

# Statistical preemption and Korean learners of English

Jeemin Kang  
(Seoul National University)

**Kang, Jeemin. 2017. Statistical preemption and Korean learners of English** *SNU Working Papers in English Linguistics and Language* 15, 40–52. When speakers use familiar verbs in a novel construction, an important question is where we could draw the line of what is acceptable and what is not. Robenalt & Goldberg (2016) concludes that native speakers base their acceptability judgments on statistical preemption while nonnative speakers fail to do so. The current study explores the same question with a pool of Korean participants living in Korea. Although there exists variation in each individual's language experience, the result is the same that they do not learn from the nonoccurrence of formulations in the same way as native speakers. (Seoul National University)

**Keywords:** statistical preemption, indirect negative evidence, usage-based model, second language, Korean learners of English, grammatical acceptability

## 1. Introduction

Speakers acquire their mother tongue within the first few years after they are born without much difficulty. Although children do receive systematic education to master the more complex and high-level grammar of their language, they do not need to be taught how to speak in daily life situations. This leads to the thought that acquiring one's first language is somewhat related to input. By a few years of language input, children seem to learn how to structure the input and reproduce it in their own speech. Moreover, people continuously coin new expressions to account for new situations or view a familiar situation in a novel way. It is remarkable how people can still communicate meaning using novel sentences, and it is unclear as to what extent a novel sentence could be accepted within the society sharing the same language.

It is also well known that learning a second language requires more effort

and time than acquiring a first language. Many L2 learners actually go to English speaking countries and live there for a while in order to overcome the difficulties of learning English in their home countries. This may also be seen as related to input because the English input one could receive in a non-English speaking environment is mostly limited to a classroom setting. Outside the English classroom students communicate with their first language and only during a designated time are they required to take in some English input. Due to this limitation, most nonnative speakers learn English through grammatical rules and memorizing certain exceptions. According to Robenalt & Goldberg (2016), nonnative speakers commonly produce “utterances that are semantically sensible and make use of constructions that are licensed in the target language, but which are nonetheless avoided by native speakers” (e.g. ??Can you explain me the lesson) (p.61). Considering the difference in the quantity and quality of input for nonnative speakers, it is a question whether we could apply input related models to nonnative speakers the way we do to native speakers.

## **2. Previous Studies of Statistical Preemption**

Statistical preemption is based on the assumption that a construction and a particular situation has a one-on-one correspondence in the minds of speakers. Several different constructions cannot coexist to represent the exact same meaning or context, and even seemingly synonymous constructions have subtle differences in meaning or usage. Then the question is: How do constructions acquire these qualifications to represent a particular situation?

According to Boyd & Goldberg (2011), “preemption is a particular type of indirect negative evidence that results from repeatedly hearing a formulation, B, in a context where one might have expected to hear a semantically and pragmatically related alternative formulation, A” (p.60).

They further note that this competition between the two formulations results in speakers implicitly accepting the witnessed formulation B as appropriate for such a context, and relatively recognizing that the expected formulation A is unacceptable. The presupposition underlying this process is that learners encode the frequencies of constructions that they witness not intentionally but more or less in a systematic way. Perek & Goldberg (2017) explains the relationship between generalization and statistical preemption as follows: “the need to better express an intended message encourages generalization, while statistical preemption constrains generalization by providing evidence that verbs are restricted in their distribution” (p.276).

Statistical preemption predicts that if there already exists a construction that preoccupied a certain context it is difficult for another construction to coexist with it. If, on the other hand, there is a new situation which is not yet occupied by a certain construction the floor is open to other constructions which semantically make sense. Robenalt & Goldberg’s (2015) study showed that native speakers of English took competing alternatives into account when judging the grammatical acceptability of novel sentences. Native speakers judged that novel sentences that did not have readily available alternatives as more acceptable compared to those that already had competing alternatives. In a consequent study, Robenalt & Goldberg (2016) expanded their study to nonnative speakers. Their results showed that nonnative speakers did not take competing alternatives into account the way native speakers do, failing to learn from the nonoccurrence of constructions. However we do not know what exactly is happening inside the L2 population. Why do nonnatives fail to learn from statistical preemption? It may a more complex phenomena that cannot be explained merely by the shown results.

### **3. The Present Study**

The present study replicated the experiment in Robenalt & Goldberg (2016) taking a closer look into the nonnative population. While Robenalt & Goldberg's nonnative participants were adult learners of English living in the United States with 39 different L1 backgrounds, the present study's participants all shared their first language, which was Korean. The reason for looking into the same L1 group was because 'L2 learners of English' is itself a heterogeneous group including learners with different experiences with English. With possible L1 effects kept the same, this study aims to explore the potential factors that could make a difference within the same L1 population learning English as their second language and also find out whether Korean L2 learners take competing constructions into account the way native speakers do.

### **3.1 Method**

#### **3.1.1 Participants**

A total of 136 nonnative speakers of English participated in the experiment but only 117 participants were included in the data analysis. 19 participants were eliminated prior to the data analysis due to various reasons (e.g. Korean-English bilingual, failure to respond correctly to the two judgment tasks, etc.). All participants were native speakers of Korean who were born and raised in the Republic of Korea, and most of them were undergraduate or graduate students (86 undergraduates, 12 graduates, and 19 others). The mean age of participants were 22.94 years old ( $SD = 2$  years, range = 19–31).

Considering the fact that L2 learners vary greatly in terms of their experience with a second language, in this case English, participants were asked to provide detailed information about their language background (e.g. Age of first exposure to English, years of learning English, experience living in an English-speaking country, weekly English input, etc.). Participants' mean age of first exposure to English was 7.60 years (median = 7,  $SD = 2.59$ , range = 1–14) and their mean

years of learning English was 14.45 years (median = 15, SD = 3.33, range = 2–20). In terms of their experience living in an English speaking country, 69 had no experience (in this study less than 6 months were seen as no experience), 23 had a short-term experience (6 months ~ 1 year, e.g. as an exchange/visiting student), and 25 had a long-term experience (more than 1 year). Participants with a long-term experience lived in an English-speaking environment for a mean of 3.64 years (SD = 2.72, range = 1.5–14).

### 3.1.2 Materials

All stimuli sentences were adapted from Robenalt & Goldberg (2016). With the main framework kept the same, the present study excluded the low-frequency verb sentences and only used the high-frequency verb sentences (28 total sentences). This was because a prior survey revealed that many potential participants (Korean learners of English living in Korea) had limited knowledge of the low-frequency verbs and the whole task may end up testing their knowledge of English vocabulary. Robenalt & Goldberg developed two sentence frames, one of which used a verb in its typical construction and the other used a verb in a novel construction which was semantically sensible but extremely atypical. The former type of sentences are referred to as the ‘baseline sentences’ while the latter are referred to as the ‘novel sentences’. Novel sentences are then classified into two subtypes (Novel/hasCA vs Novel/noCA) depending on whether they have a competing alternative (CA). This classification was from Robenalt & Goldberg (2015), in which 20 native speakers of English were asked if they could find an alternative expression that could better express the novel sentence. All 28 stimuli sentences were presented in a randomized order to each of the participants to prevent any order effect. The online survey was distributed via several social networking services (SNS). (For a full list of the stimuli sentences and their mean acceptability ratings see Appendix.)

### 3.1.3 Procedure

Participants were asked to fill in a detailed survey of their language background and also provide a self-evaluation of their English proficiency in terms of speaking, reading, and writing (on a scale of 1–10). Prior to the Grammatical Acceptability test, participants answered two judgment tasks presented to them as ‘practice’ questions. The first one was an unambiguously acceptable sentence (‘The cat drank the milk’) and the second was an unambiguously unacceptable sentence (‘The dog the ball played with’). Both sentences were adapted from Ambridge et al (2008). The acceptability ratings were on a 5-point Likert scale where 1 meant ‘completely unacceptable’ and 5 meant ‘completely acceptable’. The judgment task’s purpose was to get the participants used to the 5-point Likert scale as well as eliminate participants who did not meet the required standards of this study. Participants eliminated were mostly those who judged the judgment task 2 (unambiguously unacceptable sentence) as acceptable (4 or 5 on the scale) or those who answered that the two judgment tasks were equally acceptable or even that the latter was relatively more acceptable than the former sentence.

### 3.1.4 Data Analysis

Data were analyzed using R, a free language and environment for statistical computing (R Development Core Team, 2017). A linear mixed effects analysis was run using the lme4 package (Bates, Maechler & Bolker, & Walker, 2015). Fixed effects included sentence type (baseline vs. novel/hasCA vs. novel/noCA) and random effects included intercepts for participants. P-values were obtained by likelihood ratio tests of the full model with the effect in question against the model without the effect in question.

### 3.2 Results

Figure 1. Sentence acceptability ratings split by their sentence type (1 = sentence completely unacceptable, 5= sentence completely acceptable).

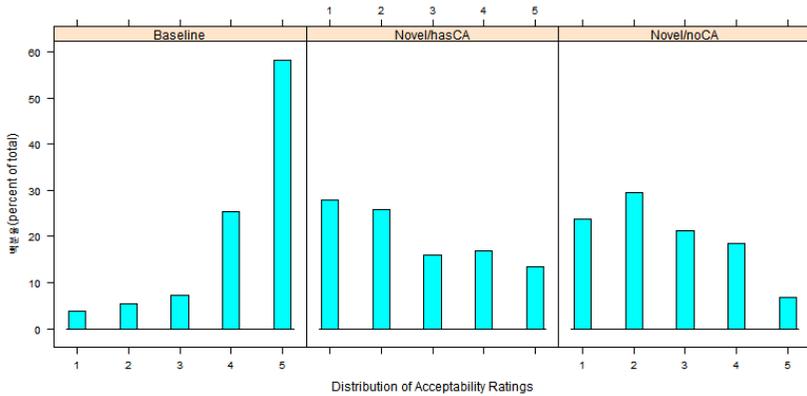
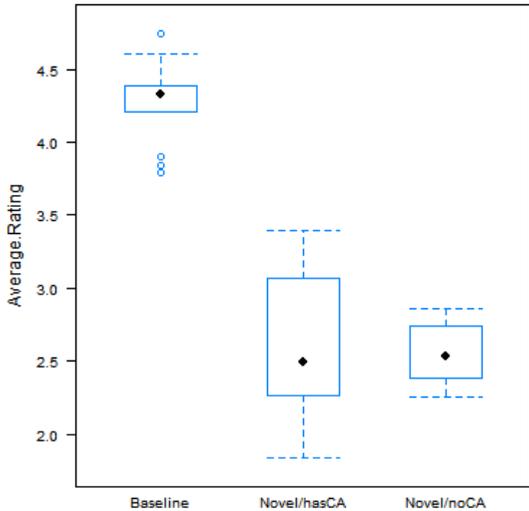


Figure 1 shows the acceptability ratings by the nonnative participants according to the three conditions (Baseline, Novel/hasCA, Novel/noCA). It is notable that the nonnative participants generally agreed that the baseline sentences were grammatically acceptable, while they show no consensus for the two types of novel sentences. The average acceptability rating was 4.29 for the baseline, 2.63 for the Novel/hasCA, and 2.55 for the Novel/noCA sentences. This is different from Robenalt & Goldberg’s results in which even nonnative speakers slightly preferred Novel/noCA sentences to Novel/hasCA sentences.

Figure 2 shows the average acceptability for each sentence classified into three sentence types. The Baseline sentences are highly acceptable with less variation, but the two types of Novel sentences are relatively less acceptable. Comparing the Novel/hasCA and Novel/noCA sentences, acceptability judgments of Novel/hasCA sentences are spread apart indicating that they varied from individual to individual while Novel/noCA sentences were judged similarly across all participants.

Figure 2. Boxplot of mean acceptability ratings of each sentence split by sentence type.



The difference between Novel/noCA and baseline sentences were significant ( $\chi^2(1)=842.98$ ,  $p<0.001$ ) with the acceptability ratings of Novel/noCA sentences lower than that of baseline sentences by about 1.82 points. Novel/hasCA sentences were significantly different from baseline sentences ( $\chi^2(1)=570.59$ ,  $p<0.001$ ) with about 1.58 points lower in acceptability ratings. These results confirm Robenalt & Goldberg's results. Sentence type did not affect grammatical acceptability differences between novel/hasCA and novel/noCA sentences ( $\chi^2(1)=1.48$ ,  $p=0.22$ ). Although the two types of novel sentences were not significantly different, what was notable was that the results show an opposite tendency from the nonnative results in Robenalt & Goldberg (2016). The participants in the current study tended to judge novel sentences that do not have a readily available competing alternative as less acceptable than those that do have a competing alternative.

Although all the factors related to language experience and background

were tested in this mixed linear model, none of them seemed to be significant in distinguishing the novel/hasCA and novel/noCA sentences with total years of living in an English speaking country showing a slight possibility.

#### **4. Discussion**

After finishing the grammatical acceptability experiment, participants also provided reasons why they thought some sentences were unacceptable. Although the instructions clearly stated that there were no correct answers and suggested the point of view of this usage-based approach, it was found that a lot of the Korean participants considered this experiment as a test of their English knowledge and some even blamed themselves for not being able to give correct answers. Some participants answered that the sentences just did not feel right according to their intuition, and some said that the sentences they judged as unacceptable did not fit into the grammatical rules they learned in school. Participants also differed in the degree of understanding considering the novel sentences, some claiming that they could not understand the meaning and could only infer by the individual words used in the sentence.

Overall the Korean participants stated that they were uncomfortable with the novel use of verbs regardless of the existence of competing alternatives, because they had never witnessed them being used before. This shows that second language learners may be more conservative to any kind of novel sentences because they are still in the process of learning the norms and little flexibility is allowed to them. This leads to the question: Are nonnative speakers in the position to judge the grammatical acceptability of an L2 sentence? This study suggests that grammatical acceptability judgments of nonnative speakers are greatly

related to their nonnative identity as well as their familiarity with the language and overall input of the target language.

## 5. Conclusion

In summary, this study replicated the experiment of Robenalt & Goldberg (2016) with Korean learners of English. In parallel with Robenalt & Goldberg's findings, we could conclude that nonnative speakers did not seem to take competing alternatives into account when judging the acceptability of novel sentences. However it was suggested that a more complex psychological process may be happening inside the nonnative population. As 'learners' of a second language, L2 speakers do not feel qualified to judge the acceptability of novel sentences and rather strictly base their judgments on the grammatical rules they have already learned.

## References

- Ambridge, B., Pine, J. M., Rowland, C. F., & Young, C. R. (2008). The effect of verb semantic class and verb frequency (entrenchment) on children's and adults' graded judgements of argument-structure overgeneralization errors. *Cognition*, *106*, 87–129.
- Boyd, J. K., & Goldberg, A. E. (2011). Learning What Not to Say: The Role of Statistical Preemption and Categorization in A-adjective Production. *Language*, *87*(1), 55–83.
- Douglas Bates, Martin Maechler, Ben Bolker, Steve Walker (2015). Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software*, *67*(1), 1-48. doi:10.18637/jss.v067.i01.
- Perek, F., & Goldberg, A. E. (2017). Linguistic Generalization on the Basis of Function and Constraints on the Basis of Statistical Preemption. *Cognition*, *168*, 276–293.
- R Core Team (2017). R: A language and environment for statistical

computing. R Foundation for Statistical Computing, Vienna, Austria.  
URL <https://www.R-project.org/>.

Robenalt, C., & Goldberg, A. E. (2015). Judgment Evidence for Statistical Preemption: It Is Relatively Better to Vanish Than to Disappear a Rabbit, But a Lifeguard Can Equally Well Backstroke or Swim Children to Shore. *Cognitive Linguistics*, 26(3), 467–503.

Robenalt, C., & Goldberg, A. E. (2016). Nonnative Speakers Do Not Take Competing Alternative Expressions Into Account the Way Native Speakers Do. *Language Learning*, 66, 60–93.

Jeemin Kang  
bling1104@snu.ac.kr

## Appendix

### Full List of Stimuli and Average Acceptability Ratings

Type	Stimuli	Average Rating
Baseline	Will <u>slept</u> on the sofa.	3.90
	Laurie <u>smiled</u> .	4.74
	The boys <u>jumped</u> on the trampoline.	4.37
	The students <u>laughed</u> .	4.56
	Alex <u>swam</u> to the dock.	4.39
	Taylor <u>sang</u> a lullaby to the baby.	4.34
	The coach <u>shouted</u> at the players.	4.31
	The professor <u>explained</u> the assignment.	4.21
	Christina <u>cried</u> when her hamster died.	4.32
	The spy <u>forced</u> the criminal to confess.	4.37
	Brandon <u>fell</u> out of the tree.	3.84
	The family <u>considered</u> going to Disneyland.	3.79
Emily <u>found</u> the book she needed.	4.60	
Ashley <u>disappeared</u> into the darkness.	4.31	
Novel/noCA	Jeff <u>slept</u> the afternoon away.	2.77
	Megan <u>smiled</u> her boyfriend out the front door.	2.25
	Terry's horse <u>jumped</u> her straight out of the saddle.	2.71
	The chief will <u>laugh</u> you back to your desk job.	2.33
	The lifeguard <u>swam</u> the children to shore.	2.43
	The performer <u>sang</u> the audience into another dimension.	2.53
	The shopkeeper <u>shouted</u> the teenagers out of the building.	2.86

---

Novel/hasCA	Amber <u>explained</u> Zach the answer.	3.39
	Anthony's merciless teasing <u>cried</u> his little sister.	2.28
	Daniel <u>forced</u> that Helen compete.	2.25
	Jacob <u>fell</u> the lamp over.	3.03
	Kayla's boss <u>considered</u> to give her a raise.	3.10
	Please <u>find</u> a new pen to me.	2.49
	The magician <u>disappeared</u> the rabbit.	1.84

---

*Note.* noCA = does not have competing alternative; hasCA = has competing alternative.