Noun versus Verb Bias Revisited

You-kyung Chang-Song* · Soyeong Pae**

ABSTRACT

Recently, researchers have been debating whether Korean children exhibit a verb bias or not. Since verbs are perceptually and structurally more salient in Korean language, it has been questioned whether these differences in the Korean make a difference in the pattern of noun and verb acquisition of Korean children. Although language structures may vary between Korean and English, universal cognitive constraints play an important role in early vocabulary acquisition. Several recent studies have examined the noun and verb acquisition of Korean children. However, their conclusions regarding the noun versus verb bias have still been inconclusive. In this paper, previous studies investigating Korean children's noun versus verb bias are examined. Methodological issues are mentioned and results were reinterpreted as favoring the noun bias for one-year-old Korean children.

Keywords: Noun Bias, Verb Bias, Constraints View, Linguistic Relativity Hypothesis, Korean Language Acquisition

1. Introduction

How do children learn the early words? Where do children's early word meanings come from? Are they from language-specificity or from more universal cognitive developmental constraints? More specifically, do linguistic differences influence early lexical development?

The Korean language has been the focus of special interest recently in answering this question. Unlike English, Korean is a SOV (subject-object-verb) language in which verbs are more likely to occur in the perceptually salient final position of an utterance. In addition, Korean allows for nominal ellipsis, so that the subject of a sentence can be left out. As a result, verbs are perceptually and structurally more salient in Korean language input to children. Do these differences in Korean input make a difference in the pattern of noun and verb acquisition of Korean children?

* Hansol Educational Research Center
** Division of Speech Pathology & Audiology, Hallym University

2. The Noun versus Verb Bias

2.1 Theoretical claims for the noun bias

Gentner (1982) claimed that the semantic structures underlying verbs and other predicates are more complex and open-ended than those of nouns. According to this claim, nouns are learned before verbs because their semantic structures are less complex than those of verbs. Moreover, children have a conceptual predisposition early on to treat words as mapping onto objects. More recently, constraints views also endorse the noun bias claim. According to Markman (1989), children assume that a novel word applied to an object is likely to refer to the whole object, rather than its parts, substance, or to the actions and changes of states (the "whole object constraint"). Therefore, the whole object constraints would favor the noun bias in early lexical development. Another constraint also favors the noun bias. The taxonomic constraint helps children to assume that a new word applied to an object can be extended to objects of the same kind rather than an object of causal or thematic relations (Markman & Hutchinson, 1984). Put together, the complexity of the semantic structure of noun/verb and the cognitive constraints view suggest that children learn nouns before verbs in all languages, because the nouns have relatively easier semantic structures than verbs and the cognitive constraints (i.e., whole-object constraints, taxonomic constraints) favor nouns.

2.2 Theoretical claims for the verb bias

On the other hand, Gopnik and Choi (1990) and Choi and Gopnik (1995) proposed that nouns are not always learned before verbs. Gopnik and Choi emphasized the role of linguistic input in early lexical development. According to Whorf's linguistic relativity hypothesis, the linguistic differences have some influence on the way children partition the world and on their lexical development. Furthermore, Gopnik and Choi suggested that the noun bias might be a result of two methodological artifacts: (1) most studies favoring the noun bias have been based on English, and (2) many studies for the noun bias have collected data in a limited context such as book reading.

The basic thrust of their claim is that, without those methodological artifacts, early lexical development is language-specific rather than language-universal. Therefore, verb saliency in the Korean language may facilitate the acquisition of verbs rather than that of nouns.

Several studies have compared Korean and English input and the noun/verb acquisition of Korean children (Au, Dapretto, & Song, 1994; Chang-Song, 1997; Choi & Gopnik, 1995; Gopnik & Choi, 1990; Lee & Chang-Song, 1999; Pae, 1993). When recording parental inputs, both Au, Dapretto, and Song (1994) and Lee & Chang-Song (1999) found that Korean parents were more likely to end an utterance with a verb than a noun,

whereas English-speaking parents were more likely to end an utterance with a noun than a verb. Similarly, Choi and Gopnik (1995) and Choi (2000) found that Korean parents used more action terms (that is, verbs) than object labels. Given these differences in parental inputs, do children acquire more verbs than nouns? The answer to this question is debatable.

A series of studies (Au, Dapretto, & Song, 1994; Chang-Song, 1997; Lee & Chang-Song, 1999; Pae, 1993) found that, regardless of linguistic differences, Korean children produced more nouns than verbs. However, another line of studies (Choi & Gopnik, 1995; Gopnik & Choi, 1990) found different results, namely that Korean-speaking children produced more verbs than nouns. In a study based on nine Korean-speaking children, Choi and Gopnik found that the majority of these children have a period of rapid vocabulary growth that could be best classified as a "verb spurt" rather than a noun spurt.

Although there obviously exist data which clearly support noun bias in Korean-speaking children, the Korean language is disproportionately reported as a verb bias language in the international research society because most studies favoring a noun bias were reported in Korean. In addition, sometimes results were confusingly interpreted relative to English-speaking children's data. It is possible that Korean children acquire more nouns than verbs, but still have more verbs than English speaking children. Thus, in the present paper we have only included the studies of Korean children, trying to focus on the noun and verb bias in Korean. The comparisons were performed in terms of the data gathering method, criteria for verbs, and results of the studies.

3. Studies of Noun versus Verb Bias in Korean

Seven recent studies were selected, of which five studies support noun bias and two studies verb bias. Among the five studies which favor noun bias, two studies published before 1995 were written in English and the other two studies were reported in Korean. Both studies favoring verb bias were written in English and published in 1995 and 2000. Out of seven studies, two studies were analyzed separately because these studies reported results as group data.

3.1 Participants of noun versus verb bias studies

A total of 299 children were included in the meta-analysis. Except for 21 children, all of the children from the three studies were living in Korea. Children's ages ranged from 13 months to 30 months (see Table 1).

3.2 Comparisons of Studies

One caution on the definition of noun and verb should be mentioned before we move on. Children often start with words that are difficult to classify. For example, the word "hot" can be used as a name for a hot object or a request to give her a hot object. Although we cannot assume that children are conscious of these linguistic categories, nevertheless, in all the studies mentioned in this paper researchers classified each item as if it were in the adult language.

3.2.1 Data collection method: Parental questionnaire versus word-checklist

At a glance, a major methodological difference between the two lines of studies lies in the use of a word checklist. The studies which support the verb bias (Choi & Gopnik, 1995; Kim et al., 2000) have used a parental questionnaire for data collection. They used the Early Language Questionnaire which was developed by Gopnik and Choi and followed the same coding criterion. Instead of listing words, the Early Language Questionnaire provides prompts about the particular types of context in which children are likely to produce words and asks the parent to provide the words that the child has produced.

On the other hand, most studies which support the noun bias have used the Korean adaptation of MacArthur Communicative Development Inventories (MCDI-K) (see Pae, 1993). The MCDI-K consists of a total of 567 words of which 245 words are common nouns and 107 are verbs. In addition, the parents are asked to fill out this checklist.

Due to this difference, it is possible that there may be more words reported with the MCDI-K than the Early Language Questionnaire, since retrieving words from memory is much more difficult than recognizing the words with a pre-provided checklist. The MCDI-K also includes 215 more words other than verbs and nouns.

Table 1. Studies of Korean Noun versus Verb Bias

Authors	Number of subjects	age (month)	Data-collecting method	Context
Au, Dapretto, & Song (1994)	4	15-25	Dapretto & Bjork's checklist	Natural situation
Chang-Song (1997)	5	18-22	MCDI-K	
Choi, Seo, & Pae (2001)	180	13-30	MCDI-K (656 words)	
Choi & Gopnik (1995)	9	14-22	Early language questionnaire, spontaneous speech	play with doll
Kim, McGregor, & Thomson (2000)	8	18-21	diaries MCDI Choi & Gopnik's checklist	
Lee & Chang-Song (1999)	3	18-23	spontaneous speech MCDI-K	play, reading eating context
Pae (1993)	90	12-23	MCDI-K spontaneous speech	

In fact, the results show that the range of words reported from the two methods are rather different. From the studies using MCDI-K (Lee & Chang-Song, 1999; Chang-Song, 1997), 11 to 298 words were reported between an 18 to 22 month period. However, when considering only noun and verbs, the maximum was 210 words from one 22-month-old. Using the Early Language Questionnaire (Gopnik & Choi, 1995; Kim et al., 2000), 15 to 189 words were reported for nine Korean children of 14 to 24 months. When only nouns and verbs were considered, the maximum number for the sum of nouns and verbs was 152 words from one 22-month-old. This rather big difference in the total number of nouns and verbs reported from the use of different methods may be responsible for the conflicting results.

3.3.2 Criterion for verbs

In addition to the total number for noun and verbs, a criterion for verbs was also different. Following Choi & Gopnik (1990), the studies which support the verb bias have categorized verbs rather broadly. In addition to verbs which refer to actions, non-action verbs such as attention-getting verbs (e.g., look!), mental verbs(e.g., think), and static verbs (e.g., have, like) were also counted as verbs. Especially, words such as *yeppu-ta* ('is pretty'), *epsta* ('not exist'), *twayssta* ('done'), *manta* ('be a lot'), *ttokkatta* ('be same') were also categorized as stative/adjectivial verbs.

On the other hand, other studies which report noun bias (Au, Dapretto, & Song, 1994; Chang-Song, 1997; Lee & Chang-Song, 1999; Pae, 1993) used a relatively strict criterion for verbs. Most of the stative/adjectival verbs in Choi & Gopnik's studies were categorized as either predicates or a category for amount (e.g., *mantha, ttokkatta, epsta*) in the MCDI-K. For this criterion, several stative/adjectivial verbs in Choi & Gopnik's study should have been counted as adjectives, not as verbs. In addition, children's words for routines such as *shihata* ('do pee'), *unggahata* ('poop') were categorized as routines in the MCDI-K but as verbs in Choi & Gopnik (1995). As a result, there were more verbs reported (131 verbs) in Choi & Gopnik (1995) than in the MCDI-K (107 verbs).

3.3.3 Individual differences in styles of language learning

It is well known that there are large individual differences in the rate of language development (Bloom, Lightbown, & Hood, 1975; Miller & Chapman, 1981). Some children produce little or no meaningful speech before 16 months of age, whereas others produce more than 100 words at or before 16 months. It is also well documented that children are differently characterized in their style of language learning (Bates, Dale, & Thal, 1994). Some children produce a high proportion of names for common objects from the very beginning of meaningful speech. Others produce a high proportion of "non-nominals" that include proper names, routine words, and other words that serve a specific social purpose

(e.g., the word "up" to be picked up, "more" for a request).

Due to the fact that in most studies except Pae (1993) and Choi, Seo, & Pae (2001), which support noun bias, only a small number of children were included for the data collection, individual differences of each child may have influenced the results.

3.3.4 Number of total words in production

Interestingly, the studies using the MCDI (or the MCDI-K) and a large number of children showed a developmental pattern in the composition of words (Bates et. al., 1994; Choi, Seo, & Pae, 2001; Pae, 1993). When children produce less than 100 words in total, the verbs comprise less than 10 % of total words regardless of language. As the total number of words in production increases, the verbs comprise more than 10% of total words. When children produce more than 400 words in total, the verbs comprise more than 20%. Thus, even in the same child, the proportion of noun and verbs may differ according to the size of the total vocabulary (s)he might have.

4. Results

The number of nouns and verbs Korean children produced in the listed studies are presented in Table 2. Surprisingly enough, and contrary to the verb bias claim, the results are straightforward. Although the noun versus verb ratio may vary, Korean children in all the listed studies produced more nouns than verbs. The average ratio of noun versus verb was 6.1:1. Even when children from Choi & Gopnik's study and Kim et al.'s study were considered, children actually produced more nouns than verbs.

In a series of studies (Au, Dapretto, & Song, 1994; Chang-Song, 1997; Lee & Chang-Song, 1999), children produced 1.6 to 57 times more nouns than verbs. In Chang- Song's study, the average percentage between nouns and verbs was 55.4% versus 5.5%. Although it is not reported here, in Lee & Chang-Song's study the percentages of noun versus verb were 72% versus 1% in the reading context and 53% versus 6% in the play context.

Similarly, in Pae's study which reported group data, the average percentage of verbs in production was less than 10%. As the total number of words in production increased from less than 50 words to more than 400 words, children's use of verbs increased from 3% to 20%. In Au et al.'s study, which used a longitudinal design, two boys produced many verbs when they were older than 22 months. Even in those cases, the median noun versus verb ratio was 1.7:1.

The children from Choi & Gopnik (1995) and Kim et al.'s (2000) studies show the same trend. A total of 17 children from those two studies were observed 31 times. Only five children produced more verbs than nouns once. That is, contrary to the verb bias

claim, Korean children did not produce more verbs than nouns. Rather they produced more nouns than verbs.

However, when we focus on the nouns versus verbs comparison in Korean, the percentage of nouns ranged from 31% to 58%, and that of verbs ranged from 12% to 44% in all the studies. Also, the mean percentage of nouns versus verbs was 49.5% versus 26.9% in Kim et al.'s study and 43% versus 38% in Choi and Gopnik's study. That is, there were always more nouns than verbs produced even in those studies except for the session around the verb spurt period in which the average percentage between nouns and verbs was 38% versus 39%. In sum, even in the studies which favor the verb bias, children actually produced more nouns than verbs, except for a few sessions.

Table 2. Number of nouns and verbs Korean children produced

Child*	Age (months)	Number of Nouns	Number of Verbs	Number of Other Words	Total Number of Words	Noun : Verb Ratio
1	15	17	4	0	21	4.3:1
	19	34	7	0	41	6.8:1
2	19	3	1	0	4	3:1
	20	4	1	0	5	4:1
	23	11	3	0	14	3.7:1
	24	14	8	0	22	1.8:1
	25	21	8	0	29	2.6:1
3	17	39	10	0	49	3.9:1
	22	87	53	0	140	1.6:1
4	22	68	16	0	84	4.3:1
	24	110	62	0	172	1.8:1
5	18	20	1	8	29	20:1
	19	114	2	32	148	57:1
	20	120	15	53	188	8:1
	21	383	22	237	642	17.4:1
	23	315	62	226	603	5.1:1
6	19	39	5	38	82	7.8:1
	21	66	7	108	181	9.4:1
	22	192	20	217	429	9.6:1
	23	144	21	217	382	6.9:1
7	18	44	5	11	60	8.8:1
	19	82	2	43	127	41:1
	21	153	6	18	177	25.5:1
	22	171	5	26	202	34.2:1

Child*: Child 1-4 from Au et al. (1994), Child 5-7 from Lee and Chang-Song (1999)

Table 2. continued

Child*	Age (months)	Number of nouns	Number of verbs	Number of other words	Total number of words	Noun: Verb Ratio
8	18	22	23	11	56	1:1
9	20	24	18	16	58	1.3:1
	21	36	24	20	80	1.5:1
10	15	12	14	13	39	0.9:1
	16	18	15	14	47	1.2:1
	17	29	17	16	62	1.7:1
	22	94	58	37	189	1.6:1
11	23	23	21	14	58	1.1:1
	24	30	34	19	83	0.9:1
	26	59	56	28	143	1.1:1
12	18	23	18	9	50	0.8:1
	19	34	18	13	65	1.9:1
	23	51	49	24	124	1:1
13	19	22	15	12	49	1.5:1
	20	28	31	15	74	0.9:1
	22	43	38	17	98	1.1:1
	24	74	73	32	178	1:1
14	17	12	17	11	40	0.7:1
	18	29	23	11	63	1.3:1
	23	51	50	20	121	1:1
15	21	18	4	12	34	4.5:1
16	22	33	9	15	57	3.7:1
	23	51	50	20	121	1:1
17	18	21	19	14	54	1.1:1
18	22	21	16	11	48	1.3:1
19	21	22	14	14	50	1.6:1
20	22	25	14	11	50	1.8:1
21	22	29	15	15	59	1.9:1
22	21	22	11	14	47	2:1
23	18	29	10	11	50	2.9:1
24	18	31	11	6	48	2.8:1
Average Ratio						6.1:1

Child*: Child 8-16 from Choi & Gopnik (1995), Child 17-24 from Kim et al. (2000)

5. Discussions

Verbs are perceptually and structurally more salient in Korean input to children. Do these differences in Korean make a difference in the pattern of noun and verb acquisition of Korean children?

Although many studies have examined the noun/verb acquisition of Korean children, the results have not been consistent. A series of studies (Au, Dapretto, & Song, 1994; Chang-Song, 1997; Lee & Chang-Song, 1999; Pae, 1993) found that, regardless of linguistic differences, Korean children produced more nouns than verbs. Ont the other hand, another line of studies (Choi & Gopnik, 1995; Kim et al. 2000) reported rather different results: Korean children learned more verbs than nouns. Furthermore, when the acquisition rate of nouns and verbs was compared in terms of noun spurt and verb spurt in the latter studies, more Korean children showed verb spurts than English-speaking children.

However, when we look into these studies carefully, several clues to apparent puzzles can be found. Most importantly, when we compare the number of nouns children learned to that of verbs, the results support the noun bias. Korean children actually acquired more nouns than verbs even though the noun versus verb ratio varies depending on the studies. Moreover, the difference in the findings of the two lines of studies is understandable in light of the fact that they used different methods for the study and individual differences in language acquisition. First, different methods seem to be responsible for different results. Especially the criterion for verbs used in different studies seems to be critical. When the number of total words children produced was very small and the criteria of verbs differed, the noun versus verb ratio can be changed significantly.

Second, individual differences in the rate and style of language acquisition might play an important role. It is possible that more "nominal" children were included in the studies for the noun bias and more "non-nominal" children were involved in the verb bias studies. Because most studies included small numbers of children, individual differences of children could For this aspect, the results from Pae (1993) and Choi, Seo & Pae (2001), which included a large number of children, were consistent with the noun bias claim for one-year-old Korean children.

In summary, when we look carefully into the Korean children's production data, it is evident that Korean children actually learned more nouns than verbs. Moreover, this result does not support either the verb bias or the linguistic relativity hypothesis for one-year-old Korean children. On the contrary, the results support the constraint view of word acquisition. While Korean children, compared to English-speaking children, might learn more verbs, both Korean and English speaking children learned more nouns than verbs.

References

Au, T. K., M. Dapretto & Y. Song. 1994. "Input vs. constraints: Early word acquisition in Korean and English." *Journal of Memory and Language*, 33, 567-582.

Bates, E., P. S. Dale & D. Thal. 1994. "Individual differences and their implications for theories of language development." In P. Fletcher & B. MacWhinney (eds.), *Handbook of Child Language* Oxford: Basil Blackwell, 96-151

Bates, E., V. Marchman, D. Thal, L. Fenson, P. Dale, S. Reznick, J. Reilly & J. Hartung. 1994. "Developmantal and stylistic variation in the composition of early vocabulary." *Journal of Child Language*, 21(1), 85-124.

Bloom, L., P. Lightbrown & L. Hood. 1975. "Structures and variation in child language." *Monographs of the Society for Research in Child Development*, 40 (Serial No. 160).

Caselli, M. C., E. Bates, P. Casadio, J. Fenson, L. Fenson, L. Sanderl & J. Weir. 1995. "A cross-linguistic study of early lexical development." *Cognitive Development*, 10, 159-199.

Chang-Song, Y. 1997. "Early word acquisition in Korean: Evidence for constraints View (I)." *Korean Journal of Human Development*, 4(1), 76-86.

Choi, S. & A. Gopnik. 1995. "Early acquisition of verbs in Korean: A cross-linguistic study." *Journal of Child Language*, 22, 497-529.

Choi, E., S. Seo & S. Pae. 2001. "A study of expressive vocabulary of Korean children at 1:1-2:6 years of age." *Korean Journal of Communication Disorders*, 6(1), 1-16.

Gentner, D. 1982. "Why are nouns learned before verbs: Linguistic relativity versus natural partitioning." In S. A. Kuczaj II (ed.), *Language Development: Vol. 2. Language, Thought and Culture.* Hillsdale, NJ: Erlbaum.

Gopnik, D. & S. Choi. 1990. "Do linguistic differences lead to cognitive differences?: A crosslinguistic study of semantic and cognitive development." *First Language*, 10, 199-215.

Kim, M., K. K. McGregor & C. K. Thomson. 2000. "Early lexical development in English-and Korean-speaking children: Language-general and language-specific patterns." *Journal of Child Language*, 27, 225-254.

Lee, S & Y. Chang-Song. 1999. "Linguistic inputs and cognitive constraints in the lexical acquisition." *Korean Journal of Psychology: Developmental*, 12(2), 49-65.

Markman, E. M. 1989. *Categorization and Naming in Children.* Cambridge, MA: MIT Press.

Markman, E. M. & J. E. Hutchinson. 1984. "Children's sensitivity to constraints on word meaning: Taxonomic vs. thematic relations." *Cognitive Psychology*, 16, 1-27.

Miller, J. F. & R. Chapman. 1981. "The relation between age and mean length of utterances in morphemes." *Journal of Speech and Hearing Research*, 24, 154-161.

Pae, S. 1993. *Early Vocabulary in Korean: Are Nouns Easier to Learn than Verbs?* Unpublished doctoral dissertation, University of Kansas.

Received: January 27, 2003
Accepted: February 25, 2003

▲ You-kyung Chang-Song
Hansol Educational Research Center
11th Fl., LG Mapo Bl., 275 Gongduk-dong, Mapogu, 121-721, Seoul, Korea
Tel: +82-2-2001-5598 Fax: +82-2-2001-5693
E-mail: ykchang24@hanmail.net

▲ Soyeong Pae
Division of Speech Pathology and Audiology, Hallym University
1 Okcheon-dong, Chuncheon, 200-702, Gangwon-do, Korea
Tel: +82-33-240-1563 Fax: +82-33-256-3420
E-mail: spae@hallym.ac.kr