

WHY ENGLISH PASSIVE IS DIFFICULT TO TEACH (AND LEARN)

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Introduction

As many ESL and EFL teachers know from experience, teaching the meanings, uses, and functions of the passive voice represents one of the thorniest problems in L2 grammar instruction, and speakers of many L1s appear to have difficulty with passive constructions. However, the uses of passive structures are common in academic writing (Talmy, 1988), and advanced learners are often expected to produce written texts that utilize passive forms. Because learners often do not use passive verb phrases in correct forms, much of the L2 instruction associated with the passive voice includes the derivation of passive structures from active. For example, *The average American seeks independence. ... Independence is sought by the average American.* (Steer and Carlisi, 1998, p. 263)

The presentation of the passive verb form in simple tenses (present or past) is usually followed by the demonstration of passive verb forms in various tenses, such as progressive (*The letter is being written (by Mary)*) or perfect (*The book has been read (by John)*). Most grammar textbooks provide exercise drills for various passive structures that often require learners to identify the tense and the voice of the verb in the context of a sentence or a short passage and produce the appropriate verb form.

A vast majority of grammar textbooks include a chapter on the meanings, forms, and uses of the passive voice, and most L2 learners at intermediate and higher levels of proficiency have studied the derivation of passive structures and worked through the exercises. Nonetheless, when it comes to L2 production in speaking or writing, many learners even at advanced levels often do not form passive constructions correctly and do not use it in appropriate contexts. For example,

- (1) *I am sorry I did not come to class this morning. *I am suffered from a cold and feel terrible.*
- (2) *I'd like to schedule an appointment with you because I want to help my brother register for classes? ??My brother was picked up by me at the airport last night, and he is staying at a hotel near campus.*

In (1), the passive form of the verb is ungrammatical because *suffer* is an intransitive verb (i.e. it does not take a direct object), from which the passive cannot be derived. However, the questionable sentence in (2) seems somewhat inappropriate and stilted in the context of a relatively informal request for an appointment.

Although the teaching of L2 grammar almost always includes passive, investigations into L2 language learning have not been able to identify the features of the English passive that make it difficult for L2 learners to use appropriately. In one of the few studies devoted to the L2 use of passive, Master (1991) indicates that NNSs need to be explicitly taught the use of active verbs with inanimate nouns because they can become a formidable obstacle in L2 production. He explains that non-native speakers (NNSs) and, in particular, speakers of Asian languages often have difficulty with active verbs with inanimate subject nouns. For example, in *A thermometer measures the temperature* (p. 15), *the thermometer* is an inanimate noun that in English can be used with an active verb *measures*. Master points out that speakers of Japanese have difficulty with such sentences because, in their perception and due to L1 interference, animate subjects are

needed in sentences with active verbs. He demonstrates that in English active or passive constructions, the notion of noun animacy does not appear to play an important role in sentences with inanimate and abstract nouns, which are frequently found as sentence subjects. He comments that the use of the active or passive voice in English sentences usually does not depend on the animacy of the subject noun, and the use of active verbs with inanimate subjects is a common phenomenon.

In L2 learning, other researchers have identified the constraints that the notion of lexical animacy imposes on the acquisition of various L2 syntactic and semantic features, such as the active or the passive voice. According to Pfaff (1987), L2 developmental systems of adult learners of German appear to be sensitive to L1 and L2 lexical animacy. She points out that in sentences with the active voice, intermediate learners almost always introduce animate nouns, identified by gender/case markers in German as subjects, and inanimates are commonly used as objects. Similarly, Bates, *et al.* (1982) conducted an experiment to determine whether the notion of lexical animacy plays a role in how English-speaking learners of Italian and Italian-speaking learners of English identify syntactic and/or lexical features of nouns to comprehend L2 active and passive structures. Their findings indicate that in sentence comprehension, the speakers of English relied almost exclusively on word order, while Italians focused on predominantly lexical and semantic animacy, marked by inflections.

Methodologies for teaching the active and passive voice in English as L2 usually do not focus on noun animacy and the attendant semantic constructs, such as agentivity (the capacity of the entity expressed by the subject noun to perform the action expressed by the verb) and patienthood (the effect of the action on the entity, expressed by the object noun). For example, in *John kicked the ball*, *John* is the agent of the action *kicked*, and *the ball* is the patient. On the other hand, in **The ball kicked John*, *the ball* cannot be the agent of the action because it is an inanimate (and nonsentient) noun. Although the noun capacity for agency seems to play an important role in grammaticality (or ungrammaticality) of active or passive structures in English, in L2 teaching, presenting the syntactic features and stylistic implications of the active and passive voice uses is often considered sufficient. In fact, in their substantial volume, Quirk, *et al.* (1985) devote two brief mentions to the agentivity and patienthood of animate and inanimate nouns, and Alexander (1988) and Wardhaugh (1995) do not include these lexical notions in their works on the teaching of grammar. In general, little research has addressed the effect of noun animacy on L2 learning and use of L2 passive constructions.

In linguistics, however, many researchers have reported that lexical and semantic features of nouns cannot be studied in isolation from their syntactic functions and pragmatic uses (DeLancey, 1990, Silverstein, 1987). For example, in *The hammer hit the nail*, *the hammer* is the instrument rather than an agent (Levin and Rappaport, 1991). Functions of nouns can restrict or expand the number and the type of their lexical features. Bock and Kroch (1989) comment that such notional categories as subjecthood and the animacy of nouns may be affected by the syntactic and lexical features of active and passive phrases in which they occur. They note that lexical features of nouns and, for instance, their capacity for subjecthood, cannot be examined in isolation from the "grammatical vocabulary" and language systems that "manipulate the features of that vocabulary" (p. 173).

Although the findings presented in this paper are preliminary and require further investigation before definitive conclusions can be made, the overarching goal of the study is to increase teachers' awareness of linguistic features that are prominent in many languages other than English and that may crucially affect the learners' ability to process and use passive voice constructions in English. This investigation compares NS and NNS subjective evaluations of lexical animacy of noun and noun phrases. The impact of these evaluations on NS and NNS

grammaticality judgments of L1 and L2 passive constructions is also examined. Because in many languages other than English, lexical animacy of nouns is closely tied to notions of agentivity (and subjecthood) and verb transitivity, these attendant semantic and lexical characteristics of sentence constituents are also discussed. Suggestions and activities for teaching English passive structures in context are also provided.

Animacy, Nouns, and Entities

In the next two sections, a brief review of some of the relevant literature is not meant to serve as a basis for instruction, but rather suggests the complexity of the lexical and semantic issues NNSs may encounter when learning to understand and use the passive voice in English. This overview lays the ground work for the study and the teaching strategies that can be derived from it.

Because lexical animacy of nouns is a universal lexical and semantic characteristic, practically all studies of language typologies examine its influence on grammar and syntactic features of various languages. For example, Croft (1990) points out that typologically, the hierarchy of animacy establishes the "values" (p. 115) of noun categories with a "cascading" set of features. He states that animacy values of both animate and inanimate nouns often play a crucial role in the syntactic structure of a sentence and the "grammatical behavior" (p. 117) of nouns, such as human, nonhuman animate, and inanimate common nouns. However, he also observes that it is not possible to establish with certainty animacy values of inanimate nouns and pronouns relative to human common nouns. In his view, lexical animacy appears to be a fluid category that may vary, depending on the syntactic and phrasal features of nouns.

Armstrong, L. Gleitman, and R. Gleitman's (1983) study demonstrated that identifying semantic features of noun categories appears to be difficult (if at all possible) because the concepts that represent category-specific semantic features are often graded and may be only loosely associated with a particular entity. They specify that even prototypical features of common nouns, e.g. *bird*, *vehicle*, or names of fruits and terms of kinship may defy precise characterization. In fact, they proposed a dual (rather than a unified) structure of semantic concepts for prototypical categories for nouns and (meta)physical categorization of objects. As has been mentioned, similar constraints may apply to the conceptual and gradient features of noun animacy in phrases and a metaphysical characterization of entities and changes in their objective properties. In their detailed examination of lexical animacy in several languages, Straus and Brightman (1982) also found that objective properties of entities, such as size, temperature, physical and behavioral environments, color, and other states, are variable and have a great deal of impact on the perceived lexical animacy of nouns that denote these entities. For example, in several languages, *a tree* remains animate until it is cut into firewood or sticks, which are inanimate. Straus and Brightman note that cooking, harvesting, breaking, and tearing change the state of entities and, therefore, the animacy of nouns that refer to them.

In his seminal work on the English systems of nouns, Talmy (1988) stipulates that to varying degrees, languages can ascribe intrinsic force properties to physical entities that are not sentient, e.g. *wind*, *a dam*, and *a ball*. He points out that in many languages other than English, nonsentient entities that are subjects of active verbs are merely seen as agents of the action described by the verb and that another entity that caused the action is usually implicit, e.g. *The ball rolled* (moved by the wind or a person). However, in English, the entity that causes the action is not always implied, and the subject of an active verb is psychologically assigned a conceptual "entityhood" (p. 94), as is common in scientific and technical written discourse, e.g. *The molecule folds in a way that protects the site*. Talmy specifies that in such sentences, events

are "recognized as if in isolation" from their actual causal forces and are seen as autonomous abstractions.

Animacy, Agency, Verb Transitivity, and Other Relatives

In language studies, examinations of the animacy of subject nouns and their capacity for agentivity (and subjecthood), have been accompanied by those of syntactic and semantic features of verbs and nouns as direct objects. In particular, verb transitivity (the capacity to take or not to take direct objects) has been identified as an important factor that affects the syntactic structure of sentences. Hopper and Thompson (1980), who outlined the prototypical features of transitivity, stipulate that, among other considerations, transitivity pivots on such parameters as the subject noun capacity for agentivity (e.g. human or gradiently animate), the action capacity of verb meanings, volitionality of the subject noun, and lexical characteristics of direct objects. Taken together, these and other features of nouns and verbs can make sentences "more or less transitive" (p. 253).

In his analyses of diverse language systems, DeLancey (1985, p. 3) advances the Hopper and Thompson framework of agentivity and verb action features to show that semantic features of subjects, such as sentience and volition, determine whether transitive or intransitive clauses are considered grammatical in particular languages. He also notes that the degree of volitionality or "control" that the subject as the agent "can impute over the object as the patient" determines the syntactic structure of the sentence. In English, for example, *I broke the window* does not reflect considerations of "volitionality," and it may not matter whether the window was broken accidentally or intentionally. On the other hand, in other languages, the degree of "responsibility" (p. 4) for the action determines the gradient features of noun agentivity and whether the subject can be also considered the agent. In his subsequent work, DeLancey (1990) also argues that in many languages, the cognitive model and the conceptualization of event structures underlies the semantics of grammatical forms (e.g. subject/agent and object/patient) in "everyday reality" (p. 292) and "our common-sense understanding of the structure of events" (p. 314), e.g. what entities can (or cannot) perform particular actions (and play the role of sentence subjects) and how these actions can affect the patients (objects). For example, for a speaker of Japanese, in **Mary is suffered from a cold, the cold* (illness) is the agent, and *Mary* is the patient; thus, because *Mary* does not perform the action but is rather affected by it, the sentence verb should take a passive form.

Another consideration to keep in mind is that, in English, inanimate subjects of active verbs can be "oblique" (Levin and Rappaport, 1991, p. 133), when the agent is not overtly expressed (e.g. *Water filled the ditch* or *The sink emptied*). Grammatical subjects that are not direct agents can often characterize instruments, locations, containers, or materials. Also, for example, in *The lights dimmed*, the verb *dim* denotes the lexicalized "come to be in a state" (Levin and Rappaport, 1991, p. 134), where the agent is not expressed. The authors point out, however, that in general, verbs may systematically acquire lexicalized meanings and syntactic features (such as variable transitivity) and represent "an important part of the lexical knowledge of a speaker of English" (p. 138).

Although the relationship between linguistic features of languages and their cognitive implications is not well understood, typological studies provide some insights into the functions of nouns and verbs within syntactic systems. Silverstein (1987) points out that noun animacy alone is not sufficient to determine a noun's capacity for subjecthood. It represents only one factor in the hierarchy of features that account for the capacity of a noun to function as an agent (subject) and patient (object), and can be combined with other semantic and lexical features,

such as sentience and volitionality. For example, nouns that can be categorized as human or possessing human-like characteristics can be subjects (but not necessarily agents) of volitional verbs associated with accomplishment and achievement (e.g. *I/the team won (the game)*), but almost all animate nouns can be found as agents of verbs referring to involuntary experiences or events (e.g. *he died/yawned/blinked* or *the dog/cat/bird hears the sounds*).

Although noun animacy may be a linguistic universal (Croft, 1990; DeLancey, 1990), Lucy (1992) stipulates that speakers of diverse languages use it in distinct ways and with different implications for the systems of cognition and thought. He goes on to say that this can present a problem for the comparisons of languages and their specific features. In his view, the limitations of the current typological studies of languages lie in the fact that little is known about the cognitive salience of linguistic features for cultural groups of speakers.

The specific purpose of this study is to compare NSs' and NNSs' (speakers of Chinese, Japanese, Korean, and Spanish) perceptions of lexical animacy of English nouns and noun phrases and to assess the influence of these perceptions on the learners' grammaticality judgements of active and passive constructions. Suggestions for teaching the meanings and uses of the English passive to speakers of languages with developed systems of noun animacy are presented.

The Study of Lexical Animacy: Experiments 1 and 2

This study is based on two experiments dealing with the lexical animacy of nouns and noun phrases. Because many studies have identified lexical animacy as a gradient features (Croft, 1990; Hopper and Thomson, 1980; Lucy, 1996), NSs and NNSs were asked to rank the perceived lexical animacy of nouns or noun phrases on a Likert scale ranging from 1 to 10, from inanimate to animate. Following the rankings of nouns (Experiment 1) and noun phrases (Experiment 2), in both experiments, participants were asked to establish the grammaticality of active or passive sentences that included some of these nouns and noun phrases as sentence subjects.

Experiment 1

Participants

A total of 179 NSs and NNSs participated in Experiment 1. Of this number, 30 were native speakers of English from Midwestern states (Ohio, Indiana, Illinois, and Michigan), 55 were speakers of Chinese (CH), 40--Korean (KR), 31--Japanese (JP), and 23--Spanish (SP). All NNSs had been admitted to a large U.S. university and were deemed sufficiently proficient in English to pursue studies toward their degrees. The TOEFL scores of the NNSs ranged from 527 to 623, with an average of 593. The NNSs had resided in the U.S. for periods of time from 7 months to 6.9 years, with an average of 2.8 years; their ages ranged from 20 to 36 years (a mean of 28.6).

The Instrument and Data Analysis

According to Master's (1991) observations, speakers of Japanese and other Asian languages may experience particular difficulty with sentences with inanimate subjects and active verbs, commonly found in academic texts. For this reason, some of the nouns included those frequently encountered in introductory textbooks as subjects of active verbs, for example, *experiment, idea, information, method, observation, process, research, theory* (as in, for example, *The experiment/information/observation/demonstrates/shows/proves/validates that ...*). Additional nouns were also included from textbooks on biology (*blood, cell, cell membrane, dog, fish, human, molecule, protein*), environmental sciences (*air, daylight, earth, rain, thunder, wind*), and psychology (*love, anger, fear, pain*). To ensure that the lexical items in the

instrument were familiar to most NNSs, lists of common "everyday" nouns (DeLancey, 1990) were elicited from five ESL instructors, and an additional set of nouns were selected and included in the instrument (e.g. *apple, automobile, city, computer, country, discussion, house, flower, language, music, television, tree leaf, university, water, word*). The nouns were presented to NS and NNS participants in random order.

After the data were collected, they were compiled to obtain average rankings for each noun by L1 group, i.e. group rankings given by the NSs and by the speakers of Chinese, Korean, Japanese, and Spanish. For the purposes of analyses, these were divided into the nine thematic sets: *Live Creatures, Plants, Organic Elements, Natural Phenomena, Basic Elements, Sensations and Emotions, Speech and Language, Knowledge and Research, and Man-made Objects*. Cronbach's alpha was selected as a conservative measure of reliability for items on an unweighted scale and was calculated for average rankings in each set of items to obtain internal consistency measurements. The reliability coefficients across all items for all participants in Experiment 1 ranged from .90 to .98.

To determine associations between the average rankings of animacy by L1 groups, rank-difference coefficients between each pair of L1-based groups were obtained for each of the nine sets of nouns and, thus, nine correlation matrices were computed. However, because this study is primarily concerned with similarities and differences in the perceived lexical animacy of NSs and NNSs, the correlation coefficients between NS and NNS values for each noun were extracted and are selectively presented in Table 1.

Results and Discussion

Table 1 presents extracted correlation coefficients between the ranks by NSs and NNSs, by group. It appears that the majority of ranks assigned to the noun sets by members of various L1 groups were significantly similar, regardless of their L1s. Specifically, the NSs' and NNSs' judgments of lexical animacy were similar to those of NNSs in the sets dealing with Live Creatures, Organic Elements, and Man-made Objects. In the Knowledge and Research set, the rankings of all participants, apart from those of the Japanese participants, were also similar to a large extent (among three of the four NNS groups). In general, in all sets of nouns, of the 36 correlation coefficients between NSs and other L1 groups, 23, or slightly fewer than two-thirds, were significant.

Insert Table 1 near here

In general terms, NS values correlated significantly with those of Chinese and Spanish speakers in five each of the nine sets, those of Japanese in six sets, and those of Koreans in seven sets. The rankings by Koreans correlated highly with those of NSs, except in the Natural Phenomena and Sensations and Emotions sets. Thus, it appears that for individual nouns in these sets, NS and NNS perceptions of animacy were more similar than dissimilar; and there was no evidence of dramatically different evaluations. The implications of this similarity of judgement are discussed in the results of Experiments 3 and 4 later in this study.

Experiment 2

Participants

As in Experiment 1, the instrument was administered to 149 NSs and NNSs. Of this number, 30 were native speakers of English from Midwestern states. The NNSs included 34 speakers of Chinese, 36--Korean, 26--Japanese, and 23--Spanish, who were deemed sufficiently

proficient in L2 to be enrolled in degree programs in a large U.S. university. As with Experiment 1, the random samples of NNS included advanced students with TOEFL scores ranging from 533 to 623 (an average of 597). They had resided in the U.S. for periods of time between 6 months and 6.1 years (a mean of 2.7 years); their ages included a minimum of 19 and a maximum of 33 years (an average of 26.2 years).

Results and Data Analysis

The noun phrases presented in the instrument in Experiment 2 referred to the same or similar entities as in Experiment 1, with different syntactic or objective properties and/or changed states to determine whether these variations resulted in divergent rankings of animacy. The instrument in Experiment 2 followed the same format as that in Experiment 1, and a similar set of instructions was provided to the participants. The key difference between the two forms lies in the fact that in Experiment 2, participants were asked to assign rankings to noun phrases instead of nouns, e.g. *water in the lake* and *a tree leaf on the ground*.

Many of the nouns in the instrument in Experiment 1 were included in paired noun phrases in Experiment 2. Some were modified by adjectives, for example, *a large city/a small city*, *an interesting book/a boring book*, *written language/spoken language*, *a stormy ocean/a calm ocean*, *bright light/dim light*, *teaching method/learning method*, *an angry conversation/a friendly conversation*, and *hot water/cold water*. Additional nouns were modified by locative and spatial prepositional phrases, such as *an apple on a plate/an apple on a tree*, *a leaf on a tree/a leaf on the ground*, *language in speech/language in writing*, *an idea in speech/an idea in writing*, *an automobile in the parking lot/an automobile on the highway*, *water in a tap/water in a lake*, *a flower in the garden/a flower in a vase*.

As in Experiment 1, the pairs of noun phrases were divided into nine thematic sets: *People*, *Plants*, *Speech and Language*, *Natural Objects and Phenomena*, *Structures*, *Ideas and Concepts*, *Liquids*, *Texts*, and *Man-made Objects*. The data were compiled to obtain average rankings by L1 groups, and Cronbach's alpha was calculated to establish internal consistency across items in each set. As in Experiment 1, rank-difference coefficients between each pair of L1-based groups were computed for nine correlation matrices, and the extracted correlations between the average ranks of NSs and each of the L1 groups are shown in Table 2.

Insert Table 2 near here

Overall, NNSs seemed to perceive the lexical animacy of abstract concepts and inanimate concrete noun phrases to be slightly higher than NSs did, regardless of their L1s. As with the nouns in Experiment 1, the participants' ranks of paired noun phrases were consistent across items in each set, and the Cronbach α coefficients of reliability were relatively high, i.e. between .88 and .99.

In general terms, NS and NNS rank correlations of noun phrases were only moderately different (see Table 2). For example, for the sets *Plants*, *Natural Objects and Phenomena*, *Man-made Objects*, and *Liquids*, the rankings assigned to the noun phrases by NSs were similar to those assigned to them by NNSs in all groups.

For all noun phrases in Table 2, however, 18 correlation coefficients between the ranks given by NSs and other L1 groups were significantly similar, while another 18 were not. Among the L1 groups, the NS rankings correlated most frequently with those of Japanese in six of the nine sets, and four each with those of speakers of Chinese, Korean, and Spanish. Compared to the number of significant correlation coefficients between NS and NNS animacy values in Table 1 (23 out of 36), it seems that the change in objective properties of entities and

semantic features of nouns in paired noun phrases, resulted in a decreased number of similarly ranked noun phrases in Table 2 (18 out of 36). According to Straus and Brightman (1982), in many languages other than English, changes in the physical characteristics of entities, such as size, temperature, location, motion, purpose, and other states, alter the perceived animacy of the nouns to which these entities refer, e.g. cold water may be seen as less animate than hot water. In addition, Siewierska (1984) explains that in many languages attributive (*of the book*) and locative (*near the river* and *in the market*) prepositional phrases have a great deal of influence on the agentive capacity of nouns and can alter the transitivity of a sentence in which they functions as subject/agents or objects/patients. It appears that attributive adjectives and prepositional phrases had an important impact on the perceived lexical animacy of nouns. Because in L2 learning and use nouns are almost always encountered in contexts at least as small as modifiers or phrases, it appears that presence of contextual modifiers may have create a wider gap between NSs' and NNSs' perceptions of a noun capacity for subjecthood in active constructions in English.

Teaching Suggestions: the Concept of Lexical Animacy in English

(1) It is usually with surprise that learners discover that lexical animacy has no impact on the grammatical structure of English sentences. For example, the teacher can push open the classroom door and allow it to swing back to close. Is it grammatical to say in the learners' first language, "The door is closing" or "The door closed"? Are these grammatical sentences in English? Why is it that such structures are (or are not) grammatical in the learners' first language? On the other hand, in English, sentient and nonsentient nouns can be subjects of active verbs, e.g. *the tree leaf is falling/shaking/flying*, *the water is running/flowing/dripping/leaking*, or *the clouds are gathering/moving/traveling*. What is the difference between "the door" that cannot close on its own and "the water/the river" that can move without any visible or noticeable force that causes it to do so? Is animacy a variable feature? In English grammar, it does not necessarily have to be variable, and inanimate nouns can be used as subjects of active verbs that can take "oblique" nouns (e.g. *the coffee spilled* or *the hose is leaking*) as subjects (see the discussion of Levin (1991) and Levin and Rappaport Hovav (1993) earlier in this paper).

(2) For listening practice, examples of nonsentient nouns that serve as subjects of active verbs can be found in many informercials in the U.S., U.K., and other English-speaking countries, particularly those that describe cooking appliances and utensils, and other types of mechanical and electric devices. Another good source of text-based examples of structures with nonsentient subjects and active verbs are excerpts from (junior) encyclopedias that explain how machines and devices operate (e.g., regular and cell telephones, a computer, an automobile, a typewriters, staplers, radio, or TV). These can be analyzed and discussed with students to promote their noticing of such structures in English. For example, students' attention can be brought to the common uses of nonsentient nouns as subjects of active verbs, as in *The knife cuts the apple like butter*, *the cake/turkey goes in the oven (and bakes) for an hour*, *the cleaner can remove any stain*, *the drill/grill/saw works in any weather conditions*, *the sunscreen protects your skin*, *the juice/grease/fluid/water gathers/collects/sits/accumulates at the bottom of the pan*, and *the TV/radio/phone sounds wonderful*.

(3) Activities associated with the teaching of nonsentient nouns as subjects of animate verbs can be numerous and serve to increase learners' exposure to contextualized language use. In fact, the learner "noticing" that nonsentient nouns can be subjects of active verbs in English does not need to be associated with the teaching of the passive voice but can take place during the early steps in language learning when active voice structures are accessible to them. The

activities can be simple and practical, and they usually become very enjoyable for students at the beginning and intermediate levels of proficiency and can be used in ESL and/or EFL settings.

In pairs or small groups, students can perform "scientific experiments" and present their descriptions of procedures to others (e.g. a small juice maker can be used to make juice, fruit and vegetables can be grated, and the physical process of juice-making/grating/cutting described). Also, paper, dough, vegetable, flower, and colored paper designs, posters/montages also become enjoyable classroom activities that promote learners' noticing of structures with nonsentient nouns and animate verbs.

(4) Students can be assigned to create their own oral or written descriptions of how machines, appliances, and devices work, or rules of board, card, or chess games. This type of writing can be timed to coincide with composition work dealing with process/enumerative descriptions that students often work with at beginning and/or intermediate levels of proficiency. Some of the ideas for written descriptions can include: a pay phone, roller blades, a walkman, a washing machine, a bicycle, a camera, a bus route, a trip to city or a city center, a museum exposition, or even a fountain. When working on these assignments, students can be asked to pay particular attention to the use of nonsentient subjects with active verbs.

Grammaticality Judgments of Passive Constructions

In many languages, the notion of noun animacy and its capacity for agentivity may be closely associated with the active and passive voice and other syntactic features. Unlike English, in Chinese, for example, the concept of noun animacy often determines the types of syntactic constituents that may occur such as direct objects and directional phrases (Li and Thompson, 198; Huang, 1994). Similarly, in Korean, in addition to the syntactic markers on the noun and the verb, the lexical animacy of the subject noun determines the order in which events are presented (Kim, 1990). The Korean scale of lexical animacy is relatively rigid and places human common nouns above animate common nouns and inanimate common nouns, respectively (Palmer, 1994).

The structure, meaning, and use of the passive voice in Japanese is recognizably complex. The active voice is found in structures with sentient subjects, and, according to Shibatani (1990), the Japanese passive can be used with both transitive and intransitive verbs. The feature that distinguishes the meaning of passive in English and Chinese, Korean, and Japanese is that in the latter three languages passive constructions necessarily entail a meaning that the entity denoted by the subject affects the entity denoted by the object (Shibatani, 1990).

Two types of passive constructions exist in Spanish, those with *be*-verbs and those with reflexives. Although Spanish has a developed system of noun animacy marked by gender and number inflections, animacy does not seem to have a great deal of impact on the type of nouns that can function as subjects in active and passive constructions (Posner, 1995). However, the distinction between animate and inanimate objects is overtly marked by the preposition *a* which is used to mark animate direct objects (usually employed to mark indirect objects), while inanimate objects are not marked.

The additional purpose of Experiments 3 and 4 was to examine whether NSs and advanced NNSs, speakers of Chinese, Japanese, Korean, and Spanish, have similar grammaticality judgements of English active and passive verbs in paired and single sentences. This portion of the study was designed to determine whether the perceptual values of the lexical animacy of English nouns and noun phrases, addressed in the first part of the study, have an effect on NS and NNS judgements of grammaticality.

The Instrument and Data Analysis

The instruments in Experiments 3 and 4 included 24 and 16 sentences, respectively, that NSs and NNSs were asked to evaluate for grammaticality. In Experiment 3, the majority of sentences included animate and inanimate nouns. The instructions for both instruments were identical:

In this Part, sentences are presented to you. Please mark (check or circle) all sentences in which you think the verb(s) is (are) used grammatically correctly.

Experiment 3

In Experiment 1, the sentences were used in 12 minimal pairs with the active or passive voice in mixed order within each pair (see Table 3). Three sentences (1-3) included nouns without modifiers, another four contained adjective modifiers of nouns (4-7), (8-10) included adjectives and post-positional prepositional phrases, and sentences (11-12) contained compound noun modifiers. The verb phrases in paired active/passive sentences were identical in every way, except the voice distinctions. All included subjects, transitive verbs, and explicit direct objects (in both correct and incorrect forms). To focus the NNSs' attention on transitivity and verb passivization, all main verbs (predicates) in incorrect passive sentences were altered only by the addition of the auxiliary *BE* and a change from the base form of the main verb to the past participle. Such syntactic features and morphological and inflectional markers as tense, modality, number, and person were identical in both active and passive sentences in each pair. The verb form in only one (active) sentence in each pair was correct because the presence and the order of subjects and direct objects remained identical in each pair. For example:

**A new method of teaching biology is shown an improvement in student grades.*

A new method of teaching biology shows an improvement in student grades.

The participants whose grammaticality judgments were obtained for Experiment 3 were those described above for Experiment 1.

Grammaticality Judgments in Paired Sentences

The data in Table 3 show counts of NSs and NNSs who selected the verb phrase in a particular sentence as grammatically correct. The number of NSs' and NNSs' selections of verbs was compared in each sentence. Fisher's exact test was employed to establish similarities and differences for each pair of NS and NNS counts because some of the cell sizes were too small for a chi-square test to be appropriate.

Insert Table 3 near here

The grammaticality judgments of all NNSs, except Spanish speakers, differed significantly from those of NSs for a majority of the 12 paired sentences. Of the 12 pairs, only two included animate subjects--(1, *an elephant*) and (4, *dogs*). These pairs were the only ones in which the judgments of almost all NNSs were similar to those of NS. These nouns also received particularly high animacy rankings, and were perceived to be indisputably animate by practically all participants. However, overall, the animacy rankings of participants in all L1 groups did not differ dramatically from those of NSs for both nouns (Table 1) and noun phrases (Table 2). In fact, two thirds to a half of the rank correlations for nouns and noun phrases were significantly similar to those of NSs. For example, the nouns *cities* (5) and *music* (6) were classified as Man-made Objects (Tables 1 and 2), and the animacy rankings of NNSs in all groups correlated

significantly with those of NSs. Similarly, *molecule* (9) and *virus* (11) were placed in the category of Organic Elements, in which the animacy rankings were also similar to those of NSs.

Nonetheless, the grammaticality judgments of Chinese, Japanese, and Koreans were distinct from those of NSs in all paired sentences in Table 3, and hence, it seems that perceived animacy or inanimacy of nouns did not make a great deal of difference in the participants' grammaticality judgments of active or passive constructions in English. In addition, it appears that whether sentences included modified or unmodified nouns as subjects also did not affect participants' grammaticality judgments. However, the sentience of the entity to which subject nouns referred did make a difference in the grammaticality judgments of NNSs, i.e. the two sentences in which their judgments were significantly similar to those of NS included sentient subjects.

The meaning of passive constructions in Chinese, Japanese, and Korean often refers to an action performed by the inanimate subject of an active verb, and the subject entity is expected to affect to the object entity. Hence, the sentence subject also serves as the agent of the action, and the object as the patient (Li and Thompson, 1981; Palmer, 1994). In his detailed study of Japanese passive constructions, Shibatani (1990) notes that they convey the meaning that "the subject is somehow affected" (p. 332). Palmer (1994) also explains that in Korean, the subject of the active verb must also be the agent and the passive subject must be "in general, animate and conscious," e.g. "The child was given medicine by the mother" (p. 30). Palmer comments that in languages that distinguish between the subject and agent functions of nouns, "animacy and potentiality of agency seem to be almost the same thing," but with inanimate nouns, the hierarchy of agentivity comes into play. The gradient agentivity requires that, for example, in sentences with two inanimate nouns where one is the subject and the other is the object, the entity higher on the hierarchy be the agent (and thus the subject) and the lower--the patient (and, therefore, the object). For example, speakers of Japanese or Korean would consider the sentence *The car needs gas* to be grammatical because *the car* has a higher animacy value than *gas*. On the other hand, *the article discusses the government* would not be seen as correct if on the hierarchy of animacy, the subject noun *the article* is lower than the patient *the government*, and in this case, for speakers of Japanese or Korean, a passive construction would be more appropriate, e.g. *The government is discussed in/by the article*.

On the other hand, in Chinese, active and passive constructions cannot always be easily distinguished, unless they are overtly marked by means of particles. Li and Thompson (1981) point out that in Chinese, the passive particle *bei* represents one of the few constructions in which the patient noun phrase is advanced to the position of the sentence subject. They emphasize that *bei*-constructions are predominantly used to show that the subject of the sentence affects the object and that the agent of the action can be inferred or stated directly, as in *The balloon was blown away by the wind* (p. 505). However, Norman (1988, p. 165) observes that because grammatical voice is absent in Chinese, active-passive sentence relationships cannot always be determined, e.g. "*The fish has eaten*" or "*The fish has been eaten*" cannot be easily distinguished. In light of this information, it may be that some of the Chinese participants simply were not able to clearly identify the syntactic and/or the semantic differences between the paired sentences and occasionally made erroneous guesses when they had to make a choice.

As in many Indo-European languages, Spanish has a developed inflectional system that includes masculine and feminine gender markers of nouns, determiners, and adjectives. Posner (1996, p. 55) explains that gender markings in all languages imply that "referents are animate beings." However, she notes that although in Spanish the notion of lexical animacy is well-established and prominent, it may be difficult to discern its functional role. The grammatical functions of subjects/agents and objects/patients are also marked for nominative (subject) and

accusative (object) cases. Furthermore, Spanish is sensitive to human/non-human object distinctions, marked by particles. In this study, NSs and Spanish speakers demonstrated similar grammaticality judgments of paired sentences in Table 3, with the exceptions of sentences (2) and (6). In sentence (2), the pseudo-modal *allow+Direct Object* (+ infinitive) is used in a syntactic structure that effectively reverses the order of the semantic patient (*discussions*) and agent (*participants*) and is markedly different from the common subject+transitive verb+direct object Spanish constructions (Lozano, 1993). In addition, the Spanish verb *gozar de* (*enjoy*) (sentence (6)) is typically classified as direct intransitive with the experiencer as subject, i.e. the entity that "experiences" the emotional reaction denoted by the verb (e.g. **I enjoy of his support*) (Whitley, 1995, p. 573). On the other hand, the English equivalent *enjoy* is often considered to be transitive and requires a direct object without a preposition.

All the English sentences in Table 3 included transitive verbs and contained direct objects. In many languages, verb transitivity and the presence of the object represents an important factor in the grammaticality of active or passive constructions. For example, Palmer (1994) indicates that in Spanish, as in English, the presence of a direct object clearly marks the verb as active and transitive, but in Japanese, transitive verbs require animate subjects, and a sentence, such as *The apple was eaten by John* is ungrammatical. According to Palmer, in Korean, the subject usually has a higher potentiality for agency than the object, i.e. the subject noun performs the verb action that affects object noun. In Chinese, the presence of the object determines the agentive character of the subject whose "behavior is directed toward the direct object" (Li and Thompson, 1981, p. 157), and a vast majority of verbs can be either transitive or intransitive. In this study, in all L1s, however, the presence of the direct object provides a likely indicator that the verb is used in the active voice, and thus, the direct objects in the sentences in Table 3 may have served as similar markers of active verbs.

Grammaticality Judgments in Single Sentences: Experiment 4

One of the main differences between the sentences in Experiments 3 and 4 is that, unlike those in Experiment 3, the sentences in Experiment 4 were not paired or contrasted, e.g. *The magazine presents an interesting story about the city.*
The highway connects Michigan and Ohio.

Another important change between the sentences in Experiment 4, compared to those in Experiment 3, is that the sentences included various syntactic and semantic features of subject nouns and verbs not included in Experiment 3. For example, none of the sentences in Experiment 4 (see Table 4) included animate and/or sentient subjects. All sentences in Experiment 3 (see Table 3) included transitive verbs and direct objects. In Experiment 4 (Table 4), half of the verbs were transitive (*show, present, connect, influence, make, provide, cause, and affect*), and the other half--intransitive (*fall, travel, break, come, shine, spill, roll, and move*). All sentences included in Experiment 4 were grammatically correct.

The participants' who were asked to judge the grammaticality of single sentences in Experiment 4 were the same as described earlier for Experiment 2. Again, the counts of NSs' and NNSs' choices of grammatical verb structures were compared for each sentence, and Fisher's exact test was employed for each pair of NS and NNS counts.

Insert Table 4 near here

It appears that such lexical and syntactic features of verbs as transitivity and the presence of direct objects made a substantial difference in NNSs' grammaticality judgments. Specifically,

of the sixteen sentences, in only nine did Spanish speakers display grammaticality judgments similar to those of NSs. Participants in other L1 groups judged the grammaticality of all sentences in Table 4 significantly differently from NSs. As in the sentences in Experiment 1, the noun animacy did not appear to make a substantial difference in the judgment of the Chinese, Japanese, and Korean speakers. For example, the nouns *photograph*, *highway*, *pencil*, and *pen* in sentences (1, 3, 5, and 9), respectively, were included among those classified as Man-made Objects (Table 1), the NNS animacy rankings of which correlated significantly among all language groups, including NSs. Similarly, the noun phrases *bright light* and *a big stone* in sentences (13) and (15), respectively, were included among Natural Objects/Phenomena (Table 2) that were ranked significantly similarly by NSs and NNSs alike. On the other hand, *written language* in (4) and *an angry conversation* in (7) were attributed to the Speech/Language set that did not exhibit significant correlations of animacy ranks in NS and NNS evaluations. In addition, because none of the sentences included sentient subjects, significant proportions of participants in Chinese, Korean, Japanese, and Spanish groups believed the grammatical sentences in Table 4 to be ungrammatical. As has been discussed, in Japanese and Korean, passive verbs are used in sentences where the subject is usually required to be sentient or occupy a higher position in the hierarchy of animacy than the object does. Also, as has been noted, Chinese does not always provide clear-cut distinctions between active and passive constructions.

On the other hand, it appears that verb transitivity did affect the grammaticality judgments of Spanish speakers. It further appears that Spanish speakers had particular difficulty with intransitive verbs in (9-14), and (16). Keeping in mind that in Spanish intransitive verbs are treated differently than in English when reflexives and experiencer subjects can be employed, it is not particularly surprising that Spanish speakers had trouble with intransitive verbs in English. In sentence (15), *A big stone is rolling down the hill*, verb transitivity seems to be somewhat ambiguous because adverbials, such as *around*, *away*, *back*, *over*, *up*, *down*, *in*, and *to* often affect transitive verbs and make them pseudo-intransitive (as in *give back*, *move over*, *show up*, *shut down*, *climb up/over*, and *make up*).

Noun animacy appears to be a semantic feature of nouns that exists in many languages (Croft, 1990; Darnell, 1976; DeLancey, 1985, 1990; Silverstein, 1976, 1984). It represents a gradient lexical characteristic that varies depending on the syntactic and semantic features of nouns and verbs and depends on the objective properties of the entity that a particular noun or noun phrase refers to. Furthermore, the perceived lexical animacy of nouns in many cases appears to correlate significantly between groups of speakers of diverse languages. However, establishing the lexical animacy of subject nouns in sentences does not seem to be sufficient to determine how and when NS and NNS consider active and passive constructions grammatical. The results of this study indicate that specifically subject noun sentience (and thus potentiality for agency and subjecthood) and verb transitivity marked by the presence of direct objects, play important roles in the NNSs' ability to identify the grammaticality of L2 active and passive constructions. Although noun animacy represents a salient semantic feature in many languages, verb transitivity and the attendant presence of the direct object entail additional syntactic considerations that are not readily accessible to even proficient NNSs.

Teaching Suggestions: the Concept of Transitivity and Transitive Verbs in English

Because verb transitivity is a universal phenomenon (Croft, 1990), most L2 learners are familiar with it intuitively. For this reason, it is not difficult to explain how it works in English, and only a few good examples are required (*Is it okay to say in English "I found/bought/sold/gave/took" without a noun? The verbs that are/sound/feel incorrect when used in sentences without direct objects are called transitive*). Although practically all ESL grammar textbooks

describe how to derive passive sentences from their active counter-parts (e.g. *John ate the apple*, vs. *The apple was eaten by John*), few actually note that such passive derivations require the active sentence to include a transitive verb and a direct object. This is why, for instance, the sentence **I am suffered from a terrible cold* (as in example (1)) is ungrammatical, i.e. *suffer* is for the most part an intransitive verb in English¹.

(1) The activities mentioned in *Teaching Suggestions: the Concept of Lexical Animacy in English* (pp. 8-9) can be also used to show that distinctions between the active or passive voice uses are often stylistic and are common in academic texts (and writing) (Talmy, 1988). The "scientific experiments" or the work with small appliances and utensils can be transformed into writing projects, poster sessions, or class science fairs.

(2) (a) Students at the high-intermediate and advanced levels of proficiency can analyze excerpts from introductory textbooks in various disciplines, such as sociology, psychology, and/or economics to determine the frequencies of active or passive constructions and the contexts in which they are employed, while paying particular attention to transitive and intransitive verbs². These can become very useful and interesting discovery tasks that prepare academically-bound students for their work in the future.

(b) The work with introductory academic texts can also become an opportunity for paraphrase and citation practice when students need to restate the ideas or examples found in sources of information. Such assignments can also be carried out in pairs or small groups

(3) In pairs or small groups, students can receive short lists of common verbs (5 to 15) (appropriate for their proficiency level) from the teacher or other groups, determine whether a particular verb is transitive or intransitive, and "prove" their conclusions with "data" from their examples of its transitive or intransitive uses in contexts. Groups can also compete for speed and accuracy in such assignments, and an in-class discussion of groups' "findings" can become a very enjoyable practice with an added benefit of increasing the students lexical repertoire.

(4) If transitive or intransitive verbs are assigned to be somewhat contextually cohesive (e.g. *read, write, speak, tell, talk, learn, study, improve, practice, or shine, rain, blow, pour, change, remain, increase, decrease*), pairs or small groups can be assigned to construct short narratives or reports with these verbs in context and present them to other groups. Many of the short stories, news reports, or narratives created in such contexts can be humorous and entertaining (e.g. *It was a dark and stormy night. The wind was blowing/howling, the rain was pouring/streaming/coming down like the Niagara Falls, and the lightning lit up the sky. But we were sitting in the library and diligently doing our homework on verbs.*)

Conclusions and Implications for Teaching the English Passive Voice

Although this study's findings are based on a relatively small number of sentences, some preliminary conclusions can be made. For instance, the lexical and semantic features of sentence constituents not common in English but salient in other languages seem to have an impact on the NNS grammaticality judgments, e.g. sentient-nonsentient distinctions of nouns

¹ In some fixed expressions, such as *suffer the consequences* or *suffer the advice of fools*, or literary allusions (*suffer the slings and arrows of outrageous fortune*), *suffer* can be used as a transitive verb.

² In their book on grammar teaching, Celce-Murcia and Larsen-Freeman (1999) offer another view of active voice constructions with inanimate subjects and discuss them as "middle voice," e.g. *The store opens in five minutes*. They point out that the "middle voice" usually occurs with change-of-state verbs, such as verbs of cooking or physical movement, when the use of the active voice does not imply an agent.

that serve as sentence subjects, and the function of nouns as agents or patients in the subject or object position. The features of sentience, and agentivity and patienthood, influential in the NNS L1s but less developed in English, may be transferred from L1 to L2 and may affect NNSs' L2 learning. As Bates, *et al.* (1982) determined earlier, NNSs usually employ L1 sentence-processing strategies when dealing with L2 constructions. In this study, speakers of Japanese and Korean may also rely on L1 conceptual sentient agent and nonsentient patient distinctions. L2 grammar instruction for NNSs may need to emphasize that the meanings of passive constructions in English do not involve considerations of agentivity and patienthood.

It appears that lexical features of individual nouns and noun phrases, such as animacy and sentience, have an impact on NNS perceptions of their potentiality for agentivity (and subjecthood) and patienthood (in object positions), but the amount of correlation between NS and NNS animacy values declines when nouns are placed in contexts and syntactic environments even as small as adjective and/or prepositional phrases. Although the NS and NNS perceptions of noun animacy showed a relatively high number of positive correlations, their grammaticality judgments of passive sentences were significantly different in most cases. Thus, the lexical animacy of nouns seems to have a diminished effect on the NNSs' ability to determine the grammaticality of active or passive constructions in English.

Contrasting active and passive sentences seems to provide NNSs a point of reference and means of comparing the syntactic functions of nouns and noun phrases and may improve their grammaticality judgments. Agentivity and patienthood of nouns in passive constructions and verb transitivity in such languages as Chinese, Japanese, and Korean seems to have a negative effect on grammaticality judgments of speakers of these languages in English. On the other hand, Spanish speakers may have difficulty with intransitive verbs in English. One implication of this finding is that the forms, functions, and meanings of English passive constructions need to be addressed in detail in L2 instruction.

It also appears that, for NNSs, the presence of the direct object may serve as an overt marker and imply the active voice of the verb. However, speakers of Chinese may have a particular disadvantage when dealing with English passive constructions because their L1 does not have a syntactically-derived passive voice.

Another important finding to be noted is that NNSs who have attained relatively high L2 proficiency as established by their TOEFL scores do not appear to have grammaticality judgments similar to those of NSs even after several years of L2 learning. Despite their exposure to L2 for substantial lengths of time, NNSs' constructs associated with semantic animacy, and agentivity and patienthood appear to be markedly different from those of NSs. It may be that for NNSs, the convergence of these semantic and syntactic features of nouns, combined with L2 verb transitivity, often present in their L1s but absent in L2, makes the meanings and uses of active and passive in English so complex that meanings and uses of the passive voice are not readily accessible to them without focused and thorough instruction.

The teaching of the L2 active and passive voice may need to address such fundamental syntactic features of English as the functions of verbs as predicates, (and possibly, syntactic properties of various verb classes (Levin and Rappaport Hovav, 1993)), and direct objects. In the teaching of L2 grammar, the most prevalent methodology is to address the syntactic and semantic properties of subjects and verbs in English (Alexander, 1988; Quirk, *et al.*, 1995; Wardhaugh, 1995) with the assumption that given sufficient L2 training and exposure, NNSs are thus enabled to construct appropriate models of English grammar and syntactic systems. It may be, however, that even proficient L2 learners of English may be at a considerable disadvantage when the syntactic and semantic features of their L1s find few manifestations in L2 because common L2-based approaches to teaching L2 grammar do not address them in any way. L2

pedagogy may need to take a broader view of language as reflecting diverse complex cognitive systems with varied means of expressing common functions of nouns and verbs in sentences. In addition to focusing on the systems that the English language includes, L2 pedagogy needs to refer to linguistic constructs that it does not.

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REFERENCES

- Alexander, L. (1988). *Longman English Grammar*. London: Longman.
- Armstrong, S., Gleitman, L., and Gleitman, H. What some concepts might not be. *Cognition*, 13/2, 263-308.
- Bates, E. B., MacWhinney, S., McNew, A., Davescovi, and S. Smith. (1982). Functional constraints on sentence processing: A cross-linguistic study. *Cognition*, 11/2, 245-299.
- Bock, K. and Kroch, A. (1989). The isolability of syntactic processing, pp. 157-196. In G. Carlson and M. Tanenhaus (Eds.), *Linguistic structure in language processing*. London: Kluwer.
- Celce-Murcia, M. and Larsen-Freeman, D. (1999). *The grammar book*. Boston: Heinle & Heinle.
- Cherry, J. (1992). Animism in thought and language. Unpublished doctoral dissertation. University of California, Berkeley.
- Croft, W. (1990). *Typology and universals*. Cambridge: Cambridge University Press.
- DeLancey, S. (1985). Agentivity and syntax. *Chicago Linguistic Society*, 21, 1-12.
- DeLancey, S. (1990). Ergativity and the cognitive model of event structure in Lhasa Tibetan. *Cognitive Linguistics*, 1/3, 289-321.
- Hopper, P. and Thompson, S. (1980). Transitivity in grammar and discourse. *Language*, 56/1, 251-299.
- Huang, Y. (1994). *The syntax and pragmatics of anaphora: A study with special reference to Chinese*. Cambridge: Cambridge University Press.
- Kim, H. (1990). Continuity of action and topic in discourse, pp. 79-96. In H. Hoji (Ed.), *Japanese and Korean linguistics*. Palo Alto, CA: Center for Study of Language and Information.
- Levin, B. (1993). *English verb classes and alternations*. Chicago: University of Chicago Press.
- Levin, B. and Rappaport Hovav, M. (1991). Wiping the slate clean: A lexical semantic exploration, pp. 123-151. In B. Levin and S. Pinker (Eds.), *Lexical and conceptual semantics*. Cambridge, MA: Blackwell.
- Li, C. and Thompson, S. (1981). *Mandarin Chinese*. Berkeley, CA: University of California Press.
- Lozano, A. (1993). Graphic sequences of Spanish nominals and reflexives. *Hispania*, 76/3, 627-633.
- Lucy, J. (1992). *Language diversity and thought*. Cambridge: Cambridge University Press.
- Lucy, J. (1996). The scope of linguistic relativity: An analysis and review of empirical research, pp. 37-69. In J. Gumperz and S. Levinson (Eds.), *Rethinking linguistic relativity*. Cambridge: Cambridge University Press.
- Master, P. (1991). Active verbs with inanimate subjects in scientific prose. *English for Specific Purposes*, 10/1, 15-33.

- Norman, J. (1988). *Chinese*. Cambridge: Cambridge University Press.
- Palmer, F.R. (1994). *Grammatical roles and relations*. Cambridge: Cambridge University Press.
- Pfaff, C. W. (1987). Functional approaches to interlanguage. In C.W. Pfaff (Ed.), *First and second language acquisition processes*, pp. 81-102. Cambridge, MA: Newbury House.
- Posner, R. (1996). *The Romance languages*. Cambridge: Cambridge University Press.
- Quirk, R., Greenbaum, S., Leech, G., and Svartvik, J. (1985). *A comprehensive grammar of the English language*. London: Longman.
- Siewierska, A. (1984). *The passive: A comparative linguistic analysis*. London: Croom Helm.
- Shibatani, M. (1990). *The languages of Japan*. Cambridge: Cambridge University Press.
- Silverstein, M. (1987). Cognitive implications of a referential hierarchy, pp. 125-164. In M. Hickmann (Ed.), *Social and functional approaches to language and thought*. Orlando, FL: Academic Press.
- Steer, J. and Carlisi, K. (1998). *The advanced grammar book*. Boston: Heinle & Heinle.
- Straus, A. and Brightman, R. (1982). The implacable raspberry. *Papers in Linguistics*, 15/2, 97-137.
- Talmy, L. (1988). Force dynamics in language and cognition. *Cognitive Science*, 2/1, 49-100.
- Wardhaugh, R. (1995). *Understanding English Grammar*. Oxford: Blackwell.
- Whitley, M. (1995). *Gustar* and other psych verbs: A problem in transitivity. *Hispania*, 78/3, 573-585.

TABLE 1
EXTRACTED RANK CORRELATION COEFFICIENTS FOR NOUNS
BETWEEN NSs AND NNSs, BY GROUP:

THEMATIC SETS OF NOUNS									
	Live Creatures	Plants	Organic Elements	Natural Phenomena	Basic Elements	Sensations Emotions	Speech/ Language	Knowledge/ Research	Man- made Objects
	NSs	NSs	NSs	NSs	NSs	NSs	NSs	NSs	NSs
CH	.74*	.72	.92*	.77	.58	.54	.84*	.90*	.72*
KR	.73*	.98*	.96*	.75	.99*	.42	.88*	.87*	.77*
JP	.81*	.96*	.97*	.95*	.85	.91*	.86	.28	.87*
SP	.80*	.93*	.87*	.82	.70	.56	.84	.93*	.90*

* $p \leq .05$ 2-tailed $p \leq .05$

TABLE 2
EXTRACTED RANK CORRELATION COEFFICIENTS FOR NOUN PHRASES
BETWEEN NSs AND NNSs, BY GROUP:

	People	Plants	Speech/ Language	Natural Objects/ Phenomena	Structures	Ideas/ Concepts	Texts	Liquids	Man- made Objects
	NSs	NS	NSs	NSs	NSs	NSs	NSs	NSs	NSs
CH	.71	.98*	.36	.83*	.87*	.40	.62	.61	.53*
KR	.94	.97*	.57	.80*	.68	.76	.58	.92*	.76*
JP	.67	.99*	.27	.89*	.95*	.45	.63*	.94*	.68*
SP	.87	.91*	.15	.74*	.47	.64	.61	.78*	.69*

* $p \leq .05$ 2-tailed $p \leq .05$

TABLE 3
NS AND NNS GRAMMATICALITY JUDGMENTS IN PAIRED SENTENCES
BY GROUP

Sentence	NSs (n=30)	CH (n=55)	p	Number selected				SP (n=23)	p
				JP (n=40)	p	KR (n=31)	p		
<i>Nouns without Modifiers</i>									
1 a) *An elephant can be heard sounds that humans cannot.	0	1	ns	2	ns	0	ns	0	ns
b) An elephant can hear sounds that humans cannot.	30	54	ns	38	ns	31	ns	23	ns
2 a) *In business meetings, discussions are allowed participants to present their views.	0	25	≤.00	19	≤.00	9	≤.00	5	≤.01
b) In business meetings, discussions allow participants to present their views.	30	30	≤.00	21	≤.00	22	≤.00	18	≤.01
3 a) *Soil is contained minerals essential for the cultivation of crops.	0	11	≤.01	12	≤.00	9	≤.00	0	ns
b) Soil contains minerals essential for the cultivation of crops.	30	44	≤.01	28	≤.00	22	≤.00	23	ns
<i>Nouns with Adjective Modifiers</i>									
4 a) Highly trained dogs can guide their blind owners on busy sidewalks and street crossings.	30	55	ns	37	ns	31	ns	23	ns
b) *Highly trained dogs can be guided their blind owners on busy sidewalks and street crossings.	0	0	ns	3	ns	0	ns	0	ns
5 a) Typically, small cities surround larger ones to provide the local population additional housing areas .	30	45	≤.01	29	≤.00	23	≤.00	23	ns
b) *Typically, small cities are surrounded larger ones to provide local population additional housing areas.	0	10	≤.01	11	≤.00	8	≤.00	0	ns
6 a) Classical music enjoys a great deal of popularity among people of all ages.	30	41	≤.00	28	≤.00	19	≤.00	17	≤.00
b) *Classical music is enjoyed a great deal of popularity among people of all ages.	0	14	≤.00	12	≤.00	12	≤.00	6	≤.00
7 a) The interesting textbook develops the students' ability to consider important issues.	30	25	≤.00	34	≤.03	19	≤.00	22	ns
b) *The interesting textbook is developed the students' ability to consider important issues.	0	30	≤.00	6	≤.03	12	≤.00	1	ns

TABLE 3 (Continued)
NS AND NNS GRAMMATICALITY JUDGMENTS IN PAIRED SENTENCES
BY GROUP

Sentence	Number selected									
	NSs (n=30)	CH (n=55)	<i>p</i>	JP (n=40)	<i>p</i>	KR (n=31)	<i>p</i>	SP (n=23)	<i>p</i>	
<i>Nouns with Adjective Modifiers and Post-positional Prepositional Phrases</i>										
8 a) *A new method of teaching biology is shown an improvement in student grades.	0	9	<.02	13	<.00	7	<.01	1	ns	
b) A new method of teaching biology shows an improvement in student grades.	30	46	≤.02	27	≤.00	24	≤.01	22	ns	
9 a) *Special molecules in flowers are attracted insects that gather pollen.	0	14	≤.00	6	≤.03	5	≤.03	1	ns	
b) Special molecules in flowers attract insects that gather pollen.	30	41	≤.00	34	≤.03	26	≤.03	22	ns	
10 a) Basic knowledge of mathematics frequently includes elementary algebra.	30	44	≤.01	28	≤.00	19	≤.00	20	ns	
b) *Basic knowledge of mathematics is frequently included elementary algebra.	0	11	≤.01	12	≤.00	12	≤.00	3	ns	
<i>Nouns with Noun Modifiers</i>										
11 a) *A flu virus can be demonstrated its resistance to medication.	0	18	≤.00	11	≤.00	8	≤.00	3	ns	
b) A flu virus can demonstrate its resistance to medication.	30	37	≤.00	29	≤.00	23	≤.00	20	ns	
12 a) Rain water affects farming activities in most regions.	30	43	≤.01	30	≤.00	23	≤.00	22	ns	
b) *Rain water are affect farming activities in most regions.	0	12	≤.01	10	≤.00	8	≤.00	1	ns	

Note: All comparisons are relative to NSs; ns = not significant, 2-tailed $p \leq .05$

TABLE 4
NS AND NNS GRAMMATICALITY JUDGMENTS IN SINGLE SENTENCES
BY GROUP

Sentence	Number Selected									
	NSs (n=30)	CH (n=34)	<i>P</i>	JP (n=26)	<i>P</i>	KR (n=36)	<i>P</i>	SP (n=23)	<i>P</i>	
<i>Nouns without Modifiers; Transitive Verbs</i>										
1. The photograph shows my teachers and classmates.	30	22	≤.00	18	≤.00	19	≤.00	21	ns	
2. The magazine presents an interesting story about the city.	30	24	≤.01	20	≤.02	24	≤.00	21	ns	
3. The highway connects Michigan and Ohio.	30	28	≤.02	17	≤.00	23	≤.00	20	ns	
<i>Nouns with Adjective Modifiers; Transitive Verbs</i>										
4. Written language usually influences people more than speech.	30	25	≤.01	19	≤.00	26	≤.00	21	ns	
5. A sharp pencil makes thin lines on paper.	30	24	≤.01	20	≤.02	29	≤.01	21	ns	
6. English teaching provides many job opportunities.	30	21	≤.00	20	≤.02	24	≤.00	20	ns	
7. An angry conversation often causes additional problems.	30	28	≤.02	20	≤.02	23	≤.00	22	ns	
8. Teaching methods frequently affect classroom interactions.	30	25	≤.01	21	≤.01	28	≤.02	22	ns	
<i>Nouns without Modifiers; Intransitive Verbs</i>										
9. The pen fell on the floor.	30	25	≤.01	15	≤.00	14	≤.00	12	≤.00	
10. Clouds can travel at very low altitudes.	30	19	≤.00	15	≤.00	13	≤.00	18	≤.01	
11. The glass in the window broke.	30	14	≤.00	11	≤.00	11	≤.00	5	≤.00	
12. The water in the tap comes from the Ohio River.	30	28	≤.02	21	≤.01	28	≤.02	19	≤.03	
<i>Nouns with Adjective/Noun Modifiers; Intransitive Verbs</i>										
13. Bright light shines into the room at sunset.	30	25	≤.01	21	≤.01	21	≤.00	18	≤.01	
14. The hot coffee spilled over the edge of the cup.	30	17	≤.00	16	≤.00	11	≤.00	16	≤.00	
15. A big stone is rolling down the hill.	30	23	≤.01	21	≤.01	26	≤.00	20	ns	
16. The tree leaf on the ground is moving in the wind.	30	23	≤.01	20	≤.02	18	≤.00	14	≤.00	

Note: All comparisons are relative to NSs; ns = not significant, 2-tailed $p \leq .05$