ENGLISH AND KOREAN SPEAKERS' CATEGORIZATION OF SPATIAL ACTIONS: A TEST OF THE WHORF HYPOTHESIS

by

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ABSTRACT

In this study, I carried out a quasi-experimental task that attempted to examine some aspects of the Sapir/Whorf hypothesis; namely, the extent to which the grammar of one's language affects one's way of thinking about the experienced world. A task was designed to evaluate the influence that language operates on the mind of native English and Korean speakers in the categorization of spatial actions. Population of the study consisted of 40 participants: 20 NSs of English (10 males and 10 females) and 20 NSs of Korean (10 males and 10 females). Participants were asked to choose between two pictures (A or B), the one that best matches a third one (C). Although most of the results obtained were not in the predicted direction and do not support the Whorf hypothesis in this particular context, the study raises questions about the psychological effects of a language on the identity of its speakers in times of widespread English learning. The study also calls for more controlled research that takes into consideration some of the issues that this study has brought to surface.

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CHAPTER 1
INTRODUCTION AND BACKGROUND

1.1 The Impact of English as a Global Language

With an estimated 350 million native speakers and 1,900 million competent speakers, the spread of the English language around the world over the last few decades has been swift and steady: “just as Latin steamrollered its way across Europe 2,000 years ago, crushing dozens of other languages, so English has become the lingua franca of our times” (Morrison 2002: para. 7). For the first time in history, a language is being used internationally for wider communication. These circumstances have turned the teaching of English into a controversial and politicized topic in many countries. The situation in South Korea (where the author of this study has taught for the past four years) is no exception. The Korean Ministry of Education has long associated early English education with linguistic and cultural imperialism, and has rejected it until recently claiming that Korean children would end up perceiving the world and behaving like Westerners. This belief corresponds, as we will see further below, to the strong version of Whorf’s linguistic relativity hypothesis (see Whorf 1927-41 in Carroll 1956), sometimes referred to as the Sapir-Whorf hypothesis, which claims that “the structures of the language one habitually uses influence the manner in which one thinks and behaves” (Kramsch 1998: 11). The rise of a world language makes the study of the influence of language on the human mind both topical and crucial, and raises the question as to whether the English language could deeply affect the minds of those who learn it around the world.

The aim of this project is to carry out a quasi-experimental study to examine some aspects of the Sapir-Whorf hypothesis. Specifically, a task was designed to evaluate the influence that language operates on the mind of native English and Korean speakers in the categorization of spatial actions. The first chapter will briefly describe and analyze the importance of language in the maintenance of a society and the identity of its members; the second chapter will review the

literature dedicated to the Whorf hypothesis, its objections, and the various ways in which the hypothesis was tested; the third chapter will describe how the task designed to test the Whorf hypothesis in the Korean context was carried out; the fourth chapter will analyze the data obtained and discuss the results of the experiment, while the fifth chapter will discuss the philosophical and pedagogical implications for teaching a language that has become global.

1.2 Language and Society: The Case of South Korea

1.2.1 Language, Culture and Society

First of all, a few important terms are to be defined to show the decisive importance of language in the maintenance of any society, since language and culture are two of the three essential components of Whorf's theories ('thought' being the third one). According to Wardhaugh (1986: 1), a language is "what the members of a particular society speak," and according to Kramsch (1998: 6) a society is any group of people who identify themselves as "members of a social group [who] acquire common ways of viewing the world through their interactions with other members of the same group." Since humans live in groups, a common bond is needed to promote a sense of brotherhood and duty among them: a culture. Wardhaugh (1986: 211) defines culture in a sociological sense as "the 'know-how' that a person must possess to get through the task of daily living" in a society. Every culture has its own history, values, customs, shared beliefs, institutions, and methods of expressions. Language being a code shared with other people, it is intimately tied to culture, as stated by Pinker (1994: 427):

> *Culture* refers to the process whereby particular kinds of learning contagiously spread from person to person in a community and minds become coordinated into shared patterns, just as a *language* or a *dialect* refers to the process whereby the different speakers in a community acquire highly similar mental grammars.

By the same token, Baker (2001: 201) believes that it is perhaps with religion the most essential part of the maintenance of any culture:

> Knowledge of a language is undeniably part of one's cultural heritage. A good portion of one's identity as a member of a cultural group comes from being able to speak the group's language. Much of our cultural knowledge is expressed to us in that language.

Therefore, since cultures and languages are entwined and do not evolve separately, the development of a society is also connected to language.

1.2.2 Language, Cognition and Identity

It is very difficult to tease apart the interrelationships between language, culture, and thought, but "both Sapir and Whorf agreed that it is our culture that determines our language, which in turn determines the way we categorize our thoughts about the world and our experiences in it" (Ash 1999: para. 9). In other words, culture influences the structure and functions of a group's language, which in turn (through syntax, lexis, and so on) affects the individual's interpretation of reality. Whorf recognized two directions of influence: from culture to language and vice-versa, but argued that the influence from language patterns to cultural norms is predominant because grammar is more resistant to change:

> Large systematic outlines can change to something really new only very slowly, while many other cultural innovations are made with comparative quickness. Language thus represents the mass mind; it is affected by inventions and innovations, but affected little and slowly" (Whorf 1956: 156).

Indeed, without completely adhering to Whorf's linguistic determinism, it can safely be said that words are the vehicles of thought and that thought governs most of our lives in one way or another. It is universally acknowledged that a sure way of destroying a nation's culture and identity is to debase its language, which is why several countries have an institution (the French Academy, for example) dedicated to keeping their language 'pure' and perpetuating 'correct' usage. As Crystal (1997: ix) writes, "there is no more intimate or more sensitive an index of identity than language." How people define themselves and view the world is closely tied to the language they speak. This has widespread effects such as ethnic differentiation. For example, although intelligibility exists between the Croatian and the Serb languages, or between the Swedish, Norwegian, and Danish languages, the speakers of these languages regard themselves as a distinct people speaking different languages.

1.2.3 From the Inner Circle to the Rest of the World

English speakers can be roughly divided into three groups: native speakers, speakers of English as a second language, and speakers of English as a foreign language. Kachru (1994: 137-38) coined the terms ‘inner circle’, ‘outer circle’, and ‘expanding circle’ to categorize the three concentric circles of English use. The kind of English predominantly spoken in the inner circle (mainly the U.K, the U.S.A., Canada, Australia and New Zealand) is the standard British/American English. In the outer circle (e.g., India, Malaysia, Singapore, Nigeria), where the English language has become part of the countries’ main institutions, people learn English as an additional (or second) language and use oral and vernacular Englishes that are mixtures of standard English and local languages. Last, the kind of English largely spoken in the expanding circle (e.g., South Korea, Russia, Brazil, Greece) is the international colloquial English, learned as a foreign language.

In the inner circle English is the language of identity for its native speakers. However, when transferred to countries in the outer and expanding circles, English becomes an alien form of expression with different structural properties and a different vocabulary to organize experience. A language, contrary to Wardhaugh’s (1986) definition, can never be ‘neutral’ in the sense of ‘free of cultural influences’, although it may fulfill different roles in foreign countries. In Agar’s (1994: 28) terms, “culture is in language, and language is loaded with culture:” as in the Whorfian tradition, they are like two inseparable sides of the same coin that grow together, constantly influencing each other. Thus the English language, despite being a mongrel language itself, carries the values of the Western civilization (based on the Judeo-Christian tradition, Greek rationalism, a Roman sense of justice, etc.) and the specificities of the Anglo-Saxon culture (individualism, the Protestant work ethic, etc.) which have fed the development of the West. For example, Crystal (1997: 53) writes:

> The present-day world status of English is primarily the result of two factors: the expansion of British colonial power […] and the emergence of the United States as the leading economic power of the twentieth century.

Since language has been described as “one of the most important forms of human symbolic behaviour and […] a key component of many groups’ social identities,” (Coupland and Jaworski 1997: 323) it is conceivable that English might be regarded as threatening in societies outside the inner circle. For example, learning a second language like English is particularly demanding in a closed society like Korea (social distance). Koreans are particularly proud of their 4000-year history and of their unique alphabet (‘Han-Geul’, designed in the early 15th century after the Mongol empire collapsed) which symbolizes their distance from the Chinese as a people with a distinct identity and culture, even though a majority of Korean words today are still based around Chinese roots. Korean society is based on the tenets of Confucianism, a system of ethics that emphasizes devotion and respect for those in position of authority. As a speech community, Koreans share the numerous honorifics and the ‘senior-junior’ distinctions based on age that their language contains, which reflect Korea’s social organization and collectivist values, with its rigid, hierarchical Confucian roles automatically ruling all interactions. Consequently, the English language, with its egalitarian forms of address, is often inadequate for expressing Korea’s intricate social relationships based on age and social status, or its numerous non-reciprocal kinship terms. Since “cultural patterns of cognition and customs are sometimes explicitly coded in language” (Brown 2000: 198), the grammar and the forms of words in a language, together with homogeneity of experience, are likely to have pervasive effects on the mental life of a people.

1.3 English Education in Korea and the Whorf Hypothesis

In Korea, English is now an obligatory subject beginning in elementary school and ending in university. Nations in the expanding circle “recognize the importance of English as an international language, though they do not have a history of colonization by members of the inner circle, nor have they given English any special administrative status,” as explained by Crystal (1997: 54). The need for English in Korean society is felt at many levels.

1.3.1 Access to Knowledge and Modernization

Over the past three centuries, most scientific, medical, industrial, and technological breakthroughs have come from the West. These days, with American technology being extremely influential, “80-85% of all the scientific and technical information available in the world today is either written in or abstracted in English,” according to Kaplan (1987: 139). As a result, in an era of mass communications dominated by the West, where leading-edge information and communications technology is largely based in the U.S., countries like Korea need to know English for international exposure. For instance, Crystal (1997: 72) writes:

> [T]he fact that these innovations were pouring out of an English-speaking country meant that those from abroad who wished to learn about them would need to learn English - and learn it well - if they wished to benefit.

Also, the influence of the internet has played a tremendous role in spreading information and the English language. A recent BBC news bulletin stated that “nine out of ten computers connected to the internet are located in English-speaking countries and more than 80% of all home pages on the web are written in English” (BBC News 2001: para. 1). Therefore, modernization, despite possible resentment from non-Western people, is closely tied to Westernization and, by extension, to the availability of the English language. Most countries also have little choice but to bring English terms into their own languages to express new technical terms.

1.3.2 Education and Career Opportunities

Because books of higher education and many doctoral theses are written in English and top research universities are in the U.S., it is necessary for university students to have a high understanding of written English. Many Korean parents spend large amounts of money to send their children to language institutes or to study in expensive language programs abroad. For instance, The Korea Times (2003: para. 5) recently reported that “spending for overseas study hit a record high of $803 million in the first half this year.” The big push to learn a language is

linked to trade, and Korea is working hard to become an international trading hub in North-East Asia. With the internationalization of business, politics, and academics, Huntington (1996: 63) explains that “English is increasingly used at the university level to equip graduates to function effectively in the global competition for capital and customers.” In Korea, personal experience shows that many students study English primarily for better career opportunities, which is not surprising since “more than four fifths of all international organizations use English as either their main or one of their main operating languages” (BBC news 2001: para. 2). High scores on several standardized tests such as the TOEIC are also needed just to apply for many jobs.

1.3.3 Leisure and Entertainment

The presence of English is also felt at many other levels. Advances in transportations have made international travel a reality, and the tourism industry has soared in the past twenty years, with English being the preferred language in use. In Korea, there currently is a debate to make English a second official language to promote tourism and attract foreign investment. Also, Hollywood movies, international sport, American popular music, newspapers and brands all have an enormous impact. Speaking English is not only an academic skill but also a cultural aspect of life associated with American culture and often, as in Korea, with social prestige. However, while exposure to Western culture may contribute to changing the local social attitudes, “entertainment […] does not equate to cultural conversion. […] people interpret communications in terms of their own preexisting values and perspectives” (Huntington 1996: 59).

1.4 The Influence of the English Language on the Korean Language

International English borrows a large number of words from other languages, and, reciprocally, languages mix English with local words, sometimes with their original meaning being distorted. For instance, Koreans speak English inserting a lot of ‘Konglish’ expressions (such as ‘otobai’, ‘eye shopping’, ‘Korea team fighting!’), often to express local concepts in non-standard forms of English (different pronunciation, different semantic weight, etc.). The use of English

loanwords in the Korean language is also widespread in songs, on the outside of bars or businesses, in TV commercials, and the like. Although linguistic imperialism (Phillipson 1992) does not seem threatening yet, new mental structures could conceivably be imposed through English. Structural hybrids are impacting other languages in subtle ways, not only in the lexis and through the creation of new speech acts, but also in the grammar, like “redundant plurality” and “non-deletion of subjects” (Kachru 1994: 144) in the Korean language.

This does not mean that the Korean people will not retain their cultural identity: the average Korean, after all, is hardly capable of saying more than a few basic sentences in English. Yet English has sometimes been called a global threat and the teaching of English is thought to constitute a new form of Western colonization, especially in the outer circle. Phillipson (quoted in Bisong 1995: 127) writes:

> Since language is the means by which the culture of a people is disseminated, the imposition of English on the Periphery has also meant the imposition of the culture which the language bears.

While exposure does not mean conversion, it is not yet known what impact, if any, the spread of the English language might have on the cognitive processes of its users. Even Bisong (1995: 125) in his reply to Phillipson, appears to presuppose the existence of Whorfian effects in Nigeria:

> Why settle for monolingualism in a society that is constantly in a state of flux when you can be multilingual and more at ease with a richer linguistic repertoire and an *expanding consciousness* (my italics).

Could this type of linguistic influence have greater consequences than it is now commonly thought, as Whorf’s set of theories would imply? The present study will use Whorf’s principles as a starting point to assess, in the Korean context, the extent to which one’s language might determine one’s way of thinking.

CHAPTER 2
THE WHORF HYPOTHESIS: LITERATURE REVIEW

2.1 The Origins of the Whorf Hypothesis

The idea that language has a pervasive influence on the mind can be traced to Humboldt (1767-1835), a German romantic author, who argued that language is the formative organ of thought and that each language contains a unique 'Weltanschauung' (national character, world view). Therefore, to Humboldt (quoted in Ash 1999: para. 4) "Man lives in the world about him principally, indeed exclusively, as language presents it to him."

During the development of modern American anthropology through the fieldwork of Boas, language became an important tool to understand the inner functioning of non-Western societies. Boas (1911 in Lucy 1992a: 11-16) saw the grammar of a language as pointing to the speakers' world view and culture. He also stressed the importance of understanding foreign cultures in their own terms, just as it is necessary to analyze each language in terms of its own structure: cultural relativism foreshadows and parallels linguistic relativism, as Agar (1994: 57) explains:

> Linguistic relativity, and its more inclusive cousin, *cultural relativity*, summed up his critique of the Bad Data that the evolutionary approach had used. Grammatical differences existed, no question about that, but the presence of a difference didn't necessarily mean you could rank a language as more or less simple, as more or less "primitive," as more or less "evolved."

Boas also claimed that a language is a formally complete system that implicitly classifies experience, and that different languages automatically classify experience very differently and in ways which speakers remain unconscious of. To Boas, a language reflects (but does not dictate) the thought of the people who speak it since people speaking different languages must attend to different aspects of reality when communicating. Boas (quoted in Lucy 1992a: 15) writes:

> It is another question in how far the categories of grammar and the general classifications of experience may control thought… The obligatory categories of language differ fundamentally… It is obvious that the mental picture aroused by a spoken sentence will be fundamentally different according to these categories…

Sapir, Boas' student, took Humbold's research and expanded on it. Like Humboldt, Sapir (1921) believed that thought cannot exist without language, thus reversing Boas' claim that language simply reflects thought. To Sapir, thought, and especially conceptual thought, happens only *through* language: "Thought is nothing but language denuded of its outward garb" (Sapir 1921: 223). Sapir also believed, like Boas, that languages differ in important ways and vary without assignable limit in their implicit classifications of experience. Therefore, the belief that thought is tied to the language we speak implies the relativity of the form of thought, as Sapir (quoted in Lucy 1992a: 22) explains:

> Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood, but are very much at the mercy of the particular language which has become the medium of expression for their society… the 'real world' is to a large extent unconsciously built up on the language habits of the group.

2.2 Whorf's Linguistic Relativity Hypothesis

Whorf, Sapir's student, carried Sapir's theories to an extreme by arguing that people's thoughts and conception of the world are determined by the fashions of speaking made available by their language. Whorf saw the study of language and of culture as being the same thing, and agreed with Boas and Sapir that this connection between language and thought is an obligation, not a choice:

> Formulation of ideas is not an independent process, strictly rational in the old sense, but is part of a particular grammar, and differs, from slightly to greatly, between different grammars (Whorf 1956: 212).

But Whorf, unlike Boas and Sapir, also argued that since grammar is more resistant to change than culture, the influence from language (the general patterns in the grammar) to culture is predominant, although not strictly causal in nature:

> The “fashions of speaking” are closely integrated with the whole general culture. […] There are connections but not correlations or diagnostic correspondences between cultural norms and linguistic patterns” (Whorf 1956: 159).

To provide the first evidence of these claims, Whorf analyzed several American Indian languages and cultures and contrasted the world view of their people to that of Europeans to show how languages predispose speakers to view the world in different ways. In particular, he thoroughly compared the Hopi and European concepts of time to demonstrate that the way people experience fundamental concepts such as time, space, and events, can be culture-specific and thus, to a large extent, language-specific too: “Newtonian space, time, and matter are no intuitions. They are recepts from culture and language. That is where Newton got them” (Whorf 1956: 153). It is in that sense that the structures of a language can reveal the world view of its speakers; they do not directly cause it, although Whorf did presuppose that linguistic categories might determine aspects of non-linguistic thinking (categorization, memory, perception, etc.).

Overall, two main versions of linguistic relativity can be found in Whorf’s writings. ‘Linguistic relativism’, the weaker version, is summarized by Devitt and Sterelny (1999: 218) as the conjunction of the following claims:

1. All thinking is “in a language – in English, in Sanskrit, in Chinese” (1956: 252)
2. Each language structures a view of reality
3. The views of reality structured by languages, or at least by families of languages, differ.

In other words, the structure of a language merely influences our thoughts about the physical and social world and predisposes speakers of a language toward adopting a particular world view, as Whorf (1956: 214) explains:

> We are thus introduced to a new principle of relativity, which holds that all observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar, or can in some way be calibrated.

‘Linguistic determinism’, the stronger version of Whorf’s claims, asserts that the language we speak *determines* the way in which we interpret the world. Since language exists in our mind prior to our experience of reality, people with

different languages literally experience different realities. Whorf (1956: 213) writes:

> We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it in this way–an agreement that holds throughout our speech community and is codified in the patterns of our language. The agreement is, of course, an implicit and unstated one, BUT ITS TERMS ARE ABSOLUTELY OBLIGATORY.

The influence of language on one's mode of thought operates in part through the lexical terms, since having certain words to describe things ('codability') will make it easier to talk about them ('availability'). But Whorf (1956: 201) was much more concerned with the structural properties of language ('overt' and 'covert' categories), not only because of "the conservatism of grammatical patterns and their resistance to change as compared to simple lexical items," but also because he felt that grammatical categories could have stronger, albeit less clear, effects on the thoughts of its speakers due to their unconscious and repetitive use. Whorf, then, never believed that language determines all aspects of world view. He focused on how everyday, integrated fashions of speaking construct habitual thought which, by extension, influences behavior, as Hanks (in Gumperz and Levinson 1996: 234) explains:

> The key issue is not whether language form and use determine what people CAN think or experience, but rather the extent to which they influence what people usually DO think and experience.

While Whorf does appear to support the strong version of the hypothesis at some points and only the weak version at others, it is equally true that Whorf's theories have over the years often been vulgarized, overstated, and misinterpreted. Whorf also makes about just as many universalist claims as relativity statements in his writings, and probably saw his principles as starting points for his analytical work rather than as hypotheses or scientific truths.

2.3 Against Whorf: The Rise of the Cognitive Sciences

The Whorfian hypothesis seemed discredited by the rise of the cognitive sciences in the 1960s which, as Levinson (1996: 195) explains,

> emphasize the importance of universal constraints on many levels: the intrinsic structure of the world, the intrinsic structure of our perceptual cognitive apparatus, the universal structure of our syntactico-semantic system and even universal constraints on language usage.

This view questions a constant premise of Whorf's theories, which is that "the semantic structures of different languages might be fundamentally incommensurable, with consequences for the way in which speakers of different languages might think and act" (Gumperz and Levinson 1996: 2). According to Chomsky's nativism and the theory of universal grammar, however, all languages are actually syntactically similar at bottom and the diversity of rules is superficial. Therefore, languages and cognitive systems cannot vary without constraint but instead follow universal patterns that reflect common underlying structures of the human brain, as Devitt and Sterelny (1999: 190) explain:

> [T]here are grammatical rules common to all languages – rules described by "universal grammar" (UG) – which are innately known by speakers. This nativism requires, of course, an innate language in which to represent those rules: innate Mentalese.

Furthermore, whereas Sapir (1921: 4) conceived speech primarily as "a non-instinctive, acquired, 'cultural' function," Chomsky and other rationalists believe that many concepts and linguistic rules are largely innate, and that UG rules come from a language faculty which is distinct from other cognitive capacities. In Chomsky's (2002: 1) perspective, "language is a natural object, a component of the human mind, physically represented in the brain and part of the biological endowment of species." If indeed our thoughts are not dependent on words but are "couched in some silent medium of the brain -a language of thought, or "mentalese"- and merely clothed in words whenever we need to communicate them to a listener," as Pinker (1994: 45) believes, then Whorf's theory of linguistic relativity becomes difficult to formulate in any interesting way.

Nonetheless, and although many universals have been discovered and might represent basic mental similarities in human thought, there still is a wide enough array of structures across languages for the possibility of linguistic relativity to exist, as Levinson (in Gumperz and Levinson 1996: 141) argues:

> Let us remember that universals in no way guarantee uniformity, any more than variation implies the absence of universals. There are no acquired human skills that are not simultaneously supported by universal cognitive predispositions and transformed by specific cultural traditions."

Today most specialists subscribe to a moderate view of the Whorfian hypothesis, according to Brown (2000: 200) who argues that "while some aspects of language seem to provide us with potential cognitive mind sets […], we can also recognize that through both language and culture, some universal properties bind us all together in one world." Though it is true that words do not always express our thoughts very well, thoughts and feelings remain vague unless they are processed through language. Even if thought is possible without language, it is still essential to study the extent of the influence (if any) of language on our habitual thought processes and whether it affects our cognition in any significant way.

2.4 Tests of the Whorf Hypothesis: Anthropological Linguistics, Comparative Psycholinguistics, and Recent Approaches

Since the 1950s, the Whorf hypothesis has caused controversy and spawned research in a variety of disciplines including anthropology, linguistics, psychology, and education. Yet many experiments did not really test what Whorf meant, and so very little convincing empirical research has actually been conducted over the past fifty years. The results of several studies in different fields (see below) appear to support at least the weaker version of Whorf's hypothesis ('linguistic relativism'), but overall the results remain controversial and difficult to interpret.

2.4.1 Approaches in Anthropological Linguistics

Up until the end of the 1950s, evidence about whether language influences how people think comes largely from anthropological linguistics. Lucy (1992a: 69-83) described the works of Lee (1959), Mathiot (1964), and Hoijer (1964) who,

during ethnographic case studies, analyzed grammatical patterns of Indian languages to assess the relation between linguistic categories and the culture and world view of its speakers. The main problem with these approaches is their overwhelming focus on language: there is no attempt to provide nonlinguistic data to evaluate the cognitive outcomes of the isolated linguistic patterns, so Whorf's ideas were not really tested in any proper way.

2.4.2 Approaches in Comparative Psycholinguistics: Lexical Coding of Color

A popular cultural domain which was studied several times after Whorf published his theories is the set of linguistic terms used for colors. It was deemed suitable to seek Whorfian evidence because "every language has a set of terms for colors, though the number of these terms varies from one language to another. Viewers looking at a rainbow see an undivided series of colors, one color grading into another, while as speakers of different languages they will divide this spectrum differently" (Rosman and Rubel 1989: 31). Lennenberg and Brown (1954) conducted intra-cultural studies on the lexical coding of color and found out that English-speaking subjects were better able to re-recognize those colors which are easily named in English. Nevertheless, this type of study, according to Lucy (1992a: 260), shifted away from the sort of data essential to Whorf's work since this approach deals with lexical items of only one language, which "led to the complete elimination of any concern with structures of meaning or grammatical differences among languages."

The first cross-cultural studies of basic color terms and category boundaries were conducted by Berlin and Kay (1969), who discovered that universal basic color terms emerge regardless of language or culture but that the way the color categories available in a language divide the color spectrum will organize the speakers' experience in a particular way (see Agar 1994: 74-5). Kay and Kempton (1984), in a similar comparative study, found out that where differences among color-term systems exist, similar perceptual differences will be obtained: English speakers' perceptions were distorted in the blue-green area while speakers from Tarahumara, who lack a blue-green distinction in their language, showed no

distortion (see Lucy 1992a: 183).

Overall though, “research on colour perception has not generally found strong experimental support […] because only lower levels of linguistic processing have been tested, whereas linguistic relativity theory is most likely to operate at grammatical levels and above” (Taylor and Yavalanavanua 1998: 154). Moreover, color terms have a special status because perception, pre-structured by the nervous system, is clearly distinct from language-related thinking, as Whorf himself had realized: “visual perception is basically the same for all normal persons past infancy and conforms to definite laws, a large number of which are fairly well-known” (1956: 163).

2.4.3 Approaches in Comparative Psycholinguistics: Grammatical Categories

There has been some investigation of the notion that linguistic relativity theory is most likely to operate at grammatical levels, but results remain equivocal too. Carroll, Casagrande, and Maclay in the late 1950s conducted cross-linguistic comparisons of grammatical differences and the consequences on individual nonlinguistic response, mainly through preferences in picture and object sorting. These experiments are few in number but they are the first studies which bring together cultural and linguistic analysis and experimental assessment of individual behavior. (These are described in more detail in section 2.5.2 because their framework serves as a model for the present study in the Korean context.)

Bloom (1981; see also Lucy 1992a: 209-52) also focused on grammatical patterns by carrying out various experiments based on the linguistic patterns used to express hypothetical and counterfactual reasoning in English and Chinese. But while Bloom concluded that Chinese speakers are unable to express hypothetical situations and think in counterfactual terms due to the marginal presence of corresponding grammatical patterns in their language, Au (1983) identified serious flaws in his experiments and argued that the differences between the two groups of speakers would vanish if these flaws were fixed (see Pinker 1994: 56-7). Lucy (1992a: 216) also argued that though Bloom raised some important issues

related to the Whorfian hypothesis, he “emphasized the cognitive effects of certain specialized uses of grammatical structures rather than the effects of everyday patterns of use on habitual thought and behavior.”

More recently, Lucy (1992a, b) thoroughly compared the grammar of American English with that of Yucatec Maya focusing on the number marking patterns and evaluated (through various classification and memory tasks) whether distinctive patterns of thought relating to these linguistic differences emerged. He concluded that his studies support the Whorfian hypothesis since “the specific linguistic patterns of Yucatec and English corresponded with observable patterns of individual cognitive performance” (Lucy 1992b: 156).

2.4.4 Recent Approaches and Other Relevant Studies

There has been a resurgence of interest in the Whorf hypothesis in the 1990s. Researchers have expanded the range of the hypothesis by focusing on patterning beyond the grammatical and lexical levels, such as on practical language uses and conversational practices based on Hymes’ (1972) ethnography of speaking and the investigation of how differences in cultural patterns affect the production and interpretation of speech events (see Gumperz and Levinson 1996: 225-30). For instance, Agar (1994) was concerned with cultural variation in the use of interpretative frames. Other non-referential functions of language have also been studied (e.g., social, expressive, aesthetic, religious).

Finally, various other studies have proved to be of importance for the study of the influence of language on the mind. For instance, cases of deaf children offer direct evidence related to Whorf’s ideas, although they raise the question about what exactly can be counted as ‘thought’. The strong version of the hypothesis, linguistic determinism, is falsified if it can be shown that conceptual thinking is possible independently of language. Pinker (1994: 57-9) argues that this is the case since deaf children are capable of nonverbal thought, but several experiments show that language does play a crucial role in shaping one’s conceptual thought, such as in Peterson and Siegal's ‘Sally doll’ test (1995):

> Here therefore we have direct evidence that language moulds cognition. Two groups of otherwise identical and normal children have been raised in linguistic environments which differ in one specific domain, and found to show a specific cognitive difference. Thus we can infer that at least in some cases language-specific cognitive development exists and thus at a cross-culture level language might potentially shape cognition as suggested by the Sapir-Whorf hypothesis (Skoyles n.d.: last paragraph).

Cooke Brown's (1955) artificial language also deserves mention since his LOGLAN ('Logical Language') project was specifically designed to test the Whorf hypothesis by constructing a culturally neutral language so as to separate language and culture and facilitate the evaluation of the impact of a language on the thought of its speakers. No significant result concerning Whorf's claims has been released yet, and this artificial language is now being used for various other purposes (see Leith 1998).

2.5. Background for the Study in the Korean Context

As will be illustrated below, the present study uses the grammatical analysis of English and Korean path verbs (i.e., for expressing the notion of Path: the manner or cause of a motion) done by Bowerman (in Gumperz and Levinson 1996: chap. 6) and follows the short tradition of grammatical psycholingustics by using a similar framework to the one that Carroll and Casagrande's used in their cross-cultural studies.

2.5.1 The Work of Bowerman and Choi

Bowerman (1996: 145-76) compared and contrasted the use of path verbs and prepositions to describe spatial relations in English and in Korean. She first used four examples of common spatial actions (see Appendix I, Figure 1): putting an apple in a bowl (a), putting a cup on the table (b), putting a video cassette in its case (c), and putting a fitted lid on a container (d). She argued that English speakers, if faced with deciding which novel situation also qualifies as an instance of the same spatial relation as picture 'a', would choose situation 'c' because their language uses the same preposition in both situations to express 'containment'. By the same token, they would also extend 'on' from situation 'b' to situation 'd' to express 'support' in both cases. Furthermore, she pointed out that Koreans

would probably match up the pictures differently due to the different semantic classification of these four actions in their language (see Appendix I, Figures 2 and 3). Bowerman (1996: 161-5) then compared and contrasted how the most common path verbs in English and in Korean encode a variety of common spatial events. In particular, she compared the different areas of referential equivalence between the uses of the verb 'kkita' in Korean and the verbs 'put in', 'put on', and 'put together' in English. She argued (1996: 163) that "kkita, loosely glossable as 'fit,' was responsible for the differences between English and Korean shown earlier [in appendix I]. A more detailed look at how Kkita cross-cuts the territory of English Path particles is given [in appendix II]." Finally, Bowerman (1996: 170) concluded that there is a strong "possibility that, after all, spatial thought – undeniably one of our most basic cognitive capacities – bears the imprint of language."

2.5.2 The Framework of Carroll and Casagrande's Studies

Lucy (1992a: 193-208) described the work of Carroll, Casagrande, and Maclay as "comparative studies of the functions of language classifications in behavior." These researchers emphasized that since languages vary substantially in their way of fitting the continuous world of experience into discrete linguistic categories, lexical and grammatical differences among languages might have important effects on the nonlinguistic behavior of individual speakers, which is what all three specialists tried to test experimentally.

Carroll (1958) worked with the Hopi language and the fact that many Hopi lexical verbs referring to physical activities have a semantic structure different from corresponding English verbs. Lucy (1992a: 196) writes:

> Carroll created a triads sorting task using line drawings. Each of the 17 items in his task consisted of a set of three drawings (A, B, C): two (A, C) could be referred to by the same verb in Hopi, two (B, C) could be referred to by the same verb in English, and two (A, B) formed a neutral combination. Adult speakers of English and of Hopi were asked to indicate which two pictures went together and to explain why.

It was found that although the explanations given by the speakers for their choices varied a lot, the results were in the predicted direction. One of Carroll's recommendations for further studies was to ask subjects to choose which of the two pictures (A or B) goes with a fixed picture (C).

Casagrande (1958) did a similar study on children using triads of objects to compare the effects of the obligatory use of verb stems signaling 'form' in the Navaho language and their absence in English. Ten pairs of objects were used, each of which differed in two respects among color, shape, and size. Then, as Lucy (1992a: 199) explains,

> after being presented with a pair of objects, the child was shown a third object similar to each member of the pair in only one of the two relevant characteristics, but of course matching neither, and was asked to tell the experimenter which of the pairs went best with the object shown to him.

The expectation was that the Navaho speakers would favor 'shape' choices due to the grammar of their language, and that the English speakers would not. Results of the study were also in the predicted direction, and this led Casagrande to conclude that language, perhaps together with other factors, can encourage a tendency to classify world view in certain ways.

Maclay (1958) also carried out a similar experiment with adults to test the effects of the same Navaho verbs that Casagrande used. According to Lucy (1992a: 203),

> Maclay's classification task involved twelve items each consisting of four objects to be grouped into two pairs. Items were construed so that groupings could be made on the basis of "Form" (the operationlization of the Navaho verb categories), "Function or Material," or "Color."

Maclay's hypothesis was also that Navahos would be encouraged to pay attention to form because of the bias toward 'form' in their language, but the three sets of speakers performed remarkably alike on his task.

2.5.3 Shortcomings of Previous Studies

Lucy (1992a: 207-8) identified some weaknesses of these past studies in their adequacy for testing for linguistic relativity. In particular, he pointed to the weakness of the linguistic analyses, which focused solely on an obligatory category and were for the most part confined to a single language: all three studies merely involved the contrast between the presence of one pattern in a language and its absence in another. Taking these methodological considerations into account, this will not be the case in the present study, since Bowerman (1996) precisely described the different uses of structures expressing spatial actions in both Korean and English to construe a common reality, while also showing that the items form a systematic functional part of each language. Lucy also argued that there were few arguments linking the experimental tasks to everyday behavior in these studies, which is somewhat the case in the present study too, since the experimental tasks do not really represent everyday behavior. Nevertheless, not only is this difficult to simulate, but Bowerman and Choi (2001 in Levinson 2003: 305) have produced research related to the impact of the linguistic structures used in this study on the spatial cognitive development of children in everyday life situations. Therefore, there is little doubt that these linguistic categories do have some nonlinguistic effect on one’s everyday habitual behavior, especially considering their high frequency of use.

CHAPTER 3
TESTING THE WHORF HYPOTHESIS: DESIGN AND METHODOLOGY

3.1 Necessary Components for New Tests

The difficulty of understanding what the Whorf hypothesis states precisely, the interdisciplinary nature of the area, and the complexity involved in interpreting the results of an experiment with certainty, are some of the main reasons why few thorough empirical studies have been conducted to date to investigate Whorf's theories. Furthermore, another inherent problem with the hypothesis is that "it requires the measurement of human thought. Measuring thought and one's world view is nearly impossible without the influence of language, another variable being studied. Researchers settle for the study of behavior as a direct link to thought" (Ash 1999: para. 12). To prove Whorf's linguistic determinism in an inescapable way, Roger Brown (1958: 262) even argues that one would have "to show that an independently defined linguistic pattern has either historical or biographical priority over the thought pattern it is supposed to determine."

However, for a small experimental task in the Korean context, the best we are likely to do is get some hints at how language might influence thought. According to Lucy (1992a: 263-4), Whorf's hypothesis involves language and thought, so data pertinent to both should be collected. The research must compare/contrast grammatical categories of at least two languages, and should also thoroughly describe the way the selected linguistic patterns construe (albeit in a different way) a common, external non-linguistic reality. The language patterns should also be habitually used in everyday talk. The implications of the language differences for habitual thought may be evaluated through simple non-linguistic cognitive tasks involving attention, memory, classification, etc. to see whether or not linguistic structures produce cognitive differences.

3.2 A Cross-Linguistic Study of English and Korean Speakers

The present study aims at evaluating the influence of language on the mind of native English and Korean speakers by comparing how the two groups categorize pictures of common spatial actions. Other possibilities were considered, such as testing the contention that "English foregrounds spatial concepts and backgrounds hierarchical concepts, while Korean does the opposite: foregrounding hierarchical concepts and backgrounding space," (Slautterback and Kim 2002: 42) by comparing picture descriptions; or evaluating the effects of the singular/plural distinction which is mandatory in English but usually optional in Korean by using memory tasks. But, Bowerman's (1996) thorough linguistic analysis of spatial categorization in English and Korean shows a lot of potential for further tests in which to seek Whorfian evidence. Furthermore, the ability to categorize, whether it is used on events, emotions, or spatial relationships, is one of the most powerful skills available to us, according to Shortall (2002: 1) who argues that "although it is unclear whether the ability to categorize is innate or learned, the very act of categorizing seems to play an important role in language use and language learning."

3.2.1 Space in Language and Cognition

Spatial conceptualization is also central to human cognition and is at the heart of our thinking. Space is completely continuous; yet to talk about motion and location each language partitions space into a discrete number of basic spatial categories, as Feist and Gentner (2002: 1) explain:

> Spatial prepositions exhibit striking cross-linguistic variability […] This semantic variability suggests that there is a wide variety of plausible encodings consistent with the perceptual input. Thus, this arena may provide fruitful ground for the investigation of Whorfian effects.

Indeed, spatial prepositions and path verbs expressing spatial events vary a lot across languages. For example, Bowerman's charts (1996: 154-57) show the very different uses of prepositions in the semantic classification of static spatial configurations in Dutch, Finnish and English. Such differences can be used to explore the possible correlations between the linguistic structures utilized in

spatial description and non-linguistic cognition in order to evaluate how we might divide up space in a particular way because of our native language. For example, Levinson (2003: xix) argued that "there are robust correlations between frames of reference used in language and frames of reference used in non-linguistic memory and reasoning, suggesting a major 'Whorfian' effect on language and cognition."

3.2.2 Research Questions and Hypothesis

As described in section 2.5, Bowerman has thoroughly analyzed the way in which some selected linguistic patterns in two different languages (Korean and English) construe (albeit in a different way) a common semantic domain (that of spatial actions). Yet no test was given to verify whether these differences in language have an impact on everyday life categorization by adult subjects, which is what the present study offers to do by testing Bowerman's (1996: 150) assumption that English and Korean speakers would sort the four pictures of spatial actions (a, b, c, d) in different ways due to the structure of their language. Specifically, the task employed in this study asks whether the different uses of the path verbs identified by Bowerman (Appendix II) can have an influence on the way English and Korean speakers encode spatial actions, and will use a framework similar to that used in Carroll's experiment (1958) for comparison purposes.

Triads of pictures will be shown to English and Korean speakers. Carroll's recommendation to ask subjects to choose which of the two pictures (A or B) goes with a fixed picture (C) will be followed. A point of referential equivalence or overlap between expressions in the two languages will be selected and used for picture C. Picture A of each triad will represent an action that is expressed in a similar way in English, but not in Korean, while picture B will represent an action that is referred to by the same verb in Korean, but not in English. For example, picture C might represent the act of putting a video cassette in its case. In English, the verb 'put in' is used, whereas the verb 'kkita' is used in Korean. Picture A will represent the act of putting an apple in a bowl, which is also expressed with the same verb 'put in' in English, but is expressed with a different one in Korean ('nehta'). Picture B will represent the act of putting a fitted lid on

a container, which is expressed with the same verb ‘kkita’ in Korean, but is expressed with a different one in English (‘put on’). The prediction is that if a language category groups specific referents together, then subjects should also group them similarly in nonlinguistic behavior. It is thus hypothesized that English speakers will consistently put together pictures A and C, while Koreans will tend to put together pictures B and C, based on the way their language classifies the spatial events presented to them. To make sure that the way the participants match the pictures is dependent on language, they will also be asked to give explanations for their choices.

The task overall fits Lucy’s requirements and remains in the spirit of Whorf’s writings: the study is comparative; the two languages compared belong to two different families (Indo-European for English, Altaic for Korean); the linguistic structures are precisely and substantively described and contrasted by Bowerman; the specific path verbs are part of a ‘fashion of speaking’ cutting across the categories in the two languages and are frequently used in everyday life (i.e., habitual, not specialized, thought); data pertinent to the implications of the language differences for habitual thought and the mind will be collected through a simple cognitive task involving nonlinguistic behavior (picture sorting without speaking); and the hypothesis for the tasks establishes a precise correspondence between a specific linguistic phenomenon and a specific nonlinguistic response.

3.3 Method

3.3.1 Subjects and Research Sites

Twenty native English speakers and 20 native Korean speakers (see Table 3.1) were asked to take part in the experiment. The English-speaking subjects (10 males and 10 females) are North-American and British instructors working in Korea. The Korean participants (10 males and 10 females) are Chung-Ang University students. The subjects performed the task in the afternoon in various silent places (on campus, in coffee shops, etc…) to reduce the influence of extraneous factors such as noise.

Table 3.1 – ***Population of the study: English and Korean participants***

Native English speakers

	Gender	Name	Estimated Age	L1 Background
1	M	Darrell	24	Canada
2	M	Peter	55	USA
3	M	Richard	45	Canada
4	M	Cameron	50	Canada
5	M	Troy	28	Canada
6	M	Gary	31	USA
7	M	Lorne	37	Canada
8	M	Craig	30	Canada
9	M	Mark	45	USA
10	M	James	31	Canada
11	F	Lisa	35	USA
12	F	Sarah	30	USA
13	F	Emily	27	England
14	F	Heather	35	Canada
15	F	Allison	25	Canada
16	F	Sally	25	Canada
17	F	Elizabeth	30	USA
18	F	Heather	45	Canada
19	F	Laura	40	Ireland
20	F	Hannah	25	Canada

Native Korean speakers

	Gender	Name	Estimated Age	L1 Background
1	M	BoHyun	27	Korea
2	M	YoungKwang	20	Korea
3	M	Song	20	Korea
4	M	Park	20	Korea
5	M	SangKyu	22	Korea
6	M	Hyuk	22	Korea
7	M	DaeHoon	25	Korea
8	M	EunBum	25	Korea
9	M	DaYoungul	20	Korea
10	M	Young	20	Korea
11	F	YoonKyung	20	Korea
12	F	EunHyun	20	Korea
13	F	SeByul	20	Korea
14	F	Gunnim	20	Korea
15	F	KyungSun	20	Korea
16	F	JeongBin	20	Korea
17	F	Hwa	20	Korea
18	F	MinJi	20	Korea
19	F	HeeJeong	20	Korea
20	F	YoonKyung	20	Korea

3.3.2 Test Material: The Six Triads

Six sets of three pictures (approximately 5 cm x 5 cm each) were used. The three pictures for triad 1 were taken directly from Bowerman's article (1996: 150). I drew the others in a similar style. The first triad represents the example given in 3.2.2. The other triads are built in the same way by using the different categories of Bowerman's (1996: 163-4) grammatical analysis. The six triads involve the six possible combinations between the same verb in Korean ('kkita') and three different verbs in English ('put in', 'put on', and 'put together'). 'Kkita' is the Korean verb which Bowerman has analyzed in depth, and using it for all six triads could yield interesting results if large differences were obtained across the triads. (See Appendix III for the pictures and detailed explanation of each triad).

3.3.3 Instrumentation of the Task

Potential participants were asked if they would take part in a survey. The exact purpose of the study was not specified so as to not influence the participants in their choices during the experiment. The procedure went as follows and lasted approximately five minutes for each participant:

Step 1: I told the participant: "I am going to show you six sets of three pictures. Each picture represents a spatial action. First I will show you one picture for ten seconds, then I will show you two more pictures and will ask you to select which of those two pictures best matches the spatial action drawn on the first picture. Do you understand?" The participant was then shown picture C for 10 seconds.

Step 2: The participant was shown pictures A and B simultaneously and was given 10 seconds to choose the picture that best matches the first picture.

Step 3: The participant was asked to explain (in English) the choice made. Attention was also paid to the body language of the participant in the event that gestures related to the corresponding linguistic structures were made ('in' or 'on', for example).

The same procedure was repeated for every set of pictures. The conversations were tape-recorded for verification and reliability purposes. I also noted down the choices and the explanations of the participants during the experiment (see Tables 4.1, 4.2, and Appendix IV).

CHAPTER 4
RESULTS AND DISCUSSION

4.1 Data Analysis: Overall Trends

Results of the experiment showed that the choices and explanations given by the participants revealed less regularity than expected. While most subjects immediately focused on the spatial actions depicted in the pictures, some subjects focused on other aspects of the pictures instead. Furthermore, some participants unexpectedly sorted some of the pictures based on chronology (one action usually coming before another one), or on the type, size, or social function of the objects, etc. For example, English male 1 for triad 3 said, “You do it with your fingers, whereas this is done with the whole hand,” and Korean female 10 for triad 1 answered, “After I watch a video tape I eat an apple.” (For larger portions of the subjects’ responses and explanations, see Appendix IV.)

There was also little difference between the responses given by the two groups of participants. Indeed, when 70%, for example, of English speakers chose picture A, then in most cases approximately 30% of Koreans chose picture B (that is, 70% of them chose picture A.) This goes directly against the hypothesis outlined for this study: while a majority of English speakers did indeed select pictures A as predicted, so did Korean speakers, when a majority of them were expected to select pictures B. There were also few differences between the two genders, except for triads 4 and 5. Finally, the use of some form of appropriate body language was similar across the two groups but also varied greatly within both groups and genders.

4.2 Results for the Six Triads

To start with, Table 4.1 shows the results of the classification task with English speakers. As predicted, the majority of them selected picture A over picture B on all the triads except for triad 4, where both genders overwhelmingly chose picture B. English speakers typically used verbs such as *go into, put on, fix, place, fit*

together, jam together, fit into, put into, etc. to explain why they chose picture A. For example, English male 3 on triad 2 said, “It’s a *putting on* as opposed to a *fitting into*” and English female 2 for triad 5 answered, “It’s putting something into the mouth, not fitting something together, so it doesn’t match.” (For larger portions of the English subjects’ responses and explanations, see Appendix IV, section 2.) These expressions match the English structures that the pictures were supposed to depict.

Table 4.1 - *Results of the classification task with English speakers*

	Subject identification number and gender																			
	1 M	**2** M	**3** M	**4** M	**5** M	**6** M	**7** M	**8** M	**9** M	**10** M	**11** F	**12** F	**13** F	**14** F	**15** F	**16** F	**17** F	**18** F	**19** F	**20** F
Picture 1	A	A	A	A	B	A	A	A	B	A	B	A	A	B	A	A	A	A	A	A
Explanation	1*	0	1	1*	1*	1	1*	1*	0	1*	0	1*	1	0	1	1*	1*	1	0	1
Picture 2	B	A	A	A	A	A	A	A	A	A	B	A	A	A	A	A	B	A	A	A
Explanation	0*	0	1	0*	1	1	1*	0	0	1*	1	0	1*	1	1	1	0	1*	1	1*
Picture 3	B	B	A	A	A	A	A	A	B	A	A	B	A	A	A	A	B	A	A	A
Explanation	1*	0*	1	1	0	1	1*	1*	0	1	0	0	1*	1*	1*	1	0*	1	1*	1
Picture 4	B	B	B	B	B	B	A	B	B	B	B	A	B	B	B	A	B	B	B	B
Explanation	1	1*	1	1	0	0	0*	1	1*	1	1	0	1*	0	1*	0	1*	1*	1	0
Picture 5	A	B	B	A	B	B	A	A	B	B	A	A	A	A	B	A	A	A	B	A
Explanation	0	0	1*	1	0	1	0	0	0	1	1*	1	0	1*	0	1	1*	0	0	1
Picture 6	A	A	A	A	B	B	A	A	A	B	A	B	B	A	B	A	B	B	A	A
Explanation	1	0	1	0	1	1	1	1*	1	0	1*	0	0	1	0	1*	1*	0	1	1

M = Male
F = Female

A, B = Picture chosen to match the given pictures (C)

Explanation = subject's explanation during the task.

1 = The explanation given is directly related to the structure of the subject's language.

0 = The explanation given is not directly related to the structure of the subject's language.

* = Presence of non-linguistic or paralinguistic means of expression related to the corresponding linguistic structures.

Table 4.2 shows the results of the classification task with Korean speakers. Contrary to the hypothesis, the Korean participants did not consistently select picture B the way their language should supposedly have led them to, as they selected picture A often in comparable proportions to English speakers. For example, when 80% of English speakers chose picture A for the first triad, 25% of Koreans chose picture B. Only for triad 4 did a majority of Koreans select picture B, which is precisely the one triad where most English speakers also selected picture B. When choosing picture B, Korean speakers typically used verbs and expressions such as *put something, fit, complete, put in, take out, connect, put back to its right place,* etc. For example, Korean male 8 for triad 4 said, "Cap and puzzle place part in part to make the whole" and Korean female 9 for triad 5 answered, "Put in the mouth, put in the case, similar action." (For larger portions of the Korean subjects' responses and explanations, see Appendix IV, section 3.) These expressions are very similar to the ones used by English speakers, especially since Korean subjects had a more limited range of words in their English vocabulary to express these spatial notions. Some Koreans sometimes used the exact Korean verb that the picture was supposed to depict, but in all cases still chose picture A. This clearly shows that the presence - and even the use - of a linguistic structure does not necessarily lead one to categorize reality in a certain way.

Table 4.2 - ***Results of the classification task with Korean speakers***

	Subject identification number and gender																			
	1 M	**2** M	**3** M	**4** M	**5** M	**6** M	**7** M	**8** M	**9** M	**10** M	**11** F	**12** F	**13** F	**14** F	**15** F	**16** F	**17** F	**18** F	**19** F	**20** F
Picture 1	A	B	B	A	A	A	A	A	A	A	A	A	A	B	B	A	A	A	B	A
Explanation	1*	1*	0	1*	1*	1	1*	1	1*	1	1*	1	0*	0	1	1	1*	1*	1*	0
Picture 2	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	A	A
Explanation	1	0	0	1	0	1	0*	0	1*	1	1*	1	1	1*	1	1	1*	0	1*	1
Picture 3	A	A	A	B	A	A	B	B	B	B	A	A	B	A	A	A	A	B	A	A
Explanation	1*	1*	0	1*	1*	0	1*	1*	1*	1*	1*	1	1*	0	0	1*	1*	0	1*	0
Picture 4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	A	A
Explanation	0*	1*	1*	0	1*	1*	1	1	1	1	1*	1*	0*	1	0	1*	1*	0	0*	0
Picture 5	A	A	A	B	B	A	A	B	A	B	A	A	A	A	A	A	A	B	A	A
Explanation	0	1	0	1	1*	0	0	1	0	1	0	1	1	0	0	1	1	0	1	0
Picture 6	A	A	B	A	A	A	A	B	A	B	B	A	B	B	B	A	B	B	B	A
Explanation	0	0	1*	1	1*	1*	1*	1*	1*	1*	1	1*	0	1	1*	1*	0	1*	0*	0

M = Male
F = Female

A, B = Picture chosen to match the given pictures (C)

Explanation = subject's explanation during the task.

1 = The explanation given is directly related to the structure of the subject's language.

0 = The explanation given is not directly related to the structure of the subject's language.

* = Presence of non-linguistic or paralinguistic means of expression related to the corresponding linguistic structures.

The case of triad 4 shows some surprising results: whereas a majority of both English and Korean speakers selected picture A for the five other triads, both groups overwhelmingly selected picture B for triad 4. It is also the triad which seemed to require the most reflection from the participants. I verified the way the triad was constructed and saw no particular flaw in the design. Instead of matching picture C (putting a cap on a pen) with picture A (putting a cup on the table) because of the common linguistic structure (‘put on’) that the pictures depict, most English speakers chose picture B (putting a piece in a puzzle). Perhaps picture A looked remote from picture C in too many ways (such as the hand on picture A that is absent on picture C), or perhaps there were other links between pictures C and B that were too obvious to disregard (such as the arrows on pictures B and C which are absent on picture A). Most subjects based their choices on the fact that pictures B and C show two pieces completing one another while making a clicking sound. It would be useful to replicate the study with triad 4, but with a change in picture C (adding a hand doing the action, for example, or changing the spatial action altogether) or in pictures A or B (re-drawn without the arrows or the dashes) to see if this surprising trend persists. If it does, then it could be that the English language does not express the concept of ‘putting a cap on a pen’ very well and that English speakers, despite the structure of their language, simply perceive the pen as going ‘into’ instead of ‘on’ the cap.

4.3 Statistical Comparisons

Table 4.3 compares the percentages of participants (based on their L1 and gender) who chose the predicted picture, regardless of the explanation they gave. The overall percentages are remarkably similar among the two groups. 60% of male English subjects chose picture A, compared to 58% for male Korean speakers (42% of them chose picture B). 65% of female English speakers chose picture A, the same percentage as female Korean speakers (35% of them chose picture B). The trends in the predicted direction were clearer with English females than with English males by a small margin (65% and 60%, respectively), but clearer with Korean males than with Korean females by an equally small margin (42% and 35%, respectively). Overall, a little over 60% of English speakers chose picture A

(over 70% if triad 4 is left out), which is nearly the same as for Korean speakers. The similarities in the overall percentages for each triad also show that both groups chose the same picture in very similar proportions.

There are a few notable differences, however, within the two groups. A majority of English speaking males (but not females) chose picture B for triad 5, and half the females chose B for triad 6. A majority of females (but not males) also chose picture B for triad 6, and half the males selected picture B for triad 3. It is difficult to draw conclusions from these small variations since the overall trends look quite unidirectional. More subjects would be needed to confirm these trends and make them statistically reliable. Finally, the first two triads tended to have a higher percentage of participants choosing picture A (80-90%), whereas the last two had more moderate percentages (around 60%).

Table 4.3 - ***Percentage of subjects choosing the predicted picture***

	English speakers (A)			**Korean speakers (B)**		
	Male	Female	Overall	Male	Female	Overall
Picture 1	80% (8/10)	80% (8/10)	80% (16/20)	20% (2/10)	30% (3/10)	**25%** (5/20)
Picture 2	90% (9/10)	80% (8/10)	85% (17/20)	10% (1/10)	10% (1/10)	**10%** (2/20)
Picture 3	70% (7/10)	80% (8/10)	75% (15/20)	50% (5/10)	20% (2/10)	**35%** (7/20)
Picture 4	10% (1/10)	20% (2/10)	15% (3/20)	100% (10/10)	70% (7/10)	**85%** (17/20)
Picture 5	40% (4/10)	80% (8/10)	60% (12/20)	40% (4/10)	10% (1/10)	**25%** (5/20)
Picture 6	70% (7/10)	50% (5/10)	60% (12/20)	30% (3/10)	70% (7/10)	**50%** (10/20)
Overall % (Pictures 1-6)	**60%**	**65%**	**62.5%**	**42%**	**35%**	**38.5%**

Table 4.4 compares the percentages of participants who chose the predicted picture *and* gave an appropriate explanation directly related to relevant linguistic structures. This table is perhaps the most useful to draw conclusions from since it removes those participants who chose the predicted pictures based on reasons other than linguistic ones. Compared to Table 4.3, all the percentages are slightly lower (down around 15-20% on average) but remain consistent in that the overall trends are not altered, which shows that the ability to provide an appropriate explanation is closely related to the participants' choice in the predicted direction. Overall 46.5% of English speakers and 27.5% of Korean speakers chose the predicted picture while giving an appropriate explanation. The trends in the predicted direction were still clearer with English females than with English males by a larger margin (53% and 40%, respectively), and still clearer with Korean males than with Korean females by a larger margin too (35% and 20%, respectively). Once again, triad 4 was the only triad to yield surprising results: not a single English speaker, male or female, chose picture A while giving a proper explanation, while a large proportion of Koreans who selected picture B were able to give an explanation related to linguistic structures.

Table 4.4 - *Percentage of subjects choosing the predicted picture* and *giving an explanation closely related to linguistic structures*

	English speakers (A)			**Korean speakers (B)**		
	Male	Female	Overall	Male	Female	Overall
Picture 1	70% (7/10)	70% (7/10)	70% (14/20)	10% (1/10)	20% (2/10)	15% (3/20)
Picture 2	50% (5/10)	70% (7/10)	60% (12/20)	0% (0/10)	0% (0/10)	0% (0/20)
Picture 3	60% (6/10)	70% (7/10)	65% (13/20)	50% (5/10)	10% (1/10)	30% (6/20)
Picture 4	0% (0/10)	0% (0/10)	0% (0/20)	80% (8/10)	50% (5/10)	65% (13/20)
Picture 5	10% (1/10)	60% (6/10)	35% (7/20)	40% (4/10)	0% (0/10)	20% (4/20)
Picture 6	50% (5/10)	50% (5/10)	50% (10/20)	30% (3/10)	40% (4/10)	35% (7/20)
Overall % (Pictures 1-6)	**40%**	**53%**	**46.5%**	**35%**	**20%**	**27.5%**

Finally, Table 4.5 recaps the presence of non-linguistic or paralinguistic means of expression related to the corresponding linguistic structures in the subjects' answers. For example, some subjects moved their hands so as to express the concept of 'connection', or mimicked the idea of putting an object into something. Participants displayed such appropriate form of body language rather inconsistently: some participants in both groups frequently displayed some form of body language for all six pictures, some did not at all. 34% of English speakers and 45% of Koreans did so. A few Koreans did not know expressions such as 'put together' in English, using more general ones instead (e.g., unify, bring closer, put), which may explain why overall Koreans displayed more body language to compensate for their lack of precise vocabulary. Nevertheless, there was a balance between the genders: male and female speakers displayed appropriate forms of body language in relatively equal proportions. Sets 3 and 4 were conducive to a more frequent use of body language from the participants, perhaps because they required more reflection. Set 5 provoked little use of body language, especially among Koreans, and set 6 provoked a more frequent display of body language among Koreans (60%) than among English speakers (20%). It is difficult to make sense of these few small variations in the chart due to the small number of participants. It is to be noted that the use of proper body language does not guarantee that the participants' choice of picture or explanation is the expected one. As such, a combination of '0' and '*' in Tables 4.1 and 4.2 is possible.

Table 4.5 - ***Percentage of subjects displaying some relevant form of non-linguistic or paralinguistic means of expression during the task***

	English speakers (A)			**Korean speakers (B)**		
	Male	Female	Overall	Male	Female	Overall
Picture 1	60% (6/10)	30% (3/10)	45% (9/20)	60% (6/10)	50% (5/10)	55% (11/20)
Picture 2	40% (4/10)	30% (3/10)	35% (7/20)	20% (2/10)	40% (4/10)	30% (6/20)
Picture 3	50% (5/10)	50% (5/10)	50% (10/20)	80% (8/10)	50% (5/10)	65% (13/20)
Picture 4	30% (3/10)	40% (4/10)	35% (7/20)	50% (5/10)	60% (6/10)	55% (11/20)
Picture 5	10% (1/10)	30% (3/10)	20% (4/20)	10% (1/10)	0% (0/10)	5% (1/20)
Picture 6	10% (1/10)	30% (3/10)	20% (4/20)	70% (7/10)	50% (5/10)	60% (12/20)
Overall % (Pictures 1-6)	**33.5%**	**35%**	**34%**	**48.5%**	**42%**	**45%**

4.4 Discussion

While the findings cannot be seen as completely reliable in part because of the rather small sample size, they nonetheless clearly reveal a tendency opposite to the predicted direction. In the case of triad 1, which used Bowerman's (1996) own pictures, both groups consistently selected picture A over picture B. While Bowerman is correct in arguing that the English language and the Korean language categorize these spatial actions in different ways, the present study clearly shows that this does *not* necessarily lead individuals to categorize them the way their language does.

There may be various reasons why there were no significant differences between the choices made by the two groups of participants. The pictures selected for this study could have been misleading in some cases, such as for triad 4 where most participants chose picture B, or for triad 6 where several participants asked what exactly picture 6A was supposed to represent (bristle-blocks). That some subjects attended to details other than the spatial actions themselves might have also

affected the participants' choices and thus played a role in shaping the results obtained. Moreover, the number of participants was probably too small to reveal if there were any consistency in the results obtained, although the overall trends do clearly lean in the same overall direction. Some subjects also might not have spent enough time reflecting on the pictures before choosing one, as shown by the incapability of some participants to justify their choices when giving an explanation.

Of course, the main reason could well be that the findings simply do not provide support for Whorf's hypotheses in this particular context. It could be that language does influence spatial encoding and memory but only when there is overt use of language, as Gumperz and Levinson (1996: 10) hypothesized: "perhaps the effects are confined to the process of speaking itself, not all ways of putting things imply ways of thinking, and not all thought is in a form related to language at all." This would fit Slobin's (in Gumperz and Levinson 1996: 70-96) 'thinking-for-speaking' hypothesis, which states that "linguistic influences exist only when one performs a linguistically-mediated task" (Feist and Gentner 2002: 1); that is, during the process of converting thoughts into words, and perhaps neither before ('experiencing-for-speaking') nor after ('spoken thoughts'). Bowerman (1996: 169) concluded her own study of English and Korean speakers with similar observations:

> [T]he principles of categorization needed for language may be relevant ONLY for language and play no other role […] That is, non-linguistic spatial cognition may be uniform across cultures, drawing entirely on language-neutral organizing principles."

One way of verifying this would be to replicate the same experiment using a *verbal* task, rather than a nonverbal one, and to compare the results between the two experiments.

CHAPTER 5
IMPLICATIONS AND CONCLUSION

5.1 Summary of Findings

The present study has attempted to test the Whorf hypothesis by carrying out a simple task to evaluate the influence that language operates on the mind of its speakers in the categorization of spatial events. Although the results did not support the hypothesis that language determines the way speakers categorize reality, it may still support Slobin's (1996) theory of 'thinking-for-speaking', which states that language might have non-linguistic effects only when speakers convert thoughts into words. Nonetheless, other recent studies related to language and spatial thought, such as Levinson's (2003) experiments, have shown that language does have an impact on the mind of its speakers in the conceptualization of space.

5.2 Theoretical Implications

Testing Whorf's theory of linguistic relativism helps determine to what degree linguistic factors rule the expression of certain conceptual domains. While the present study did not yield results that support the Whorf hypothesis in this particular context, it is quite possible that Whorf's principles are valid in some contexts but less in others. Thanks to the development of the cognitive sciences, Keller and Keller (in Gumperz and Levinson 1996: 115) argue that today the prevailing assumption is that thinking is not a unified kind of process but that instead mental activity occurs in different modes:

> Language, imagery, sensorimotor representation, and emotion are among the forms in which ideas can be constructed, manipulated, and revised. Each of these cognitive modalities is a distinct system involving multiple information-processing components operating independently as well as interactively. […] However, there is no reason to assume that language dominates the integrative processes or to assume that imagery, sensorimotor or other cognitive representations are rooted in linguistic patterns.

If this modular theory is correct, then the thesis of linguistic relativity may need to be redesigned with this in mind. Yet Slobin's (1996) theory of thinking-for-

speaking also implies that although thought occurs in different ways, language would still be predominant for structuring thought for expression in linguistic form in most cases. For example, Feist and Gentner (2002: 6) concluded their own study in the following way:

> In these experiments, we examined the question of whether spatial language influences the encoding and memory of spatial relations presented visually. [...] our evidence supports the view that language can affect encoding when it is present, but not the strong Whorfian view that non-linguistic perception is shaped by the language one speaks. [...] Our results are compatible with Slobin's (1996) thinking-for-speaking hypothesis. […] On this view, language potentiates kinds of encodings rather forcing them.

In a broader sense, Whorf's theories also have deep philosophical implications on the nature of thought and the interpretation of reality. European thought since antiquity has long expressed the dualism between rationalism or classicism (favoring universalism, 'nature') and romanticism (favoring relativism, 'nurture/culture'). It is not surprising that Whorf's ideas find their origins in the work of Humboldt, a Romantic writer, whereas Chomsky, for instance, follows the classical rationalist perspective of studying language as a mirror of the mind. Philosophically, Whorfian constructivism has been associated with Kant's theories of worldmaking and idealism, which assert that physical entities are dependent on minds for their existence and are mere "appearances" created by an act of human imposition, and opposed to the positivist/realist concept of reality which states that entities exist independently and externally to the mind (see Devitt and Sterelny 1999: 233-54). Historically these two complementary sides have successively been fashionable, and so while Whorf's theories fell out of popularity in the 1960s, the recent resurgence of his ideas among specialists is perhaps not unexpected and might persist for another cycle of a few decades.

5.3 Practical Implications for Language Teaching

Besides philosophical/theoretical implications, studies investigating linguistic relativism are helpful to evaluate the degree to which the relationship between language, thought, and identity affects the learning (L1 and L2) and the teaching

of certain concepts. Since the present study showed no major differences between English and Korean speakers' categorization of spatial events, it can be inferred that English spatial terms will be acquired without any difficulty and probably do not need much emphasis in the L2 syllabus in Korea, as they hold true for both the L1 and the L2. One exception may be related to the verbs used in triad 4 where Korean learners may at first use 'put a cap into a pen' instead of 'put a cap on a pen'. Nevertheless the importance of language in the shaping of spatial thought cannot be underestimated, as Bowerman and Choi (in Levinson 2003: 305) have shown in the Korean context:

> [Y]oung infants are sensitive to the language-specific semantics of spatial terms in their language. […] Korean and English eighteen-month-old infants correctly attend only to the distinctions relevant to their language. […] In the same implicit categorization tasks, adults seem unable to adopt the pattern of the other culture.

However, if universalists are correct in arguing that people think in a language of thought and that knowing a language simply means knowing how to translate 'mentalese' into words, then learning a language, as described by Clark (quoted in Levinson 2003: 14), is simply a question of mapping words onto concepts:

> [T]he child acquires English expressions for space and time by learning how to apply these expressions to the *a priori* knowledge he has about space and time… The exact form of this knowledge, then, is dependent on man's biological endowment […] and in this sense it is innate.

Even if space relations are a conceptual area which, like colors, does not vary much across languages, it is probable that general cognitive development and linguistic development go hand in hand. On the one hand, if the influence of language on the mind were absolutely dominant and no universal processes existed in the acquisition of both L1 and L2, it would be difficult to account for the many people who have mastered second/foreign languages in a short period of time. Second language learners do not have to learn to think all over again but can make positive use of their L1 to facilitate the learning process. On the other hand, if our first language had no influence on our minds, it would be difficult to explain why many fail to learn an L2 even if languages are commensurable at the grammatical level. Language teachers would therefore do well to subscribe to a

moderate view of the Whorfian hypothesis. Since language acquisition is the main process through which conceptual structure develops, starting to learn a second language at an early age would also be most beneficial, as Slobin (1996: 89) explains:

> Children are guided by the set of grammaticized distinctions in the language to attend to such features of events while speaking… This training is carried out in childhood and is exceptionally resistant to restructuring in adult second-language acquisition […] For example, it is very hard for English-speakers to grasp the Spanish perfective/imperfective distinction that is lacking in our native language. In fact, we seem never to master this system fully in Spanish.

This is a proof that although speakers of all languages may all be *capable* of making all these distinctions, what they actually *do* in everyday life is very different.

Despite borrowing many words from English, the biggest issue in Korea seems to be that of cultural, rather than linguistic, imperialism. Yet cultural knowledge plays an important part in increasing communicative competence, since language and culture do not exist independently, as Sapir and Whorf showed. In Agar's (1994: 22) words, "you can't *use* a new language unless you change the consciousness that is tied to the old one," so teachers need to impart some cultural norms when teaching a language, as Holmes (2001: 275) explains:

> Learning another language usually involves a great deal more than learning the literal meaning of the words, how to put them together, and how to pronounce them. We need to know what they mean in the cultural context in which they are normally used. And that involves some understanding of the cultural and social norms of their users.

Cultural concepts should be introduced smoothly to enhance the students' language skills and foster understanding while showing respect for the students' first language and cultural background, especially in cases of large social distance like in Korea. It is essential for language teachers to be aware of the L2 culture of their L2 learners to prevent such cases as the one described by Fox (2001: 6) in Australia to happen:

> The study of aboriginal discourse demonstrates a preference for spatial ordering, as well as a mental fusion of past and present […] that appears, to most teachers at the elementary school level, as "inattentiveness." The linguistic rules of Aboriginal English effectively shape the culture of Australia's aborigines and encourage the non-temporality in the aboriginal mindset, despite repeated efforts by Anglo educators to eliminate "chaos" for the sake of the conformity with the Eurocentric values of linear logic.

Linguistic relativism also calls for a much reduced use of the L1 in the classroom and shows the need to encourage learners to 'think in English' as early as possible, instead of constantly having them translate back and forth to the L1 and adjust their thoughts to the new language. Activities based around grammar-translation (still very common in Korean public schools) should be used sparingly to give priority to authentic materials and appropriate input. For example, Slobin (1996: 91) writes:

> [T]here is nothing in everyday sensorimotor interactions with the world that changes when you describe an event as "She **went** to work" or "She **has gone** to work," or when you refer to the same object in successive utterances as "**a** car" and "**the** car." Distinctions of aspect, definiteness, voice, and the like, are *par excellence*, distinctions that can only be learned through language, and have no other use except to be expressed in language. They are not categories of thought in general, but categories of thinking for speaking.

5.4 Suggestions for Further Studies

For replications of the present study or variations of it, a few recommendations could be helpful to obtain more reliable results. Overall, there is a need for more controlled tasks/procedures that take into consideration the methodological issues that this study has brought to surface. First, the English and Korean verbs used in the experiment need to have their meanings and usages checked by more than one native speaker for verification and consensus. Second, the sample pictures should be designed and drawn very carefully, because even small details could influence the participants' choices as shown by this study. Third, pre-testing some of the triads while clearly specifying to the subjects what to focus on without giving away too much would be useful to increase the probability of having them attend to the relevant aspects of the pictures. Trying out triad 4, for instance, with a different drawing for picture A, could also yield interesting results. Finally, the sample size needs to be enlarged to increase the chance of obtaining more

consistent and reliable results. The subjects selected should also be motivated, as some participants who took part in the present study put more thought into their answers than others. It would be interesting to observe, for example, whether those subjects who spent sufficient time before answering were more likely to choose pictures in the predicted direction.

This study has chosen spatial actions for investigation; it would be useful for future studies to compare the findings obtained here with other studies that use different methods to evaluate the influence of language on the mind of English and Korean speakers (e.g., verbal instead of nonverbal memory tasks, such as picture descriptions), or with studies that investigate other domains of thought (e.g., other types of spatial events, temporal events, or events related to other functions of language – social, religious or aesthetic, for instance.) The generality of language-based predictions could also be assessed by comparing the treatment of the spatial actions used in the present study in other languages, and then by evaluating their speakers' categorization of these actions, which might help us reveal whether it is indeed the linguistic structures that produce any related cognitive differences that may be revealed.

5.5 Concluding Remarks

The world needed a global language, and English, by acquiring a wide array of functions, satisfied this need and is now the world's way of communicating interculturally. Nevertheless, it should be remembered that "even if one third of the world is now regularly exposed to English, […] this still means that two thirds are not" (Crystal 1997: 96). It is thus unlikely that the English language has any significant impact on the mind of those speakers with limited knowledge of English, but it is still essential to preserve linguistic and cultural diversity, if just for the potential range of human thought and creativity it contains, and because cultural maintenance across generations is best performed by the local language.

APPENDIX I: Four Spatial Actions and Their Semantic Classification in English and Korean (Bowerman in Gumperz and Levinson 1996: 150-53)

Fig. 1.1 *Four spatial actions*

Fig. 1.2 *Semantic classification of four actions in English*

Fig. 1.3 *Semantic classification of four actions in Korean*

APPENDIX II: Comparison of the Korean Verb *kkita* with English *put in*, *put on*, *put together*, and other verbs. (Bowerman in Gumperz and Levinson 1996: 164)

APPENDIX III: The Six Triads: Pictures and Explanations

Fig. 2.1: Triad 1

Picture C: put in / kkita

Picture A: put in / nehta

Picture B: kkita / put on

Fig. 2.2: Triad 2

Picture C: put on / kkita

Picture A: put on / ssuta

Picture B: kkita / put together

Fig. 2.3: Triad 3

Picture C: put together / kkita

Picture A: put together / yongyollata *Picture B: kkita / put in*

Fig. 2.4: Triad 4

Picture C: put on / kkita

Picture A: put on / nohta *Picture B: kkita / put in*

Fig. 2.5: Triad 5

Picture C: put in / kkita

Picture A: put in / nohta *Picture B: kkita / put together*

Fig. 2.6: Triad 6

Picture C: put together / kkita

Picture A: put together / yongyollata *Picture B: kkita / put on*

Triad 1:

Picture C represents the act of putting a video cassette in its case. In English, the verb ‘put in’ is used; in Korean, the verb ‘kkita’ is used.

Picture A represents the act of putting an apple in a bowl. This is expressed with the same verb ‘put in’ in English, but with a different one in Korean (‘nehta’).
Picture B represents the act of putting a fitted lid on a container. This is expressed with the same verb ‘kkita’ in Korean, but with a different one in English (‘put on’).

Triad 2:

Picture C represents the act of putting glasses on. In English, the verb ‘put on’ is used; in Korean, the verb ‘kkita’ is used.

Picture A represents the act of putting a hat on. This is expressed with the same verb ‘put on’ in English, but with a different one in Korean (‘ssuda’).
Picture B represents the act of putting Lego pieces together. This is expressed with the same verb ‘kkita’ in Korean, but with a different one in English (‘put together’).

Triad 3:

Picture C represents the act of putting Lego pieces together. In English, the verb ‘put together’ is used; in Korean, the verb ‘kkita’ is used.

Picture A represents the act of putting toy train cars together. This is expressed with the same verb ‘put together’ in English, but with a different one in Korean (‘yongyollata’).
Picture B represents the act of putting glasses in a glasses case. This is expressed with the same verb ‘kkita’ in Korean, but with a different one in English (‘put in’).

Triad 4:

Picture C represents the act of putting a cap on a pen. In English, the verb ‘put on’ is used; in Korean, the verb ‘kkita’ is used.

Picture A represents the act of putting a cup on a table. This is expressed with the same verb ‘put on’ in English, but with a different one in Korean (‘nohta’).
Picture B represents the act of putting a piece in a puzzle. This is expressed with the same verb ‘kkita’ in Korean, but with a different one in English (‘put in’).

Triad 5:

Picture C represents the act of putting glasses in a glasses case. In English, the verb ‘put in’ is used; in Korean, the verb ‘kkita’ is used.

Picture A represents the act of putting a cigarette in the mouth. This is expressed with the same verb ‘put in’ in English, but with a different one in Korean (‘nohta’).
Picture B represents the act of putting Lego pieces together. This is expressed with the same verb ‘kkita’ in Korean, but with a different one in English (‘put together’).

Triad 6:

Picture C represents the act of putting Bristle-blocks pieces together. In English, the verb ‘put together’ is used; in Korean, the verb ‘kkita’ is used.

Picture A represents the act of putting toy train cars together. This is expressed with the same verb ‘put together’ in English, but with a different one in Korean (‘yongyollata’).
Picture B represents the act of putting a ring on a finger. This is expressed with the same verb ‘kkita’ in English, but with a different one in Korean (‘put on’).

APPENDIX IV: Sample Answers Given by English and Korean Participants during the Experiment

1. *Examples of answers given by participants who did not attend exactly to the right aspect of the picture.*

Triad 1:
English female 7: "I see two hands holding an item… but here only fingers are holding the item."
Korean female 10: After I watch a video tape I eat an apple."

Triad 2:
English male 9: "This is putting on clothing, accessories for fashion, not building."
Korean female 8: "Glasses two circles and toys two circles… match."

Triad 3:
English male 1: "You do it with your fingers, whereas this is done with the whole hand."
English female 3: "These are building objects… rather than personal items."

Triad 4:
Korean male 6: "Cap and puzzle are one part of whole."
Korean female 3: "After I finish something I drink a cup of coffee and take a rest."

Triad 5:
English male 2: "Because of the similarity of the hand, the structure of the hand."
English male 6: "Smoking a cigarette is a continuous process, but the other picture shows completion."

Triad 6:
English male 1: "It reminds me of the train tracks."
Korean male 2: "Both are toys for the pleasure."

2. *Typical answers given by English speakers for the six triads.*

Triad 1:
English male 3: “One is putting into, one is putting on top.”
English male 4: “Entry into a container, inserting, whereas here it appears to be holding.”
English female 4: “Both putting something into something smaller.”
English female 5: “Putting it in a case, or taking it from the case, same as putting in a bowl.”

Triad 2:
English male 3: “Again it’s a ‘putting on’ as opposed to a ‘fitting into’.”
English male 6: “It’s fixing or putting onto the body as opposed to an inanimate object.”
English female 1: “It’s putting on clothing, accessory; adding, not building.”
English female 10: “The way they’re adjusting… putting it on I guess.”

Triad 3:
English male 4: “Putting something perfectly in place in order for them to fit perfectly, not jamming them together using two hands.”
English male 7: “It’s an ‘into’ again. It’s a ‘click into’ as opposed to a ‘set into’.”
English female 1: “They’re joining two things together. The other picture is a kind of habit motion, a reflex.”
English female 5: “It’s a coupling, an attachment, the items belong together.”

Triad 4:
English male 8: “It’s fitting something together, it makes a clicking sound. Completing the puzzle is like completing the pen, they belong together.”
English male 9: “Obviously ‘into’ and ‘on’. Inserting something into its proper place.”
English female 6: “It goes with the puzzle best, adding a piece, completing it.”
English female 8: “Again you have to fit two things together.”

Triad 5:
English male 5: “We’re dealing with body parts. We’ve switched from ‘in’ to ‘into’, I consider the cigarette as going into.”

English male 10: “Both are being contained by something larger; not attached, or connected.”
English female 1: “In this case I’m looking for some connection based on ‘in’, as the Lego blocks completing each other. I don’t see a connection with the cigar.”
English female 2: “It’s putting something into the mouth, not fitting something together, so it doesn’t match.”

Triad 6:
English male 3: “You’re fitting these together, whereas the ring doesn’t fit, you put it on, not like on the other pictures.”
English male 4: “I see two cars clicked onto each other, a clicked on motion, unlike the ring on the finger.”
English female 1: “The blocks and the trains are put together.”
English female 6: “All three fit something together, but toys you put them together, whereas the ring is just… the toys and the trains are more alike.”

3. *Typical answers given by Korean speakers for the six triads.*

Triad 1:
Korean male 3: “Put in, hands put in tape, looks like put apple.”
Korean male 7: “The actions are similar, it’s put in the case and put peach in the basket.”
Korean female 2: “Because putting something in it, or taking something out, other picture nothing to put in.”
Korean female 7: “Put in the tape into the box, and this is fruit into the bowl, same action.”

Triad 2:
Korean male 3: “Same, put on glasses and put on hat, on face.”
Korean male 7: “He’s wearing some glasses, and here wearing a hat.”
Korean female 1: “Take glasses or put hat, same image.”
Korean female 2: “Putting on the glasses and putting on a hat, same thing, both wearing something, but the other picture is not.”

Triad 3:

Korean male 1: “Hands try to connect one thing to another one; that’s how I see it.”

Korean male 3: “Hands left and right unify, not put down.”

Korean female 2: “It’s connecting something and this is too. Other picture is putting in.”

Korean female 6: “Both connect two same parts.”

Triad 4:

Korean male 1: “By doing this action the position of these are being closed, not completed but closed.”

Korean male 8: “Cap and puzzle place part in part to make the whole.”

Korean female 4: “Because they match, back to its right place.”

Korean female 7: “Puzzle into puzzle table same as cap and pen put together.”

Triad 5:

Korean male 2: “Glasses go in the pack, cigarette in body.”

Korean male 4: “Two parts of Lego not same as insert, put in.”

Korean female 2: “Put something in somewhere. Cigarette and glasses.”

Korean female 9: “Put in the mouth, put in the case, similar action.”

Triad 6:

Korean male 4: “Gear match exactly, but ring doesn’t match finger exactly.”

Korean male 8: “Linking trains and toys.”

Korean female 2: “Same thing, they have connection, two sets are supposed to match.”

Korean female 7: “This part and this part are match. The ring doesn’t match finger exactly.”

REFERENCES

‘Internet + English = Netglish.’ (n.d.). *BBC News*. (2001, March 23). http://news.bbc.co.uk/1/hi/uk/1235945.stm. Accessed 01/24/04.

‘Soaring spending for overseas study.’ (n.d.). *The Korea Times*. (2003, July 31). http://times.hankooki.com/lpage/opinion/200307/kt2003073115360011300.htm. Accessed 01/24/04.

Agar, M. 1994. *Language Shock: Understanding the Culture of Conversation*. New York: Quill / William Morrow.

Ash, R. 1999. ‘The Sapir-Whorf Hypothesis.’ http://www.angelfire.com/journal/worldtour99/sapirwhorf.html. Accessed 01/29/04.

Baker, M. 2001. *The Atoms of Language: The Mind’s Hidden Rules of Grammar*. New York: Basic Books.

Bisong, J. 1995. ‘Language Choice and Cultural Imperialism: A Nigerian Perspective.’ *ELTJ* 49/2: 122-32.

Bowerman, M. 1996. *The Origins of Children’s Spatial Semantic Categories: Cognitive Versus Linguistic Determinants*. In J. Gumperz. and S. Levinson (Eds.): 145-76.

Brown, H.D. 2000. *Principles of Language Learning and Teaching*. New Jersey: Prentice Hall.

Brown, R.W. 1958. *Words and Things*. New York: The Free Press (Macmillan)

Carroll, J.B. (Ed.) 1956. *Language, Thought, and Reality: Selected Writings of Benjamin Lee Whorf*. Cambridge, Mass.: MIT Press.

Chomsky, N. 2002. *On Nature and Language*. Cambridge: CUP.

Coupland, N. & Jaworski, A. (eds.) 1997. *Sociolinguistics: A Reader and Coursebook*. New York: Palgrave.

Crystal, D. 1997. *English as a Global Language*. Cambridge: CUP.

Devitt, M. & Sterelny, K. 1999. *Language and Reality: An Introduction to the Philosophy of Language*. Cambridge: MIT Press.

Feist, M. & Gentner, D. 2002. 'An Influence of Spatial Language on Recognition Memory for Spatial Scenes.' http://www.hcrc.ed.ac.uk/cogsci2001/pdf-files/0279.pdf. Accessed 01/29/04.

Fox, T. 2001. 'TEFL as imperialism or empowerment?' *Hwa Kang Journal of TEFL, number 7*, 137-150. http://www.geocities.com/CollegePark/Classroom/1930/Journal/May2001/Fox--5Ease.html. Accessed 01/24/04.

Gumperz, J. & Levinson, S. (Eds.) 1996. *Rethinking Linguistic Relativity*. Cambridge: CUP.

Hanks, W. 1996. *Language Form and Communicative Practices*. In J. Gumperz. and S. Levinson (Eds.): 232-70.

Holmes, J. 2001. *An Introduction to Sociolinguistics. (2nd ed.)* London: Longman.

Huntington, S.P. 1996. *The Clash of Civilizations and the Remaking of the World Order*. New York: Touchstone.

Kachru, B. 1994. ‘Englishisation and contact linguistics.’ *World Englishes* 13/2: 135-54.

Kaplan, R. 1987. ‘English in the language policy of the Pacific rim.’ *Word Englishes* 6/2: 137-48.

Keller, C. & Keller, J. 1996. *Imaging in Iron, or Thought is not Inner Speech*. In J. Gumperz. and S. Levinson (Eds.): 115-29.

Kramsch, C. 1998. *Language and Culture*. Oxford: Oxford University Press.

Leith, A. 1998. ‘What is LOGLAN?’ www.loglan.org/what-is-loglan.html. Accessed 01/29/04.

Levinson, S. 1996. *Relativity in Spatial Conception and Description*. In J. Gumperz. and S. Levinson (Eds.): 177-202.

Levinson, S. 2003. *Space in Language and Cognition: Explorations in Cognitive Diversity*. Cambridge: CUP.

Lucy, J.A. 1992a. *Language Diversity and Thought: a Reformulation of the Linguistic Relativity Hypothesis*. Cambridge: CUP.

Lucy, J.A. 1992b. *Grammatical Categories and Cognition: A Case Study of the Linguistic Relativity Hypothesis*. Cambridge: CUP.

Lucy, J.A. 1996. *The Scope of Linguistic Relativity: An Analysis and Review of Empirical Research*. In J. Gumperz. and S. Levinson (Eds.): 37-69.

Morrison, R. (2002, May 29). ‘The Englishing of Earth. *The Times Online.*’ http://www.xefl.com/article18.html. Accessed 01/24/04.

Phillipson, R. 1992. *Linguistic Imperialism*. Oxford: Oxford University Press.

Pinker, S. 1994. *The Language Instinct: How the Mind Creates Language*. New York: Perennial Classics.

Rosman, A. & Rubel, P. 1989. *The Tapestry of Culture: An Introduction to Cultural Anthropology. (3rd ed.)* New York: Random House.

Sapir, E. 1921. *Language*. New York: Hartcourt, Brace, and World.

Shortall, T. 2002, August. 'Prototype Theory.' Personal communication: The University of Birmingham.

Skoyles, J. n.d. 'The Sapir-Whorf Hypothesis: New Surprising Evidence.' http://www.users.globalnet.co.uk/~skoyles/swh.htm. Accessed 01/29/04.

Slautterback, T. & Kim, I. 2002. 'Cultural Conceptions and Descriptive Accuracy in the Cognitive Analysis of English and Korean.' *The Journal of English Grammar - The English Grammar Society of Korea* Vol.6-1: 39-55.

Slobin, D. 1996. *From "Thought and Language" to "Thinking for Speaking."* In J. Gumperz. and S. Levinson (Eds.): 70-96.

Taylor, R. & Yavalanavanua, S. 1998. 'Linguistic Relativity in Fiji: A Preliminary Study.' http://spjp.massey.ac.nz/books/bolitho/Chapter_17.pdf. Accessed 01/29/04.

Wardhaugh, R. 1986. *An Introduction to Sociolinguistics. (3rd ed.)* Oxford: Blackwell.

Whorf, B. L. 1956. *Language, Thought, and Reality: Selected Writings of Benjamin Lee Whorf* (ed. J. B. Carroll). Cambridge: MIT Press. (Original works written 1927-41.)