

Two Truths and a Lie: an Evolutionary Basis for the Strategic Use of Language

By

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A Thesis Submitted

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science

In

The Department of Anthropology

Minnesota State University, Mankato

Mankato, Minnesota

May 2010

## ACKNOWLEDGMENTS

I would first like to thank my husband Isaac for his support and encouragement throughout these long three and a half years. Thank you for grounding me while allowing me to soar. I would also like to thank my parents—my mom for her tenacity and my dad for his sense of curiosity. All my best qualities came from the two of you.

I would like to thank the members of my thesis committee: Dr. Paul Brown, Dr. Susan Schalge, and Dr. Karen Larson. Thank you for your guidance and support in shaping this thesis. In particular, I would like to thank Dr. Paul Brown for introducing me to evolutionary psychology and for his abundant patience and encouragement throughout the entire process.

I owe a great deal of thanks to Dr. Mark Kruger for his time, patience, and assistance with my thesis data and for an introduction to statistics and SPSS. Without his help, this thesis would not have been possible.

I would also like to thank my colleagues for flexibility and accommodating my course work. Finally, a special thank you to the Interlibrary Loan Department at Gustavus Adolphus College for obliging a greedy patron!

## **ABSTRACT**

### **TWO TRUTHS AND A LIE: AN EVOLUTIONARY BASIS FOR THE STRATEGIC USE OF LANGUAGE**

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2010

Language makes us human, but its evolutionary origins continue to puzzle researchers. For language to have been selected for, it must have had a reproductive advantage. Specifically, the strategic use of language could have helped our ancestors navigate social relationships—to ally with those who would increase their social status, to secure mates, and to avoid enemies and cheaters who would have impeded survival. By studying how language is used strategically in social interactions, this study combines proximate and ultimate levels of analysis from evolutionary psychology and the social sciences to test the idea that language is an adaptation. As a way to explore why language evolved, the researcher designed an experiment to examine how language is used strategically today in the context of deception and deception detection. Using the game “Two Truths and a Lie” and two surveys, the researcher investigated the tactics and cues involved in deception, the differences between males and females in deception and deception detection, and the ranking of each storyteller according to ability. Implications of gender differences in deception, deception detection, and strategic language use are discussed against the backdrop of evolutionary theory.

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## CHAPTER I

### INTRODUCTION

#### *An Introduction to Evolutionary Sociolinguistics*

Language makes us human, but what is it exactly about language that makes us human? It is more than a tool for communication. Much more is communicated in an exchange than the message itself. According to anthropologist Robbins Burling, “It is in defining ourselves in relation to others, in conducting interpersonal negotiations, in competing, in manipulating, in scheming to get our own way, that the most subtle aspects of language become important” (Burling 1986:8). However, for language to have been selected for, it must have had a reproductive advantage. Could language have been a sort of peacock’s tail for human verbal display?

Evolutionary psychologist Geoffrey Miller suggests that human language is a form of “verbal display” or “verbal courtship” in human sexual selection. Like the peacock’s tail, language is used as a fitness indicator to advertise one’s reproductive fitness. If humans prefer mates with language ability, then language may have evolved through runaway sexual selection. Miller calls for the combination of evolutionary psychology and sociolinguistics. Evolutionary psychology is a discipline concerned with mental processes and behavior evolved as adaptations, thus conferring reproductive advantages as a result of natural and sexual selection. Daniela Wawra suggests that evolutionary psychology “can explain our language use in social contexts” (2006:341).

Sociolinguistics is a branch of linguistics that considers how language is used in social situations and how language use varies depending on the social context and other linguistic and nonlinguistic factors. According to Miller, combining these disciplines into an “evolutionary sociolinguistics” would enable us to “test evolutionary theories of the social and sexual benefits of language” (2000:362).

An investigation of the social and sexual benefits of strategic language use is the primary objective of this thesis. Using evolutionary theory and research from such disciplines as sociolinguistics, linguistic anthropology, and psychology, this thesis is an attempt to explain the nature of linguistic behavior—as observed at the social and cultural level—as a product of Darwinian outcomes. My focus is essentially on Tinbergen’s second of four questions, that of the adaptive significance of language (Tinbergen 1963). This thesis does not discuss the *how* or the mechanics of the evolution of language, including the syntactic or grammatical components of language,<sup>1</sup> nor does it discuss similarities and differences between humans and the nature of primate calls or the physiological capabilities for language in humans and other primates.<sup>2</sup>

The main objective in this thesis is to show theoretical support for an evolutionary basis for why humans use language strategically. Language strategies, usage, and meaning are influenced by culture. However, the focus of this thesis is at the ultimate, not the proximate, level. My position is as follows: (1) Language was likely selected for its social function; (2) Language is used strategically, both consciously and unconsciously;

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<sup>1</sup> For more information on the evolution of language, see Macneilage and Davis (2005); Pinker (1994); Bickerton (1995); Bickerton and Calvin (2000); and Hauser et al. (2002); Burling (2005).

<sup>2</sup> See Burling et al. (1993); Deacon (1994a, b); Hawes (1995); Lieberman (2003); Savage-Rumbaugh (1994); Zimmermann (1994)

and, (3) Evolutionary theory can be used to explain socially and culturally manifested linguistic behavior at the ultimate level.

Because “evolutionary sociolinguistics” has not yet caught on in academia,<sup>3</sup> this thesis is an attempt to find footing in unmarked territory. The purpose of this thesis is not to territorialize evolutionary psychology as having a bigger stake in the endeavor than sociolinguistics (or vice versa) but to answer the *why*, as in *why do humans use language strategically*, by using observed linguistic behaviors at the cultural and social level. To explain the nature of a human behavior as profound, complex, and universal as language, such explanation(s) requires theoretical insight from more than one discipline.

I define “strategic language” as language that is manipulated in such a way as to achieve one’s goals—goals that are at the conscious and unconscious levels and which I explain in greater detail later in this thesis.<sup>4</sup> Eckert and McConnell-Ginet describe these “goals” in social interactions as “social moves.” They state, “Every contribution one makes in an interaction can be seen as a social ‘move’—as part of the carrying out of one’s intentions with respect to others. After all, we don’t just flop through the world, but we have plans—however much those plans may change from moment to moment” (2003:6). However, individuals are not free to achieve goals in any way they choose. There are

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<sup>3</sup> In addition to Miller (2000), Wawra’s (2006) paper also discusses the interdisciplinary approach of evolutionary sociolinguistics.

<sup>4</sup> In her chapter on code-switching, Kathryn Woolard (2004) specifically addresses the issue whether code-switching is an interactional strategy. As Woolard suggests, the issue of contention is centered on the term “strategy” or “strategic,” namely that strategy implies intentionality. My use of the term “strategic” throughout this thesis follows the proximate/ultimate level of behavioral analysis—that strategic behavior (and language) stems from both the conscious (socially and culturally expressions) and unconscious level (psychological mechanisms driving reproductively advantageous behavior).

linguistic and social constraints or rules about what is said, how it is said, and how social moves are made.<sup>5</sup>

I particularly focus on the social aspect of language use, namely that the function of language is to foster and maintain social relationships and also to manage one's reputation in order to achieve certain social ends. Burling identifies examples of how and why humans use language strategically. He states, "We constantly use language to persuade or to manipulate others into helping us. We use language to try to gain an edge over others, just as they use language to try to gain an edge over us. We constantly seek to persuade, to convince, to cajole, to seduce. Skill with language brings tangible rewards" (Burling 2005:213).

Strategic communication—particularly strategic behavior—does not solely occur among humans (See: de Waal 1989, 2005; Smith 1987; Byrne and Whiten 1992). It is the connection between strategic behavior and language that makes linguistic behavior unique to humans. For the purposes of this thesis, I will focus on strategic language use in the context of deception. Although people use language strategically in other contexts as well, I will be looking at how language is used to deceive and detect deception. I have chosen deception, because as Euclid O. Smith explains, "deception is a subset of behaviors that evolutionary biologists have come to view as strategizing behaviors" (Smith 1987:51). Furthermore, my hypothesis is that language may have evolved to help humans successfully navigate the social milieu through deception and deception detection in order to survive long enough to attract mates and reproduce.

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<sup>5</sup> Eckert and McConnell-Ginet describe the process of exercising goals within "institutional and ideological" constraints as that of social practice (2003:5).

In this thesis, I combine proximate and ultimate levels of analysis from evolutionary psychology and the social sciences to test the idea that language is an adaptation. As an attempt to explore the evolutionary roots of strategic language use, I designed an experiment using the game “Two Truths and a Lie” to examine how language is used strategically today in the context of deception and deception detection. In Chapter 2, I discuss my theoretical orientation and provide cross-cultural examples of strategic language use. In Chapter 3, I discuss my hypotheses, procedures, and coding scheme used in the “Two Truths and a Lie experiment.” In particular, I investigate the tactics and cues involved in deception, the differences between males and females in deception and deception detection, and the ranking of each storyteller according to ability. Chapters 4 and 5 provide a discussion of the results and implications of sex differences in deception, deception detection, status and linguistic ability, and strategic language use. Finally, I conclude with a brief summary and future directions in Chapter 6.

## CHAPTER II

### REVIEW OF LITERATURE

#### *Evolutionary Theory*

Evolutionary theory is not discipline-specific; it informs and explains inter- and intra-species phenomena from genetics to geology. In the last few decades, evolutionary theory has been applied in the social sciences to explain behavior as generated by psychological mechanisms, or adaptations, as a result of selection. Evolutionary theory applied to research on human behavior is usually referred to as “sociobiology,” or the more recent term, “evolutionary psychology.” Evolutionary psychology is defined as “psychology informed by the fact that the inherited architecture of the human mind is the product of the evolutionary process” (Cosmides et al. 1992:7). Essentially, human behavior must be explained in part through an understanding of evolved psychological mechanisms.

Evolutionary psychology has its roots in Don Symons’s, *The Evolution of Human Sexuality* and Cosmides, Tooby, and Barkow’s *The Adapted Mind*. In the introduction of *The Adapted Mind*, the authors disclose three key premises which are central to evolutionary psychology. I have included them here to serve as a brief summary of the key concepts of evolutionary psychology from which I later draw.

The central premise of *The Adapted Mind* is that there is a universal human nature, but that this universality exists primarily at the level of

evolved psychological mechanisms, not of expressed cultural behaviors. On this view, cultural variability is not a challenge to claims of universality, but rather data that can give one insight into the structure of the psychological mechanisms that helped generate it. A second premise is that these evolved psychological mechanisms are adaptations, constructed by natural selection over evolutionary time. A third assumption...is that the evolved structure of the human mind is adapted to the way of life of Pleistocene hunter-gatherers, and not necessarily to our modern circumstances. [Cosmides et al. 1992:5]

In publishing this volume, the authors also called for an integration between the natural sciences and behavioral and social sciences. They refer to this integration as “conceptual integration,” which “allows investigators to use knowledge developed in other disciplines to solve problems in their own field” (Cosmides et al. 1992:12). This integration of disciplines is essentially my goal in drawing research from evolutionary psychology and sociolinguistics. My intention is not to elevate theories from one discipline over another, but to draw insight from both in order to explain human behavior and language from two traditionally distinct disciplines.

#### *Proximate and Ultimate Causation*

When applying evolutionary theory to explain human behavior, it is important to distinguish between proximate and ultimate causation (Cartwright 2000). The distinction between proximate and ultimate causation come from Tinbergen’s four “whys” of animal behavior (Tinbergen 1963). Proximate causation of behavior, including linguistic behavior, considers the environmental mechanisms that trigger or cause the behavior, which, in the instance of language, can be explained at the social and cultural level.

According to Cartwright, proximate causal mechanisms describe the “how,” as in how the behavior functions, but it does not explain why the behavior exists (2000:53).

Proximate causes will vary depending on numerous and, perhaps simultaneous, factors including contextual, geographic, and cultural.

Particular strategies of language use, which vary depending on an array of social and cultural factors, refer to the proximate function of language. For example, explaining why children in Costa Rica speak Spanish requires proximate-level explanation. Ultimate causation considers the adaptive significance or the evolutionary origin of the behavior. Using the same example, an ultimate-level question would ask why children (and adults) have the capacity for language, or, why did language evolve and how did it contribute to our ancestors’ survival? Proximate and ultimate explanations are not mutually exclusive. Neither is more “scientific” or more important than the other. In fact, to fully understand evolutionary theory, particularly when considering human behavior as it occurs today, it is essential to consider both proximate and ultimate explanations.

Cosmides and Tooby refer to this distinction as *evolved* (as in evolved psychological mechanisms that make language possible) and *manifest* (as in the behavior that is manifested based on environment, culture, circumstances, etc.) (Cosmides and Tooby 1992:45). Using these terms and definitions as a basis for understanding the distinction, it is possible to utilize cross-cultural research when discussing *manifest* or *proximate level* behavior. That children, regardless of culture or formal instruction (with the exception of disease or injury), acquire language proficiently is evidence of an evolved psychological mechanism (or evolution of a language faculty) that makes this

possible (Pinker and Bloom 1992). The language they acquire (the manifest behavior) depends on their culture and environment.

Because it is impossible to “dig up” language in order to understand its evolutionary roots the way physical anthropologists do with skeletal remains, we have to resort to examining linguistic behavior as observed at the proximate level. Cross-cultural studies of language use from such fields as anthropology (and other social sciences such as social psychology, sociolinguistics, etc.) provide proximate level data.

Why study language use in the present if, as evolutionary psychologists argue, the psychological mechanisms that made language possible evolved during the environment of evolutionary adaptation or EEA?<sup>6</sup> What will studies of present day language use show us in terms of how language evolved? Researching language use as it is manifested today to infer how and why it evolved is somewhat analogous to considering the complexities of the human eye to infer how natural selection “designed” it to function as it does today.<sup>7</sup> As the authors (and supporters of an evolutionary social psychology) phrase it, “Because we carry around with us the vestiges of ancestral adaptation, one of the best ways to gather evidence regarding the adaptive significance of human behavior is to study cognitive and behavioral biases exhibited by contemporary humans” (Kenrick et al. 2005:810).

Does everything (in terms of human behavior and language) always boil down to reproductive success? Yes and no. To answer this question is to specify which level of explanation is used. According to evolutionary theory and evolutionary psychology, the

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<sup>6</sup> See Irons (1998) for a discussion of the ARE versus the EEA; see also Fuentes (2009)

<sup>7</sup> For an in-depth discussion, see Pinker and Bloom (1992)

answer is yes if we are using an ultimate level of explanation. Cosmides and Tooby identify two ways that a living organism can propagate itself: “(1) by solving problems that will increase the probability that the organism... will produce offspring, or (2) by solving problems that will increase the probability that the organism’s kin will produce offspring” (Cosmides and Tooby 1992:53; see also Hamilton, 1964). Given that, however, most people’s dinner conversations do not involve reporting on the day’s successes and failures of securing a mate and increasing one’s chances of reproductive success. This is because while reproducing is an ultimate and therefore unconscious “goal” for humans, it is manifested at the conscious or proximate level. Therefore, while it would be rare to hear someone say, “I think Mark is the ideal mate for me given his social status and ability to secure resources” one would be more apt to hear instead, “Mark is hot.” Of course working backward from observed behavior and uttered language requires a level of questioning that infers beyond a particular person’s reproductive advantage from a particular behavior. Cosmides and Tooby refer to this level of questioning as adaptationist questions, questions which ask,

‘What is the underlying panhuman psychological architecture that leads to this behavior in certain specified circumstances?’ and ‘What are the design features of this architecture—if any—that regulate the relevant behavior in such a way that it would have constituted functional solutions to the adaptive problems that regularly occurred in the Pleistocene?’ [Cosmides and Tooby 1992:55]

Cosmides and Tooby define adaptations as “mechanisms or systems of properties crafted by natural selection to solve the specific problems posed by the regularities of the

physical, chemical, developmental, ecological, demographic, social and informational environments encountered” for humans during the Pleistocene (Cosmides and Tooby 1992:62).

It is important to note that the ultimate “goal” to reproduce is not solely manifested in decisions and behaviors related to mate selection. Survival goes beyond the life expectancy of a single organism. Survival from the standpoint of evolutionary biology refers to the survival of an organism long enough to successfully reproduce and pass along its genes.<sup>8</sup> The psychological mechanisms in place today are because our ancestors faced an array of adaptive challenges, including “making friends, negotiating status hierarchies, maintaining long-term relationships, and taking care of one’s children” (Kenrick, et al. 2005:811). Therefore, to achieve reproductive success required our ancestors to engage in an array of strategic behaviors, including the strategic use of language.

### *Natural and Sexual Selection*

The discourse on the evolution of language considers the effects of natural and sexual selection processes on language development. Theories of natural selection and language discuss how language contributed to the reproductive survival of humans whereby “differential reproductive success associated with heritable variation is the primary organizing force in the evolution of organisms” (Pinker and Bloom 1992:451). Theories on sexual selection and language refer to mate selection whereby humans

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<sup>8</sup> See Dawkins (1989).

evolved particular sexual preferences for language or linguistic abilities and preferred mates who had these linguistic abilities (Miller 2000).

Evolutionary theory explains inter- and intra-species change over time through natural and sexual selection, mutation, gene flow, and drift.<sup>9</sup> Natural selection is the process by which certain inherited genes allow some organisms or individuals to cope with the conditions of their environment better. This puts them at an advantage over others, enabling them to survive and reproduce. Frans de Waal explains natural selection as follows: “It produces behavior that, on average and in the long run, benefits those showing it,” (2009:42). According to de Waal’s explanation of natural selection, the strategic use of language would likely have benefitted those in our evolutionary past, particularly since this behavior can still be observed today.

Sexual selection refers to selection as a result of mating behavior. Males and females have different mating strategies—strategies to increase reproductive success. As Buss argues, “Our mating is strategic, and our strategies are designed to solve particular problems for successful mating. [However], sexual strategies do not require conscious planning or awareness...most human sexual strategies are best carried out without the awareness of the actor” (Buss 2003:5-6).

Sexual or mating strategies correlate with parental investment, or the amount of time required to ensure the survival of offspring until the offspring can reproduce. Another influencing factor on mating strategies is what Cartwright refers to as “potential reproductive rates.” Potential reproductive rates consider the “potential reproductive

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<sup>9</sup> For more information on the mechanics of evolution, see Cartwright (2000); Gaulin and McBurney (2004, 2001).

offspring production rate of males and females” whereby “the sex with the highest potential reproductive rate competes for that with the least” (Cartwright 2000:132). In humans, the female reproductive rate is considerably less than males. Females invest more time—at least nine months of gestation, and arguably longer until the child can walk, eat, and survive on its own. Biologically, males contribute much less time—the length of time required to release sperm—but their investment in their offspring usually manifests in the form of procuring resources.<sup>10</sup> Due to the differential potential reproductive rates and differences in parental investment, males and females evolved different preferences for potential mates. Furthermore, evolution produced differing mating strategies for males and females in terms of attracting and selecting desired mates.

These evolved mating strategies, or “psychological mechanisms” (Buss 2003:6), at work in our ancestors are still hard-wired in our brains today even though the environment has changed significantly since the Pleistocene. For example, according to Buss, the female preference for reliable, committed mates who offer resources and the male preference for physical beauty and youth are relevant cross-culturally in contemporary societies. These psychological mechanisms function at the ultimate level but are played out at the proximate level. The distinction between proximate and ultimate motivations for behavior means that the psychological assessment mechanisms function beneath the level of consciousness even though the environment triggers proximate level consciousness and behavior. To borrow de Waal’s example, the reasons humans engage in sex vary from, “ ‘I needed a raise’ to ‘I was curious how she’d be in bed,’” but the

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<sup>10</sup> According to Buss, “the evolution of the female preference for males who offer resources may be the most ancient and pervasive basis for female choice” (2003:22).

adaptive significance, or the ultimate function of sex, is that it evolved for reproduction (de Waal 2009:41).

Humans are “designed” to act in ways that benefit their reproductive success, and we explain these behaviors in terms of what happens at the conscious level—socially and culturally appropriate (or inappropriate) ways of behaving. Even though the conscious criteria for the ideal mate differ cross-culturally for males and females, it was in our ancestor’s best interest to seek the best possible mate for reproductive purposes. Without the psychological mechanisms actively selecting, our ancestors would have risked the survival of their genes. As Buss states, “Those who were caught unprepared, who failed to play in the field of possibilities, or who were unwilling to leave a reproductively damaging mate did not become our ancestors” (Buss 2003:182).

In a study of mate preferences, Buss found a “causal link between mate preferences expressed by one sex and tactics of intrasexual competition displayed by members of the opposite sex” (Buss 1992:261). For example, it is documented cross-culturally that males prefer females with a high waist-to-hip ratio (Buss 2003). Because females are aware of male preferences for physical beauty and youthfulness (indicators of fertility), females competing for a male may flaunt or exaggerate their physical features in such a way as to attract males. Likewise, males aware of female preferences, may flaunt their social status and resources by showing off a new car or using low frequency words in a conversation to advertise their intelligence (Rosenberg and Tunney 2008). Flaunting, exaggerating, advertising, showing off, etc., are strategies used to showcase a trait (or set of traits) that may catch the interest of a potential mate. Similar strategies are

used deceptively if one lacks or wants to exaggerate a desired trait in order to attract a potential partner (see: Buss 2003:105, 121-122). Buss explains, “Because males value cues to reproductive capability and accessibility, females would be predicted to lie about their age, alter their appearance, and conceal prior sexual encounters. Because females value willingness and ability to devote resources, males would be expected to exaggerate their resource holdings, inflate perceptions of their willingness to commit, and feign love to induce a female to mate with them” (Buss 1992:252). These strategic and deceptive behaviors, like reciprocal altruism and game theory, would have been reproductively advantageous for survival in the mating arena in our evolutionary past.

#### *Reciprocal Altruism and Game Theory*

Theory of Mind, or ToM, and the Machiavellian Intelligence Hypothesis are used to explain strategic behaviors, such as reciprocal altruism and game theory, in animals and humans. Byrne and Whiten (1988) developed the Machiavellian Intelligence Hypothesis, named after Nicolo Machiavelli. Cartwright defines the Machiavellian hypothesis as follows: “primate intelligence allows an individual to serve his or her own interest by interacting with others either cooperatively or manipulatively but without disturbing the overall social cohesion of the group” (Cartwright 2000:179). Under the Machiavellian Intelligence Hypothesis, it is in an individual’s best interest to know when to cooperate with others or when to defect or deceive. This sense of “knowing” (a conscious or unconscious process) requires estimating and potentially influencing the actions of others. According to David Livingstone Smith, “The unconscious mind has to

do more than perceive. It must also be able to influence behavior and figure out the mental states of others” (Smith 2004:105). It is not enough to be perceptive. An individual’s survival depends on the ability to “read” others and influence their behavior or beliefs.

Scientists have studied grooming behavior among primates as a way to learn how reciprocal altruism works. In evolutionary terms, altruism is defined as self-sacrificing behavior, usually to improve the reproductive success of related kin (Hamilton 1964). If altruistic behavior is reciprocated, it is considered reciprocal altruism, or reciprocity (Trivers 1971). Primate grooming, and other behaviors, require reciprocal altruism—literally, I’ll scratch your back if you scratch mine. Organisms will behave altruistically if it benefits their reproductive success. This altruistic behavior can be extended to non-kin if both parties benefit, in that the favor is reciprocated directly or indirectly. Trivers emphasizes that such benefits “depend on the unequal cost/benefit ratio of the altruistic act, that is, the benefit of the altruistic act to the recipient is greater than the cost of the act to the performer” (1971:36). Because reciprocal altruism essentially involves knowing when to engage in altruistic or cheating behaviors, reciprocal altruism is the basis for cooperation (Axelrod and Hamilton 1981). Cartwright explains that “cooperation may be a fitness-maximizing strategy” (Cartwright 2000:288) though cheating may also be fitness-maximizing. Furthermore, Trivers suggests that all humans possess altruistic and cheating tendencies (1971:35). What differs among humans are the “degree” of altruistic behaviors and the “conditions under which they will cheat” (1971:48).

Survival strategies and social manipulation require knowing when to cooperate and when to deceive or defect to achieve desired ends. As Kenrick et al. state, “Unable to see the future, people cooperate with group members based on the *probability* of future reciprocation” (Kenrick et al. 2005:813). This is the basis of game theory.<sup>11</sup> Cartwright describes game theory as follows: “In real-life situations, our behavior is contingent upon the behavior of others. Situations such as this have been modeled using game theory” (Cartwright 2000:288). A frequently cited example of game theory is that of prisoner’s dilemma (see Axelrod & Hamilton 1981). In one version of prisoner’s dilemma, two suspects are held for committing a crime. Because the officers do not know who did it, they separate the suspects and question them individually. If both suspects defect and claim innocence, they receive a full jail sentence. If both cooperate and admit guilt, each receives a lighter sentence. If one cooperates and one defects, the defector is released and the cooperator receives full jail time. Prisoner’s dilemma is just one example of game theory, but the general idea is that it is important for an individual to know when to cooperate and when to deceive for personal gain. While game theory and strategic behavior have been observed in nonhuman species (de Waal 1989, 2005), language (e.g. gossip) may have evolved in humans to keep track of cheaters or free-riders “and coerce them into conforming” (Dunbar 1996:172).

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<sup>11</sup> For an in-depth discussion of adaptations for social exchange, see Cosmides and Tooby (2005). For a discussion of evolutionary game theory, see Maynard Smith (1982).

*Language Evolution and Social Intelligence*

Encephalization, defined as the proportion of brain mass to body size and as the evolution of larger brains, sets humans apart from other species, including non-human primates. Cartwright states, “Our brains are at least seven times larger than expected for a mammal of our size and about three times larger than that expected for a primate of our size” (Cartwright 2000:174). He continues, “Brains are costly to produce and expensive to run. An adult brain accounts for only about two percent of body mass but consumes about twenty percent of all the energy ingested in the form of food” (2000:177). Larger brains for early humans also meant the increased need for food procurement, premature births of infants due to the increased size of the head, and increased parental care.

Encephalization altered the social system for early humans.

The Machiavellian intelligence hypothesis provides a possible answer to how and why human brain size, intelligence, and the capacity for language grew so rapidly. The more relationships there are to keep track of, the more complex a social group becomes. It becomes necessary to have a way to monitor those you can trust and those you cannot. In this sense, as the size of a group increases, its social complexity also increases. Primates must be able to evaluate when to cooperate and when to deceive for their personal benefit, social survival, and reproductive fitness. This evaluation process is an example of game theory—that is, being aware that consistent deception will decrease one’s ability to cooperate in the future and consistent cooperation may make one vulnerable to manipulation.

One argument supporting the claim that brain expansion led to the development of language is the evolution of the brain for social manipulation. Robin Dunbar argues that “language evolved to allow us to gossip” (Dunbar 1996:79). He compares language and humans to grooming behavior and primates. He argues that language could have evolved “as a kind of vocal grooming to allow us to bond larger groups than was possible using the conventional primate mechanism of physical grooming” (1996:78) He supports his statement in two ways: “we can talk to several people at the same time” which allows for efficient communication but also maintaining several relationships simultaneously, and “language allows us to exchange information over a wider network of individuals than is possible for monkeys and apes” (1996:78).

Dunbar argues that language could have evolved for the following reasons: (1) to keep track of acquaintances—in his words, "who is doing what with whom;" (2) to exchange information about free riders or cheaters; and (3) as a device for social influence and for one's reputation management (deception, creating alliances, and the mating game) (1996:173). Dunbar uses the size of the neocortex to determine social complexity and social intelligence. The neocortex is the part of the brain found in humans and some animals that is responsible for higher functions such as cognitive processes and language in humans. Dunbar suggests that the size of the neocortex is proportionate to social complexity and group size. Therefore, the larger the neocortex, the larger the group size and increase in social complexity. According to Dunbar, “Species with large neocortices... were much more likely to engage in tactical deception” (1996:94).

Dunbar and others use “Theory of Mind” as a tool for measuring the degree of Machiavellian intelligence in primates and humans according to the order of intensionality. Intensionality, not intentionality, is a term used to measure the degree of self-awareness and the awareness of mental states in others (Cartwright 2000:349). As Cartwright explains, first-order intensionality is self-awareness—I know that I exist. Second-order intensionality is the awareness of others—I know that you exist. Third-order indicates that others are similarly aware—I know that you know that I exist, and so on. According to Dunbar, “Having a Theory of Mind means being able to understand what another individual is thinking, to ascribe beliefs, desires, fears and hopes to someone else, and to believe that they really do experience these feelings as mental states” (Dunbar 1996:83). Theory of mind is the basis of Macchiavellian Intelligence hypothesis, deception, game theory, and manipulating others for social ends. Language does not have to be present for successful manipulation—non-human animals are successful at manipulation using their own tactics—but the social function of language and the presence of language in human strategic behavior suggest that language may have evolved in humans to further social ends. One example of human strategic behavior is deception.

### *Deception*

I use deception as a starting point for investigating strategic language use and evolutionary theory because successful deception requires ToM, reciprocity, and communicative competence (a concept I explain in a later section). Each of these

strategizing behaviors would have presumably contributed to our ancestors' survival and are still hard-wired in our brains today. Deception is also manifested at the social and cultural level and can be observed in how individuals use language.

Research in social psychology suggests that lying is a fact of everyday life (DePaulo et al. 1996). Empirical evidence of the nature and frequency of lying runs counter to the idea that lying is the exception, not the rule. Studies of deception in psychology range from the frequency of lies told (Tyler and Feldman 2004; Weiss and Feldman 2006; Feldman et al. 2002), to deception and deception detection in dating (Barnacz et al. 2009), to the frequency and type of lies told in close and casual relationships (DePaulo and Kashy 1998), to sex differences in lying (DePaulo et al. 1993). The common theme in these studies is that deception is a tactic used to further social ends— whether that means presenting a positive image of oneself, attracting a mate, or maintaining one's social network. Researching the importance and function of deception in human social interactions will likely increase our understanding as to why deceptive tactics and deception detection evolved and how this is related to the evolution of language. By understanding how language is used to deceive, we can glean insight into the role of deception in the evolution of language.

Presenting a positive impression of oneself, or self-presentation (Goffman 1959), may lead to deception. Tyler and Feldman suggest that “people are typically motivated to strategically control the inferences that others draw about them” (Tyler and Feldman 2004:2602). Under this assumption, people have one of two options: honesty or deceit. Presenting a positive image of oneself does *not* have to involve deceit; it merely requires

a strategic portrayal of one's attributes and idiosyncrasies. However, the problem is that an honest showcase of oneself (a strategic one at best) may not always be sufficient to achieve the desired social result, such as impressing a stranger, succeeding in a job interview, etc. In this case, it is in one's best interest to utilize deception to the perceived degree and frequency required for the situation. In this sense, it is essential to consider deceptive behavior, not as deviating from normal or honest behavior, but as a self-presentation tactic (Tyler and Feldman 2004). As Goffman suggests:

Sometimes the individual will act in a thoroughly calculating manner, expressing himself in a given way solely in order to give the kind of impression to others that is likely to evoke from them a specific response he is concerned to obtain. Sometimes the individual will be calculating in his activity but be relatively unaware that this is the case. Sometimes he will intentionally and consciously express himself in a particular way, but chiefly because the tradition of his group or social status require this kind of expression and not because of any particular response... [Goffman 1959:6]

In a study by Feldman et al., the authors found that participants who wanted to appear likeable or competent told more lies than the control group. Furthermore, the type of lies told depended on the type of self-presentation goals (Feldman et al. 2002:169). These findings suggest that the desire to present a positive image of oneself in a social context is not only important but may in fact lead to deception. In an empirical study of deception in job interviews, Weiss and Feldman (2006) demonstrate that deception is used as an impression management tactic to increase one's chances of getting a job. They also found that the more technical the position, the more deception increased as a way to

compensate for lacking the required skill set or job-related experience. Deception is also employed when anticipating future interactions. Tyler and Feldman (2004) found that males and females use deceptive behavior when expecting to interact with the same individual in the future. Furthermore, they found that females actually lied significantly more than males when anticipating future interaction but the frequency of deception was nearly the same when they did not expect to encounter their partner again.

The challenge in observing and studying deception, particularly in cross-disciplinary studies, is that there is no single shared definition. Furthermore, lying and deception tend to be used interchangeably. Smith defines lying as “any form of behavior the function of which is to provide others with false information or to deprive them of true information. Lying can be conscious or unconscious, verbal or nonverbal, stated or unstated” (Smith 2004:14). Galasinski argues that deception cannot simply be equated with lying, manipulation, or intending false beliefs on the receiver (Galasinski 2000:18-21). Deception takes on various forms depending on the context, the deceiver, and the target. For example, Galasinski distinguishes deception from intending false beliefs because “there are many utterances that may be used deceptively and to which the criterion of truth or falsity does not apply...an utterance both complete and truthful can still be deceptive” (2000:19). He further identifies strategies or “faces” of deception, such as deception by omission, deception by commission, and deception through implicit and explicit information (2000:22).

DePaulo and Kashy define lying as “inauthentic communication” (DePaulo and Kashy 1998:64). They divide lies into two categories: self-centered lies and other-

oriented lies, or altruistic lies (1998:68). They define self-centered lies as lies told to protect oneself, whereas other-oriented lies are told to protect others. They further state, “When people tell everyday lies, they pretend to be different kinds of people than they believe they really are” (1998:75). The problem with defining lying as “inauthentic” implies that the act of telling a lie (or deceiving) is in discordance with an authentic self, in which there is a notion of a real, authentic self always honest in social interactions, and an inauthentic self. I disagree with this definition because I disagree that humans have but one authentic self. Human identity(ies) and behaviors are much more dynamic and fluid. I agree that deception is a part of everyday life, but I assert that humans use it to showcase different parts of identity rather than choosing to be inauthentic.

DePaulo and Kashy also define lying as “intentionally trying to mislead someone” (1998:66). Intent is a tricky concept in deception because it implies that lying is always manifested at the conscious level. Deception at the ultimate level (as explained earlier) is beyond an individual’s conscious level. Since this thesis focuses on behavior observed at the conscious level and because the objective of “Two Truths and a Lie” requires the intention to lie for the lying story, I will use DePaulo and Kashy’s latter definition. However, I must point out that deception defined in this manner is limiting.

For the purposes of this thesis and “Two Truths and a Lie,” I will use lie and deceit interchangeably. Because participants in “Two Truths and a Lie” were instructed to tell a lying story (that is, they were told to intentionally deceive), I will continue to incorporate the use of the terms “lie” and “lying.” However, I want to draw a distinction

between lying and deception as related to the larger context of deception and strategic language use.

The term “lying” in a Western, American context evokes a negative value judgment. In this context, it is morally wrong to lie. However, “white lies,” or lies with the purpose of protecting the reputation or feelings of another person or oneself is socially acceptable and necessary at times. As Smith argues, “Most of us claim that we try to teach our children not to lie.” However, we actually teach them how to lie “in a socially appropriate manner.” He continues by stating, “Socially appropriate lying is not merely tolerated, it is mandatory” (2004:18).

It is in the spirit of “white lies” that I approach the larger issue of deception (deception with a capital “D”). Rather than apply a negative value judgment on the use of lies and deceit in the larger context, I prefer to consider lying and deception as strategies used consciously and unconsciously for a purpose – that of social gain. I support Smith’s stance on lying: “lying is not exceptional; it is normal, and more often spontaneous and unconscious than cynical and coldly analytical” (Smith 2004:15). To deceive is to manipulate others into believing something that will somehow benefit, or possibly benefit, the deceiver. The nature of the message may be false, incomplete, or partially true. Within this definition, some examples of deception could include: convincing, influencing, bragging, exaggerating, omitting details, etc. These examples demonstrate the degrees of deception, not whether or not something is wholly false or true, or even wholly deceptive or not.

Deception, then, is a subset of strategic language use, which serves the primary function of persuading or manipulating someone else's beliefs or behavior for a particular goal. If deception can include true and false information and if the deceiver's objective is to get a person or group of people to believe a set of information, deception is but a game of strategy and mind reading. The act of deceiving is not a deviation from the norm; it is the norm but certainly not without consequences or risks. However, because deception is a characteristic of human behavior, it is important to suspend the inclination to assign negative value judgments to deceivers and the act of deceiving. Doing so will enable researchers to understand the function of language in human social interaction and the role of deception. With an understanding of the distinction between the narrowing use of "lying" and the broader use of "deception," I will continue to use lying and deceiving interchangeably.

### *Deception and Mind-Reading*

Galasinski argues that "the skill of displacement," or the human ability to talk about events in their absence, "is one of the prerequisites of language." Furthermore, "if lying is one of the ways in which displacement in language manifests itself, the ability to lie seems to be one of those crucial skills that humans had to evolve to master language (Galasinski 2000:12). Lying and the displacement of language support the Machiavellian Intelligence hypothesis. That is, in order to deceive and manipulate another individual and detect deception, one needs to have Theory of Mind, or the ability to "read" the intentions and perspectives of another. Because having ToM allows one to choose

(consciously or unconsciously) which deceptive strategies to employ depending on the receiver or target, one cannot successfully deceive another without being able to “read” that person.

Deception and cheater detection are also rooted in reciprocal altruism and game theory. In order for reciprocity to not destroy the social cohesion of a group, individuals must develop a way to detect free riders or cheaters of the reciprocity system. If it is essential for individuals to know when to cooperate and when to deceive, they must have the ability to “read” others in order to deceive and to detect deception. The ability to deceive and detect deception through ToM is necessary for survival and social manipulation. Cartwright states, “The deployment of deceptive tactics demonstrates the ability of some primates to imagine the perspective of others. Deception involves penetrating the mind of others” (Cartwright 2000:180-181).

David Livingstone Smith argues that lying is an evolutionary adaptation. It was reproductively advantageous to be deceptive, and it is anti-social to be too honest (Smith 2004:13). We have evolved mechanisms for both deceiving and for detecting deceivers. Lying and deceiving are reproductively advantageous and mandatory for survival and successful social exchanges. Lying predominantly occurs at the unconscious level because as Smith explains, “unconscious deceivers must be unconscious perceivers” (2004:5). To be a successful liar requires knowing how to read people or having ToM. On the same token, being a good mind reader is the best protection against being deceived (Smith 2004:47).

In order to understand deception and the role of language in deception, it is important to consider deceptive behavior and deception detection in nonhuman species such as primates, for example (de Waal 1989, 2005; Smith 1987; Byrne and Whiten 1992; Hawes 1995). Nonhuman species also have evolved unique, species-specific communication systems (Hawes 1995). Krebs and Dawkins state, “Many of the externally visible features of animals, many of their behavior patterns...are best interpreted as being adapted—‘designed by natural selection’—to influence the behavior of other animals, and are often referred to as ‘signals’” (Krebs and Dawkins 1984:380). These signals are used honestly and deceptively depending on the context and motivation of the signaler.

Signaling is ritualized (Johnstone 1997; Krebs and Dawkins 1984) in that natural selection favors individuals who can effectively deceive or manipulate the behavior of others in such a way that favors the signaler, but it also favors individuals who can effectively deduce or mind-read the intentions in signalers based on the signal or display. For example, the ability to interpret signals that are “uninformative” or misleading as in the displays of a potential predator or undesired mate is essential for survival. Krebs and Dawkins suggest that manipulation (deception) and mind-reading (deception detection) are not isolated behaviors but are linked together in an evolutionary arms race. For example, the ability to detect deception or mind-read is required for successful manipulation. The ritualization of deceit and deception detection supports my stance that language is used strategically and requires the ability to dance between mind-reading and manipulating.

*Social Function of Language from the Viewpoint of Evolutionary Psychology*

According to Dunbar, “questions about the function of language and its evolutionary origins have largely been ignored,” that is, at least until the late 1990s (Dunbar 1998:92). It seems there are two primary social functions of language: acquiring information about others through gossip and reputation management, including attracting potential mates (Dunbar 1996, 1997, 1998; Emler 1990; Miller 2000), or as stated by Robbins Burling, “establishing, maintaining, and refining social relationships” (Burling 1986:8). These are not mutually exclusive, however. Maintaining a positive reputation of oneself among one’s social network could potentially affect the ability to attract a sexual partner. The social psychologist Nicholas Emler (1990) maintains that humans routinely engage in reputation management, managing their own reputations and those of others. Similarly, Barkow states that “reputation is determined by gossip, and the casual conversations of others affect one’s relative standing and one’s acceptability as a mate or as a partner in social exchange” (Barkow 1992:628).

Gossip is not reserved for the high school lunch table and is not unique to one sex or another. The role of gossip, then, is essentially reputation management (see also Thornborrow and Morris 2004). Gossip need not be malicious in nature, but it serves as a way to exchange information about other (usually absent) people. Naturally, gossip works both ways and anyone is subject to be gossiped about. Most people would hope that what is said about them in their absence would be esteeming in nature, but we all know from experience that this is not always the case. Nevertheless the social function of language is to exchange information, or gossip, about the goings on of other people.

Gossip, daily interactions with others, and recent technology with the Internet and social networking sites (e.g. Facebook) make reputation management quite easy.

Technology, however, has shown us in recent years that the information individuals post to social networking sites or on cell phones can have negative consequences that can permanently ruin one's future opportunities (e.g. obtaining a job). The risk involved in posting personal information and the potential consequences illustrate the significance and power of language in social circles. What is said in confidence might be the topic of discussion in another social group and damage any effort one made in trying to maintain a particular reputation. According to Emler, "reputations are social constructions, created collectively through processes of social communication, and are not to be confused with one individual's perception of another (Emler 1990:181). The positive and negative consequences from how language is used and the implications in how it affects one's social survival (and our ancestors' survival) suggest that it is in one's best interest to use language strategically.

As discussed previously, there are proximate and ultimate functions of gossip and reputation management. The proximate function is to glean information which can inform our relationships with other people (colleagues, friends, lovers, neighbors, etc.). The more information we know about other people, the more we know with whom to interact or whom to avoid altogether. The ultimate function of gossip is to be able to enhance survival and increase reproductive advantage. Any useful information on how to avoid enemies and how to secure a potential mate would likely increase one's survival and reproductive success. Barkow describes this as "were we and they [people gossiped

about] living in a Pleistocene environment, their behavior would be likely to affect our inclusive fitness” (Barkow 1992:628). Language contributed to our ancestors’ survival—but specifically, the strategic use of language would have helped our ancestors navigate social relationships—to ally with those who would increase their social status, to secure mates, and to avoid enemies and cheaters or those that would have impeded survival.

### *Language and Reproductive Success*

The theory of sexual selection is also used to explain why and how language was selected for in terms of mate preference and reproductive success. If language is a sexually selected trait, the heritable variation in language ability would explain differences in language among individuals (Burling 1986, Miller 2000; Wawra 2006). Furthermore, linguistic behavior reveals the fitness of an individual and could explain why, for example, language is more “noisily displayed by men than women” (Wawra 2006:350).

Geoffrey Miller (2000) suggests that runaway sexual selection preferred higher cognitive traits in mates, particularly language. Dunbar suggests that language “allows us to engage in self-advertising in a way that monkeys and apes cannot” (Dunbar 1996:192). In this sense, language acts like the peacock’s tail, which linguist John Locke describes as “verbal plumage” (Locke 1998; Miller 2000), or the act of advertising one’s fitness through the creative use of language. Miller developed the “verbal courtship” theory, in which our words are displayed as fitness indicators as we seek out preferred mates. Because much of human dating or courtship involves talking, Miller suggests that “verbal

courtship is the heart of human sexual selection” (2000:351). In the following excerpt, Miller explains how verbal courtship correlates with mate selection and reproductive success:

The idea that language evolved for verbal courtship solves the altruism problem by identifying a sexual payoff for speaking well. Once the rudiments of language started to evolve, for whatever reason, our sexually motivated ancestors would probably have used their heritable language abilities in courtship. Language complexity could have evolved through a combination of runaway sexual selection, mental biases in favor of well-articulated thoughts, and fitness indicator effects. [Miller 2000:353]

His theory suggests that humans prefer mates with language ability, but he does not distinguish between male and female preferences in language ability. It is unclear as to the degree of linguistic ability humans prefer or how this varies cross-culturally. Miller also assumes that all people “compete to say things” in social settings as a way of advertising fitness, but competitive speaking also varies with respect to gender and other social and cultural factors (see: Gal 1991). He does, however, correlate verbal skill with social status and reproductive advantage. He states, “Anything that raises social status tends to improve mating prospects” (2000:357).

One way to increase social status through language, as argued by Jean-Louis Dessalles (1998, 2007), is through the art of being relevant in conversation, or to borrow from linguistic anthropology, having communicative competence (which I explain later in this thesis). According to Dessalles, people exchange valuable, relevant information for status, in which the information provided is validated by listeners (through cheater detection measures) and its speaker is rewarded with social status (1998:143). From a

selection standpoint, sharing pertinent information (as in who is doing what to whom) is beneficial to both listener and speaker, provided that speakers advertise their fitness in the process and in effect obtain higher status.

Although I cannot test or measure reproductive success rates of the participants in this study, there is significant research that supports a correlation between social status and reproductive success, particularly among males (Flinn 1986; Borgerhoff Mulder 1987; Casimir and Rao 1995; Chagnon 1979; Irons 1979; Smith 2004; Cronk 1991; Turke and Betzig 1985; Mealey 1985; Fieder et al. 2005).<sup>12</sup> Similar correlation studies in modern industrial societies (Perusse 1993; Hopcroft 2006) have found a null or negative effect, in which the use of modern contraception practices likely decreases actual reproductive outcomes. However, these studies have found a positive correlation between status and potential fertility (estimated by copulation frequency). Among other primates, “high rank generally translates into food for females and mates for males,” whereby “females further enhance reproduction by what they eat” (de Waal 2005:49-50). Furthermore, using the framework that psychological mechanisms still function today (Cosmides and Tooby 1992; Buss 1992), I argue that strategic behavior still operates

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<sup>12</sup> The literature is deficient in studies measuring female status and reproductive success. (For a discussion of women and status, see Campbell 2002). Many of the studies referenced here discuss indirect benefits for females and their offspring, such as greater access to resources and better health—thereby increasing offspring survival. When females were included in studies of status and RS, status was defined and measured equally for both males and females. For example, in Fieder et al. (2005), status was defined in terms of position and salary in a university setting and was used to measure the correlation between status and reproductive success for males and females. The results showed a negative correlation between status and offspring count for women, noting that childless women were included. Perhaps there needs to be a reconsideration of how status is defined and measured for each sex and account for differing reproductive strategies. Keeping in mind that status is socially and culturally defined and measured (Irons 1979), it makes sense that status indicators for males translate into markers of wealth, skill, and prestige. It seems much more appropriate to think of status and females in terms of one’s capability of reproducing and attracting mates. In certain African societies, particularly in Ghana, status is attributed to females who bear children (Oppong 1987). The more children a woman has, the higher her social status. In this case, there is a correlation between female status and reproductive success but not causation.

today and can be observed in how people use language. If humans spend roughly 60% of conversation time discussing social matters, as Dunbar has found (Dunbar 1997), perhaps language evolved primarily for its social function as suggested by the above researchers.

*Function of Language from the Viewpoint of Sociolinguistics & Linguistic Anthropology*

“Putting proximate psychological processes in ultimate perspective elucidates not just the underlying reasons that people think and behave as they do but also what the important contextual triggers and constraints are likely to be” (Kenrick et al. 2005:803). An understanding of proximate triggers of strategic language use requires a transition to the study of language use from a social science perspective. Evidence of strategic language use and its variation depending on social settings is best represented in research from sociolinguistics and linguistic anthropology.

Sociolinguistics “is concerned with discovering patterns of linguistic variation...derived from differences in speech situations and from social distinctions within a community that are reflected in communicative performance” (Bonvillian 2003:4). Harriet Ottenheimer defines linguistic anthropology as a sub discipline that “examine[s] the contexts and situations in which language is used...and it wonders whether speaking different languages causes humans to view the world differently from one another” (2006:2). It is the confluence of linguistic anthropology and sociolinguistics from which I draw in this thesis. Research from both can add insight into the nature of human linguistic behavior from an evolutionary perspective by contributing research on how people *actually* use language in social settings. When evolutionary psychologists

talk about the evolution of language, it is rare that they consider how people actually use language—that is, what they say and how they say it. Proximate analysis of language can inform ultimate level analysis on the evolution of language, and sociolinguistics can provide the proximate level research.

For the purposes of this thesis, I will focus on the social function of language—how people use language in social settings and the spectrum of variation that occurs with this process. Studying how language is used reveals information about the speaker, the relationship between speakers, and the social milieu in which the interaction takes place. I will not focus on the structure of language itself, such as grammatical components, but what people do with language. One cannot speak of doing things with language within the framework of linguistic anthropology without reference to Austin's (1967) *How To Do Things With Words*, Bourdieu's (1991) *Language and Power*, or Ahearn's (2001) discussion of agency in language. However, my overall objective, per se, is not so much *what* is achieved with language (though I do discuss linguistic strategies and their functions), but *why* does there seem to be a pattern of strategic behavior with language as its primary vehicle?

To address both the *what* and the *why*, I turn to research within sociolinguistics, particularly communicative competence and variation, language and identity, language and gender. I also discuss language and social status, such as how language is used to negotiate one's status. Finally, I provide cross-cultural examples of strategic language use. These examples are not to be taken as a comprehensive overview but as a starting point for comparing strategic linguistic behavior cross-culturally.

### *Communicative Competence*

Bonvillain defines communicative competence as “the ability to function according to cultural models for communicative behavior” (Bonvillain 2003:272). Essentially, to have communicative competence is to know how and when to communicate appropriately in a given social setting, such as what to say when introduced to someone. Appropriate communication will vary depending on a number of social, cultural, and situational factors. Bonvillain suggests that children acquire communicative competence through socialization and also as they acquire their first language (2003:295). However, people who experience a new culture, particularly as adults, may struggle with acquiring communicative competence because these “rules” of culturally appropriate communication are not often made explicit. Having communicative competence requires more than mastering grammar and other linguistic elements of a language; it requires knowing what to say, when to say it, and how to say it in such a way that is culturally and socially appropriate—essentially being strategic in how one uses language. One must also know how to change one’s use of language (e.g. register variation) if the success of an interaction requires one to adapt to a dynamic speech situation. Mastery of communicative competence, I argue, requires having Theory of Mind, or the ability to “read” other people. Successful communicators must know when and how to use language strategically in social interactions.

Research by Douglas et al. supports the notion of communicative competence. They state, “without necessarily being aware, communicators’ descriptive language use is strongly influenced by contextual and motivational factors, specifically, communicators

are able to use language strategically to present themselves favorably to an audience and achieve specific communication goals” (2008:190). Communicative competence requires knowing socially and culturally appropriate “rules” of language, but it also creates the capacity for speakers to take advantage of a speech situation for their own benefit. This does not have to require sneaky or malicious behavior, but it allows for individuals to use language as an opportunity to further a particular goal whether the goal is reputation management, social networking, etc.

With respect to the idea that strategic language use requires the conscious intention to deceive or take on a different style, Douglas et al. emphasize that communicators’ goals within a given conversation may also be below consciousness (2008:206). Again, this highlights the distinction between proximate and ultimate “goals.” A conscious goal may be to present oneself as polite and friendly or even knowledgeable, but the ultimate goal refers to reproductive outcomes.

### *Variation*

The study of variation within sociolinguistics considers language change at the micro (individual) and macro (societal) levels and what causes this change. What intrigues me about language variation is that individuals change how they talk with such fluidity and ease and oftentimes without even knowing it. However, there is something that triggers this change whether it is an instantaneous code-switch in conversation or the gradual evolution of a language. Wardhaugh best describes sociolinguistic variation as follows: “No one speaks the same way all the time and people constantly exploit the

nuances of the languages they speak for a wide variety of purposes” (Wardhaugh 2006:5). These purposes may be conscious or unconscious and might be to portray a particular identity.

The strategies an individual uses to achieve these purposes or objectives may vary from individual to individual even if the objective is the same. Such strategies may include politeness strategies (Brown and Levinson 1978), power and solidarity strategies (Tannen 2003), equivocation (Bello and Edwards 2005), or deception (Galasinski 2000). “There is considerable variation in the speech of any one individual, but there are also definite bounds to that variation: no individual is free to do just exactly what he or she pleases so far as language is concerned” (Wardhaugh 2006:5). Speakers are bound to socially and culturally imposed “rules” in how language is used, but within these boundaries speakers have the ability to play with language and manipulate it for a particular purpose.

There are numerous studies of variation in sociolinguistics from phonological variation (Labov 1972) to register variation or style-shifting (Agha 2006) to code-switching (Nilep 2006; Heller 1988; Woolard 2004). Typically, register variation refers to a monolingual speaker’s shift in style or variety of speaking. A register is a variety of language appropriate for specific situations, such as a formal register or joking register (Otteneimer 2006:105). Codeswitching refers to the “shifting from one code to another during discourse” whereby a “code” is defined as a code “a language, a dialect, or a stylistic variant within a language” (Larson 1985:6). Code-switching can occur in the

context of multilingualism or shifting from one style or register within the same language.

Speakers choose, though not always consciously, how they say what they want to say. They are generally aware of the power dimensions in the situations they find themselves in and they also know with whom they want to be identified. Speakers also have an idea of how they want to appear to others and how they want others to behave toward them. Varying one's language by changing register or code-switching can allow a speaker to adapt to a speech situation and achieve particular communicative goals, such as: asserting power, declaring solidarity, expressing a particular identity, etc. (Wardhaugh 2006:110). According to Deborah Tannen, "all linguistic strategies are potentially ambiguous" in that the same linguistic strategy can be used to elicit different outcomes, such as power or solidarity (Tannen 2003:210). For example, interruption in a conversation can be used as a linguistic strategy to control or dominate the conversation or it can be used to demonstrate active listening and establish solidarity with the speaker.

### *Language and Identity*

Language and identity are linked such that language is used to assert an identity (or multiple identities) and people identify others according to the language they use (e.g. stereotyping). It is this relationship that makes language so powerful and also so critical in novel situations where first impressions are formed. Referring to research on language attitudes, Joseph suggests that within just a few seconds of listening to someone speak, we "instinctively make...decisions about the people with whom we come in contact,

largely on the basis of their language” (Joseph 2004:25). These decisions are not only categorizations about the person’s demographics but also “how reliable and trustworthy they are” (2004:25).

Because language and linguistic variation are linked to identity and because it is crucial components in reputation management, it seems that language is an essential tool used to navigate the social milieu and one’s position within it. One way of doing this is using language as an identity marker, or as a way to associate or dissociate oneself with a particular identity depending on the situation. Bonvillain states, “Language is an important marker of a person’s identity, and language use is one way for speakers to display their personal and social identities” (Bonvillain 2003:177).

By navigating the social milieu, speakers can adjust their identity(ies) or choose to showcase certain aspects of their identity. In this sense, identity is negotiated through language. Wardhaugh suggests that “much of what we find in linguistic behavior will be explicable in terms of people seeking to negotiate, realize, or even reject identities through the use of language” (Wardhaugh 2006:6). Eckert and McConnell-Ginet (2003) use the image of a toolbox to convey how a person utilizes an array of linguistic features to “wear” a particular “communicative style.” They state:

Each person uses the toolbox in their own way, mixing and matching linguistic resources such as lexical items, grammatical gender marking, syntactic constructions, metaphors, discourse markers, speech acts, intonation contours, segmental variables. And the toolbox also includes other communicative resources such as pregnant pauses, overlapping speech, rhythm and speed, tone of voice, gaze and posture, facial expression. The outcome is a communicative style. [Eckert and McConnell-Ginet 2003:305]

*Language and Gender*

In discussing how language varies in social contexts, particularly in negotiating identity, it is important to address sociocultural factors that trigger linguistic variation. Research in sociolinguistics focuses on such factors as class, gender, race, and ethnicity. The complexity of discussing sociocultural influences on speech is that it is difficult to tease out or isolate any single factor's influence on speech style. Just as identity is dynamic and context-dependent, so are sociocultural factors intermingled in one's use of speech. For example, take the use of hedge words, such as "approximately," or tag questions, such as "aren't you?" Bonvillain (2003) and others categorize these speech styles more typical of women than men. Such speech styles may indeed be more typically used by women, but there may also be other sociocultural factors at play, such as geographical or generational. In my own family, it is quite common to hear my parents and their siblings use similar hedge words, such as "I guess so-and-so..." or "I hear that so-and-so." Given the complexity of sociocultural factors on speech, they still play an important and influential role on the use of language.

In this section, I will focus on the role of gender in language use. To return to my earlier discussion of the differences in male and female reproductive strategies, I will review the literature on language and gender to highlight the proximate explanations for gender differences in the use of language. While I do not wish to exaggerate differences in male and female speech styles, I also acknowledge that because males and females differ in their reproductive strategies, there will likely be differences in how males and females use, interpret, and perceive language at the social and cultural level. Although

gender variation in language is not the sole focus in this thesis, it is an important factor in how males and females use language strategically and how it relates to deception and deception detection in the context of the Two Truths and a Lie experiment, which I discuss in a later section.

The literature on language and gender is broad and includes research from multiple disciplines and theoretical approaches. In its most basic sense, it explores the relationship between language and socially constructed characteristics or expectations of gender and identity. A significant focus (and also a point of criticism) has been on differences in language use between males and females (Eisikovits 1998; Pilkington 1998; Tannen 1990; but see Crawford 1995; see also Coates 1998 on language in all-female groups; see also Goddard and Patterson 2000 and Eckert and McConnell-Ginet 2003 for an overview). Specific topics include research on phonological differences in speech style and use of a standard variety (Trudgill 1974; Labov 1972), intonation (Daly and Warren 2001), grammar (Eisikovits 1998), talkativeness (Leaper and Ayres 2007; Mehl et al. 2007), complimenting (Holmes 2003), gossip (Pilkington 1998), pragmatic particles (Wouk 1999), and power dynamics (Gal 1991; Abu Lughod 1986; Tannen 1990, 2003).

Questioning why gender differences exist in the use of language requires two different levels of analysis. In a study on conversational behavior, Dunbar (1997) discovered patterned sex differences in content of conversations. Specifically, he found that males talked more about themselves in a self-promoting fashion, particularly when females were present, whereas female conversations were largely focused on social

networking. Dunbar suggests that these patterns are characteristic of reproductive strategies—where males exhibit lekking behavior (displaying their fitness in the presence of females, in this case, linguistically) and females use language to gain information about the trustworthiness or reliability of others (1997:243).

Consider also Tannen's (1990) examples of private (rapport-talk) versus public (report-talk) speech. In numerous cases, Tannen found that men are much more talkative in public social settings than women. As Tannen explains, "For most men, talk is primarily a means to preserve independence and negotiate and maintain status in a hierarchical social order. This is done by exhibiting knowledge and skill, and by holding center stage through verbal performance" (Tannen 1990:77). Women, however, are more talkative in private or intimate social settings because for women, "talk is the glue that holds relationships together" (Tannen 1990:85). Women use talk to establish relationships, or rapport with others.

A consideration of private versus public speaking styles from an evolutionary or ultimate-level analysis may suggest that men would indeed be more talkative in public social settings, particularly if the group is mixed gendered. Like other species in accordance with reproductive strategies, this would trigger an opportunity for males to display their traits. Even if human males are in a monogamous relationship, the underlying psychological mechanisms are still in process and they would likely engage in fitness-displaying behaviors, particularly if there are other females present.

In this context, the fitness-displaying behavior would be talkativeness. Consistent with Dunbar's findings, further analysis may reveal what males talk about in the presence

of other females, such as topics that showcase status, wealth, and resources. An ultimate-level analysis of female talkativeness in private or intimate settings may suggest that a female would likely exercise strategies of attracting or keeping a mate. Again, motivations for these behaviors are at the ultimate level but played out at the proximate level. Although my suggested analysis is rudimentary, it provides a framework for analyzing linguistic behavior at the proximate and ultimate levels.<sup>13</sup>

Research on the biological basis for sex differences in language use is also proximate-level analysis. For example, research on sex differences in the brain (Ullman et al. 2008; Moir and Jessel 1991) consider the brain's biological makeup and how this contributes to differences in behaviors such as verbal and visuo-spatial skills, but this research does not ask *why* these differences exist, *why* brains function differently to create a pattern of difference. Such questions would consider why brains evolved differently in males and females and how did this increase reproductive success.

### *Language and Social Status*

If there are adaptive advantages for both sexes to acquire and maintain social status (Kenrick et al. 2005), as previously suggested, then it is important to consider the correlation between language use and social status. Burling suggests that, "People in every society seem to recognize some among their fellows as having outstanding linguistic skills... We admire high linguistic skill" (Burling 2005:187). Furthermore, he

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<sup>13</sup> I think a great medium for studying male and female linguistic behavior in terms of reproductive strategies and intrasexual competition would be reality television programs such as *The Bachelor* and *The Bachelorette*. These programs would provide the ideal real-life research laboratory because participants are all competing for the same potential mate, which requires strategy, otherwise they are sexually rejected and/or kicked off the show.

attributes this appreciation and value of linguistic skill to “rankable differences” in individual proficiency in the use of language. He states, “Language could not have evolved unless individuals differed in their rankable abilities and unless selection favored those with better language” (Burling 2005:187). In this section, I discuss how people attribute social status with linguistic skill and assess a speaker’s social status based on their use of language.

Previous studies (Ellis 1967; Harms 1961; Loman 1976; see also Giles 1975) have shown that listeners can identify the social status of speakers based on linguistic, and paralinguistic (Loman 1976), criteria. As discussed in the section on language and identity, “our perception of other people is not a passive process” (Giles 1975:1). Listeners draw all sorts of conclusions and judgments about speakers in just a short time. This would have been advantageous for our ancestors, who needed to know whom to trust and whom to avoid altogether based on verbal and nonverbal cues. Furthermore, those with higher social status would have garnered the trust of others more so than those with lower social status.

Defining status is potentially problematic since status is relative to particular social contexts and varies not only cross-culturally but also on a micro versus macro scale (e.g. status and the use of standard or nonstandard varieties of a language and its value in conversation). Diamond defines social status as “rank ascribed to individuals either on the basis of birth...without reference to abilities, or achieved through individual effort” (Diamond 1996:9). Diamond further divides status into “institutional rank” and “local

rank.” Whereas institutional rank is “fixed,” local rank is “up for grabs” or negotiable (1996:11).

It is important to understand the difference between ascribed (fixed) and achieved (negotiable) status, particularly with respect to language. For example, a Ghanaian chief of Akan royalty (which is an ascribed high social status), employs the use of an *okyeame*,<sup>14</sup> or orator, to speak for him (Yankah 1995). Yankah describes the *okyeame*'s role as follows: “Being counselor and intermediary to the chief, he [the *okyeame*] is responsible, among other things, for enhancing the rhetoric of the words the chief has spoken” (1995:3). Although a chief has a high ascribed social status, he does not speak directly to the public. The *okyeame*, however, can be either an ascribed (on the basis of hereditary) or achieved status (appointed on the basis of skill or achievement). Yankah describes the appointment as follows: “At traditional meetings, where verbal skills are highly celebrated, a chief may appoint an *okyeame* on the basis of his personal observations of a speaker's oratory and character. In other cases, the chief relies on the recommendation of his counselors” (1995:87).

While it is important to understand the distinction between achieved and ascribed status, for the purposes of this study, I will continue to use the term “status” to refer to one's social standing within small groups. However, I want to emphasize that because language use is very contextual, so is social status. Social status depends upon the other factors involved in a social interaction. What is valued in one setting and given a higher social status may not be so in another setting. Status can be negotiated or vied for in an interaction, and status is power. In language, one way power is manifested is through the

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<sup>14</sup> Yankah (1995) explains that this role is typically male dominated.

ability to influence others. My hypothesis, then, is that there is a correlation between higher status and strategic language use whereby those who are most skilled at strategic language use will have a higher social status.

In Judith Irvine's description of Wolof greetings, one's status can be manipulated using various strategies within ritualized and structured greetings (Irvine 1974). Although lower-status people are generally expected to initiate a greeting (the act of initiating a greeting signifies lower status), perceived status is relative and something that can be negotiated in the context of a greeting using either "Self-Lowering" or "Self-Elevating" strategies (Irvine 1974:175). For example, as Irvine explains, because there are roles and obligations assigned to each status, a higher-status person greeted by a lower-status person would be obligated to fulfill a financial request or demand for a gift. Likewise, a higher-status person may take the lower-status by initiating a greeting to avoid a person's request for financial assistance.

Another way to negotiate status is by switching one's speech style according to the "pitch," "loudness," "tempo," and "quantity" of speech (Irvine 1974:183). High, loud, rapid, and verbose speech is generally associated with lower-status people while low, soft, slow, and terse speech is associated with higher status people. However, these styles can be switched to portray a high or low status relative to the person encountered. Irvine provides the following example: "A young man who is a noble but who has not yet amassed wealth or supporters may use the 'low-caste' style (ST) when he is greeting a powerful older noble or the village chief, yet use the 'high-caste' style (*st*) when talking to a griot" (Irvine 1974:184).

*Cross-cultural Examples of Strategic Language Use*

Another framework for considering strategic language is through “speech play,” “linguistic creativity” or “verbal art” (Bauman 1975; Sherzer 2002; Finnegan 1992, 2007; Fortier 2002). Bauman (1975) takes a performance-centered approach to verbal art, concentrating on not only the creative manipulation of language but also on the performance aspect. The nature of verbal art, from this perspective, requires communicative competence—knowing how to maneuver through language and the social atmosphere for the desired effect (Bauman 1975:293). “The goals of the participants include those that are intrinsic to performance—the display of competence, the focusing of attention on oneself as performer, the enhancement of experience—as well as the other desired ends toward which performance is brought to bear; these latter will be highly culture- and situation-specific” (Bauman 1975:302).

Fortier (2002) provides an example of verbal art found among the Raute of Nepal. Fortier found that the nomadic Raute “perform rhyming proverbs,” “blessings,” and “songs” to “negotiate,” “entertain and mislead” cultural differences between themselves and more dominant Indo-Nepalese agriculturalists, particularly during “confrontational moments of intercultural communication” (Fortier 2002:234-235). Essentially, these strategies are used to assert “cultural competence,” which according to Fortier, makes the Raute “masters of impression management” because through the use of verbal art they can successfully maneuver within diverse social interactions (Fortier 2002:235, 249).

Within the larger context of verbal art is speech play. In his book *Speech Play and Verbal Art*, Joel Sherzer defines “speech play” as follows:

Speech play is the manipulation of elements and components of language in relation to one another, in relation to the social and cultural contexts of language use, and against the backdrop of other verbal possibilities in which it is not foregrounded. Speech play can be conscious or unconscious, noticed or not noticed, purposeful or nonpurposeful, and humorous or serious. Nonetheless, given the focus on manipulation, speech play typically involves a degree of selection and consciousness beyond that of ordinary language use...In fact, speech play and verbal art involve language in its essence, on display. [Sherzer 2002:1-2, 9]

The key components of speech play are the manipulation of language (or components of language), the performance or display aspect, and its dependency on the cultural and social context. Speech play requires a certain amount of creativity and communicative competence to be able to effectively and successfully manipulate language in a culturally and socially appropriate way.

Because speech play is contextually dependent, the receiver (or researcher) must also have communicative competence in order to appreciate and understand the linguistic creativity in action. In this sense, speech play is organic and dynamic. It simultaneously operates within and challenges the structure and rules of language, culture, and society. Some examples of speech play are “play languages, puns, jokes, put-ons, proverbs, riddles, and verbal dueling” (Sherzer 2002:26).

Each type of speech play has its purpose or function which varies culturally, socially, and contextually. An example Sherzer gives is the use of play languages (such as pig Latin in English and talking backwards in Kuna), which can be “used to mark ethnic and social identity, or keep secrets, and to express opposition to the hegemonic

rule of upper-middle class and education-oriented standard languages and dialects” (Sherzer 2002:29). Other examples include the use of puns, which can be used to display communicative competence, “verbal deftness or quickness,” or as a device to “obtain the floor in a conversation” (Sherzer 2002:36, 34).

Like puns, the use of jokes “are tests and displays of intelligence and knowledge” because of their reflection on cultural and social issues, of which both the teller and listener have to “get” for a joke to be successful (Sherzer 2002:51). For example, Sherzer provides the following joke (2002:53): “People who speak three languages are trilingual. Those who speak two, bilingual. What do you call those who speak one? Americans.”

Other examples of cross-cultural strategic language use include the use of second-person pronouns, proverbs, or poems. Some languages have two second-person pronouns, one formal and one informal, such as *tú* and *usted* in Spanish. As Sherzer explains, the rules governing the use of one form or the other are general, which means a speaker has a great deal of flexibility for when to use each (2002:92). To express solidarity or intimacy as in addressing a friend, one would use *tú*. Likewise, to show deference as to an elder or a professor, one would use *usted*. However, even if a situation commanded the use of either form, one may outright choose the other. For example, to show disrespect one may use *tú* even if *usted* would have been the more appropriate choice.

Like the Wolof, greetings are at the heart of ritualized social interactions among the Akan of Ghana and require a structured set of rules. As Kofi Agyekum explains, “A person who fails to greet the formal way in public is considered uncouth, impolite, disrespectful, foolish or communicatively incompetent” (Agyekum 2008:498). Like the

Wolof greeting, the Akan use greetings to negotiate and acknowledge status, such as a younger person properly greeting an elder (Agyekum 2008). In addition to greetings, the Akan utilize other verbal strategies to influence or persuade in face-to-face encounters, including honorifics, address forms and proverbs (Agyekum 2004, 2008; Obeng 1996).

The use of honorifics, particularly when addressing an elder or chief, is a strategy used to show deference and is particularly helpful when making a request (Agyekum 2004, 2008). Failure to use honorifics or acknowledge the status of the addressee would likely jeopardize one's request. Another persuasive device among the Akan is the use of proverbs. Obeng states that proverbs "provide strategies for dealing with a variety of communicative situations" (Obeng 1996:528). In an example Obeng provides, a father attempts to discourage his son from traveling and cites the following proverb (English translation): "No matter how tasteless your gums are, that's the only place you lick" (Obeng 1996:528). Obeng uses this example to show how proverbs can be used to convey, if not persuade, one's thoughts, but in an indirect manner as valued among the Akan.

In *Veiled Sentiments*, Abu-Lughod discovered that Bedouin women recited poetry, or *ghinnawas*, to convey personal sentiments—"sentiments that violate the cultural ideals of honor and modesty"—that would not be acceptable if communicated using everyday discourse (Abu-Lughod 1986:240). Among the Bedouin, poetry is a "strategy" and used to protect one's "face" (Abu-Lughod 1986:241). Poetry is also used as a persuasive tool, to persuade the thoughts and actions of others in which normal everyday discourse would not (Abu-Lughod 1986:241).

The use of strategic language can also be found within the context of bargaining in a market setting. In many open air markets around the world, the price of commodities is not fixed, requiring a negotiation between buyer and seller to agree on a price of the commodity before it is sold. There are many factors at play in this negotiation process and may vary according to the type of commodity (Clark 1994), the setting, and the people involved—such as assessing social status and ethnic or clan membership (Khuri 1968 ). Techniques, or strategies, employed in the bargaining negotiation may include establishing a sense of trust and friendship between buyer and seller (Khuri 1968), solidarity (Clark 1994), the use of pronouns or forms of address to assert status (French 2001), and politeness strategies (i.e. use of kin terms or the absence of greetings) used to establish social distance or solidarity (Kharraki 2001). In other cases (Ottenheimer 2006), simply engaging in the bargaining interaction proves beneficial to the buyer, whereby bargaining is expected and refusing to engage the seller is considered rude and disrespectful. These are examples of how the use of language in ritualized bargaining negotiations is manipulated depending on the buyers and sellers' objectives—whether social or economic.

In this chapter, I provided a broad, but necessary, theoretical orientation to the understanding of strategic language use (as observed at the proximate level) from an evolutionary (or ultimate) standpoint. In the chapters to follow, I discuss the experiment I used to investigate strategic language use in the context of deception. I examine the results from this experiment through the lenses of evolutionary theory and previous

research on deception.

## CHAPTER III

### METHODS

Previous empirical studies of language and evolutionary psychology include the examination of vocabulary and word frequencies as fitness indicators and display (Rosenberg and Tunney 2008), the use of story-writing methods to explore Machiavellianism (Wilson et al. 1998) and creativity as fitness indicators (Griskevicius et al. 2006). Related research includes voice attractiveness as a fitness indicator (Hughes et al. 2004), the use of scenarios and photos for remembering cheaters and cooperators (Chiappe et al. 2004), the use of equivocation as a face saving strategy (Bello and Edwards 2005), deception as an impression management strategy in job interviews (Weiss and Feldman 2006), and deception as mating strategies (Keenan et al. 1997).

#### *Hypotheses*

Unlike the previous studies of deception, this study does not measure the frequency of lies told, because everyone is expected to tell one lying story. However, this study focuses on how deception and deception detection is achieved through the use of verbal and nonverbal behaviors. Based on reproductive strategies from evolutionary theory, I predicted that males would be more successful than females at deceiving, but females would be more successful than males at detecting deception.

### *Participants*

A total of 44 students from Minnesota State University, Mankato and Gustavus Adolphus College participated in this study, 21 males and 23 females. Three participants only responded to the surveys. All participants received either extra credit or pizza as compensation for their participation. All participants signed a consent form stating they were at least at least 18 years old.

### *Procedure*

This experiment uses the game “Two Truths and a Lie” as a basis for studying deception, deception detection, and language. “Two Truths and a Lie” is an ice breaker game. In the traditional version, players tell three things about themselves to the group—two are true and one is a lie. The rest of the group has to guess which of the three things is the lie. For the purpose of this study, the game was modified so that participants were instructed to share three one-minute stories in face-to-face interaction: two are true, one is false. By lengthening the amount of time allotted per storyteller, participants would have a greater opportunity to observe the language used that the traditional version would not provide. The two objectives of the game are to deceive the group into believing one’s lying story and to detect which of the storyteller’s three stories is the lie. I selected this particular game for several reasons: (1) although the experiment is still an artificial environment, the participants are using naturally-produced language. There were no scripts or prompts provided, and participants were not allowed to read their stories. The questionnaires given at the end of the experiment required self-reporting, but the actual

game involved naturally-occurring language; (2) the number of lies was controlled, so that participants all told two true stories and one lying story. This allowed the participants to focus on the verbal and nonverbal indicators of deception; (3) the game was entirely conducted in person using face-to-face interactions to observe language use (and other nonverbal indicators of deception) in a social context.

Participants were instructed to come prepared with their stories ahead of time. The entire activity was conducted in English. Participants were told that the objective of the study was to examine how people use language strategically to deceive and detect deception and to achieve social status. Participants were asked to be creative in their storytelling with the purpose of confusing the rest of the group as to which of the three stories was a lie. They were also asked to pay careful attention to the storytellers' language (what they said and how they said it) and their nonverbal behaviors.

The cover letters and consent forms explained that the entire experiment would be video recorded. Participants were asked to stand when it was their turn as storyteller, and to watch for cues (yellow and red signs) indicating ten seconds remaining and when to stop. Participants were given a scoring sheet to make notes on each story (on verbal and nonverbal behaviors) and to select whether each story was true or false. They also wrote the numbers of the storytellers and indicated their relationship to each storyteller by circling one of the following: "Stranger, Acquaintance, Friend, or Other (please specify)." Each participant wore a number tag for identification. Storytellers took their turn in numeric order; the person with the lowest number went first.

After the instructions, packets containing scoring sheets, two surveys, and a consent form were given to each participant. The consent form explained that the stories should not be inappropriate in content: “Stories should not suggest sexual exploits, drug or alcohol abuse, or violence toward human beings or animals.” This procedure intended to minimize risk to participants and maintain a comfortable environment. Participants were given three minutes to tell all three stories. Occasionally, some people would finish short of the three minutes. For those who exceed the time limit, they were asked to quickly wrap up the story. Except when a videographer was present, I timed and facilitated the experiment.

At the end of the activity, each person revealed which of the three stories was the lying story and gave a show of hands for each correct guess. Each participant then completed two surveys.

The groups varied in size from four to eight people. Some groups had mixed sexes; others were all of the same sex. The groups were arranged according to who showed up to the experiment on a given day.

### *Coding Scheme*

Following similar coding procedures to that of Weiss and Feldman (2006), Feldman et al. (2002), DePaulo and Kashy (1998), and DePaulo et al. (1996), open-ended survey responses were coded according to general patterns or themes of responses. Categories identified for each question and their definitions are provided in tables in the Results section.

## CHAPTER IV

### RESULTS

#### *Deception and Deception Detection Success Rates*

An independent samples t-test was used to test the hypothesis that females would have a higher proportion of correct deception detections than males. The results showed the opposite effect. Males ( $M=.42$ ,  $SD=.25$ ) had a slightly higher proportion of correct detections than females ( $M=.35$ ,  $SD=.28$ ). This difference was not significant,  $t(39)=.74$ ,  $p>.05$ . Table 1 and Figure 1 show the proportion of correct detections according to sex.

Table 1. Proportion of Correct Detections

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
proportion of correct detections	Male	19	.4163	.24941	.05722
	Female	22	.3549	.27799	.05927

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
proportion of correct detections	Equal variances assumed	.516	.477	.740	39	.464	.06142	.08305	-.10657	.22941
	Equal variances not assumed			.746	38.932	.460	.06142	.08238	-.10522	.22806

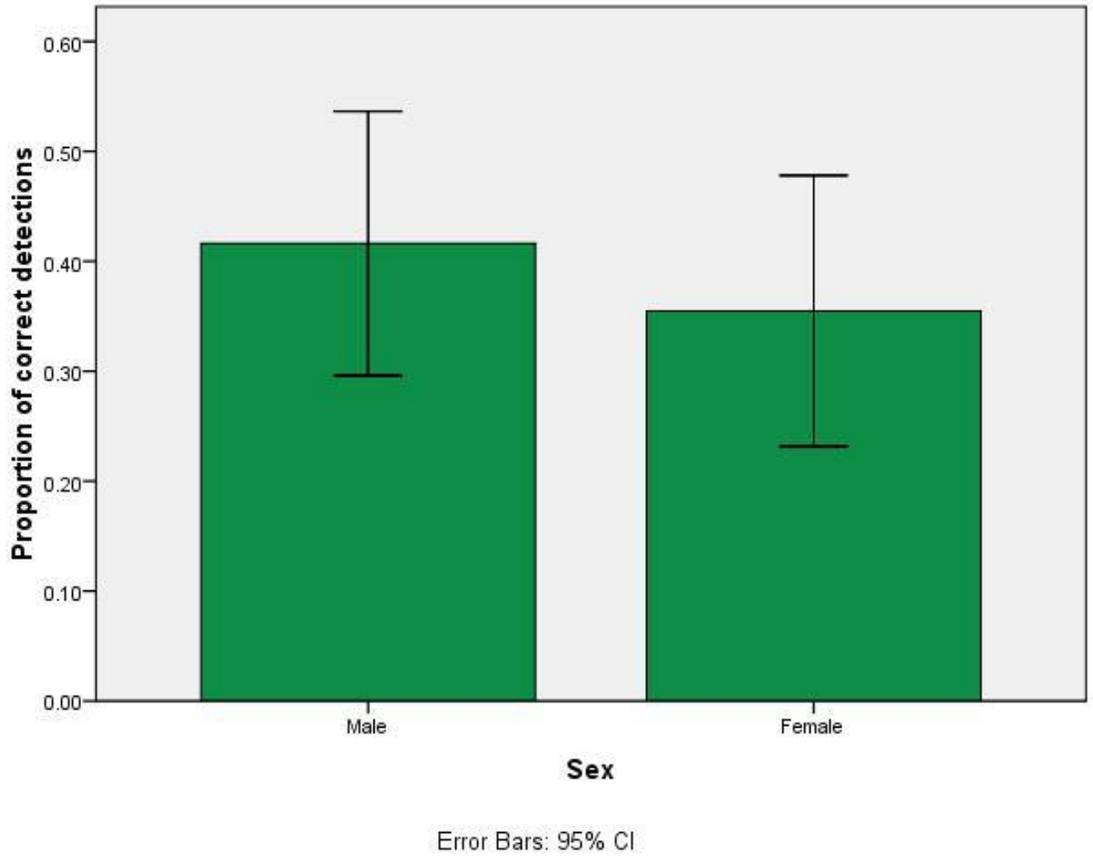


Figure 1. Proportion of correct detections according to sex.

A paired-samples t test was used to test the hypothesis that the proportion of female lies detected would be higher than the proportion of male lies detected. The results showed the opposite effect. The proportion of male lies detected ( $M=.47$ ,  $SD=.36$ ) was higher than the proportion of female lies detected ( $M=.33$ ,  $SD=.35$ ). This difference was not significant,  $t(23)=1.48$ ,  $p>.05$ . Table 2 and Figure 2 show the proportion of lies detected according to sex.

Table 2. Proportion of Lies Detected

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	proportion of male lies detected	.4722	24	.36088	.07366
	proportion of female lies detected	.3264	24	.34832	.07110

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	proportion of male lies detected & proportion of female lies detected	24	.075	.727

Paired Samples Test								
		Paired Differences						
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Sig. (2-tailed)	
					Lower	Upper		t
Pair 1	proportion of male lies detected - proportion of female lies detected	.1458	.31628	.06366	-.28074	.59074	2.290	.030

## Paired Samples Test

	Paired Differences							
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	Df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 proportion of male lies detected - proportion of female lies detected	.14583	.48233	.09845	-.05784	.34950	1.481	23	.152

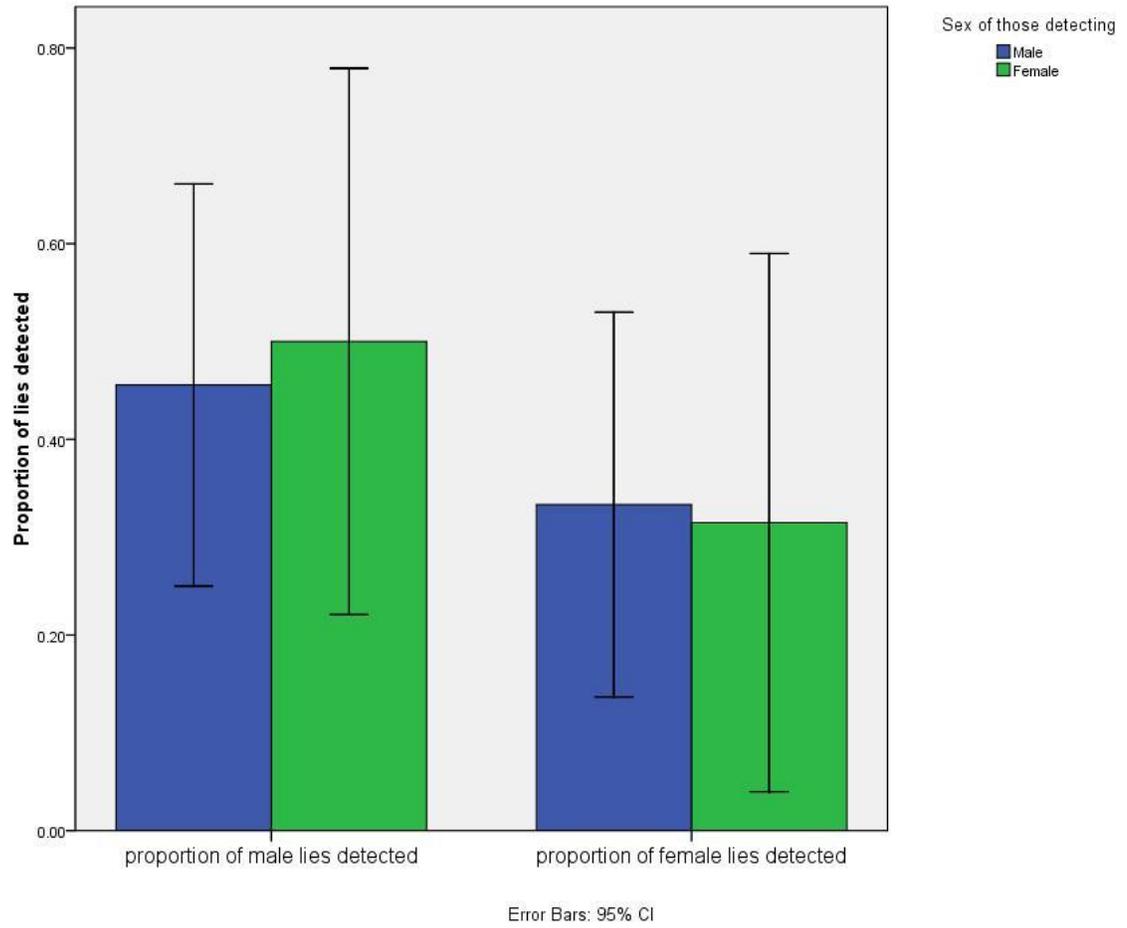


Figure 2. Proportion of lies detected according to sex.

An independent samples t-test was used to test the hypothesis that males would have a higher proportion of successful deceptions than females. The results showed the opposite effect. Females ( $M=.66$ ,  $SD=.18$ ) had a slightly higher proportion of successful deceptions than males ( $M=.55$ ,  $SD=.26$ ). This difference was not significant,  $t(31.52) = -1.50$ ,  $p > .05$ . Table 3 and Figure 3 show the proportion of audience deceived according to sex.

Table 3. Proportion of Audience Deceived

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Proportion of audience deceived	Male	19	.5503	.26386	.06053
	Female	22	.6584	.18395	.03922

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Proportion of audience deceived	Equal variances assumed	4.707	.036	-1.539	39	.132	-.10819	.07028	-.25034	.03396
	Equal variances not assumed			-1.500	31.522	.144	-.10819	.07213	-.25520	.03881

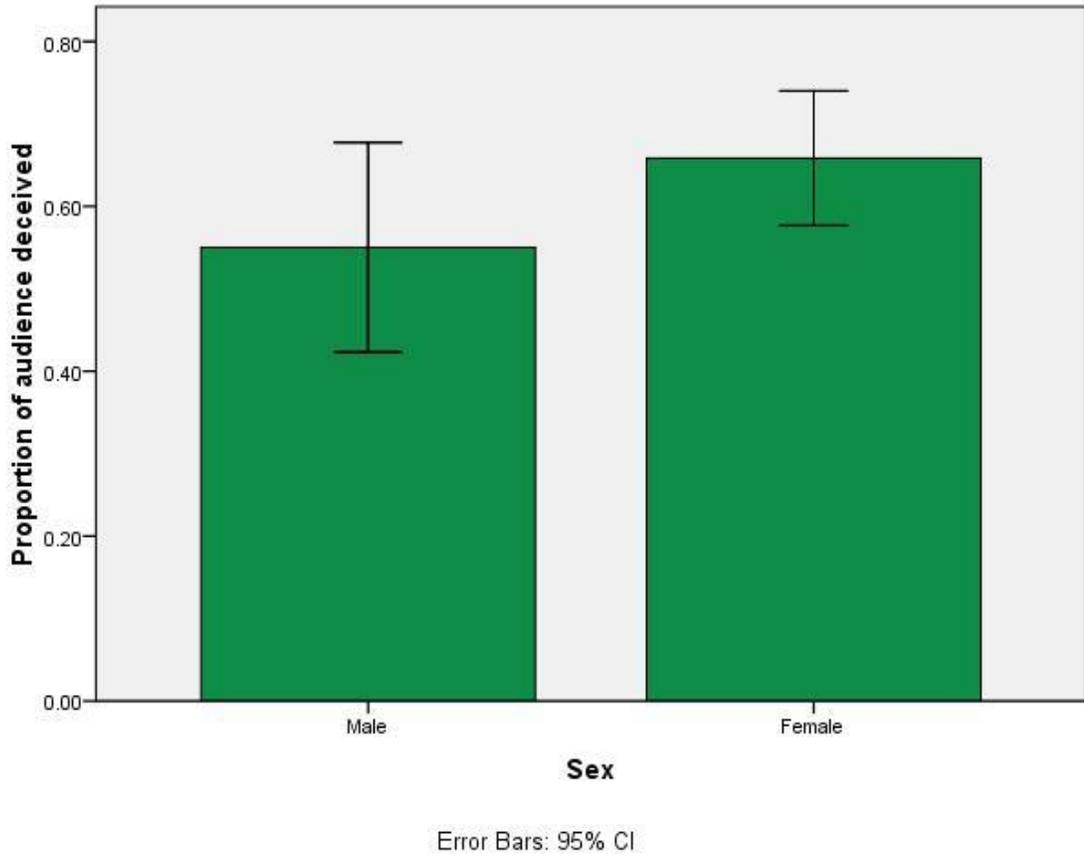


Figure 3. Proportion of audience received according to sex.

*Deception Tactics and Detection Cues*

Participants were asked to list the tactics they used to deceive the group. Table 4 shows the types of tactics participants identified and definitions for each category. The emphasis is predominantly on verbal tactics employed. Figure 4 shows the proportion of times each category was identified according to participants' deception ability. The deception ability was calculated according to each person's deception success rate. Based on the frequency of successful deceptions, individuals were coded in either the upper or lower 50%. From the graph in Figure 4, those who have a higher deception ability show a higher proportion of nonverbal tactics identified than those with a lower deception ability. In contrast, those with a lower deception ability show a higher proportion of verbal tactics identified than those with a higher deception ability.

Table 4. Tactics Storytellers Used to Deceive

<b>Category</b>	<b>Definition</b>
Details	The inclusion of an appropriate number of details in the story, as assessed by the audience.
Consistency	Maintaining consistency among all three stories according to topic, fluidity, or body language
Eye contact	Whether the storyteller made eye contact with audience members.
Gestures/body language	The inclusion of appropriate facial expressions, gestures, and overall body language, as assessed by the storyteller.
Speech hesitation	The avoidance of pausing, stuttering, or the use of filler words (such as “um” and “uh”).
Emotion	Maintaining control or use of emotion, such as enthusiasm or nervousness.
Story selection	Intentional selection of stories according to content or topic

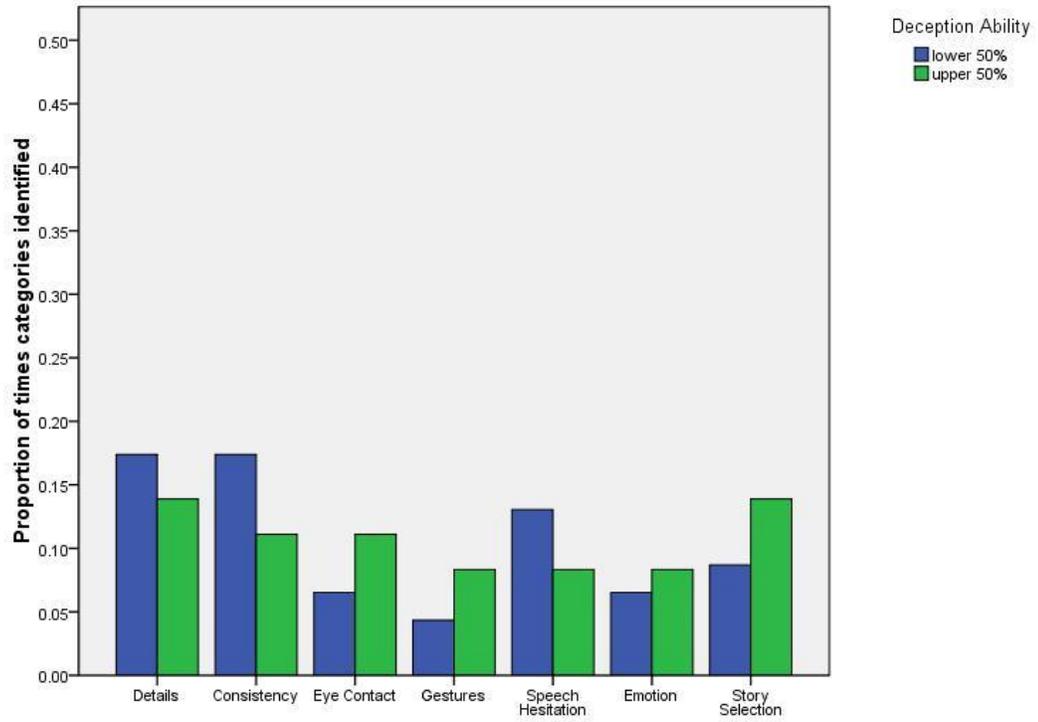


Figure 4. Tactics storytellers used to deceive according to deception ability.

Participants were also asked to list the indicators or cues to deception that they paid attention to. Table 5 shows the types of cues participants identified and definitions for each category. In contrast to Table 4 and Figure 4, the emphasis here is predominantly on nonverbal behaviors. Figure 5 shows the proportion of times each category was identified according to participants' detection ability. Like the deception ability figure, detection ability was calculated according to correct detections. Based on the frequency of correct detections, individuals were coded in either the upper or lower 50%. Deception indicators with the highest proportions include face, speech hesitation, gestures, and eye contact.

Table 5. Verbal and Nonverbal Indicators of Deception

<b>Category</b>	<b>Definition</b>
Details	The inclusion of an appropriate number of details in the story, as assessed by the audience.
Eye contact	Whether the storyteller made eye contact with audience members.
Gestures/body language	The inclusion of appropriate facial expressions, gestures, and overall body language, as assessed by the audience.
Speech hesitation	Pausing, stuttering, or the use of filler words (such as "um" and "uh").
Face	Facial expressions or turning red.
Story length	The length of the story, whether it was cut short or extended beyond the limit.
Other	Includes responses that did not fit into the other categories or were unclear in their meaning.

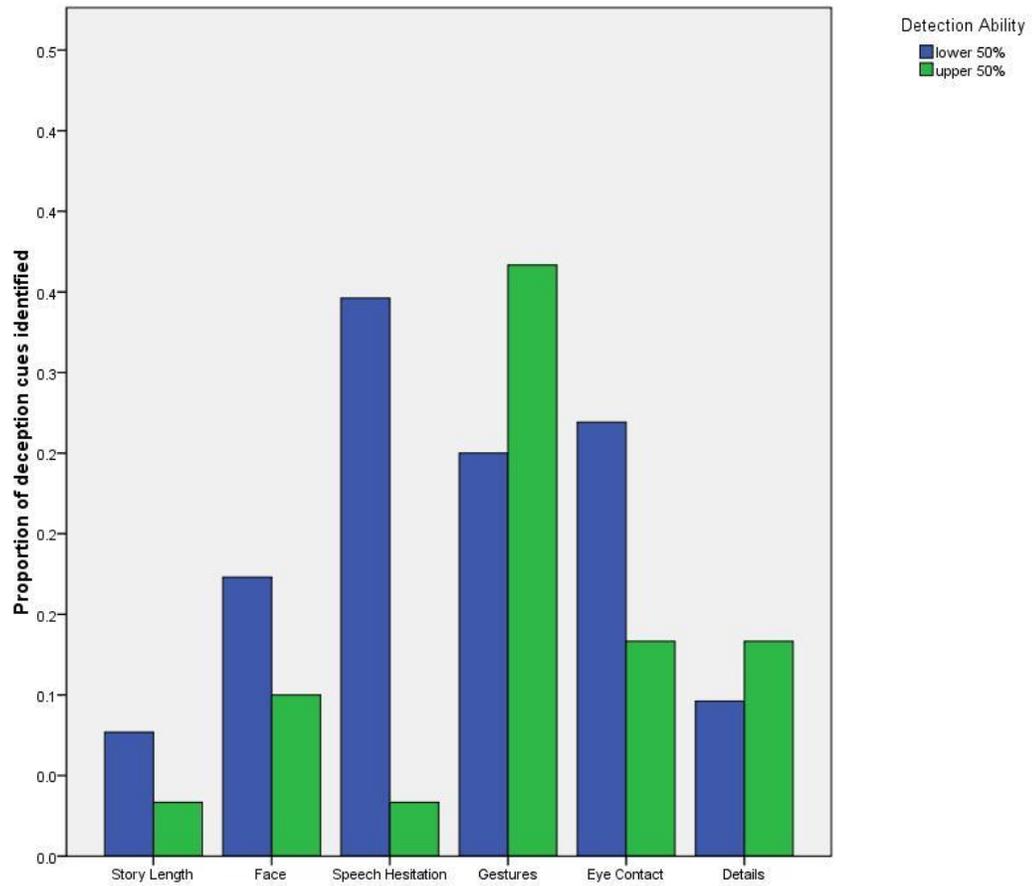


Figure 5. Verbal and nonverbal deception cues identified according to detection ability.

*Rank*

Participants were asked to rank each storyteller from “best” to “worst” (1 = Best). Table 6 shows the mean rank for each person according to the order of the storyteller in each group. This shows an average of how the rest of the group ranked each storyteller. Each storyteller’s mean rank is shown in the Total row. Male and female mean rankings for each storyteller are also provided. The report was used to determine whether there is evidence of consensus as to who were the “best” storytellers in each group. The highest ranked person in each group is shown in boldface type, whereby the lowest score correlates with highest rank. The exception is group five, in which two people had the same rank.

Table 6. Mean Rank by Group According to Order of Storyteller

Group	Gender		Teller 1	Teller 2	Teller 3	Teller 4	Teller 5	Teller 6	Teller 7	Teller 8
1	Male	Mean	2	3	2.5	3.5	2			
		N	3	2	2	2	3			
		Std. Deviation	1	1.414	0.707	0.707	1.732			
	Female	Mean	2	4	1.5	3	1			
		N	1	2	2	2	1			
		Std. Deviation	#NULL!	0	0.707	0	#NULL!			
	<b>Total</b>	<b>Mean</b>	2	3.5	2	3.25	<b>1.75</b>			
		N	4	4	4	4	4			
		Std. Deviation	0.816	1	0.816	0.5	1.5			
2	Male	Mean	4.5	4.75	2.67	4	4.33	5	4	3
		N	4	4	3	3	3	3	4	4
		Std. Deviation	1.732	2.872	2.082	1.732	2.309	1.732	2.449	1.826
	Female	Mean	6.33	4.67	2	3.5	4.25	5	3	3
		N	3	3	4	4	4	3	3	3
		Std. Deviation	1.155	3.215	0.816	1.732	2.062	0	1.732	1.732
	<b>Total</b>	<b>Mean</b>	5.29	4.71	<b>2.29</b>	3.71	4.29	5	3.57	3
		N	7	7	7	7	7	6	7	7
		Std. Deviation	1.704	2.752	1.38	1.604	1.976	1.095	2.07	1.633
3	Male	Mean	4.67	2	2.5	3	2.5	3		
		N	3	3	2	3	2	2		
		Std. Deviation	0.577	1	2.121	2	0.707	1.414		
	Female	Mean	5	2.5	1	3.5	2.67	4		
		N	2	2	3	2	3	3		
		Std. Deviation	0	0.707	0	0.707	1.155	1		
	<b>Total</b>	<b>Mean</b>	4.8	2.2	<b>1.6</b>	3.2	2.6	3.6		
		N	5	5	5	5	5	5		
		Std. Deviation	0.447	0.837	1.342	1.483	0.894	1.14		

Group	Gender		Teller 1	Teller 2	Teller 3	Teller 4	Teller 5	Teller 6	Teller 7	Teller 8
4	Male	Mean	1.67	2	2.33	2				
		N	3	3	3	3				
		Std. Deviation	0.577	1	1.155	1				
	<b>Total</b>	<b>Mean</b>	<b>1.67</b>	2	2.33	2				
		N	3	3	3	3				
		Std. Deviation	0.577	1	1.155	1				
5	Male	Mean	2	2	2.4	2.67	3.75	4.75		
		N	4	4	5	3	4	4		
		Std. Deviation	0.816	1.414	1.342	1.155	0.957	0.5		
	Female	Mean	5	4		2	1	3		
		N	1	1		1	1	1		
		Std. Deviation	#NULL!	#NULL!		#NULL!	#NULL!	#NULL!		
	<b>Total</b>	<b>Mean</b>	2.6	<b>2.4</b>	<b>2.4</b>	2.5	3.2	4.4		
		N	5	5	5	4	5	5		
		Std. Deviation	1.517	1.517	1.342	1	1.483	0.894		
6	Female	Mean	3	2.2	1.8	3	4.25	3.25		
		N	5	5	5	5	4	4		
		Std. Deviation	1.871	1.095	1.304	0.707	1.5	0.5		
	<b>Total</b>	<b>Mean</b>	3	2.2	<b>1.8</b>	3	4.25	3.25		
		N	5	5	5	5	4	4		
		Std. Deviation	1.871	1.095	1.304	0.707	1.5	0.5		
7	Female	Mean	2	4	1.6	2.8	4.2	3.4		
		N	5	5	5	5	5	5		
		Std. Deviation	1.225	1	0.548	1.789	0.837	1.14		
	<b>Total</b>	<b>Mean</b>	2	4	<b>1.6</b>	2.8	4.2	3.4		
		N	5	5	5	5	5	5		
		Std. Deviation	1.225	1	0.548	1.789	0.837	1.14		

A Mann-Whitney test was used to test the hypothesis that there is a correlation between rank and deception ability—namely that those with a high rank (where 1 = Best) will have a higher deception ability. This test was used as an attempt to measure the correlation between status and strategic language use, which in this case was measured using rank and deception ability. The results in Table 7 were not statistically significant,  $p > .05$ . Storyteller three approaches significance, shown in boldface type.

Table 7. Correlation Between Rank and Deception Ability

	Teller 1	Teller 2	Teller 3	Teller 4	Teller 5	Teller 6	Teller 7	Teller 8
Mann-Whitney U	101.5	135.5	89.5	118.5	82	68.5	1.5	5.5
Wilcoxon W	237.5	255.5	299.5	209.5	235	146.5	4.5	11.5
Z	-1.502	-0.248	-1.873	-0.443	-1.212	-0.537	-1.393	-0.185
Asymp. Sig. (2-tailed)	0.133	0.804	<b>0.061</b>	0.657	0.225	0.591	0.164	0.853
Exact Sig. [2*(1-tailed Sig.)]	.144 <sup>a</sup>	.811 <sup>a</sup>	.077 <sup>a</sup>	.676 <sup>a</sup>	.245 <sup>a</sup>	.611 <sup>a</sup>	.190 <sup>a</sup>	.857 <sup>a</sup>

a. Not corrected for ties.

b. Grouping Variable: Deception Ability

Participants were asked to list their criteria for what makes someone the best storyteller. This open-ended question was used to elicit qualities indicative of status. Table 8 shows the types of qualities participants identified and definitions for each category. The responses are heavily weighted on verbal qualities. Figure 6 shows the proportion of times each category was identified according to participants' deception ability. From Figure 6, those who indicated that the use of gestures and entertainment value makes for a good storyteller had a higher deception ability although they may not necessarily have employed these behaviors when it was their turn as storyteller.

Table 8. Categories Identified for What Makes a Good Storyteller

<b>Category</b>	<b>Definition</b>
Fluency	The ability to speak with fluidity, clarity, and without speech hesitation (such as "um" or "uh").
Entertainment	The storyteller's ability to entertain the audience using humor, creativity, or enthusiasm.
Detail	The inclusion of an appropriate number of details in the story, as assessed by the audience.
Gestures/body language	The inclusion of appropriate facial expressions, gestures, and overall body language, as assessed by the audience.
Presentation/Performance	The storyteller's overall ability to tell a story.
Lying ability	The storyteller's ability to deceive.
Other	Includes responses that did not fit into the other categories or were unclear in their meaning.

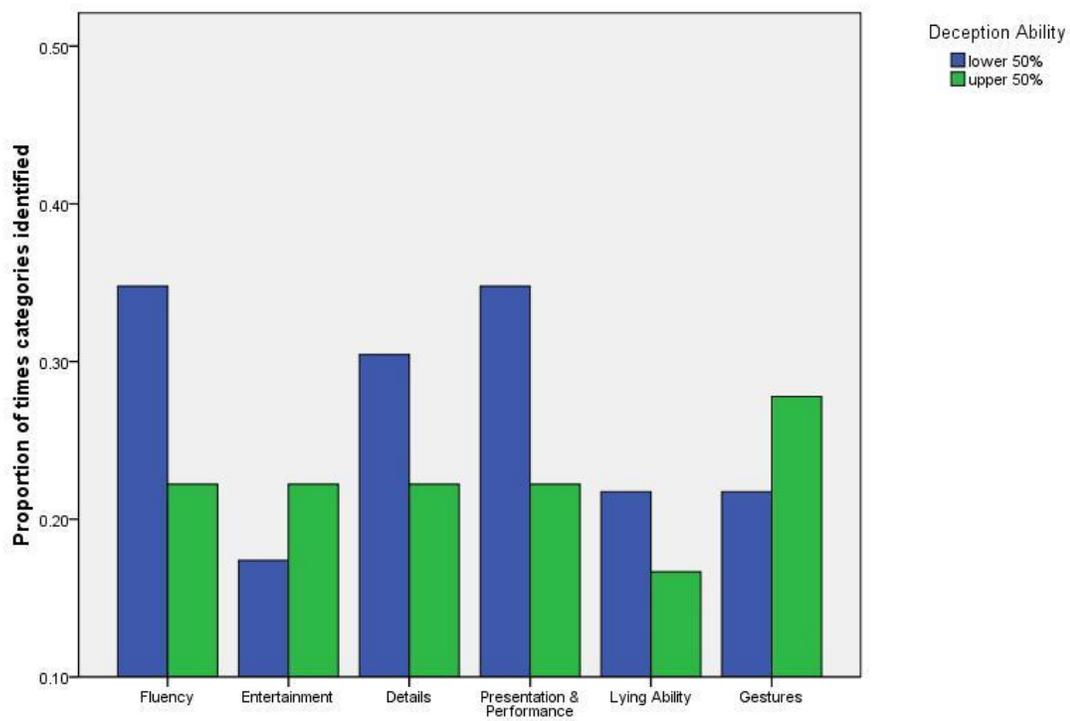


Figure 6. Categories identified for what makes a good storyteller according to deception ability.

*Language, Social Manipulation, and Deception*

Participants were asked to respond to two separate questions which focused on using language to influence and to deceive. The first question specifically asked each person to list three situations in which they use language to influence other people. The second asked each person to list three situations in which they are most likely to lie. Tables 9 and 10 show the types of categories identified and quoted examples for each. Figures 7 and 8 show the proportion of times each category was identified.

Table 9. Examples of Situations in Which Language is Used to Influence

Category	Example
Reputation/Impression Management	<ul style="list-style-type: none"> <li>➤ “At school when meeting people for the first time”</li> <li>➤ “When giving a speech”</li> <li>➤ “When I am asking girls out”</li> </ul>
Self-oriented Goal	<ul style="list-style-type: none"> <li>➤ “When I want someone to do something for me”</li> <li>➤ “In order to get out of a situation I don’t want to be in”</li> <li>➤ “When I need a favor”</li> </ul>
Influencing Others' Perception or Behavior	<ul style="list-style-type: none"> <li>➤ “When I am babysitting to try and get the kids to go to bed”</li> <li>➤ “When I’m bartending or waitressing, we have to convince people to buy more or up sell”</li> <li>➤ “I use language when I’m trying to convince my parents that I can do it”</li> </ul>
Emotion	<ul style="list-style-type: none"> <li>➤ “When I am mad and I want someone to know”</li> <li>➤ “When I’m passionate about something”</li> <li>➤ “When I am really happy about something”</li> </ul>
Other	<ul style="list-style-type: none"> <li>➤ “In class, I use body language to avoid being called on when I don’t know the answer in class”</li> <li>➤ “On the phone since they can’t see my face”</li> <li>➤ “Talking to my friend about suicide”</li> </ul>

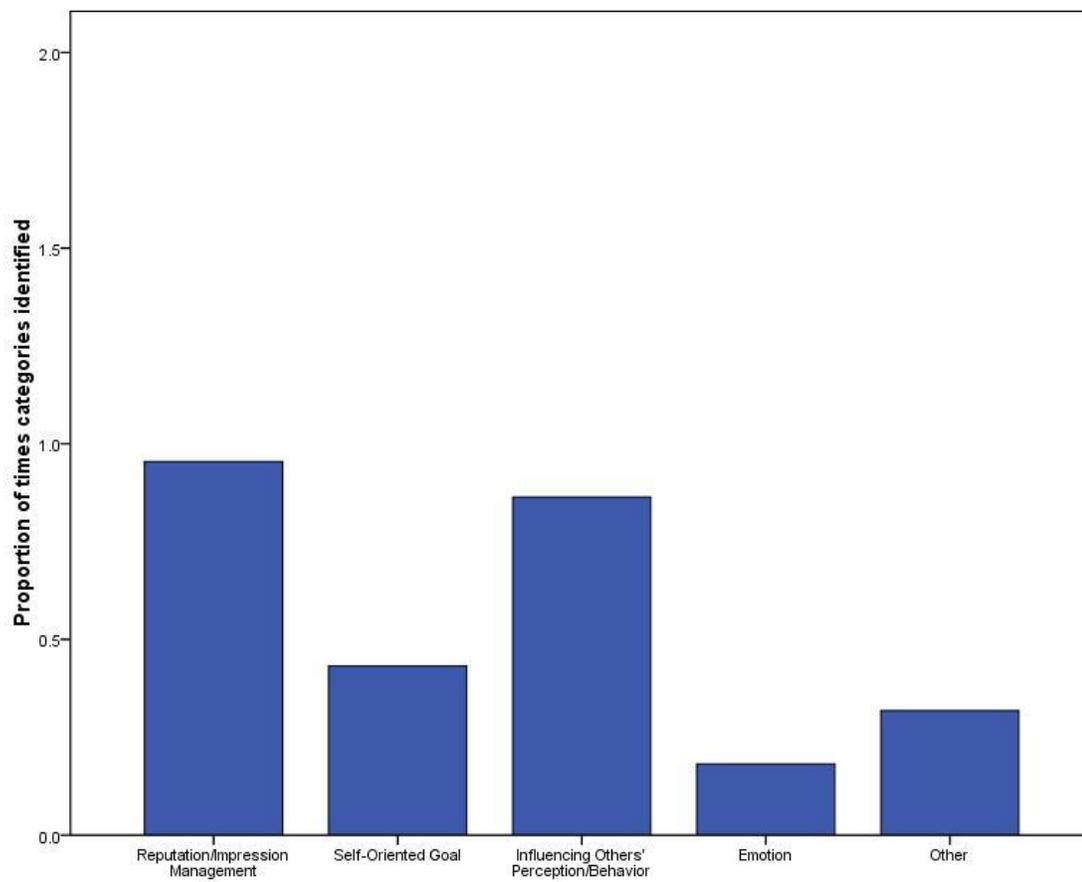


Figure 7. Categories identified for situations in which language is used to influence.

Table 10. Examples of Situations in Which One is Most Likely to Lie

Category	Example
Reputation/impression management	<ul style="list-style-type: none"> <li>➤ “When I want to impress someone”</li> <li>➤ “Job interview”</li> <li>➤ “Hiding something I am ashamed of”</li> <li>➤ “Look better—if late”</li> </ul>
Avoiding negative consequences	<ul style="list-style-type: none"> <li>➤ “Getting stopped by the cops”</li> <li>➤ “When I was a teenager to my parents about what I was doing”</li> <li>➤ “To a prof about a reading assignment I didn’t have time to do”</li> <li>➤ “When I get in trouble with the law”</li> </ul>
Self-oriented	<ul style="list-style-type: none"> <li>➤ “When I want something”</li> <li>➤ “To get things to go a certain way”</li> <li>➤ “To get out of work I don’t want to do”</li> </ul>
Other-oriented	<ul style="list-style-type: none"> <li>➤ “When I don’t want to hurt someone”</li> <li>➤ “To a friend when she asks fashion advice”</li> <li>➤ “My friend/roommates to avoid conflict”</li> <li>➤ “So a friends/family members’ feelings are not hurt”</li> </ul>
Other	<ul style="list-style-type: none"> <li>➤ “When trying to play a prank on friends”</li> <li>➤ “To get a reaction out of someone”</li> <li>➤ “Nervous”</li> </ul>

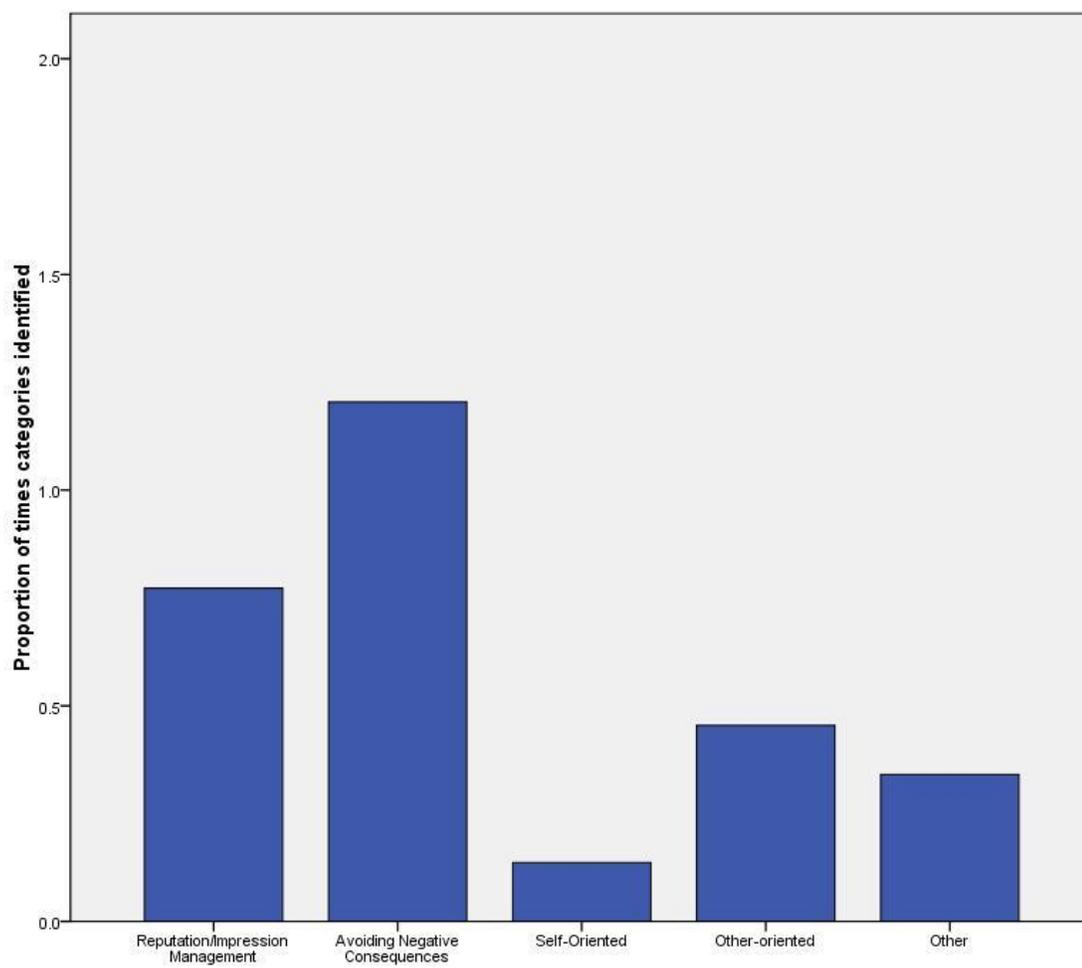


Figure 8. Categories identified for situations in which one is most likely to lie.

Participants responded to two separate sets of survey questions according to a 5-point scale (5 = Strongly Agree, 1 = Strongly Disagree) and (5 = Always, 1 = Never). Selected questions were grouped according to social manipulation and deception. The mean responses are shown in Figures 9 and 10 according to deception and detection ability respectively.

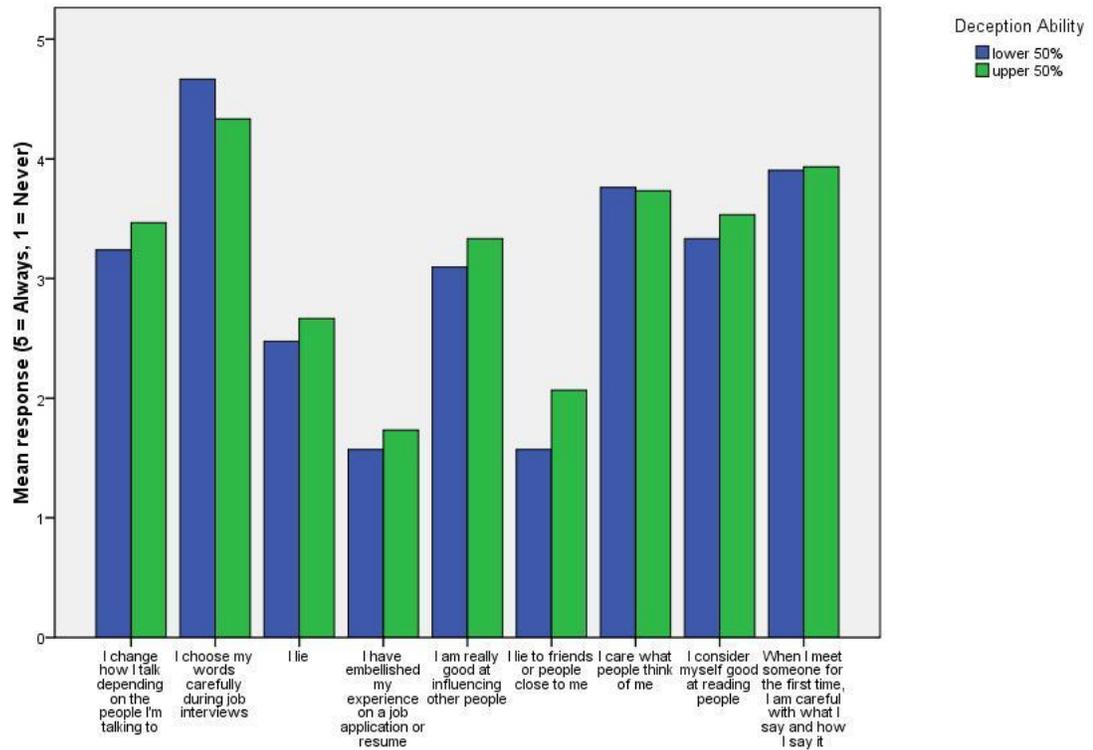
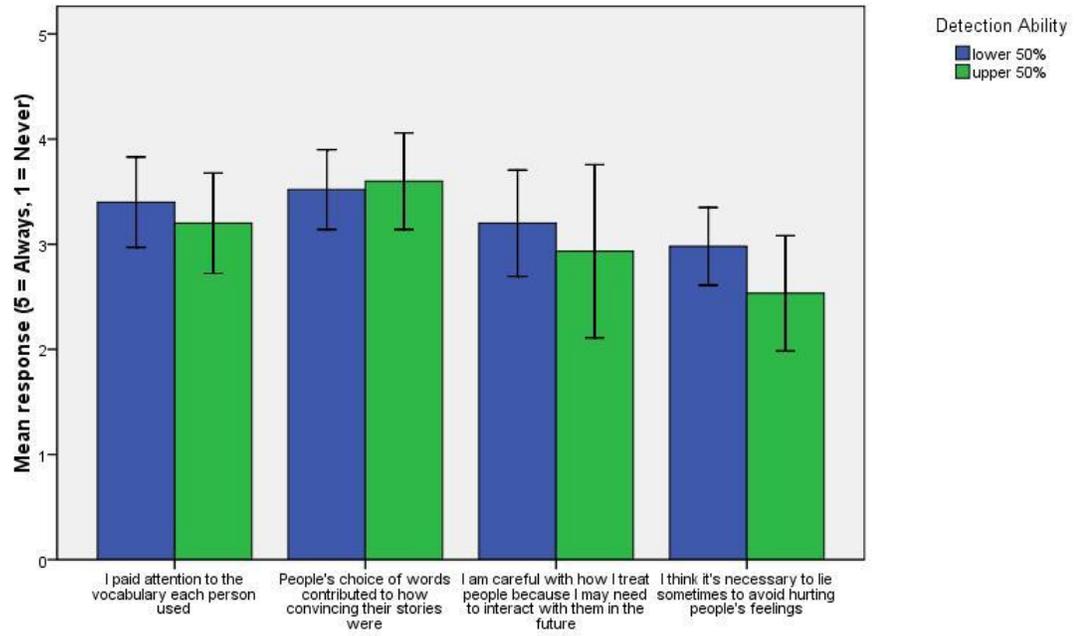


Figure 9. Responses to social manipulation questions according to deception ability.



Error Bars: 95% CI

Figure 10. Responses to deception questions according to detection ability.

## CHAPTER V

### DISCUSSION

#### *Deception and Deception Detection*

Unlike other studies of deception which investigate the frequency and taxonomy of lies, this particular study controlled the number of lies told but examined how deception and detection were achieved through verbal and nonverbal behaviors. The “Two Truths and a Lie” experiment was used to elicit naturally-occurring language. However, as Bond and DePaulo point out, “In the real world...lie detection requires unprompted suspicion” and also “involves nonbehavioral evidence” about the liar, context, and previous knowledge (2008:487). Furthermore, within a laboratory experiment, such as Two Truths and a Lie, “judges [participants] must detect deception solely from the behavior and speech people display when lying. Outside the laboratory, people infer deception from other forms of evidence,” such as “information from third parties” (2008:488). The practicality of creating a natural environment whereby deception can be investigated is what particularly makes studying deception so delicate and complicated. Researchers are challenged by the limitations of self-reporting and the inability to empirically measure unconscious processes that are so crucial to the outcomes of deception and detection.

This study did not have sufficient evidence to determine if there are significant differences between males and females in their deception and detection success rates. This may be a function of sample size. However, Bond and DePaulo’s (2008) meta-

analysis of differences in judging deception did not find any particular individual difference consistently correlated with deception detection. That is, aside from a few smaller studies, they did not find a single consistent predictor (including sex) of deception detection. Perhaps further research and application of game theory on deception studies is necessary, but if, as Krebs and Dawkins (1984) contend, there is an evolutionary arms race between deception and deception detection, there perhaps would not be significant differences between males and females in deception and detection accuracy that would be sustained. If one sex was significantly better at deceiving, eventually the population of those who are skilled at deceiving would overtake those who are not and deception ability would level out. However, due to documented cross-cultural differences between males and females in mating strategies (Buss 2003), including the use of deceptive tactics (Buss 1992, 2003), sex as a variable in deception studies may still be worth pursuing to find if differences exist between males and females in deception and detection abilities.

With the global population nearly reaching 7 billion, the odds of skilled deceivers overtaking the less skilled anytime soon is not likely. However, the ability to deceive and detect deception is necessary even in today's social circles, as evidenced by responses to survey questions (Figures 7 – 10). Based on their responses, participants are aware of the necessity of using language to influence and deceive. Given this, it is interesting that when forced to make a true or false judgment of deception, both male and female participants in this study were not very accurate, assuming each has a 50-50 chance of

successfully detecting a lie. Both males and females scored lower than a 50% accuracy rate.

According to Bond and DePaulo, the accuracy of a correct judgment of deception depends not so much on the detector's detection ability but on the "credibility of the person being judged" because "some individuals appear substantially more truthful than others" (2008:487). Furthermore, Bond and DePaulo argue that "high credibility liars are more likely to be believed than low credibility truth tellers," in which those who are credible are "invariably perceived to be truthful—whether lying or telling the truth" (2008:487, 478). This is a particularly interesting statement because people's credibility is influenced by other people's perception—including reputation and social status. However, the cross-cultural examples from chapter two showing evidence that those with communicative competence and linguistic skill have a higher social status challenge Bond and DePaulo's statement. Furthermore, as Figure 6 shows, the participants in this study identified qualities that make a good storyteller—qualities that specifically identify linguistic abilities. Such abilities include fluency of language, the ability to entertain, and the ability to tell a story. This supports my hypothesis that there is a correlation between linguistic ability (strategic language use) and social status.

Although deception success rates were slightly higher than their detection rates, males and females scored slightly higher than chance, assuming each has a 50-50 chance of successfully deceiving, though females did score higher than males. The discrepancies between detection and deception abilities seem to suggest that deception acuity is

unrelated to detection acuity. That is, a person could be skilled at one or the other but not necessarily at both.

As I discussed earlier in this thesis, deceiving and lying are related concepts but require a clear distinction. Deception involves a spectrum of strategic behavior, not all-or-nothing lying. In a real-life context, people use various forms of deception (e.g. exaggeration, hedging, and equivocation) to various degrees. Opportunities to deceive may not begin and end in one instance; the occurrence of deceptive behavior about a single or even multiple events may in fact be ongoing processes. Therefore, as Bond and DePaulo (2008) suggest, detecting deception will also likely be an ongoing process involving situations of information or evidence gathering, wavering in suspicion, consulting third parties, etc. and not a one-time judgment of true or false. The responses to the survey questions on social manipulation and deception highlight the phenomena of anticipating future or ongoing interactions with people and the importance of controlling one's words and actions, particularly so if these behaviors will affect one's social position and future.

#### *Deception Tactics and Detection Cues*

In line with the dilemma of self-reporting, I wanted to elicit the kinds of behaviors participants used to deceive and the kinds of behaviors they looked for when detecting deception. Again, it is unfortunate that unconscious processes and judgments used to deceive and detect do not surface in questionnaires, but the conscious behaviors participants revealed are quite interesting. As Figures 4 and 5 show, individuals focused

more on verbal tactics when it was their turn as storyteller, but the focus shifted to include more nonverbal indicators when they were detecting deception. For example, participants made greater references to verbal behaviors (i.e. what was said and how) as the types of things they used to deceive when it was their turn as storyteller. Such tactics seemed to focus more on the stories themselves (e.g. the inclusion of details, the selection of stories) and the verbal delivery (e.g. trying not to stutter, sounding enthusiastic).

In contrast, participants made numerous references to face (e.g. smiling, turning red) and body language (e.g. hand movements, gestures, and fidgeting) as the types of behaviors indicative of deception. With a few exceptions, those who particularly concentrated on nonverbal behaviors both as deceiver and detector, had higher success rates of deception and detection (see Figures 4 and 5). This suggests that nonverbal indicators of deception (such as body language and the use of filler words) act as deception signals, signaling deception to others, as described by Krebs and Dawkins: “Any movement of a limb, twitch of a facial muscle, or involuntary catch of the breath is potentially a give-away” (1984:387). Furthermore, there seems to be an element of self-deception, as these signals function below the level of consciousness and give us away despite our best efforts to deceive.

Related to my hypothesis that language evolved to facilitate the manipulation of social environments, the participants’ responses suggest that verbal *and* nonverbal behaviors are *both* involved in deception and detection. To paraphrase de Waal’s statement quoted earlier, selection tends to produce behavior that in the long run benefits those who display it. The combination of language and other nonverbal behaviors are

used in social interactions and deception. Even though more verbal behaviors were listed for deception tactics (and more nonverbal behaviors for detection cues), participants identified both verbal and nonverbal behaviors involved in deception and detection.

The continued use of nonverbal signaling today, which was part of our evolutionary past, is, as Dunbar argues, is mainly to express “information about emotional states” (Dunbar 1996:135). Nonverbal behaviors, such as gestures, however, are limited to face-to-face contact with other people. As humans evolved and group sizes increased, it would have been increasingly difficult to keep track of social alliances and enemies. An increase in the size of the neocortex and the emergence of language, as Dunbar (1996) argues, would have enabled humans to manage social relationships much more efficiently.

There may certainly be other factors involved in their deception and detection abilities, such as how well participants know each other and prior experience or knowledge of topics covered in the stories. A meta-analysis of cues to deception (DePaulo et al. 2003) shows that indicators of deception are more pronounced when the deceiver is motivated to succeed, particularly in self-presentational contexts. Furthermore, “when people care too much about hiding their lies, they often behave nonverbally in ways that, paradoxically, reveal the lies” (DePaulo et al. 1993:131). Not only did participants focus more on verbal strategies when deceiving, it seems that in general despite best efforts to conceal and deceive, our nonverbal behaviors give us away and may be a direct correlation to how motivated one is to deceive.

Estimating the motivation to succeed in this study is not possible since everyone was instructed to tell one lying story, where deception success was not linked to the amount of extra credit received. However, in line with a self-presentation motivation to succeed (DePaul et al. 2003), the incentive to succeed in this experiment may not have been related to successful deception but more to reputation and impression management—that is, telling stories in such a way that reveals the impression the storyteller wants to portray.

In the surveys after the experiment, participants were asked how nervous they were speaking in front of people and whether they told their stories to entertain, impress, or leave a positive impression, but such questions are problematic. Again, the issue of self-reporting presents a challenge. What people say their motivations are and what they *actually* are may differ due to self-deception, social and cultural conditioning, or lying. Admitting an effort or desire to impress people may reflect badly on a person, as in the person is “trying too hard” or has a lower self-esteem and needs validation from others. Furthermore, respondents may have guessed at my motivation for the survey or what the real answers should be. Due to these challenges, I chose not to analyze the responses to these particular questions.

### *Linguistic Performance, Rank, and Deception Ability*

This part of the study examined the relationship between language and rank. Those who performed well as storytellers were acknowledged by receiving a higher rank

(where 1 = Best storyteller).<sup>15</sup> Attributing high rankings requires agreement from the rest of the group as to who is the best storyteller, as evidenced in the average ranking for each storyteller. With 100% consensus, each group member would have had to attribute the same rank to the same people, and everyone in each group would have had to agree on who was the best storyteller. As Table 6 shows, four out of the seven groups (groups one, three, four, and six) do show some consensus. In each of these groups, the highest ranked storyteller shows an average rank of less than two.

There was also consensus in what makes someone a good storyteller (see Table 8 and Figure 6). Overall, it seems that participants wanted to be entertained by the storyteller. They were entertained if the stories were interesting, if the storyteller used humor or enthusiasm, and if the stories held the audience's attention. In their criteria of best storyteller, participants required a combination of verbal (e.g. fluency, inclusion of details, and overall ability to tell a story) and nonverbal (e.g. eye contact, facial expressions and gestures) characteristics. Even though there was not overall consensus in rank in all groups, the responses indicate an expectation for storytellers who were articulate, entertaining, and have the ability to tell a story with an appropriate amount of gestures. These abilities are associated with higher level cognition and relate to Dunbar's neocortex theory. Furthermore, these findings suggest that language is correlated with status, as Miller (2000) and Dessalles (1998, 2007) argue—whereby those with linguistic skill (as measured in having the qualities participants identified) have a higher status.

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<sup>15</sup> This assumes the participants correlated rank with storytelling, when in effect, individuals may have attributed rank according to other criteria (e.g. whether they like the storyteller or if the storyteller is a friend, etc.).

There was not sufficient evidence, however, to show a significant correlation between rank and deception ability, as the showing of lying ability in Figure 6 would have suggested. This correlation test (Table 7) was used to examine whether a person's rank (on a continuum of best and worst storyteller) is directly correlated with one's ability to deceive. Because the correlations were not significant, further research is required.

### *Language, Social Manipulation, and Deception*

This study considers the social function of language whereby deception is simply one avenue or tool used to accomplish social goals. Arguably the most interesting and revealing part of this study were the responses to the social manipulation and deception questions in the two surveys, as shown in Figures 7 - 10 and Tables 9 and 10. Based on responses, the top motivating situations for using language to influence are reputation and impression management, influencing the perception and behavior of others, and self-oriented goals. The top motivating situations in which one is likely to lie are: reputation and impression management, avoiding negative consequences or outcomes, and other-oriented lying. These findings strongly support Dunbar's (1996) argument that language evolved to (1) keep track of who is doing what with whom; (2) keep track of cheaters (through deception and deception detection); and (3) manage social relationships, status, and reputation. Even today, when what we say and how we say it may not directly affect our reproductive outcomes, people are still aware of the double-edged sword of language—it can be used as a tool for our benefit and to our detriment.

This again brings up the notion of novel environments and reproductive outcomes. According to evolutionary psychologists who subscribe to the environment of evolutionary adaptedness (EEA) concept, the human mind is adapted to that of the Pleistocene hunter-gatherer lifestyle and not to that of modern day industrial societies (Irons 1979; Cosmides et al. 1992). Therefore, even with the emergence of technological, sociological, economic, and demographic advances in modern day societies, we would expect humans to continue to behave in ways that in our past would have direct reproductive outcomes.

With the exception of admitting to lying in certain situations (Table 10), most people acknowledged their awareness of how they talk particularly in novel situations when first impressions are formed and when one's use of language may directly affect the outcome of a situation (e.g. job interview). Responses to questions (Figure 10) about lying were less telling, which is, again, likely a result of not wanting to admit lying due to either self-deception or the social stigma that is attached to lying. However, based on other studies of deception and their findings (Feldman et al. 2002; Tyler and Feldman 2004; Weiss and Feldman 2006; DePaulo et al. 1996; DePaulo and Kashy 1998), deception (facilitated through strategic language) is used as a self-presentation tactic—whether one admits to it or not is another question entirely. People are motivated to present a certain image depending on the context, objectives, and risks involved. The device used to achieve this is verbal deception, and I argue that verbal deception is a form of strategic behavior—no different than other documented strategic behaviors observed in other species (Krebs and Dawkins 1984), particularly in other primates (de Waal 1989,

2005; Smith 1987; Byrne and Whiten 1992; Hawes 1995). The only difference in humans is the ability to deceive using language, which as Dunbar (1996) argues, requires theory of mind and larger neocortices.

## CHAPTER V

### CONCLUSION

In this thesis, I combined proximate and ultimate levels of analysis from evolutionary psychology and the social sciences to test the idea that language is an adaptation. Using the game “Two Truths and a Lie” and two surveys, I examined how language is used strategically today in the context of deception and deception detection. In particular, I investigated the tactics and cues involved in deception, the differences between males and females in deception and deception detection, and the ranking of each storyteller according to ability.

Although many of the findings in this study (on the differences in deception and deception detection and the correlation of rank and deception ability) are not statistically significant, the findings from this study suggest that (1) humans engage in strategic behavior and deception, which is facilitated through the use of language; (2) linguistic ability is valued; and (3) language is used to manage social relationships, reputation, and status. These points strongly support theories from evolutionary psychology—that language (particularly strategic language) was likely selected for its social function, used to create alliances and avoid cheaters, negotiate status, and attract mates.

This study is hopefully a beginning to future research in evolutionary sociolinguistics or evolutionary linguistic anthropology. This thesis focused primarily on evolutionary theory and the impact of language on deception. It did not specifically examine what was said and how it was said—such foci, already present in

sociolinguistics and linguistic anthropology, will need to be relegated to future studies. However, based on the literature reviewed in this thesis, having communicative competence and linguistic ability in social interactions are invaluable. Because these are documented across many social and cultural settings, one could make a case for the universality of these and similar kinds of linguistic behavior.

One critique to studies of the social function of language might be that they focus primarily on the benefits of language use. Ulbaek reminds us that, “Having a language is a question of cost and benefit, or, in Darwinian terms, of losing and gaining fitness. We are so used to focusing on the benefits that we tend to forget the costs” (Ulbaek 1998:38). What are the costs and benefits of strategic language use? I have spent most of this thesis discussing the benefits of using language strategically in social interactions—the end result being social gains or, in ultimate terms, reproductive advantage.<sup>16</sup> The costs of failing to be strategic, or lacking communicative competence, in social circles today may not have the same detrimental effects it would have had during the EEA.

Future studies of strategic language use may include an examination of the costs involved in failing to utilize strategic language. Future directions of evolutionary sociolinguistics, and strategic language use in particular, may include naturalistic field research, or studies involving the examination of naturally occurring linguistic behavior outside of a laboratory setting. Other contextual foci may include other forms of strategic language outside of, or in addition to, deception.

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<sup>16</sup> For a discussion of conscious goals associated with cultural and biological success, see Irons (1979).

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## APPENDIX A: Consent Forms and Cover Letters

### Participant Consent Form

**Activity:** This research study focuses on how language is used in a social context. You are asked to participate in a game called, “Two Truths and a Lie.” Participation involves sharing three one-minute stories: two of which are true, one is false. This activity will be videotaped, and a survey will be administered after the activity. For Two Truths and a Lie, each participant chooses his/her own stories; however, the stories should not be inappropriate. Stories should not suggest sexual exploits, drug or alcohol abuse, or violence toward human beings or animals. Participants will work in groups between four and eight people. Each person shares three stories and guesses which of the other group member’s stories are true or false. At the end of the activity, you will be given a survey. By consenting to this form you are agreeing to allow the researcher to observe and video record your stories and interactions with the other group members.

**Purpose:** The purpose of this activity is to study how people use language in social interactions, particularly social contexts involving talking about oneself, deception and deception detection. Data collected will be analyzed solely for the purposes of the researcher’s thesis and will not be distributed or made public. All identifying information will be kept confidential and excluded from any write-up.

**Risk and Participation:** There will not be any risk to the subjects. Participation is entirely voluntary. The participant may discontinue participation at any time. Refusal to participate or discontinue participation will not result in any penalty or loss. If the participant’s story selection is inappropriate in nature, the participant will be asked to discontinue participation.

For more information on the nature of this study please contact:

Paul Brown 331 Trafton Science Center (507) 389-6613 <a href="mailto:paul.brown@mnsu.edu">paul.brown@mnsu.edu</a>	Sarah Monson sarah.monson@mnsu.edu
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If you have questions or concerns about the treatment of human subjects, please contact IRB Administrator, Dean Anne Blackhurst (507-389-2321).

By signing this consent form, I assert that I am at least 18 years of age.

\_\_\_\_\_  
 (Signature of Participant)

\_\_\_\_\_  
 (Date)

\_\_\_\_\_  
 (Print name)

### Participant Consent Form

**Activity:** This research study focuses on how language is used in a social context. You are asked to participate in a game called, “Two Truths and a Lie.” Participation involves sharing three one-minute stories: two of which are true, one is false. This activity will be videotaped, and a survey will be administered after the activity. For Two Truths and a Lie, each participant chooses his/her own stories; however, the stories should not be inappropriate. Stories should not suggest sexual exploits, drug or alcohol abuse, or violence toward human beings or animals. Participants will work in groups between four and eight people. Each person shares three stories and guesses which of the other group member’s stories are true or false. At the end of the activity, you will be given a survey. By consenting to this form you are agreeing to allow the researcher to observe and video record your stories and interactions with the other group members.

**Purpose:** The purpose of this activity is to study how people use language in social interactions, particularly social contexts involving talking about oneself, deception and deception detection. Data collected will be analyzed for the purposes of the researcher’s thesis and may be included anonymously in presentations or publications created regarding the study. All identifying information will be kept confidential and excluded from any write-up.

**Risk and Participation:** There will not be any risk to the subjects. Participation is entirely voluntary. The participant may discontinue participation at any time. Refusal to participate or discontinue participation will not result in any penalty or loss. If the participant’s story selection is inappropriate in nature, the participant will be asked to discontinue participation.

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If you have questions or concerns about the treatment of human subjects, please contact David Menk, Director of Institutional Research, 507-933-6539 or [dmenk@gustavus.edu](mailto:dmenk@gustavus.edu)

By signing this consent form, I assert that I am at least 18 years of age.

\_\_\_\_\_  
(Signature of Participant)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Print name)

### Two Truths and a Lie Activity

The purpose of this activity is to study how language is used in social interactions to talk about oneself using truth statements and to conceal a lie to influence other people's opinions of one's reputation. By studying how language is used strategically in social contexts, the researcher will test the notion that there is an evolutionary basis for how language is used today, namely that humans use language to influence others and manage reputations.

Subjects participating in this study will participate in a game called "Two Truths and a Lie," a game involving sharing two truth stories and one lying story in front of a small group of people. The object of the game is to confuse the other group members which story is true and which is false. The storyteller ultimately achieves to get others to believe the lying story.

Participation involves sharing three one-minute stories: two of which are true, one is false. Each participant chooses his/her own stories; however, the stories should not be inappropriate. Stories should not suggest sexual exploits, drug or alcohol abuse, or violence toward human beings or animals. Participants will work in groups of five or six people. Each person shares three stories and guesses which of the other group member's stories are true or false. At the end of the activity, participants will be given a survey to comment on the activity. This activity will be videotaped.

The identities of those participating will be known only to other group members participating and will otherwise be kept confidential. Data collected will be analyzed solely for the purposes of the researcher's thesis and will not be distributed or made public. All identifying information will be kept confidential and excluded from any write-up involving the researcher's thesis, publications, or conference presentations.

Participation is entirely voluntary. The participant may discontinue participation at any time. Refusal to participate or discontinue participation will not result in any penalty or loss. If the participant's story selection is inappropriate in nature, the participant will be asked to discontinue participation.

For more information on the nature of this study please contact:

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If you have questions or concerns about the treatment of human subjects, please contact IRB Administrator, Dean Anne Blackhurst (507-389-2321).

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### APPENDIX B: "Two Truths and a Lie" Scoring Sheet

Your # \_\_\_\_\_

M or F (Circle one)

Each person will be provided a number. This is in lieu of using people's names as identification. Each person will keep track of each storyteller and make notes about each story to help them decide which story is true or false.

Pay attention to both the story and the story teller. Write down your observations in the space provided. What do you think are indicators of truth and deception? You may use the following criteria as a guide but do not limit your observations only to these criteria: [Topic of story; (what does the topic choice say about the person?); nonverbal indicators of deception/sincerity (fidgeting, eye contact, etc.); verbal indicators (word choice, pitch, tone, etc.)] Then circle whether you think each story is true or false. After each storyteller is finished he/she will reveal which story was actually false. Please indicate on the form which of your guesses was correct.

---

Storyteller's # \_\_\_\_\_

Circle the category that best describes your relationship with this person:

Stranger      Acquaintance      Friend      Other (please specify) \_\_\_\_\_

Story #1      True or False

Story #2      True or False

Story #3      True or False

---

Storyteller's # \_\_\_\_\_

Circle the category that best describes your relationship with this person:

Stranger      Acquaintance      Friend      Other (please specify) \_\_\_\_\_

Story #1      True or False

Story #2      True or False

Story #3      True or False

Storyteller's # \_\_\_\_\_

Circle the category that best describes your relationship with this person:

Stranger      Acquaintance      Friend      Other (please specify) \_\_\_\_\_

Story #1      True or False

Story #2      True or False

Story #3      True or False

### APPENDIX C: “Two Truths and a Lie” Survey

Your # \_\_\_\_\_

M or F (Circle one)

<b>These questions are specific to the Two Truths experiment (not in any particular order):</b>	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I was nervous the others wouldn't believe my lying story.					
I had a difficult time figuring out how to tell a convincing lying story.					
I was nervous talking in front of the other group members.					
I chose the 3 stories to leave a positive impression of myself on the rest of the group.					
I chose my 3 stories to entertain the group.					
I chose my 3 stories to impress the others in the group.					
My lying story influenced how I selected the truth stories.					
I paid attention to the vocabulary/word choices each person used to tell his/her story.					
People's choice of words contributed to how convincing (or unconvincing) their stories were.					
I chose my words carefully when telling my story.					
I admire people/think highly of people who speak well.					
I think people who use poor grammar are less intelligent.					
First impressions will influence what people think of me.					
I want people to be honest with me in all cases.					
I consider myself good at lying.					
I am careful with how I treat people because I may need to interact with them					

in the future.					
I think lying is wrong.					
I think it's easier to lie to a stranger than to someone who knows me well.					
It's easier to lie to someone of the opposite sex.					
I think it's necessary to lie sometimes to avoid hurting people's feelings.					

1. Comment on how well you think you did telling your true and false stories. What prompted you to choose the three stories you told?
  
2. I was able to get the other group members to believe my lie. (circle one)

Everyone                      Some                      One                      None
  
3. How did you get the others to believe your lie? How did you avoid lie detection?
  
  
4. Comment on how well (or not) you know the others in your group? (How long have you known each other, do you have a class together, etc.)

5. What cues (verbal and nonverbal) did you look for when trying to figure out which of the other people's stories were lies?

6. How successful were you at guessing other people's lying stories? How often were your guesses correct?

7. Rank **each person** in your group according to who was the best storyteller. Use people's numbers to refer to them.

(Best) -----(Worst)

8. In your opinion, what makes them the best or worst?

9. Rank **each person** in your group according to how convincing their stories were. Use people's numbers to refer to them.

(Most convincing)------(Least convincing)

**APPENDIX D: General Survey**

	<b>Always</b>	<b>Often</b>	<b>Sometimes</b>	<b>Occasionally</b>	<b>Never</b>
When I meet someone for the first time, I find myself doing most of the talking.					
When I meet someone for the first time, I want to leave a positive impression of myself.					
When I meet someone for the first time, I am careful with what I say and how I say it.					
In a public setting, I am the one entertaining the crowd.					
I act differently to strangers than I do with my friends.					
I change how I talk depending on the people I'm talking with/around me.					
I change my opinions depending on the people I'm talking to.					
I choose my words carefully during job interviews.					
I use social networking websites (such as Facebook.)					
I am cautious revealing details about myself on social networking websites (such as Facebook).					
I get annoyed with people who exaggerate.					
I exaggerate when retelling a story.					
I lie.					
I have lied in a job interview.					
I have embellished my experience on a job application or resume.					
I lead people to believe things that aren't true.					
I am really good at influencing other people.					
I lie to my significant other. (respond if applicable)					

I lie to my friends or people close to me.					
I care what people think about me.					
I consider myself good at reading people.					

**Please answer the following questions:**

1. List three situations in which you use language to influence other people.

2. List the top three situations in which you are most likely to lie.