicted, participants in the charismatic condition were more likely to choose the cooperative option (93.6% chose to hunt the stag) than those in the non-charismatic condition (83.6%; $\chi^2[1, 305]=5.43$, $p=.02$).
Table 1 - Descriptive statistics and ANOVA results for individual items

<table>
<thead>
<tr>
<th>Rating</th>
<th>Condition</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attract Attention</td>
<td>Charismatic</td>
<td>149</td>
<td>4.47</td>
<td>.60</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Non</td>
<td>156</td>
<td>4.01</td>
<td>.81</td>
<td>31.09</td>
<td>.000</td>
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<tr>
<td>Engage emotions</td>
<td>Charismatic</td>
<td>149</td>
<td>4.36</td>
<td>.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non</td>
<td>156</td>
<td>3.92</td>
<td>.81</td>
<td>25.28</td>
<td>.000</td>
</tr>
<tr>
<td>Inspire</td>
<td>Charismatic</td>
<td>149</td>
<td>4.36</td>
<td>.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non</td>
<td>156</td>
<td>3.79</td>
<td>.94</td>
<td>35.33</td>
<td>.000</td>
</tr>
<tr>
<td>Provide a vision</td>
<td>Charismatic</td>
<td>149</td>
<td>4.21</td>
<td>.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non</td>
<td>156</td>
<td>3.66</td>
<td>1.04</td>
<td>28.11</td>
<td>.000</td>
</tr>
<tr>
<td>Warm</td>
<td>Charismatic</td>
<td>149</td>
<td>4.29</td>
<td>.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non</td>
<td>156</td>
<td>4.13</td>
<td>.89</td>
<td>2.56</td>
<td>.111</td>
</tr>
<tr>
<td>Competent</td>
<td>Charismatic</td>
<td>149</td>
<td>4.50</td>
<td>.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non</td>
<td>156</td>
<td>4.31</td>
<td>.83</td>
<td>4.69</td>
<td>.031</td>
</tr>
<tr>
<td>Trustworthy</td>
<td>Charismatic</td>
<td>149</td>
<td>4.41</td>
<td>.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non</td>
<td>156</td>
<td>4.25</td>
<td>.88</td>
<td>2.63</td>
<td>.106</td>
</tr>
<tr>
<td>Enthusiastic</td>
<td>Charismatic</td>
<td>149</td>
<td>4.56</td>
<td>.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non</td>
<td>156</td>
<td>4.09</td>
<td>.925</td>
<td>25.53</td>
<td>.000</td>
</tr>
</tbody>
</table>
GENERAL DISCUSSION

The present studies set out to test the hypothesis that priming participants with charismatic leadership cues would increase prosocial behavior. The results of Study 3 and 4 supported this prediction by demonstrating that participants who were primed with a video clip of a charismatic speaker gave larger donations in the Dictator Game. The results of Study 4 provided further support by demonstrating that second movers in the Trust Game voluntarily returned a greater percent of the offer sent by first movers -- even though there was no strategic reason to do so -- after being primed with the same charismatic leader stimulus. Finally, Study 5 provided some positive evidence regarding the generalizability of the effect, both by replicating the results of Study 3 using a different charismatic manipulation, and by provided evidence from the Stag Hunt game. Taken together, these findings provide supporting evidence for the theory that charismatic leadership may be an effective instrument to galvanize cooperation and prosociality among strangers.

STRENGTHS AND LIMITATIONS

The present research is a first attempt to explain some of the fascinating, complex, and controversial aspects of charismatic leadership through the lens of evolutionary theory. One of the major advantages of this approach is that it enables us to make predictions about its ultimate, rather than proximate function. If the ultimate explanation of charismatic leadership is to be found in the fitness benefits it provides for both leaders and followers, this opens up new possibilities for investigating the kinds of proximate mechanisms we should expect as a result.

Another strength of the present research is the use of multiple experimental techniques to confirm the predictions of our model. The findings are especially remarkable given the
minimal operationalization of charisma. I restricted our cues of charisma to pre-recorded speeches and essay prompts shown to participants individually, while I would expect the effects to be much stronger in a group setting. By viewing a charismatic leader in a group setting, I would expect greater alignment between individual and group interests and stronger emotional contagion. The use of pre-recorded stimuli, shown in isolation to participants also constitutes a limitation on the effectiveness of our manipulation. Indeed, one consequence of restricting our selection to TED talks in Studies 1 and 2 was that the range of scores on charisma was most likely smaller than what would be expected in the everyday population of leader candidates. This minimal signaling is one possible reason for the variation in results, and future research should aim to improve the stimulus materials. For example, recruiting trained actors to play the part of leader candidates, and allowing participants to view these videos or actors in a shared setting would better replicate the environmental conditions which are most relevant to the charismatic leadership process.
- CHAPTER 5 -

MALE WARRIORS AND FEMALE PEACEKEEPERS IN THE

2016 US PRESIDENTIAL ELECTIONS

3 This chapter is based on a manuscript submitted to a special issue of Evolutionary
Psychology: Grabo, A. & Van Vugt, M. (submitted manuscript) Voting for a Male Warrior or
Female Peacekeeper? Testing the Evolutionary Contingency Hypothesis in the 2016 US
Presidential Elections.
MALE WARRIORS AND FEMALE PEACEKEEPERS IN THE “REAL WORLD”:

Testing the Evolutionary Contingency Hypothesis in the 2016 US Elections

The connection between facial appearance and perceptions of leadership abilities has become a major topic of interest across a range of disciplines. Attractiveness, for example, has been shown to play a major role as a result of the “halo effect” (Zebrowitz, Hall, Murphy & Rhodes, 2002). However, the evidence continues to suggest that the outcomes of political elections are not simply determined by who is seen as the most attractive or intelligent candidate. Instead, they can be affect by what candidates say, the context in which they seek to lead, and how well these match up with their own verbal and nonverbal cues. The influence of such snap judgments on leadership emergence has been demonstrated in numerous samples and across various contexts. Overall the consensus that is forming supports the hypothesis under certain circumstances humans appear to be acting in line with evolutionarily adaptive heuristics which are “hard-wired” to cause them to choose leaders based on information such as physical appearance. The aim of the present research was to provide evidence of the external validity of this hypothesis by making predictions about how differences in facial appearance would affect voting behavior in the “real world” – specifically during the runup to the 2016 US Presidential Elections.

THEORETICAL BACKGROUND

It has been over a decade since researcher first demonstrated that priming followers with the need for intragroup cooperation increases support for more feminine leaders, while
the threat of intergroup conflict increases preferences for more masculine leaders (Little et al., 2007). Since then, leadership emergence has been shown to depend on broad factors such as gender, age, and in-group versus out-group status (Zebrowitz & Motepare, 2008; Spisak, Grabo, Arvey & Van Vugt, 2011; Laustsen & Peterson, 2017). These studies provide strong evidence for the existence of a “domain-general” heuristic, whereby individuals who are perceived as highly competent or attractive are more likely to emerge as leaders, all other things being equal (Berggren, Jordahl, & Poutvaara, 2010; Riggio & Riggio, 2010).

An evolutionary psychological perspective on leadership and followership – what we have termed the “evolutionary contingency hypothesis” - begins with the assumption that our decisions are influenced by a set of heuristics which extend far beyond a relatively simple decision rule like “follow the most attractive, or most competent leader” (Van Vugt & Grabo, 2015). By considering the kinds of adaptive problems which would have confronted our ancestors, we have argued that in response humans have developed a set of context-dependent followership heuristics which enable us to coordinate rapidly and effectively in response to recurrent fitness-relevant challenges, based on information about both the environment and the individuals around us who would be most likely to successfully resolve such challenges (Van Vugt, Hogan, & Kaiser, 2008; Spisak, Homan, Grabo & Van Vugt, 2011). Support for this theory comes from a large body of research which has found evidence that perceptions of leadership ability on a wide range of personality assessments, including warmth, competence, and trustworthiness (Todorov, Olivola, Dotsch, & Mende-Siedlecki, 2015; Lawson, Lenz, Baker, & Myers, 2010).

However, one interesting question which has emerged from this line of research is to what extent these heuristics continue to effect voting decisions in the modern world (Antonakis & Dalgas, 2009; Jones & Cuzán, 2008; Lawson, Lenz, Baker & Myers; 2010;
Laustsen & Peterson, 2016). Recently, we have argued that the underlying psychological mechanism responsible for this unique ability can best be conceptualized as a type of internal regulatory variable – the “leader index” - which determines both when such coordination is needed and who best to follow (cf Tooby & Cosmides, 2005; Grabo & Van Vugt, 2017).

In the present article, we start from the assumption that this leader index does continue to affect our voting behavior, and seek to provide further empirical evidence for that claim in two ways: first, by using the faces of the actual candidates for the 2016 US Presidential elections, and secondly by priming participants with contextual cues which had to do with the kinds of issues that polls indicated truly mattered to voters at the time. This meant that the only difference between the experimental conditions was the extent to which the description of the problems that incoming President would face were worded so that they emphasized either the need for cooperation or competition. By pairing these prompts with high-quality artificially manipulated photographs of the candidates, we feel that the design of this study represents an important extension and confirmation of the theory, and addresses several concerns and criticisms which have been made regarding the methodology and external validity of this line of research.

**LIMITATIONS OF PRIOR RESEARCH**

One of the main limitations of previous research on context-specific leadership preferences is that participants are typically asked to choose between the faces of leader candidates who are completely unknown to them (e.g. Todorov, Mandisodza, Goren & Hall, 2005; Spisak, Homan, Grabo & Van Vugt, 2011; Antonakis & Eubanks, 2017). This is not to say that there is something inherently wrong with this methodology; there is good reason to begin testing the hypothesis this way, as it represents the most conservative possible test of
the theory given that our followership preferences almost certainly evolved in an environment in which leader candidates would have been well-known community members. It is easy to see why introducing additional information into the design of these initial studies would have made the results more difficult to interpret (see Todorov, Olivola, Dotsch & Mende-Siedlecki, 2015 for a comprehensive review). However, to establish that our evolved heuristics continue to impact followership behavior in the modern world, it is necessary to demonstrate that contingency effects can influence real-world voting behavior even when followers do have access to information about the personality or political beliefs of the candidates.

That is, while the pattern of previous results does provide evidence for the existence of context-dependent followership heuristics (i.e. the “Male-Warrior Female-Peacekeeper” effect), one common criticism concerns the degree to which such heuristics matter in a more ecologically valid context in which voters have some access to information about potential leaders. This question has been described as a situation of “attributional ambiguity”, in which (see Jacquart & Antonakis, 2014

Furthermore, in many studies of the effects of facial appearance on leadership preferences, participants are made aware from the outset that their decision will not have any real-world consequences. Thus, we cannot be sure about how such decisions would play out when choosing between leaders whose actions could conceivably impact them in a tangible way. In a similar vein, one of the primary limitations of laboratory-based or online experiments, is that the process of leadership selection takes place either in the absence of any specific context, or in one which is entirely hypothetical (for example, participants are asked to imagine they are citizens of one of two fictional countries). This use of both hypothetical scenarios and unfamiliar leader candidates does not allow for the possibility to
test whether such effects can be moderated by the degree to which voters are informed about the candidates’ positions, or the extent to which they are engaged with and participate in politics in general.

Finally, a key criticism which has been leveled against the methodology employed by many of the studies in the literature to date is that in most experimental designs participants are asked to make a forced choice between two potential leader candidates and then subsequently asked to rate the “winner” on a variety of attributes. Because they have already made their choice, the observed results may be in large part explained by demand effects or “common method variance” whereby subjects simply seek to maintain consistency (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To avoid this dilemma, as well as the possibility that by presenting two versions of each face we might accidentally be giving participants hints about the nature of the research question, the presentation of faces was coded so that both the order in which each candidate’s face was shown as well as whether subjects saw the masculinized or feminized version were both randomly assigned.

In summary, the aims of the present study were to investigate the generalizability of previous lab-based results, to make several methodological improvements in response to subsequent criticisms, and to provide further empirical support for the claim that our evolved heuristics are still operating today. To do that we created artificially masculinized and feminized versions of each of the actual candidates in the 2016 US Presidential Election Primaries, rather than candidates who were unknown to them. Second, we asked participants to indicate their preferences and personality assessments after reading a contextual prime which contained a description of the challenges facing the incoming president which was drawn from real-world challenges that voters reported feeling particularly strongly about.
HYPOTHESES

H1: Consistent with the Evolutionary Contingency Hypothesis (Grabo, Spisak & Van Vugt, 2017), we predict that followers who perceive a match between the context (war or peace) and the leader candidate’s physical cues (masculinized or feminized faces) will rate them more positively in terms of both personality attributes related to leadership (i.e. trustworthiness, warmth, competence, attractiveness, dominance, and charisma) as well as their overall leadership ability.

H2: Consistent with previous research (Laustsen & Peterson, 2015), we predict that more conservative (Republican) voters will attribute greater leadership ability to the masculinized versions of the candidates overall compared to liberals (Democrats).

H3: Finally, based on somewhat isolated findings (Lenz & Lawson, 2011) we predict that more politically informed and engaged voters will be less likely to rely on appearances in their evaluations. That is, the degree to which voters are politically informed or engaged will be negatively correlated with the appearance-based leadership attributions predicted in H1.

METHODS

Participants and Procedure. Participants were 298 Americans (183 males, 115 females; Mage=33.98) recruited via Amazon’s Mechanical Turk crowdsourcing platform. All participants gave informed consent and were paid for their participation. After completing the informed consent, participants were randomly assigned to either the conflict or cooperation condition. Both conditions consisted of reading a short written prompt which described several widely accepted political problems which would confront the incoming President. However, the details in each text were altered in order to prime the reader into either the conflict condition – in which the leader who would be called on to resolve problems
related to intergroup competition, or the cooperation condition – which stressed the context of intragroup cooperation. The text of the “conflict” condition stressed the need for intergroup competition:

As you know, there are still several candidates currently running for president. Whoever ends up winning the presidential election will need to address several issues to ensure that our country remains a powerful player on the international stage. Here are a few of the most urgent issues facing the next president.

**Confronting Russia and China**

Most experts agree that one of the key tasks for American leadership in the near future will be to confront Vladimir Putin and put a stop to his aggressive and dangerous expansionism. Doing so will require the next President to project an image of strength, and to ensure that our military remains powerful enough to deter Putin from further intervention in the EU or the Middle East. A similar task confronts American leadership in regards to China. For example, the Council on Foreign Relations recently published a report indicating that as a result of increasing territorial disputes and China's recent push to increase and modernize their naval forces in the region, the "risk of conflict in the South China Sea is significant," and that capabilities being developed by the Chinese "would put U.S. forces in the region at risk in a conflict."

**Fighting Illegal Immigration**

Another key task for the next president will be to protect our borders from the threat of illegal immigration. Some candidates have suggested that without stricter border control and harsher penalties for those who have already entered the country, illegal immigration will cause serious harm to both the American culture and our economy.
Without firm leadership in this area, the country could ultimately be so weakened from within that many in the middle- and lower-classes might lose both their jobs and their way of life.

**Defeating Terrorism:**

America is currently involved in active military intervention in Iraq, Afghanistan, and Syria. One of the great challenges for the next President will be to continue leading the global war on terrorism - identifying the leaders of organizations such as Al-Qaeda and ISIS, weakening their social networks and economic infrastructure, and ultimately eradicating them before they can carry out further attacks on innocent civilians at home or abroad.

While the “cooperation” condition argued more for the necessity of intragroup cooperation:

“As you know, there are still several candidates currently running for president. Whoever ends up winning the presidential election will need to address several issues to ensure that our country remains a powerful player on the international stage. Here are a few of the most urgent issues facing the next president.

**Negotiating with Russia and China**

Most Americans agree that one of the key tasks for American leadership in the near future will be to come to some resolution with Vladimir Putin regarding the limits of his recent political and military expansionism. To do that will require the next President to work multilaterally with not only Russia and former Soviet states, but with allies in the EU and the Middle East as well. A similar task confronts American leadership in regards to China. For example, the Council on Foreign Relations recently published a report indicating that if territorial disputes in the South China Sea are not adequately resolved, there is a significant risk that these tensions could
lead to a conflict which would put U.S. forces at risk. Ultimately, the task facing the next President will be to demonstrate our willingness and ability to negotiate and act in good faith, with the aim of brokering a peaceful resolution to these long-standing disputes.

**Reaching a Consensus on Illegal Immigration**

Another key task for the next president will be to work with Congress to craft sensible legislation addressing concerns surrounding illegal immigration. While these issues are contentious, and achieving a true consensus may prove impossible, the challenge facing our next President will be to leverage their leadership position to achieve meaningful bipartisan compromise so that concrete steps can be taken to address these concerns.

**Reducing the Spread of Terrorism**

One of the great challenges for the next President will be to continue leading the global war on terrorism. However, while a substantial portion of Americans support continued military intervention in Iraq, Afghanistan, and Syria, many analysts have begun to cast doubt on the idea that terrorism can ever be truly “defeated” through military means. Instead, they argue that our most important goal should be to target their ability to recruit and train new extremists. To do this, the next President must get serious about disrupting the ideological narratives being taught by extremist Imams and forced on populations with no real alternatives. Instead, we should work with our allies to create our own training centers in Africa, Asia, Europe and North America that can counter the extremist narratives and educate at-risk populations about alternative moderate Islamic practices.
Agreement. As a manipulation check, participants were then asked to indicate how strongly they agreed with the description which they had just read of the problems facing the next President (on a scale of 0 = strongly disagree to 7 = strongly agree.)

Materials – Morphed Faces. Participants were then told that they would be shown photos of the candidates currently running for President of the United States of America and asked to rate both their leadership potential and personality. Presentation of the 7 photos was randomized to minimize any potential order effects. In each trial, participants were randomly shown either an artificially masculinized or feminized version of the candidate’s face. These faces were created from high-resolution photographs using well-validated facial morphing software and techniques (DeBruine & Tiddeman, 2017; Tiddeman & Perret, 2002). Webmorph allows researchers to transform facial images by identifying 184 points located along contours around the major facial features and altering them along specific dimensions (Todorov, Dotsch, Porter, Oosterhof & Falvello, 2013.) In this case, sexual dimorphism was operationalized by shifting the original image either up or down the vector defined by the differences in facial morphology between a pair of “average” male and female faces (See Appendices 1 and 2.

Personality Ratings. Underneath each face participants were asked to indicate, on a 7-point Likert-type scale, how strongly they agreed with the following descriptions of the candidates’ personality: Trustworthy, Warm, Competent, Attractive, Dominant, and Charismatic. Finally, they were asked to assess their Leadership Ability.

As of Feb 19, 2016 when the study was run, this included Ben Carson, Ted Cruz, Marco Rubio, Jeb Bush, Hillary Clinton, Bernie Sanders, and Donald Trump.
Political Affiliation and demographics. Participants were asked to report whether they were typically more likely to vote for either Republican or Democratic candidates. A third choice was included for those who had no strong preference, and participants who chose this option were excluded from the analysis of party affiliation and facial preference (H2).

Voter knowledge and engagement. Voter knowledge and engagement was assessed via a three-item self-report measure. Participants were asked to indicate, compared to the average voter: (1) well-informed they would rate themselves about the current primary elections, (2) how important politics were to them personally, and (3) how involved they were in politics (for example, if they were active in local elections). For the purpose of analysis these measures were averaged into a composite measure (Cronbach’s α = .84).

Demographics. Finally, participants indicated their age and gender, were thanked and debriefed.

ANALYSIS AND RESULTS

H1: The Evolutionary Contingency Hypothesis In order to test whether participants who viewed a congruent (masculine-conflict, feminine-cooperation) pairing would score them higher on leadership-relevant personality attributes than those who view incongruent pairs (e.g. masculine-cooperation), we first calculated mean difference scores for each candidate across the 7 personality items. This was done by subtracting the ratings of masculine versions from the ratings of feminine versions of each candidate. A positive mean difference thus indicated a preference for the masculinized face, while a negative indicated a preference for the feminized version. The results of a univariate GLM, with condition as the independent variable and voting preferences showed that participants attributed greater leadership ability to feminized versions in cooperation condition (M=.77, SD=12.94) than to masculinized faces in the competition condition (M=3.36, SD=12.53; F[1,298]=3.09, p=.04,
However, the fact that the combined mean difference was positive suggests that participants preferred the masculinized versions in general over the feminized regardless of context, and a subsequent t-test against the expected null result indicated this result was statistically significant from chance ($M=2.14, \text{SD}=12.77; t[1,298]=2.90, p<.01$).

Next, we computed the mean differences for each of the 6 personality attributes commonly associated with leadership potential, which were then averaged these to create a final composite measure. These difference scores – both the individual personality attributes and the composite measure were then entered as the dependent variables in a univariate GLM, with condition (conflict vs cooperation) as the independent variable. The results indicated that overall, consistent with our prediction, participants rated feminized faces as higher in leadership-relevant personality traits in the cooperation condition ($M=-1.87, \text{SD}=9.54$) but gave higher ratings to masculinized faces in the conflict condition ($M=1.40, \text{SD}=10.30; F[1,298]=7.97, p<.01, \eta^2=.03$; for mean differences and standard deviations between individual attributes see Table 1).

**H2: Political Affiliation.** In order to investigate the effects of party affiliation on overall preferences for masculinized versus feminized facial appearance, a multivariate GLM was conducted for those participants who indicated a general preference for one of the two major parties. Party affiliation was entered as the independent variable, average ratings of leadership ability across all the masculinized and feminized versions of the candidates were entered separately as the dependent variables. The results showed an interesting pattern, whereby the main effect was statistically significant ($F[2,248]=5.95 p<.01, \eta^2=.05$) but further analysis showed that the effect was driven primarily by Republican’s stronger
preference for masculinized leaders, whereas Democrats did not show significant differences as a result of the manipulation (See Table 2).

**H3: Voter Knowledge and Engagement.** In order to test whether these effects would be attenuated when including a measure of voter knowledge and engagement, we created an average of participants’ self-ratings on the three self-report items measuring knowledge, importance, and engagement. We then conducted linear regression with political knowledge as independent and the composite personality difference measure as the dependent measure. Results indicated that overall political knowledge was negatively associated with differences in personality ratings ($B=-.07$, $SE=.45$, $t=-1.22$, $p=.22$), though not at the level of statistical significance. However, the fact that this measure was negatively associated with each of the personality ratings (See Table 3) suggests it may be worth exploring more thoroughly in subsequent studies.

**DISCUSSION**

The present study sought to replicate and extend previous research on the influence of facial appearance and voting decisions. After being primed with a text emphasizing the need for either intergroup conflict or cooperation, we found that participants differentially attributed personality traits to artificially masculinized or feminized photographs of the candidates for the 2016 US Presidential Elections. These findings provide further empirical support for the Evolutionary Contingency Hypothesis, and suggest that followership heuristics based on facial cues can still affect leadership and personality attributions even when voters have some information about the candidates. In addition, we find further evidence for a relationship between party affiliation (Republican vs Democrat) and preferences for more masculine leaders. Contrary to our prediction, however, this effect was
not significantly diminished for participants who were particularly well-informed or involved, though there was an overall negative trend which could merit further research.

**Strengths and Limitations.** The design of this study was an attempt to address some of the criticisms that have been raised regarding previous methodologies – for example, by asking participants to rate only one version of each face rather than make a forced-choice decision between multiple pairs leader candidates. We would recommend that future studies include not just two artificially manipulated faces, but also a control group where participants are shown the original image either with or without the context prime in order to establish a baseline.

It also incorporated several important determinants of personality and leadership attribution such as the participants’ own political orientation and engagement. However, the 3-item self-report scale of political knowledge and engagement could be improved to better test the hypothesis that more informed voters will rely less on heuristics in the voting booth.
Table 1. Estimated marginal mean differences in personality attributions between conflict and cooperation conditions. Negative values indicate a preference for the feminized version, positive values indicate a preference for the masculinized version.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Condition</th>
<th>N</th>
<th>MDiff</th>
<th>SE</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trustworthy</td>
<td>Cooperation</td>
<td>140</td>
<td>-1.76</td>
<td>.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conflict</td>
<td>158</td>
<td>1.43</td>
<td>.83</td>
<td>6.94</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Warm</td>
<td>Cooperation</td>
<td>140</td>
<td>-2.10</td>
<td>.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conflict</td>
<td>158</td>
<td>1.42</td>
<td>.82</td>
<td>8.64</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Competent</td>
<td>Cooperation</td>
<td>140</td>
<td>-1.90</td>
<td>.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conflict</td>
<td>158</td>
<td>1.48</td>
<td>.80</td>
<td>8.45</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Dominant</td>
<td>Cooperation</td>
<td>140</td>
<td>-1.54</td>
<td>.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conflict</td>
<td>158</td>
<td>1.24</td>
<td>.80</td>
<td>5.60</td>
<td>.02</td>
</tr>
<tr>
<td>Charismatic</td>
<td>Cooperation</td>
<td>140</td>
<td>-2.04</td>
<td>.86</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conflict</td>
<td>158</td>
<td>1.40</td>
<td>.81</td>
<td>8.47</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Leadership Potential</td>
<td>Cooperation</td>
<td>140</td>
<td>.77</td>
<td>1.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conflict</td>
<td>158</td>
<td>3.36</td>
<td>1.01</td>
<td>3.08</td>
<td>.04</td>
</tr>
</tbody>
</table>
Table 2 – Overall preferences for masculinized versus feminized versions of the candidates face by party affiliation.

<table>
<thead>
<tr>
<th>Facial Morph</th>
<th>Political Affiliation</th>
<th>N</th>
<th>Mean</th>
<th>SE</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masculinized</td>
<td>Democrat</td>
<td>100</td>
<td>4.51</td>
<td>.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Republican</td>
<td>148</td>
<td>5.27</td>
<td>.83</td>
<td>10.52</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Feminized</td>
<td>Democrat</td>
<td>100</td>
<td>4.42</td>
<td>.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Republican</td>
<td>148</td>
<td>4.49</td>
<td>.82</td>
<td>.071</td>
<td>.79</td>
</tr>
</tbody>
</table>

Table 3 – Results of a linear regression with the composite self-report rating of how politically informed as independent variable, and mean difference in personality ratings as dependent.

<table>
<thead>
<tr>
<th>Mean Difference</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trustworthy</td>
<td>-.63</td>
<td>-1.35</td>
<td>.18</td>
</tr>
<tr>
<td>Warm</td>
<td>-.58</td>
<td>-1.26</td>
<td>.21</td>
</tr>
<tr>
<td>Competent</td>
<td>-.59</td>
<td>-1.32</td>
<td>.19</td>
</tr>
<tr>
<td>Dominant</td>
<td>-.58</td>
<td>-1.29</td>
<td>.20</td>
</tr>
<tr>
<td>Charismatic</td>
<td>-.34</td>
<td>-.75</td>
<td>.46</td>
</tr>
<tr>
<td>Combined</td>
<td>-.55</td>
<td>-1.22</td>
<td>.22</td>
</tr>
</tbody>
</table>
**Appendix 1a** – “Average” Male and female faces used to alter candidates along the dimension of sexual dimorphism.

**Appendix 1b** - An example of transforming an average face from low to high masculinity.
**Appendix 2a** – Demonstration of the difference between the original, masculinized and feminized version of Donald Trump

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**Appendix 2b** – Faces of the rest of the candidates for the 2016 US Presidential Election with masculinized versions are presented on the right, feminized on the left.
REFERENCES


- CHAPTER 6 -

GENERAL DISCUSSION
The present research utilized the theoretical background of Evolutionary Leadership Theory (Van Vugt & Ahuja, 2010) to investigate the emergence and effectiveness of charismatic leadership. Charismatic leadership is an area of research that has undergone large swings in its popularity and theoretical usefulness for social and organizational psychologists but remains an essential tool for understanding human society, and why leaders can have such profound effects on their followers. Through the lens of evolutionary psychology, I was able to sift through the many theories of charismatic leadership to look for commonalities that arise from the functioning of underlying psychological mechanisms that may have served adaptive purposes in our ancestral past. This theoretical framework allowed us to generate novel hypotheses about when and how charismatic leaders will emerge, and to integrate the findings from various disciplines so that I can paint a fuller picture of the story of charisma.

**Defining Charisma**

When Max Weber coined the term “charismatic authority” in his 1922 work *Wirtschaft und Gesellschaft* (translated to English in 1947 by A. R. Anderson and Talcott Parsons), he called it “the great revolutionary power in traditionally-bound periods” which through either its necessity or enthusiasm has the power to change the central convictions of an entire society (Weber, 1922). While recognizing that charismatic authority could exert power in multiple ways, he tended to focus more on charisma as a political response to crisis or necessity rather than trying to lay out objective definition of what constituted or gave rise to charisma in an individual. Later scholars (Cites) applied Weber’s theory primarily as a means to understand the sources of power that lay behind particularly influential world leaders, and consequently charisma has often been looked at as one of several discrete qualities of leadership that are either present or absent in a particular individual. While this view of
Charisma can be useful for making general statements about wars (e.g. Hitler), revolutions (e.g. Gandhi) or other momentous societal changes (e.g. Martin Luther King Jr.), it does suffer from a number of theoretical and methodological problems that more recent researchers have clarified substantially.

**Charisma is a continuous latent construct**

More recently, researchers and theorists have looked at charisma as a spectrum, or a continuous latent construct, whereby a collection of traits, attributes, goals, and values interact with situational (and in the case of ELT, biological) factors to cause an individual to be relatively more or less successful at employing a charismatic leadership style (Pillai et al, 2003; Shamir, 1994). Defining exactly what these traits are has proven somewhat difficult over the last few decades of research, but here are some of the most commonly accepted characteristics of charismatic individuals:

Conger & Kanungo (1987; 1997) assert that charismatic leaders are visionary leaders who are willing to take risks to achieve that vision, sensitive to their environment/followers, articulate, admired, and trustworthy, yet somewhat unconventional. According to House and colleagues (House & Howell, 1992; Shamir, 1995; Shamir, Arthur, & House, 1994) leaders emotionally arouse and motivate followers, inspire their commitment and loyalty in an attributional process that requires both leader and follower to be effective. Greater levels of charisma are associated with being more confident, caring, enthusiastic, goal-oriented, optimistic, and inspiring (e.g., Conger and Kanungo 1988; Madsen and Snow 1991).

As Janice Beyer stated in a special edition of Leadership Quarterly dedicated to charismatic leadership, charisma has been effectively “tamed” to include not only a handful of extraordinary individuals, but to be applicable to everyday leadership roles (Beyer, 1997).

**Charisma requires context**
Another relatively recent development in research on charisma is a shift away from the idea that it is merely a product of individual differences in some specific personal attribute such as intelligence or extraversion. Instead, charisma has been shown to be strongly linked to follower perceptions (Conger, Kanungo & Manon, 2000), values (Sosik, 2005) and beliefs (Ehrhart & Klein, 2001), contextual factors such as crises (Merolla, Ramos & Zechmeister, 2007) mortality salience (Cohen et al, 2004), social distance (Haslam et al, 2001), and uncertainty (Walkman, Ramirez, House & Puranam, 2001).

In a recent study, Ashour (2009) looked at the factors that increased the likelihood of a charismatic leader successfully deradicalizing the members of several extreme Islamist organizations and found that when given a chance to debate with followers, more senior members of the organization who were perceived as spiritual or religious leaders unallied with a particular faction were the most effective at changing the values of other members.

Charismatic Leadership is a specific style

Although the role of charisma within many of the common leadership theories has been debated for decades, it is important to understand that charismatic leadership can be understood as a distinct style or type of leadership, rather than a blanket term for effective leadership in general. While there is substantial overlap/convergent validity between charismatic and transformational leadership (Bass, 1985), several meta-analyses have shown clear contrasts between charismatic and transactional or laissez-faire leadership styles (Pillai & Williams, 1998).

Some of the characteristics that distinguish charismatic leadership styles include speech content that emphasizes vivid, emotional terms (Naidoo & Lord, 2008), makes extensive use of metaphors (Mio, Riggio, Levin & Reese, 2005) and rhetorical devices (Clark & Greatbach, 2011) such as contrasts, position-taking, and lists. Positive mood contagion (Bono & Ilies,
2006) is at work in charisma, since charismatic speeches contain more positive imagery which in turn creates more positive affect in followers.

Finally, the question of why we may have evolved to be receptive to the vision and leadership of charismatic individuals is a question about the “ultimate” cause of this behavior, i.e. the fitness advantage that allowed this particular psychological mechanism to propagate. I believe that charisma played a significant role in enabling the expansion from small bands of hunter-gatherers to larger tribes and chiefdoms, one of the defining characteristics of our social species (See Fukuyama, 2011; ). This underlying assumption is one that will guide the process of hypothesis generation, and will inform our thinking about the kinds of experimental evidence we gather to support our theory.

For example, charismatic leadership can be viewed through the lens of game theory, starting from the fundamental assumption that individuals have an innate heuristic that leads them to be risk-averse (Kahneman & Tversky, 1979). In terms of fitness, this would tend to lead individuals to prefer familial/kinship levels of organization by nature (Fukuyama, 2011). But, since we know that our species did expand from these smaller levels of organization to larger tribes, kingdoms, etc, there must have been some kind of mechanism in operation to reduce our inherent risk-aversion. Joining a larger group entails losses to status, and most likely one’s ability to control the allocation of resource and direct them toward direct kin and descendents. However, this is in tension with the potential gains of winning the eternal “arms race” with neighboring tribes over access to new lands and resources. This entails a classic Prisoner’s Dilemma or Stag Hunt on an intergroup scale. We propose that charismatic leadership is one means by which people’s desire to defect and therefore gain more immediate control over the distribution of resources and status can be overcome.
SUMMARY OF EMPIRICAL FINDINGS

In Studies 1 and 2 I tested the hypothesis that participant’s leadership preferences and attributions of charisma would vary systematically in response to both (1) the context in which leadership selection occurred and (2) information signaled by facial attributes of the candidates. The results of both studies were consistent with this hypothesis, demonstrating that overall such congruent pairs (e.g. masculinized face in the war condition, older face in the stability condition) were indeed both preferred as leaders and attributed more charisma. Furthermore, these charisma ratings partially (Study 1) and fully (Study 2) mediated the relationship between condition and general preferences.

In Studies 3, 4 and 5 I tested the hypothesis that priming participants with charismatic leadership cues would increase prosocial behavior across several economic games. The results of Study 3 and 4 supported this prediction by demonstrating that participants who were primed with a video clip of a charismatic speaker gave larger donations in the Dictator Game. The results of Study 4 provided further support by demonstrating that second movers in the Trust Game voluntarily returned a greater percent of the offer sent by first movers -- even though there was no strategic reason to do so -- after being primed with the same charismatic leader stimulus. Finally, Study 5 provided some positive evidence regarding the generalizability of the effect, both by replicating the results of Studies 3 and 4 using a different charismatic manipulation, and by providing evidence from the Stag Hunt game. Taken together, these findings provide supporting evidence for the theory that charismatic leadership may be an effective instrument to galvanize cooperation and prosociality among strangers.
In Study 6 I sought to replicate and extend previous research on the influence of facial appearance on voting decisions. After being primed with a text emphasizing the need for either intergroup conflict or cooperation, I found that participants differentially attributed personality traits to artificially masculinized or feminized photographs of the candidates for the 2016 US Presidential Elections. These findings provide further empirical support for the Evolutionary Contingency Hypothesis of leadership. They suggest that followership heuristics based on facial cues can still affect leadership and personality attributions, even in real-world elections today, where voters are involved and have some information about the candidates. In addition, we find further evidence for a relationship between party affiliation (Republican vs Democrat) and preferences for more masculine leaders. Contrary to our prediction, however, this effect was not significantly diminished for participants who were particularly well-informed or involved in politics, though there was an overall negative trend which could merit further research.

SUGGESTIONS FOR FUTURE RESEARCH

Our evolutionary signaling perspective offers a new way of looking at the origins, evolved functions, and psychological mechanisms underlying charismatic leadership. Important is to identify the key adaptive problem that gave rise to charismatic leadership in ancestral human groups, and I suggest that charisma functions as a way to get followers to swiftly coordinate their actions and rally behind the leader to overcome a pressing challenge (like a war or natural disaster). Of course, many issues remain. Here I identify a number of key questions that must be addressed in further research.
Multimodal Signaling. Are charismatic leaders more persuasive when they are able to send signals through multiple channels? In nature, biological signals are constantly undergoing a process of dynamic selection: changes in the environment may prevent certain kinds of signaling from being received. In response to this problem, many organisms have evolved strategies for transmitting information via multiple sensory modalities to compensate for fluctuations in the environment which could disrupt critical signaling processes such as finding and attracting mates. Insects and arachnids, for example, are able to transmit information redundantly via both chemical, visual and auditory signals (Rypstra, 2009).

Similarly, in humans particularly charismatic individuals maybe those who use a wide range of signals, visual, auditory, verbal and nonverbal, to contest leadership, only some of which will be relevant given the current environmental conditions. Rather than searching for the “right way” to project charisma, it may be useful to investigate how leaders vary in their ability and willingness to send multiple signals to followers through various sensory channels. In many societies, we observe environments which are deliberately rich in information from all sensory modalities – for example, the music, ornate stained-glass windows and incense which accompany a Catholic mass, the pomp and circumstance of a royal coronation or a presidential inauguration. Our theory would predict that charismatic individuals should be particularly skilled at making use of these particular niches (Atran & Henrich, 2010), and their variety of different signals to attract the attention of followers and amplify the effect of their own verbal and nonverbal cues, just as previous research has found that the more tactics managers used the more their charisma ratings improved (Antonakis, Fenley & Liechti, 2011).
**Supernormal Stimuli.** Do charismatic leaders “hijack” our evolved follower instincts? A supernormal stimulus is an exaggerated version of a stimulus to which there is an existing response tendency, or any stimulus that elicits a response more strongly than the stimulus for which it evolved. Our fondness for sugary foods is an often-cited example of how a behavior which was adaptive in the past – i.e. “when you find sugar, eat as much as possible” – is no longer a successful strategy in an environment full of processed foods, and in which nearly everything we eat contains added sugars in order to take advantage of this behavioral mismatch (Barret, 2010). In modern societies, charismatic signals can become exaggerated through the media or social media, where one individual is able to coordinate and synchronize the activities of millions of people at the same time (Think of Hitler’s rallies or a sports hero scoring a goal that millions around the world watch at the same time), thereby increasing their charismatic influence dramatically. This concept can help to explain why we crave for charismatic leaders today. They hijack our evolved followership heuristics in the same way as a brightly colored bowl full of sugary breakfast cereal. By essentially “overloading” the receivers with information in this way, charismatic leaders may reduce their followers’ ability to discriminate between veridical and non-veridical signals. This conjecture has been strengthened by the results of research demonstrating that the mere belief that one is interacting with a particularly charismatic individual can cause followers to downregulate brain areas responsible for error monitoring (Schjoedt et al, 2013).

**Temporality and Novelty.** Why does charisma tend to diminish over time and why is it often attributed to outsiders? Our model suggests that followers should be particularly sensitive to charismatic signals when facing novel coordination challenges or coordination challenges that the existing hierarchy of the group have not been able to deal with (e.g., the popularity of Jesus as a protest against the corrupt Temple priests). Thus, one potential explanation for why
the effects of charisma are so often short-lived is that once these urgent coordination challenges are resolved, followers are no longer attuned to the kinds of signals which enabled the charismatic leadership to emerge.

Next, problems which are novel – such as the threat of global climate change or terrorism – may also make followers particularly susceptible to charismatic outsiders who have not been part of the established hierarchy of the group (and thus carry no responsibility for causing the problems). Indeed, the rise of charismatic, populist leaders in the world (e.g. the rise of Trump, Farage, and Duterte at the time) may be a function of our desire for charismatic individuals who may be able to quickly mobilize the masses to deal with particularly urgent threats like immigration, terrorism or climate change. There is much more to be learned about the time-scale on which charisma operates, and how charismatic leaders are viewed as such challenges come and go.

**Charisma After Death.** Why might a dead leader be charismatic? One fascinating area of research which has yet to receive the attention it deserves concerns the tendency for leaders to be attributed greater charisma after their death. Steffens, Peters, Haslam & van Dick (2016) have suggested that this may be because in retrospect they are seen “from the perspective of what they meant to others and … as overlapping with the fate of the collective that they represented.” This idea highlights the importance of the symbolic nature of charisma, in which one figure comes to represent an entire ideology, culture, or religion. An image of Che Guevara, for example, is often used to signal one’s willingness to participate in active political protests or support for revolutionary movements. The logic underlying the Stag-Hunt game helps to understand this charisma-after-death phenomenon. Charismatic leaders may directly influence follower’s outcomes or they may influence the expectations
that followers have about each other’s willingness to cooperate. A dead leader may be influential as a focal point for coordination between followers. As long as their charismatic appeal increases the trust that followers have in each other to join collective action, it does not matter whether they are dead or alive.

**Honest Versus Costly Signaling.** Animal signaling theory (Maynard-Smith & Harper, 2003) assumes that organisms have evolved to pay attention to signals that are honest, that is, these signals must benefit both the sender and the receiver (as in the case of the peacock’s tail). Using the logic of the Stag-Hunt game I have shown that (a) there are benefits for both parties to coordinate and (b) charismatic signals can move a group towards a better joint outcome (hunting the stag). A remaining issue is whether these signals necessarily need to be costly. In his influential (1973) article, the economist Michael Spence laid out a framework specifying the importance of costly signals in the job market. For example, a classic case of costly signaling would be the choice to invest in a college education. While this is a costly decision both monetarily and in terms of time investment, regardless its intrinsic value it will ultimately pay for potential employees so long as employers identify it as a signal correlated with desirable qualities which could not otherwise be directly observed.

Such costly signals can increase someone’s charisma, so long as followers perceive them as a credible means by which to distinguish between good and bad leaders. A potential leader can demonstrate their credibility through behaviors that would be too costly or time-consuming to be worth faking. Leaders who sacrifice for the cause should be more likely to be granted charisma than those who do not, especially when such leaders are able to signal that their sacrifice is both costly and group-serving. For example, Nelson Mandela’s decision to use his trial as a political platform resulted in nearly 30 years of jail time, but also made
him into a worldwide figurehead and drew the attention of millions to the problem of apartheid. Expanding on this then, it should come as no surprise that a leader who is willing to die for a cause should be deemed especially charismatic.

**Leadership styles.** One interesting question emanating from my theory concerns the historical development of different leadership styles. While charismatic leadership may have emerged early on in our evolutionary history, later developments would actually create more opportunities for it to play a decisive role. As human societies transitioned from hunter-gatherers to agriculturalists, there would have been even greater benefits as it became increasingly necessary to organize large groups of individuals, because average population density increased, borders became less porous, and access to resources restricted. This would eventually give rise to the kinds of despotic or hierarchical societies we typically observe today (Powers & Lehmann, 2014).

Yet societies continue to produce and be influenced by charismatic leaders up until the present day (Van Vugt & Ahuja, 2010). Several converging lines of recent research have addressed this question, indicating that integrative or voluntaristic models may help explain why humans display uniquely cooperative or prosocial forms of organization (Diel, 2000; Van Vugt, 2006). Within such increasingly large group sizes, it can be shown to pay individuals to voluntarily follow a leader to obtain public or common goods that would be unobtainable as individuals (Hooper, 2010). Examples include whale hunting (Alvard & Nolin, 2002), communal defense, and the construction of farms and reservoirs (Kohler, Cockburn, Hooper, Bocinsky & Kobti, 2012) to name a few. To sum up then, even though many human societies clearly made a transition from a primarily charismatic style of leadership to a more hierarchal and despotic one beginning with the dawn of agriculture,
there is good reason to believe that charismatic leadership would have had ample time to influence the development of institutions, and the internalization of norms and attitudes that increased the likelihood of cooperation.

**Charisma as a supernormal stimulus.** By framing charismatic leadership as a signaling strategy between leaders and followers, it becomes less surprising that certain individuals are able to achieve a level of influence that appears “supernatural.” It may be that an effective charismatic leader creates a psychological response similar to what biologists observe when other species are exposed to supernormal stimuli (Krebs & Dawkins, 1984). The long history of continuous competition between leaders attempting to gain influence and followers seeking to avoid exploitation has created a selection pressure on the development of both strategies. This tension between the desire to identify potential cooperators and the need to avoid free-riders can be characterized as a type of evolutionary “arms race”.

The studies described in this thesis focus primarily on the positive effects of charismatic leadership, but this is by no means the entire story. In fact, there is much more to be said about the “dark side” of charismatic leadership, the dangers which can result when a leader takes advantage of the extreme devotion and commitment of followers for selfish or immoral reasons by signaling dishonestly their intentions to benefit the group (Paulhus & Williams, 2002; Van Vuelt, Hogan & Kaiser, 2008). History is full of examples of individuals, such as cult members or suicide bombers, who were unable to abandon their commitment in the face of conflicting information, with disastrous outcomes. One way of understanding such actions is to view them as the results of an evolved “psychological immune system” which functions to defend firmly held convictions against change by novel information (Atran & Henrich, 2010). While such a system might have been beneficial for group cohesion in the past --
when contact with outgroup members was rare and perhaps more dangerous -- it is perhaps best considered an evolutionary mismatch in the modern world.

The mere fact that charisma continues to exert such a powerful influence on followers suggest that such signals in our evolutionary history have tended to be honest more often than not, because a preponderance of dishonest signals or cues – leaders who deceptively signal their abilities to help the group but in fact harm them – would ultimately cause receivers to stop paying attention to them (like the boy who cries wolf). Nevertheless, in present times charismatic signals are often deliberately hijacked by individual leaders who fail to bring benefits to followers, but instead benefit themselves. (Toxic leaders / dark side). This is likely due to a mismatch between small scale ancestral environments where we knew our leaders inside out and the modern complex environments where as followers we paid attention to a range of different cues and signals to determine which leaders to follow. In the absence of such richness of cues, we may grant leadership to individuals who come across at first glance as charming or inspiring, but who have no ability or willingness to provide coordination benefits. It is interesting to note that the distinction between honest and dishonest signals aligns quite closely with that made between socialized and individualized forms of charisma made in the organizational literature (House & Howell, 1992; Howell, 1988). Honest signaling and socialized charisma, for example, both function to improve the fitness or well-being of senders and receivers, whereas dishonest signaling and individualized charisma are ultimately harmful to the well-being of particularly the receivers. The emergence of toxic charismatic leaders may be a manifestation of people attracting the attention of followers in information-poor environments. In addition, I predict that different types of information should have effects in different domains – for example knowledge about a candidate’s
competence or experience, social standing or reputation could differentially affect voters in a systematic way.

**Charisma and Religiosity.** As we saw in chapter 4 there are good reasons to suspect that charismatic leadership, which itself has its origins in religious discourse (Bulbulia & Sosis, 2011), may play an important role in understanding the cultural evolution of religious institutions. For example, in many modern religions, hundreds of millions of people gather periodically in large groups, to listen to their religious leaders give talks about the nature of reality, morality, and the role of individuals within the religion and community. Future research might aim to investigate whether there is a meaningful difference between the kinds of leaders who gain influence in the domain of religion as compared with other more secular forms of leadership, and whether these rituals and behaviors make religious individuals more likely to prefer following a charismatic leader.

**Gender and Leadership.** Finally, there remains much more to be discovered about the relationship between personality, leadership attributions, and gender; I would encourage researchers interested this interaction to make use of both male and female leaders and followers in order to advance our understanding in this often-overlooked area.

**Adaptive Challenges.** The adaptive problems which have been suggested as particularly suitable for resolution through charismatic leadership are by no means exhaustive. Future studies should continue to investigate the impact of charisma, as well as specific facial features such as warmth, trustworthiness, and competence in a wider range of domains which would have had fitness consequences for the development of followership heuristics: for example, situations such as resource scarcity or pathogen concerns remain under-researched.
Measuring Political Knowledge and Engagement. Finally, the development of a more reliable and objective instrument for assessing voters’ overall political knowledge would be an immensely useful tool – though it would need to be continually updated to reflect the platforms of the candidate’s currently running for office. Future research could aim to develop a more comprehensive measure which includes true or false questions about the candidates’ personalities and political platforms. In addition, we predict that different types of information should have effects in different domains – for example knowledge about a candidate’s competence or experience, social standing or reputation could differentially affect voters in a systematic way.
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BIOGRAPHY

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EDUCATIONAL BACKGROUND

Research Masters (MSc) in Social Psychology
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RESEARCH INTERESTS

I study the evolution of charismatic leadership-- how and why human groups have evolved the types of leadership and followership behaviors we have, and how they can enable us to respond to adaptive challenges such as fostering large-scale cooperation and resolving social dilemmas. The aim of my research is to discover and explain the proximate psychological mechanisms that impact leadership and followership behavior, especially as they affect areas such as political elections and organizational hierarchies. Examples include the role of facial cues and social cognition in leadership emergence, the functioning of evolved heuristics in the decision-making of followers, and the impact of leadership styles on group behavior in economic games. My research is supported by a grant from the Netherlands Organization for Scientific Research.
PUBLICATIONS


INTERNATIONAL CONFERENCE PRESENTATIONS

European Human Behavior and Evolution Association
*Bristol, United Kingdom 2014*

Human Evolution and Behavior Network
*Antwerp, Belgium 2014*

Association for Social Psychology Researchers
*Groningen, the Netherlands 2014*

International Convention for Psychological Science
*Amsterdam, the Netherlands 2015*

International Conference on Social Dilemmas
*Hong Kong, China 2015*

Human Behavior and Evolution Society
*Vancouver, Canada 2016*

European Association for Social Psychology
*Granada, Spain 2017*