Mary Dixon

How We Seem "To Be": English- and Spanish-Speaking Children's Susceptibility to the Fundamental Attribution Error and the Actor-Observer Bias

Lev Vygotsky called it "one of the most complex problems of psychology" (Vygotsky, 1962, p. xix). Herodotus puzzled over it as he watched the hands of Egyptians moving across sheets of papyrus from right to left instead of the Greek left-to-right style, wondering if this difference meant that the Egyptians had a different way of thinking about the world (Hunt & Agnoli, 1991). Although other Greek philosophers believed that thought was universal, Herodotus' ideas may have been more in line with those of 19th-century German Romantic thinkers, who claimed that each language represented a characteristic worldview (Slobin, 1996; Whorf, 1956). A generation later, Ernst Cassirer called language "a direct manifestation of thought," arguing that one couldn't truly know a concept that couldn't be verbalized in one's native language (Brown & Lenneberg, 1954, p. 454). Even Albert Einstein weighed in, citing language as a key factor in mental development (Hunt & Agnoli, 1991). The idea has also found expression in our popular culture, from musings over supposed dozens of words for 'snow' in the Eskimo language (which, incidentally, is a myth) to George Orwell's novel *1984*, in which citizens are rendered unable even to think rebellious thoughts, because the words representing them have been eliminated from their lexicon (Brown & Lenneberg, 1954; Pinker, 1994). Do the languages we speak shape the way we think? If they did, how would these effects manifest themselves in our everyday lives? While these questions may never be fully answered (and indeed, language seems too complex an entity to be understood even within the domain of any one discipline), they have been the source of academic inquiry, scathing disagreement, and mere curious pondering for some time, and surely will be for time to come.

Historical Foundations of the Debate: Does Language Shape Thought?

Ideas about the connection between language and thought found crystallization most famously in the writings of Benjamin Lee Whorf, an American chemical engineer-turned-linguist who conducted extensive research on North American native tribes (Whorf, 1956). Whorf was a student of Edward Sapir, who was himself a student of early anthropologist Franz Boas. This lineage is important because Boas' work represented a departure from the views of other anthropologists of his time, who generally spoke with denigration towards "little peoples" who spoke "little languages" (Kay & Kempton, 1984). Boas, in contrast, wrote enthusiastically on the richness of unwritten languages, citing the many features they had in common with our own (Kay & Kempton, 1984). Whorf would go on to write that no language can rightly be called 'primitive' (Whorf, 1956). Sapir was also an important influence, of course—the crux of Whorf's thinking is often referred to as the 'Sapir-Whorf hypothesis.' He advanced the idea that concepts do not exist independent of language, and that the 'real' world is instead constructed through a group's language habits (Boas, in contrast, argued that there existed a nonlinguistic 'complete concept,' of which language gives us access to an incomplete part) (Kay & Kempton, 1984; Slobin, 1996). In the same vein as his predecessors, Whorf's ideas challenged the perhaps commonsense view that all normally functioning humans experience the world identically, asserting instead that language produces differences in speakers' perception and understanding of reality (Brown & Lenneberg, 1954). The two main tenets of this 'Whorfian' hypothesis are the following:

1. Structural differences among languages coexist with nonlinguistic cognitive variations in speakers of different languages.

2. The structure of one's native language strongly influences one's outlook on the world (Whorf, 1956).

Whorf arrived at these propositions through examination of Native American groups such as the Hopi, who, he discovered, conceptualize space and time differently than do English speakers (Whorf, 1956). The Hopi language, according to Whorf, consists of nine verbal 'voices' and nine verbal 'aspects,' while English contains far fewer, allowing for greater flexibility and precision in descriptions of past events (Whorf, 1956). The study led him to conclude that along this dimension, the English way of thinking is a 'bludgeon' while Hopi is a 'rapier' (Whorf, 1956, p. 85). In this assertion lies a couched criticism of Western society, entrenched at the time of Whorf's writing in European Nazism and a general assumption of superiority of 'civilized' ideals (Lakoff, 1987). Whorf suggested that we had much to learn from these so-called 'primitive' groups, forcing us to re-assess our analyses of reality as new languages act as "a mirror pushed up to our own" (Fishman, 1982; Whorf, 1956, p. 138).

Yet not all of those who read Whorf choose to interpret him this way. Whorf died young, leaving behind not only a relatively sparse collection of writings, but also a number of ambiguities in his work, meaning that much of his theory has been left open to interpretation (Fishman, 1982; Kay & Kempton, 1984). Whorf's early followers made a strong deterministic reading of his work, claiming that thought is completely bound by language, and as such that different languages may vary without constraint (Kay & Kempton, 1984). The cognitive revolution led to a near-outright rejection of such views, and any expressed differences between speakers of different languages were attributed to cultural rather than linguistic factors (Hunt & Agnoli, 1991; Lardiere, 1992). Whorf's proposition of the effect of language on worldview was

also discarded because it could not be tested empirically independent of language itself (Grace, 1987; Kay & Kempton, 1984).

In something of a revival of interest in the Whorfian hypothesis, Kay and Kempton (1984) tested speakers of English and Tarahumara, a language originating in northern Mexico. The two languages differ in their categorization of colors; while English contains distinct words referring to the categories 'green' and 'blue,' Tarahumara has the single word *siyóname*, which in English translates to mean 'green or blue' (Kay & Kempton, 1984). The researchers hypothesized that English speakers would differentiate between colored chips with hues close to the green-blue boundary, while Tarahumara speakers would not—a simple perception task yielded the expected, Whorfian effect (Kay & Kempton, 1984). Yet when English speakers' verbal naming strategy for colors was eliminated (participants were asked to compare an ambiguously colored chip, which all agreed could be called either 'green' or 'blue,' to other colored chips), English and Tarahumara speakers' judgments of color similarity were comparable (Kay & Kempton, 1984). Language-produced cognitive differences could be overridden, and the researchers interpreted this finding to mean that Whorf's claim of language variation "without constraint" was discredited, and that other conclusions (based on earlier research on color perception) were also faulty (Kay & Kempton, 1984). The study led to acceptance of a more moderate conception of Whorf's hypothesis (and a shift in terminology—from linguistic *determinism* to linguistic *relativity*) (Kay & Kempton, 1984).

Opponents of Whorf and Evidence for a Universal Language Mechanism

On the opposite end of the argument's spectrum, however, linguists Noam Chomsky and Steven Pinker argue for not relativity, but universality across languages. Though the world's languages do differ considerably from one another, Pinker argues, Whorf may have

overestimated the differences he reported simply because he was not a native speaker of the languages he studied (Pinker, 1994). In addition, Pinker claims that people do not think in English, or Hopi, or any other language, but rather in a (universal) nonlinguistic 'mentalese' (Pinker, 1994). However, this perspective ignores the fact that while thought may be nonlinguistic, ideas are necessarily transmitted and preserved almost exclusively through language (Grace, 1987). Citing evidence for a universal language-acquiring capacity, Chomsky points out that almost every utterance consists of a sequence of words that the speaker has never heard before, and that children develop the capacity to produce these unique utterances at a remarkable pace and often without formal instruction (Chomsky, 1971; Pinker, 1994). Languages may vary in their superficial qualities, such as the sounds of the specific utterances produced, but at the level of 'deep structure,' Chomsky argues, they are one and the same (Chomsky, 1971).

Yet it does not follow from the idea that language acquisition and usage are universal that the surface structure of individual languages cannot shape thought. (And even if languages' deep structures *were* universal, Chomsky's ideas can never be experimentally proven or disproven.) Interestingly enough, Whorf himself stated that the attention his relativistic theory had received should not be allowed to detract from the importance of language universals (Whorf, 1956). While Whorf's critics can't seem to agree on which aspects of his theory they disagree with, what does appear clear at a close reading of Whorf himself is that his ideas were not as strongly stated as some of his detractors (or even his supporters) claim (Fishman, 1982; Kay & Kempton, 1984). If Whorf believed that concepts were entirely bound by language, for example, how could he purport to accurately represent the Hopi concept of time, which, as he discusses, does not exist in English (Kay & Kempton, 1984)? Though any version of the Whorfian hypothesis may

always be viewed as extreme by some, an understanding of the ethnocentric historical context in which it arose puts it into perspective as what is truly a radically progressive view (Kay & Kempton, 1984).

Language-Bound Thought, 'Mentalese,' or Something In Between?

Perhaps it is misleading to ask a chicken-and-egg question about the relationship between thought and language. Instead, we might do better to accept the possibility that they each affect one another (Grace, 1987). In what can be seen as a compromise between Pinker's 'mentalese' and a strong deterministic perspective, Slobin (1996) discussed a special form of thought directed towards communication, aptly named *thinking for speaking*. This view improves on that of other theorists by shifting the focus from relationships between static constructs (language, thought) to more dynamic ones (thinking, speaking), leading to more objective, testable hypotheses (Slobin, 1996). Slobin proposed that children learn characteristic ways of thinking for speaking when learning their native languages, developing patterns that appear as early as preschool age and persist throughout life (Slobin, 1996). For example, events of a simple picture book are experienced differently by speakers of different languages, not on a perceptual level but in the act of formulating language to talk about them (Slobin, 1996). Children demonstrate selective attention to concepts easily expressed in their native languages, and also recognize these concepts more easily later (Brown & Lenneberg, 1954; Slobin, 1996). Just as what can be expressed in a single word in one language may require four words in another, some ideas (such as color categories) are simply more 'codable' (and later, nameable) in certain languages than others (Brown & Lenneberg, 1954). Psychological research has long been thought to reveal general universal patterns for constructs such as reasoning ability and intelligence, but cross-linguistic studies have begun to call these claims into question. If researchers can release

themselves from some of the dualistic thinking that has long characterized cross-language studies (relativity or universality? variation with or without constraint?), then research may have much to teach us, both about universals and deviations in the space between language and thought.

Following in Whorf's Footsteps: Recent Research across Languages

Contemporary cross-linguistic research varies widely in subject matter and scope. In contrast to early conceptions of linguistic relativity, which tended to compare distinct linguistic groups, often confounded (whether researchers realized it or not) by significant cultural differences, more recent studies have examined speakers of different languages in similar settings (Boas, 1944; Boroditsky & Schmidt, 2003; Jarvis, 2011). Color perception, for example, has become a common means of demonstrating cognitive differences between speakers of different languages (Athanasopolous, Wiggett, Dering, Kuipers, & Thierry, 2009). Greek, Turkish, Japanese and Russian all have distinct words for lighter and darker shades of blue, a seemingly trivial distinction which has led to widespread research providing evidence that speakers of these languages are better able to distinguish between stimuli of subtly different shades (Athanasopolous, et al., 2009).

Some languages, such as Spanish, French, and German, assign genders to nouns, while others do not. Research has found that participants' ideas about gender qualities associated with inanimate objects are indeed influenced by their grammatical genders in their native languages, even when tested in English, which, when it comes to nouns, is gender-neutral (Boroditsky & Schmidt, 2003). Participants had better memory for objects paired with names that matched their grammatical genders—for example "chair" (in Spanish, a feminine noun) would be better remembered when matched with the name "Jennifer" than with "Michael" (Boroditsky & Schmidt, 2003). This phenomenon is even more pronounced when pictures of objects are

accompanied by their corresponding verbal labels, a masculine or feminine suffix (such as –o or –a in Spanish) perhaps priming preconceived gender schemas (Boroditsky & Schmidt, 2003). Such labels may lead speakers of noun-gendered languages to shift their representations of otherwise neutral objects to make them more similar to representations suggested by the label. In a famous study revealing the power of labels, Loftus and Palmer (1974) presented participants with a video of a simulated car crash, and then asked them to report on what they had seen. Yet in their questioning, the researchers used different words to describe the event, stating that the cars had either "hit," "bumped," or "smashed" into each other (Loftus & Palmer, 1974). The variation of this single word led participants to differ in the reports of how fast the cars had been moving, and in other details such as whether there had been broken glass at the scene (Loftus & Palmer, 1974). Clearly, even seemingly innocuous verbal labels can have powerful implications for cognition, and practical significance as it relates to tasks such as eyewitness testimony and recall (Pavlenko, 2003).

Much current research on linguistic differences has taken advantage of the experimental possibilities offered by the world's growing bilingual population, often through studies in which bilingual participants are tested in both of their languages of fluency, allowing for greater control of confounding variables as researchers gain insight into how each language is expressed within an individual (Boroditsky, Ham & Ramscar, 2002; Jarvis, 2011; Kobayashi, Glover & Temple, 2008). Investigators are beginning to take a closer look at the notion of *conceptual transfer*, that is, the idea that languages may influence (and sometimes, enhance) each other in bilinguals' internal and external expression of meaning (Jarvis, 2011). In this view, languages are thought of as being built from conceptual building blocks, or units through which meaning can be expressed, which are not universal but rather vary from one language to the next (Von

Stutterheim & Nuse, 2003). Slobin (1985) conceived of language as an "opening wedge" for thought, and it follows from this line of thinking that knowledge of multiple languages might afford speakers greater cognitive possibilities (Athanasopolous & Kasai, 2008). Yet when it comes to research on conceptual transfer, it is often difficult for researchers to see the big picture, due in part to the nearly infinite number of language comparisons and cognitive dimensions available for study (Jarvis, 2011).

Having too many options is not the worst problem for an experimenter to have, however, and findings from studies diverse in both languages and constructs tested point overwhelmingly to the idea that language, at least to some degree, shapes cognition (Jarvis, 2011). Slobin's (1996) theory of thinking-for-speaking, originally proposed in the context of first-language learning, has been effectively applied to research on bilingualism, illuminating the ways in which bilinguals attempt to accommodate multiple conceptual structures into a single system (Jarvis, 2011). For example, English speakers tend to sort objects based on shape (placing a wooden spoon with a plastic spoon), while speakers of Japanese sort by material (joining a wooden spoon and a wooden bowl), ostensibly because of the differing ways in which the two languages conceptualize plurals (Athanasopolous & Kasai, 2008). Yet English-Japanese bilinguals, who have access to both organizational structures, alter their preferences based on degrees of proficiency in each language (Athanasopolous & Kasai, 2008).

Similarly, while speakers of English tend to describe events in time using primarily horizontal metaphors (*ahead of the game, behind schedule*), speakers of Mandarin Chinese conceive of time vertically, and in response to vertical primes are better able to answer questions related to temporality (Boroditsky, 2001). Mandarin-English bilinguals, in contrast, demonstrate less 'vertical bias' as a function of the age at which they first began to learn English, further

supporting the idea that regardless of the language they are "thinking for," bilinguals do not necessarily limit themselves to concepts available in a single language system (Boroditsky, 2001; Pavlenko, 2003).

Scratching the Surface of 'Deep Structure'?

Language may also have implications for thought on a more abstract level. Indeed, research demonstrates that linguistic factors are most influential in domains not related to sensory experience, which are generally thought to have largely universal properties (Alloway & Corley, 2004; Boroditsky, 2001). For example, speakers of different languages may vary in their recall of identical, but ambiguous stimuli (Pavlenko, 2003). Concepts which exist in one language and not another (such as the idea of 'privacy,' which has no exact translation in Russian) may simply be not as acutely attended to by speakers of languages in which a particular idea cannot be as explicitly expressed (Pavlenko, 2003). Between speakers of English and German, different aspects of visual events are described as more or less important (the sequence of steps that comprise an action for English speakers; the action's endpoint for Germans) based on the verbal categories made available by each language (Von Stutterheim & Nuse, 2003).

Variations in types of verb tenses present in different languages may lead speakers to encode action events differently (Alloway & Corley, 2004; Boroditsky, Ham, & Ramscar, 2002). Languages that do not specifically denote tense (past/present/future), such as Mandarin and Indonesian, cause speakers to perceive greater similarity between depictions of actions in different tense states (an actor preparing to kick, or having kicked a ball), compared to speakers of tensed languages such as English and Tamil (Alloway & Corley, 2004; Boroditsky, et al., 2002). In this way, a larger number and variety of tenses leads speakers to a more nuanced view of past events (Boroditsky, et al., 2002). Speakers of Indonesian and Mandarin can distinguish

between events that are completed and yet to come, of course; they just do so in a different way. Because tense is not intrinsic to verbs of these languages, a consideration of it may simply require extra effort (Alloway & Corley, 2004). In the same vein, speakers of different languages differ in their spoken retellings of events based on available verb categories. Speakers of English and German parse the narrative flow of information differently, possibly because of differences in the facility of expressing actions in progress vs. those that have already occurred (Von Stutterheim & Nuse, 2003). A test of Algerian Arabic speakers, who come from a different cultural background but whose language possesses capacity for expression of progressive action similar to that found in English, describe action events much like English speakers do, emphasizing episodes' intermediate steps over their endpoints (Von Stutterheim & Nuse, 2003). This lends further support to the thinking-for speaking hypothesis, versus one of cultural differences (Slobin, 1996; Von Stutterheim & Nuse, 2003).

Though the research is convincing regarding the impact of language on the diverse ways in which ideas are expressed, it is difficult for any one study (or even group of studies) to surmise how deep down these differences truly reach (Athanasopolous & Kasai, 2008; Von Stutterheim & Nuse, 2003). Yet in one deceivingly simple nonverbal study, participant speakers of Greek or English were asked to attend to stimuli based solely on shape (Athanasopolous, et al, 2009). Electrophysiological evidence demonstrated that Greek speakers (who have internalized multiple words for the color blue) nonetheless detected slight differences in the *colors* of the stimuli, providing evidence for an unconscious, preattentive effect of language on perception (Athanasopolous, et al., 2009). While this finding cannot necessarily serve as proof that all other hypothesized language-cognition links hold true on a nonlinguistic level, it is an encouraging indicator of possible connections in other domains.

One Intriguing Comparison: Research on Speakers of Spanish and English

A domain of study that has become of special interest to investigators of linguistic relativity as of late is that of the differences between speakers of English and Spanish. According to the 2010 Census, there were 50.5 million people of Hispanic or Latino origin living in the United States, many of them native speakers of Spanish (Ennis, Ríos-Vargas, & Albert, 2011). Worldwide, over 500 million speak the language (Medrano, 2011). The influx of Spanish speakers to the U.S. over the past several decades (from 2000 to 2010, Hispanics and Latinos accounted for over half of the country's population increase) has meant that Spanish speakers and Spanish-English bilinguals not only figure prominently in American classrooms and the workforce, but are also becoming the majority in certain contexts, making potential cognitive differences between the groups of great interest (Ennis, et al., 2011).

As the Spanish language contains a number of grammatical structures expressed differently than they are in English, comparisons of speakers of the two languages have yielded a number of interesting findings. For example, speakers differ in their conflations of motion verbs; that is, English speakers attend more to the 'manner' of action verbs (running, skipping, crawling, etc.) while Spanish speakers attend to the 'path' (through, towards, away from) (Naigles & Terrazas, 1998). When explaining novel situations, English narratives tend to contain more detailed trajectories of a subject's motion, while Spanish ones emphasize the static locations of objects (Slobin, 1996). For example, while an English speaker might describe how a bird "flies down from out of" a tree, a Spanish speaker looking at the same picture would likely say simply that the bird "*salió"* (exited) the tree or "*voló hacia abajo*" (flew towards below) (Slobin, 1996). Similarly, English speakers typically focus on actions when describing past events, and Spanish speakers stress these actions' results (Hunt & Agnoli, 1991). One possible

explanation for these findings is the existence in Spanish of two distinct past tenses; one (the preterite) which refers to completed actions, and another (the imperfect) which is used to describe ongoing situations or actions that have occurred habitually. This division, it has been hypothesized, may give Spanish speakers a better understanding of the progressive vs. concluded nature of past events (Slobin, 1996).

Another important grammatical difference between Spanish and English is in the two languages' construction of the passive voice. While the passive voice certainly exists in English ("Mistakes were made," "The battle was won"), it can only be used correctly in certain contexts. In Spanish, in contrast, the passive voice is used much more flexibly; for example, one might say, *"Se me perdieron las llaves,"* "The keys were lost [on me]," thereby removing the blame, so to speak, from the action's agent. While this may seem like a trivial distinction, research shows that not only do English speakers describe accidental events using more agentive language than do Spanish speakers ("She spilled the milk" vs. "The milk spilled"), they have better memory for the agents of such accidents as well (Fausey & Boroditsky, 2008). Most interestingly, English and Spanish speakers remember *intentional* events similarly, as in this instance the Spanish passive voice would typically not be used (Fausey & Boroditsky, 2008). These memory differences as a function of language may have implications for psychological constructs such as locus of control.

Facing the Social World in Spanish and English

Speakers of Spanish and English may also differ in their understanding of others' emotions. Children learning to speak each of the two languages appear to acquire the vocabulary to speak about mental states along a similar timeline, although some differences in the proportions of speech about the self vs. about others have been noted (Pascual, Aguado, Sotillo

& Masdeu, 2008). Among English-speaking preschoolers, syntactic complexity is correlated to frequency of belief verbs; for Spanish-speakers, there is a slightly stronger connection between complexity and verbs of desire (Pascual, et al., 2008). Bilinguals judge emotions differently when tested in each of their two languages, judging more accurately (according the universal emotions identified by Ekman's Facial Action Coding System) in English yet reporting more intensity of subjective experience when tested in Spanish (Matsumoto, Wong, & Martinez, 2008). Although emotion-specific terms are perhaps more accessible in English, speakers apparently had greater access to others' internal emotional states in Spanish, their first language (Matsumoto, et al., 2008).

Does speaking Spanish, then, make one a better 'mind reader'? Research on Spanish-speaking children's development of theory of mind helps to shed light on this question. A representational 'theory of mind,' a developmental construct that children typically acquire during the preschool years, is an understanding that other people may hold beliefs that are different from one's own, and that these beliefs can sometimes be false (Wimmer & Perner, 1983). First examined by Wimmer & Perner (1983), the 'false belief' task requires children to hypothesize about where a character in a story will look for an object that was hidden in a novel location while he or she was away. Children who correctly respond that the character will look for the object in its usual location are said to have acquired a theory of mind; those who respond incorrectly (basing their answers upon their *own* knowledge of where the object is hidden, not the character's) have not (Wimmer & Perner, 1983).

For young speakers of Spanish, theory of mind acquisition manifests itself in an interesting way. The subjunctive mood, used widely in Spanish but rarely ever in English, obliges speakers to create mental representations of multiple "possible worlds," in order to speak

about their own and others' desires, requests and beliefs (yes, even false ones) (Pérez-Leroux, 1998). Put simply, the subjunctive is used in situations in which an idea cannot be definitively "declared." Take the example of two sentences: "I'm glad that you came to the party" (*Me alegro que viniste a la fiesta*), and "I want you to come to the party" (*Quiero que vengas a la fiesta*). In the second sentence, the speaker does not know whether the listener will come or not; the subjunctive is used to indicate this implicit uncertainty.

Pérez-Leroux (1998) discovered a correlation between children's correct use of the subjunctive mood and success on the false belief task. Once participants correctly made use of the grammatical mood acknowledging their lack of access to others' mental states, they also tended to appropriately answer questions about the potential inaccuracy of others' beliefs. Subsequent research revealed that Spanish-speaking children are more likely to answer the 'think' component of the task ('Where will the character think the object is?') with greater accuracy than their English-speaking counterparts (Shatz, Diesendruck, Martinez-Beck, & Akar, 2003). Yet findings of this research may be confounded by differences in participants' socioeconomic status (due, perhaps, to investigators' desire to recruit those who had not been exposed to multiple languages), and correlations between language and understanding of theory of mind vary widely (Milligan, Astington, & Dack, 2007; Shatz, et al, 2003). Pérez-Leroux (2008) later clarified her previous finding, stating that the two constructs (use of subjunctive and theory of mind) arise not immediately one after the other, as her research had previously been interpreted, but rather gradually, and along different, but related, timelines, both of which may be constrained by neurological development (Pérez-Leroux, 1998).

Other recent research, however, provides encouraging support for these findings. 'Early' bilingual children (those who acquire and develop fluency in two languages in childhood) show

comparable activity in their medial prefrontal cortices (mPFC) when processing theory of mind problems in one language versus another (Kobayashi, Glover, & Temple, 2008). 'Late'-acquisition bilingual adults, in contrast, experience activity in different brain regions based on language of testing, demonstrating more ventral anterior cingulated cortex and bilateral mPFC use when tested in their first language, and left precuneus and right temporal pole activity when tested in their second (Kobayashi, et al., 2008). Such objective, neurological findings lend support to the idea that complex social situations, such as interpreting theory of mind, are conceived of differently based on language (Kobayashi, et al., 2008).

On the other hand, false memories have been shown to "cross language barriers" within Spanish-English bilinguals tested with the Deese/Roediger-McDermott (DRM) procedure (in which a list of words is read to a participant with a key word omitted; i.e., a list containing words such as "dream," "bed," "nap," and "awake," but not the word "sleep.") (Sahlin, Harding, & Seamon, 2005). Participants falsely remembered words in one language that they had been primed with in another language, lending support to the idea that vocabularies (and thus, grammatical stores) may overlap in the mind (Sahlin, et al., 2005). Just as we may never know if the world's languages share a common 'deep structure,' we may never truly understand how language is housed in our minds. These findings suggest, however, that among speakers of two or more languages, there is some cognitive overlap, and at least the occasional conceptual transfer is likely to occur (Jarvis, 2011).

How We Seem "To Be": The Case of Spanish *Ser* and *Estar*

Another key semantic difference between the English and Spanish languages is the existence in Spanish of two copulas, or versions of the English verb 'to be.' The two Spanish forms include *ser*, which is generally used to describe permanent, unchanging qualities of people

and objects, such as gender, nationality or occupation; and *estar*, which typically conveys temporary qualities such as spatial location or mood. *Ser* implies identity or class of a well-known object, while *estar* is often used for 'discovery interpretation,' or to describe one's first impressions of a new sensory experience (Maienborn, 2005; Sera, 1992). For both a child learning Spanish as a first language or an adolescent or adult studying it as a second, the acquisition and understanding of both copulas is important, but is also not as easy as it first may seem (Walton & Banaji, 2004). Many linguists argue against the rigid temporary vs. permanent dichotomy of *ser* vs. *estar*, claiming that it is an efficient but 'cheap' way to classify the two verbs (Maienborn, 2005). As with many grammatical principles, there are countless exceptions to the basic criteria distinguishing *ser* and *estar* (Maienborn, 2005; Sera, 1992). While these distinctions are difficult to convey in English, they represent clear differences to a Spanish speaker: for example, one may say *Él es cortés* (He is a polite person) or *Él está cortés* (He acts politely [today]), which convey very different meanings (Maienborn, 2005).

The development of usage of the two copulas over the Spanish-speaker's life span is not entirely clear, and the literature is fraught with contradictory findings. Some researchers have found that children tend to use *estar* more than adults do, citing a belief that more attributes are temporary (Sera, 1992), while others have found children to be more reluctant than adults to use the verb (Schmitt & Miller, 2007). English-speaking undergraduates studying Spanish have been observed to increase their usage of *estar* as their skill levels increase; on the other hand, Spanish-English bilinguals have been shown to use *estar* more often as their Spanish proficiencies decrease, ostensibly because *estar* allows for a greater variety of expression (Woolsey, 2008; Silva-Corvalan, 1986). Though children as young as 5 years can correctly choose between *ser*

and *estar*, speakers' correct usage of Spanish copulas increases steadily with age (Schmitt & Miller, 2007; Sera, 1992).

Possible advantages conferred by the existence of the dual copula in Spanish have also been debated (Sera, Bales, & del Castillo Pintado, 1997). Because *ser* and *estar* represent distinct means of describing people and objects that are difficult, if not impossible, to represent using the same number of English words, Spanish speakers may be better able to determine which features of objects 'count' in certain situations (Sera, 1992). In contrast, when an English speaker hears a sentence such as "He is helpful," the verb 'is' necessarily activates in the listener all of its potential meanings, perhaps leading to longer processing time as one attempts to parse out which definition the speaker intends (Perfetti, Beverly, Bell, Rodgers, & Faux, 1987). The *ser-estar* distinction may even improve Spanish speakers' recall memory; this more precise, highly differentiated categorization (compared with the English 'to be,' which brings to mind Whorf's 'bludgeon'), makes this aspect of reality more salient and communicable, and thus perhaps more readily available for spontaneous recall. (Pavlenko, 2003).

Adjectives labeled with *ser* are also deemed more significant than those labeled with *estar*, suggesting that speakers of Spanish infer not only meaning, but also importance from copula use (Sera, 1992). In an appearance-reality task conducted with Spanish- and English-speaking children, Spanish-speakers were found to be better able to identify 'real' properties of objects (expressed through *ser*) than were English-speaking children (Sera, et al., 1997). These 'real' properties were contrasted with 'apparent' ones—for example, participants viewed an image of a white lamb through a red filter, and asked what color the lamb was, 'really' (Sera, et al., 1997). Bilingual participants, who formed a natural within-subjects control group, performed better on the task when tested in Spanish than in English, lending further support to the

conclusion that appearance-reality distinctions are mediated by language, and that Spanish-speaking children have the advantage of a verb that tells them explicitly whether a quality is 'real,' or intrinsic to an object itself, or not (Sera, et al., 1997).

Furthermore, among bilingual children, both *ser* and *to be* are more likely than *estar* to be used to convey stable human characteristics (Heyman & Diesendruck, 2002). Children who endorse the stability of psychological traits over time are most likely to use *ser*, and these children are also more likely to make negative evaluations of others based on limited evidence (Heyman & Diesendruck, 2002). An 'essentialist bias' may exist for these children leading them to overuse the verb *ser* when referring to psychological characteristics, but as children mature, *estar* seems to help them 'override' this essentialist assumption (Heyman & Diesendruck, 2002). *Estar* is an 'unmarked' term in the sense that it refers only to the temporary status of things, making no assumptions about their long-term tendencies (Sera, et al., 1997). Taken together, the findings of Heyman and Diesendruck and Sera, et al. seem to indicate that while the English language plays no special role in enhancing speakers' judgments of others, the distinction between *ser* and *estar* in Spanish compels Spanish speakers to think more carefully about the stability and veracity of others' traits, simply because their language requires them to do so.

Implications of Grammatical Distinctions for Social Judgments

The *fundamental attribution error,* or *correspondence bias,* refers to a tendency to overestimate the influence of dispositional traits (and underestimate the impact of situational variables) on others' behavior (Gilbert & Malone, 1995). The phenomenon was first examined by Jones & Harris (1967), who found that participants would infer that the author of an essay supporting Fidel Castro truly endorsed a pro-Castro perspective, even when they were told that the author had been instructed to write from that particular point of view. Correspondence bias'

counterpart, the *actor-observer bias* or *actor-observer asymmetry*, is the term used for the inclination to report one's own behavior as the result of temporary, situational factors (Jones & Nisbett, 1971). The consequences of these dual biases can be pervasive and widespread, resulting in misunderstandings and misjudgments of others' (and one's own) behaviors. Take the example of a slammed door: An observer might interpret it as the action of an angry, hostile person. With oneself as the agent, however, one can justify the action with any number of situation-based causes (unwarranted criticism from a boss, botched travel plans, a bad hair day). Yet when viewed objectively, it seems plausible that all human behavior may be the product of multiple factors—both situational and dispositional.

This tendency toward dispositional attributions for others' behavior was once thought to be universal, and for children, perhaps rooted an incomplete grasp of theory of mind (Choi, Nisbett, & Norenzayan, 1999). Others have attempted to account for it as a judgmental heuristic; that is, external dispositions may simply be more available and salient to observers than complex contextual factors (Morris & Peng, 1994). The actor-observer bias has been described as the result of a mere imbalance in knowledge; we necessarily have more access to our own internal states than to others', leading us to behave in egocentric ways (Shultz & Butkowsky, 1977).

Such strong 'dispositionism' may not be common to all humans, however. Research suggests that dispositional attributions are more characteristic of individualist than collectivist cultures, in which individual actors' unique attributes are deemed more important (Morris & Peng, 1994). Koreans (who come from a generally collectivist culture) are less likely to demonstrate correspondence bias compared to Americans (who hail from a strongly individualistic one) when situational factors are salient (Choi, et al., 1999). When primed with a question asking them to predict the behavior of an aggregate of individuals, Korean participants

were more likely than Americans to state that a single member of the group would behave in a situationally consistent way (Choi, et al., 1999). These differences, perhaps anchored in some universal attribution style, are perhaps modified by socialization over time; American and Indian children are more similar in their attributions than are American and Indian adults (Choi, et al., 1999). In a non-Eastern example, Hispanic teenagers (tested in English) have been shown to demonstrate more situation-based social understanding than their Anglo-American counterparts, perhaps because of the collectivist nature of Hispanic culture (Choi, et al., 1999; Newman, 1991). While Anglo students spontaneously inferred personality traits from isolated behaviors, Hispanics were more reluctant to do so, providing more situational (rather than dispositional) explanations for others' behavior (Newman, 1991).

Cultural factors may also affect construals of the self, either as independent (as in individualist cultures) or interdependent (as in collectivist cultures) (Markus & Kitayama, 1991). An interdependent conception of the self may lead one to view their own and others' behavior as situationally bound, performed with some end which would benefit the group (Markus & Kitayama, 1991). American and Chinese participants differ in their perceptions of social, but not physical events related to group membership and categorization, suggesting convergent understandings of what it means to be a part of a group (Morris & Peng, 1994). Arrays of geometrical figures were interpreted similarly by Chinese and Americans; yet when these figures were replaced with anthropomorphized objects (in this case, fish), a social context emerged (Morris & Peng, 1994). A lone fish departing from the group was seen as being influenced by external factors by Chinese participants, and internal factors by American ones (Morris & Peng, 1994). In addition, speakers of English and Japanese use different words to describe the self, the

Japanese word *jibun* referring to "one's share of the shared life space" (Markus & Kitayama, 1991, p. 228).

Within a single linguistic and cultural community, the labels we assign to ourselves and others may have powerful effects on the judgments we make based upon them. In a study examining children's use of psychological inferences, targets labeled 'nice' or 'mean' prompted trait-specific inferences about the target's future behavior (Heyman & Gelman, 1999). Interestingly, 'nice' labels had a greater effect on judgments than did 'mean,' perhaps because participants felt they could relate to the 'nice' participants, and thus felt better equipped to predict their behavior (Heyman & Gelman, 1999). On the other hand, cross-cultural research has shown that negative behaviors elicit stronger dispositional attributions than do positive ones, possibly due to a sense of otherness that a participant may feel towards a target (Choi, et al., 1999). Beliefs about the stability or malleability of traits are known to develop during childhood, affecting judgmental tendencies (Heyman & Dweck, 1998; Newman, 1991). Children aged 5 and 6 are less likely to believe others' behavior will remain consistent in future situations, while judgments of 8 to 11-year-olds are significantly more rigid (Newman, 1991). This conviction of stability leads to increased attention to behaviors and their outcomes, thought to reveal others' lasting qualities (Heyman & Dweck, 1998). By adulthood, trait understandings once again become more flexible as people come to grasp the complexity of behavior (Newman, 1991).

Yet even in maturity, the grammatical features of a statement may impact the way it is understood. Traits described using noun labels are perceived as more enduring and resilient than those described with corresponding action verbs ("John is a dog person" vs. "John likes dogs a lot")(Walton & Banaji, 2004). Presumably, nouns act as labels, indicating to the listener who a person *is*, not just how he or she feels (Walton & Banaji, 2004). This seemingly subtle

distinction affects the strength of self-reported preferences as well; participants report greater stability of their own traits when primed with a noun than a verb label (Walton & Banaji, 2004). Departing from the commonsense view that we have a clear grasp of what we like and how much we like it, these findings suggest that attitudes, both towards others and about ourselves, are not unchanging but rather pliable and contextually bound, and can be manipulated by even the most subtle (and perhaps even unconscious) of linguistic cues (Walton & Banaji, 2004).

The Present Study

Language mediates peoples' perceptions of human emotions and psychological characteristics, thus it seems logical that it might also affect the way speakers of different languages explain their own and others' behavior (Barrett, Lindquist, & Gendron, 2007; Heyman & Diesendruck, 2002). Yet while correspondence bias has been examined cross-culturally, language differences in behavioral attribution have not (Choi, Nisbett, & Norenzayan, 1999; Sera, 2008). The essentialist vs. contextual distinction in making social judgments seems to parallel that between the Spanish verbs *ser* and *estar*. *Ser* is, by nature, a label-implying verb, while *estar* suggests circumstance and temporality. Thus although humans across cultures tend to favor dispositional attributions for others' behavior, among Spanish speakers, this effect may be arbitrated by the verb *estar* (Sera, et al., 1997).

The aim of the present study is to address significant gaps in the existing literature regarding susceptibility to the correspondence and actor-observer biases based on language. Past research suggests that the existence of two copulas in the Spanish language allows speakers to distinguish between temporary and fixed qualities of people and objects (Sera, et al., 1997). Because Spanish speakers have available a vocabulary which allows them to describe human characteristics solely in terms of temporary attributes, it its hypothesized that *estar* will help

speakers of Spanish resist the tendency to make only dispositional attributions for others' behavior, and situational attributions for their own. Spanish- and English-speaking children will be presented with pictures depicting social situations accompanied by descriptions using either the verb *ser, estar* (Spanish participants) or 'to be' (English participants). Uses of *ser* and *estar* by Spanish-speaking participants will be measured, and dispositional and situational attributions made by participants in all conditions will be coded. English-speaking participants are expected to respond in accordance with the fundamental attribution error and actor-observer bias, two well-documented judgmental tendencies. Namely, English-speakers will tend to over-attribute their own behavior to situational factors, and others' behaviors to dispositional traits. Spanish-speaking participants, in contrast (and particularly those in the *estar* condition) are expected to be less susceptible to these 'errors.' If confirmed, the hypotheses of this study may call into question research conducted with English-only populations, thought to reveal universal truths.

References

Alloway, T. P., & Corley, M. (2004). Speak before you think: The role of language in verb concepts. *Journal of Cognition and Culture, 4*, 319-345.

Athanasopolous, P., & Kasai, C. (2008). Language and thought in bilinguals: The case of grammatical number and nonverbal classification preferences. *Applied Psycholinguistics, 29*, 105-123.

Athanasopolous, P., Wiggett, A., Dering, B., Kuipers, J., & Thierry, G. (2009). The Whorfian mind. *Communicative & Integrative Biology, 2*, 332-334.

Barrett, L. F., Lindquist, K. A., & Gendron, M. (2007). Language as context for the perception of emotion. *Trends in Cognitive Science, 11*, 327-332.

Boroditsky, L. (2001). Does language shape thought? Mandarin and English speakers' conceptions of time. *Cognitive Psychology, 43*, 1-22.

Boroditsky, L., Ham, W., & Ramscar, M. (2002). What is universal in event perception? Comparing English and Indonesian speakers. In W. D. Gray & C.D. Sherman (Eds.), *Proceedings of the 24th annual meeting of the Cognitive Science Society* (pp. 136-144). Mahwah, New Jersey: Erlbaum.

Boroditsky, L., Schmidt, L., & Phillips, W. (2003). Sex, syntax, and semantics. In D. Gentner & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the study of language and cognition.* Boston: MIT Press.

Brown, R. W. & Lenneberg, E. H. (1954). A study in language and cognition. *Journal of Abnormal and Social Psychology, 49*, 454-462.

Choi, I., Nisbett, R. E., & Norenzayan, A. (1999). Causal attribution across cultures: Variation and universality. *Psychological Bulletin, 125*, 47-63.

Chomsky, N. (1971). *Chomsky: Selected readings*. J. P. B. Allen & P. Van Buren, (Eds.). London: Oxford University Press.

Ennis, S. R., Ríos-Vargas, M., & Albert, N. G. (May 2011). *The Hispanic Population: 2010*. United States Census Bureau. Retrieved from http://www.census.gov/prod/cen2010/briefs/c2010br-04.pdf

Fausey, C. M., & Boroditsky, L. (2008). English and Spanish speakers remember causal agents differently. In B. C. Love, K. McRae, & V. M. Sloutsky (Eds.), *Proceedings of the 30th annual conference of the Cognitive Science Society* (pp. 64-70). Austin, TX: Cognitive Science Society.

Fishman, J. (1982). Whorfianism of the third kind: Ethnolinguistic diversity as a worldwide social societal asset (The Whorfian hypothesis: Varieties of validation, confirmation, and disconfirmation II). *Language in Society, 11*(1-14).

Gilbert, D. T., & Malone, P. S. (1995). The correspondence bias. *Psychological Bulletin, 117*, 21-38.

Grace, G.W. (1987). *The linguistic construction of reality*. New York: Croom Helm.

Heyman, G. D., & Diesendruck, G. (2002). The Spanish *ser/estar* distinction in bilingual children's reasoning about human psychological characteristics. *Developmental Psychology, 38,* 407-417.

Heyman, G. D., & Dweck, C. S. (1998). Children's thinking about traits: Implications for judgments of the self and others. *Child Development, 64*, 391-403.

Heyman, G. D., & Gelman, S. A. (1999). The use of trait labels in making psychological inferences. *Child Development, 70*, 604-619.

Hunt, E., & Agnoli, F. (1991). The Whorfian hypothesis: A cognitive psychology perspective. *Psychological Review, 98*, 377-389.

Jarvis, S. (2011). Conceptual transfer: Crosslinguistic effects in categorization and construal. *Bilingualism: Language and Cognition, 14*, 1-8.

Jones, E. E., & Harris, V. A. (1967). The attribution of attitudes. *Journal of Experimental Social Psychology, 3,* 1-24.

Jones, E. E., & Nisbett, R. E. (1971). The actor and the observer: Divergent perceptions of the causes of behavior. New York: General Learning Press.

Kay, P., & Kempton, W. (1984). What is the Sapir-Whorf hypothesis? *American Anthropologist, 86*, 65-79.

Kobayashi, C., Glover, G. H., & Temple, E. (2008). Switching language switches mind: Linguistic effects on developmental neural bases of 'Theory of Mind.' *SCAN, 3*, 62-70.

Lakoff, G. (1987). *Women, fire and dangerous things: What categories reveal about the mind*. Chicago: The University of Chicago Press.

Lardiere, D. (1992). On the linguistic shaping of thought: Another response to Alfred Bloom. *Language in Society, 21*, 231-251.

Maienborn, C. (2005). A discourse-based account of Spanish *ser/estar*. *Linguistics, 43*, 155-180.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224-253.

Matsumoto, D., Anguas-Wong, A. M., & Martinez, E. (2008). Priming effects of language on emotion judgments in Spanish-English bilinguals. *Journal of Cross-Cultural Psychology, 39*, 335-342.

Medrano, P. E. (2011, June 18). Querétaro, la palabra más bonita del español. *El País.* Retrieved from http://www.elpais.com/articulo/cultura/Queretaro/palabra/bonita/espanol/elpepucul/20110618elpepucul_2/Tes

Milligan, K., Astington, J. W., & Dack, L. A. (2007). Language and theory of mind: A meta-analysis of the relation between language ability and false belief understanding. *Child Development, 78*, 622-646.

Morris, M. W., & Peng, K. (1994). Culture and cause: American and Chinese attributions for social and physical events. *Journal of Personality and Social Psychology, 67*, 949-971.

Naigles, L. R., & Terrazas, P. (1998). Motion-verb generalizations in English and Spanish: Influences of language and syntax. *Psychological Science, 9,* 363-369.

Newman, L. S. (1991). Why are traits inferred spontaneously? A developmental approach. *Social Cognition, 9*, 221-253.

Pascual, B., Aguado, G., Sotillo, M., & Masdeu, J. C. (2008). Acquisition of mental state language in Spanish children: A longitudinal study of the relationship between the production of mental verbs and linguistic development. *Developmental Science, 11*, 454-466.

Pavlenko, A. (2003). Eyewitness memory in late bilinguals: Evidence for discursive relativity. *The International Journal of Bilingualism, 7*, 257-281.

Pérez-Leroux, A. T. (1998). The acquisition of mood selection in Spanish relative clauses. *Journal of Child Language, 25*, 585-604.

Pérez-Leroux, A. T. (2008). Subjuntivo y conciencia de la subjetividad en la adquisición infantil de la teoría de la mente. *Revista de Logopedia, Foniatría y Audiología, 28*, 90-98.

Perfetti, C. A., Beverly, S., Bell, L., Rodgers, K., & Faux, R. (1987). Comprehending newspaper headlines. *Journal of Memory and Language, 26,* 692-713.

Pinker, S. (1994). *The language instinct: How the mind creates language*. New York: HarperCollins.

Sahlin, B. H., Harding, M. G., & Seamon, J. G. (2005). When do false memories cross language boundaries in Spanish-English bilinguals? *Memory and Cognition, 33,* 1414-1421.

Schmitt, C., & Miller, K. (2007). Making discourse-dependent decisions: The case of the copulas *ser* and *estar* in Spanish. *Lingua, 117,* 1907-1929.

Sera, M. D. (1992). To be or to be: Use and acquisition of Spanish copulas. *Journal of Memory and Language, 31,* 408-427.

Sera, M. D., Bales, D. W., & del Castillo Pintado, J. (1997). *Ser* helps Spanish speakers identify "real" properties. *Child Development, 68,* 820-831.

Shatz, M., Diesendruck, G., Martinez-Beck, I., & Akar, D. (2003). The influence of language and socioeconomic status on children's understanding of false belief. *Developmental Psychology, 39,* 717-729.

Shultz, T. R., & Butkowsky, I. (1977). Young children's use of the scheme for multiple sufficient causes in the attribution of real and hypothetical behavior. *Child Development, 48,* 464-469.

Silva-Corvalan, C. (1986). Bilingualism and language change: The extension of *estar* in Los Angeles Spanish. *Language, 62,* 587-608.

Slobin, D. I. (1996). From "thought and language" to "thinking for speaking." In J. J. Gumperz & S. C. Levinson (Eds.), Rethinking linguistic relativity (pp. 70-96). Cambridge University Press.

Von Stutterheim, C., & Nuse, R. (2003). Processes of conceptualization in language production: Language-specific perspectives and event construal. *Linguistics, 41,* 851-881.

Vygotsky, L. S. (1962). *Thought and language: Studies in communication.* E. Hanfmann & G. Vakar, (Eds.). Cambridge: MIT Press.

Walton, G. M., & Banaji, M. R. (2004). Being what you say: The effect of essentialist linguistic labels on preferences. *Social Cognition, 22*, 193-213.

Whorf, B. L. (1956). *Language, thought, and reality: Selected writings of Benjamin Lee Whorf*. J. B. Carroll (Ed.). New York: MIT Press.

Woolsey, D. (2008). From theory to research: Contextual predictors of "*estar* + adjective" and the study of the SLA of Spanish copula choice. *Bilingualism: Language and Cognition, 11*, 277-295.