

INPUT FREQUENCY EFFECTS OF CHILD-DIRECTED SPEECH IN TERMS OF NOUN-VERB DOMINANCE¹

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ÖZET

Bu çalışmanın amacı Türkçe yi anadili olarak edinen çocukların sözcük dağarcıklarında adların mı yoksa eylemlerin mi daha baskın olduğunu ve bu baskınlığın nedeninin annenin dil kullanım sıklığına bağlı olup olmadığını araştırmaktır. Bu amaçla, 12-24 ay arası beş kız çocuğundan ve annelerinden veri toplanmış ve anne ve çocuğun ad ve eylem kullanımları arasında paralellik olup olmadığına bakılmıştır.

Çalışmanın sonucunda annelerin konuşmalarında daha çok eylemleri yeğledikleri ve çocukların da birinci Ortalama Sözcük Uzunluğu aşamasını geçer geçmez konuşmalarının daha çok eylem odaklı olduğu görülmüştür. Sonuçlar, çocukların bu tercihlerinde hem annelerin konuşmalarının hem de Türkçe'nin yapısal özelliklerinin etkili olduğunu düşündürmektedir.

Anahtar sözcükler: *çocuğa yönelik konuşma, ad-eylem edinimi*

ABSTRACT

This study is part of the research aiming to describe Turkish speaking children's early lexicon in terms of noun-verb dominance and the (in)frequency effects of caregiver speech on children's productive vocabulary. The objectives of the study can be grouped into two: to show the quantity of noun-verb categories produced by children around 12-24 months of age and their caregivers and also to find out whether there is a parallelism between these two groups.

Key words: *child-directed speech, acquisition of nouns-verbs*

1. Introduction

Child-directed speech, as a reflector of the input language characteristics, requires a deeper concern since it is the child's first exposure to the language to be spoken by him/her. The role of input frequency in child-directed speech has been one of the controversial issues in language acquisition studies. Although this interest starts with Nelson (1974), Gentner's research into this field, especially in terms of noun-verb dominance, has been an important challenge in the study of acquisition process.

Gentner's (1982) claim about the universality of primary acquisition of nouns in early lexical

development has received considerable attention in first language acquisition studies (Gentner's Natural Partitions Hypothesis). According to her, the noun-first predisposition is universal in early language learning and must be explained by underlying perceptual and cognitive factors, independent of the language being learned. Gentner (1982) conducted a study with 16 children learning a total of six different languages. Her findings have been supported with parallel research by Dromi (1987), Goldfield (1993), Caselli, et al. (1995) and have been rejected with opposing findings by Choi&Gopnik (1995), Tardiff (1996), Tardiff, Shatz, and Naigles (1997). The latter group of researchers

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concluded that verbs are the dominant elements in children's early lexicon as well as nouns. What they all claim in common is that language-based factors in the input can't be ignored and requires a more analytic perspective than conceptual factors.

When the elements that can affect the children's early lexicon are focused, child-directed speech gains importance. Choi (2000) states that in various domains of language, there is a growing body of evidence that caregiver input influences children's early language. Tardiff, Shatz&Naigles (1997) compared the degree of saliency of nouns and verbs in caregivers' spontaneous speech in English, Chinese and Italian. As a result of this study, it was shown that Chinese caregivers provided verbs more frequently than English and Italian caregivers, and verbs are placed at the end of their utterances. In line with this argument, Gelmann & Tardiff (1998) claimed that language specific properties in the input may explain the early acquisition of verbs.

As one of the languages in the study that Gentner's claim was based on, Turkish is a Ural-Altaic language and is similar to Korean but different from English in terms of word order. To summarize the language properties of Turkish;

- a) a pro-drop language: It is a pro-drop language, in which subject pronoun is dropped in most sentences; whereas it is maintained for pragmatic purposes.
- b) SOV word order, but it is flexible: The canonical word order is SOV in Turkish. However, due to case markers, ellipsis and inversion are also commonly utilized for different pragmatic purposes such as emphasis.
- c) agglutinative morphological structure: Morphological markings are added as suffixes.

The above mentioned characteristics of Turkish also raised questions in the minds of child language researchers as to the dominance of verbs in both child and caregiver speech. For example, KUntay & Slobin (1996) conducted a study on noun-verb dominance with one child. They conducted variation set analysis and also found out that in the mother's talk, verb is the most repetitive element in variation sets. However, they

suggested an extended data and a different analysis in order to reinforce the results of their study. Therefore, we collected data from five children and mothers and did a frequency analysis. We expect verbs may be used overtly more than nouns by both caregivers and children during language development.

2. Methodology

The data of the study came from video-recordings of five female children and their caregivers in their daily routine. The children were visited in nearly three-week intervals. The video-recordings were done in the children's own homes, thinking that it was the setting that both the caregivers and children would feel relaxed and act accordingly. The data collection process with video-camera took 13 months.

2.1. Subjects Five female children and their caregivers participated in the study. All children were first-borns and the single child at the beginning of the study. However, during the data collection process, one of them had a brother. All of the children were at one-word stage at the beginning, at about 12 months of age. They were all from middle-socio economic class. Both parents of the children were university-graduates and their mothers were language teachers. Since all mothers were working ones, it was assumed that their time spent with their children was, to some extent, the same.

2.2. Data Collection and Analysis

The video-recorded data were transcribed using the CHILDES, CLAN program. Some symbols that were assumed to help make comment of the context were preferred from CLAN symbols list. After transcription, frequency analysis from CLAN programs was conducted. The computed data was analysed by the researchers. For the presentation of the analysed data, children's MLUs were calculated for each session. Then, the MLU results were grouped into four as the ones between 1-1,25, 1,25-1,75, 1,75-2,25, and 2,25-2,75. Following this step, a transcribed data set that was assumed to represent the MLU group was chosen for each child. In other words, 4 transcribed data sets for each child, in total 20 sets, were chosen for this study.

In this study, when the session varies in types of activities and when there is no specific toy to play with, the session is called as free play. In short, we can name these sessions in CI and MI as free play. In order to see whether context is effective in the production of nouns or verbs, we also investigated conversations in similar contextual conditions.

3. The Results and Discussion

3.1. Word order in mother's input

The first analysis in our study is based on word order. Although Turkish canonical verb order is SOV like some other languages such as Korean, Mandarin Chinese and Japanese, Slobin and Küntay's study has shown that other word orders are also possible in the utterances of mothers and children. In our data, we also wanted to see whether mothers prefer a verb-final utterance or use the verb in other positions.

As can be seen in caregivers' talk to their children in Table 1, Turkish is not a strongly verb-final language, reinforcing the results from the study by Kuntay & Slobin (1996). Verbs in sentences can move to different positions due to pragmatic purposes, so we can see that Turkish speaking mothers mostly talk to their children also using non-canonical word order, which does not make verbs more salient in daily speech as in Korean and Japanese.

On the other hand, subject and object noun phrases can be deleted in a sentence in Turkish but verb is the essential element. Turkish also allows the full use of verb in short answers to yes/no questions. (Example 1)

Example 1.

A: keselim mi?
"Shall we cut (it)?"
B: keselim.
cut-opt.-pl.
"Yes, let's (cut it)."

As the example illustrates, we can propose that the verbs are fully referred to in answers echoing the verbs in the first speaker's question. This reinforces the repetition of verbs in dialogs.

In this respect, Turkish is similar to Korean and Japanese. In all these three languages verbs can stand for a whole sentence due to pro-drop nature of these languages.

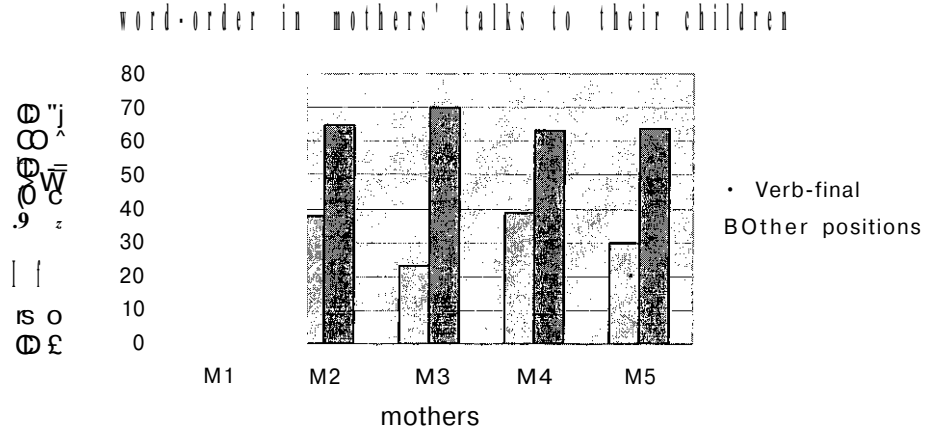
However, elliptic sentences are also widely used by caregivers and children as in the following example:

Example 2.

A: kaç yaşındasın?
"how old are you?"
B: üç.
Three.

These examples show that the existence or non-existence of verbs in sentences and their place in the sentence may not be a determining factor for the acquisition of verbs over nouns.

Table 3.1. Word-order in caregiver's talk to their children



3.2. Verbs or nouns

First of all, in order to see how verbs or nouns are used with different inflectional morphemes, we made a list of different uses of one common noun and one verb. The verb and noun inflections a mother in this study uses during a session reflect that both the frequency and distribution of verbs are wider than nouns (Example 3):

- 1 kaplumbağalarım (-pl.poss.(1st))
- 1 kaplumbağaların (-pl.poss.(2nd))
- 1 kaplumbağamın (-poss.-gen.)
- 1 kaplumbağanı (-poss.-acc.)
- 1 kaplumbağanın (-gen.)
- 1 kaplumbağasına (-poss.-dat.)
- 1 kaplumbağaya (-dat.)
- 1 kaplumbağayı (-acc.)

Example 3.

Verbs

- 2 yap (do/make)
- 1 yapabiliriz (-ebil-pl.)
- 1 yapacaksın (-ecek-2nd sing.)
- 5 yapacağım (-ecek-1st sing.)
- 5 yapalım (-alım-opt. pi.)
- 1 yapalım mi(-ahm-question)
- 1 yapar (-ar-aorist)
- 1 yaparım (-ar-1st sing.)
- 4 yapayım (-ayım-opt.sing.)
- 3 yapayım mı (-ayım-opt.sing. question)
- 3 yapma (negative)
- 1 yaptın (-dı -past-2nd sing.)
- 1 yapıyordu (-yor+du -prog.+past)
- 2 yapıyormuş (-yor+muş (heresay))
- 1 yapıyordum (-yor+du-1st sing, (prog+past))

Nouns:

- 4 kaplumbağa (turtle)
- 2 kaplumbağalara (-pl.-dat.)

In the above examples, the verb "yap" (do/make) and the noun "kaplumbağa" (turtle) are used with all possible inflectional suffixes which also provide children with rich input. The total number of verb "yap" is 32, inflectional form being 15; whereas, the total number of noun "kaplumbağa" is 14, with inflectional form of 10. This leads us to think that the variety and the intensity of verbs used may be a determining factor in the acquisition process.

3.3. Comparison of mother and child utterances

Among the five pairs of mother and child, we observed strong similarities among three pairs. For example, in all MLU stages mothers' use of verbs are higher than their use of nouns although the percentage changes according to context of conversation.

In MLU periods 1 and 2, nouns are more frequent than verbs; whereas, in MLU periods 3 and 4,

Table 3.2. M1 noun/verb categories

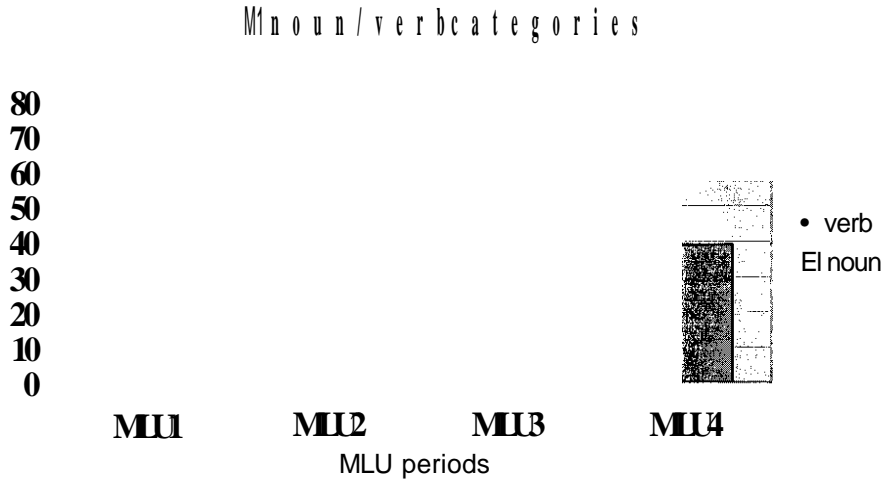
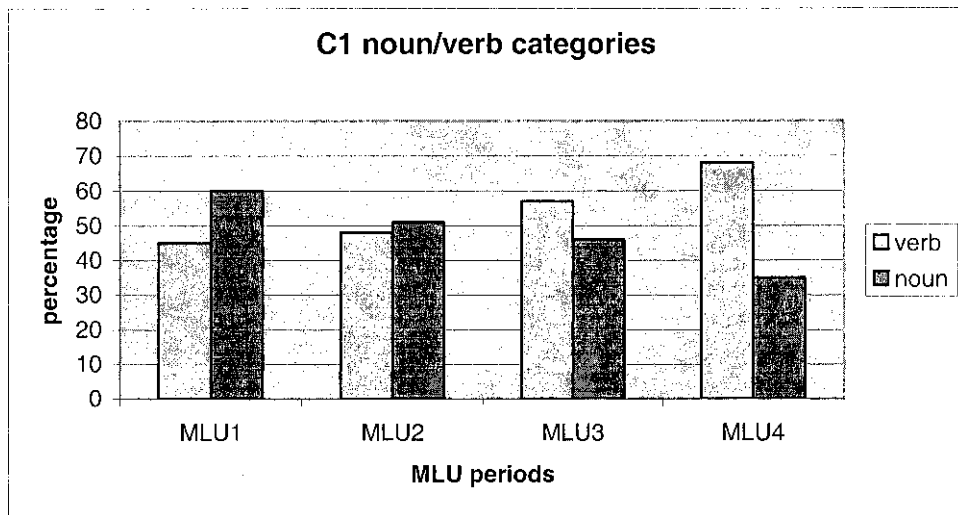


Table 3.3. C1 noun/verb categories



When we compare the percentage of nouns and verbs produced by the first child to her mother's percentages, in Table 3.2 and 3.3, we see that except for MLU period 1, there is a parallelism in noun/verb dominance between M1 and her child.

verbs start to increase. However, the difference between nouns and verbs in MLU 2 gets closer. As it is indicated in the Table 3.2., starting from the MLU period 1, there is a gradual increase in the percentage of verbs. When the contexts of

these verb-dominant sessions are analysed, we can see that the caregiver wants her daughter to look at the pictures of a book but CI refuses this offer. After that, the caregiver prepares some macaroni for CI and helps her eat it. Following this, they play with toys.

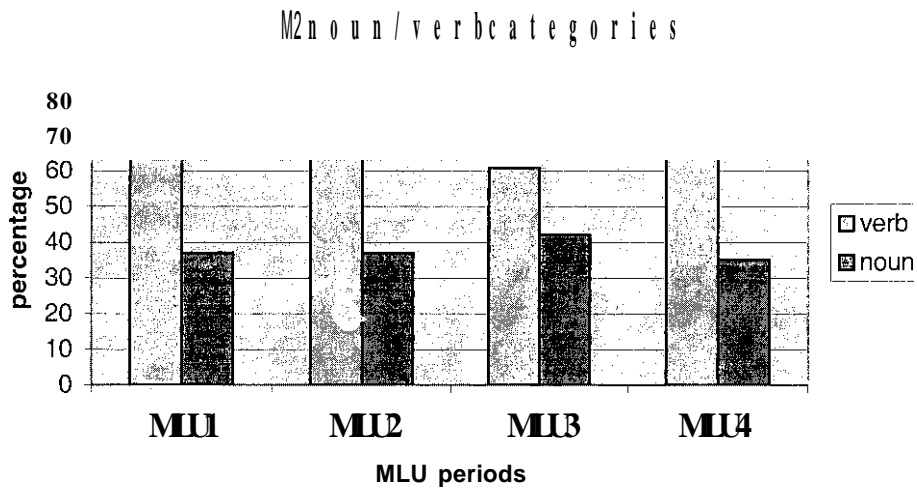
The second pair of mother and child are similar to the first pair (Table 3.4). The percentages of verbs used by the mother are even higher than the first mothers.

Table 3.4 M2 noun/verb categories

there is a match between mother and child in terms of a specific category dominance.

Table 3.5 shows that although the noun category percentage is high in MLU 1, it gradually decreases in the following MLU periods. Consequently, verbs become more dominant. When the contexts are analyzed, we can see that in this recording (MLU1), C2 was given a kind of toy to play with.

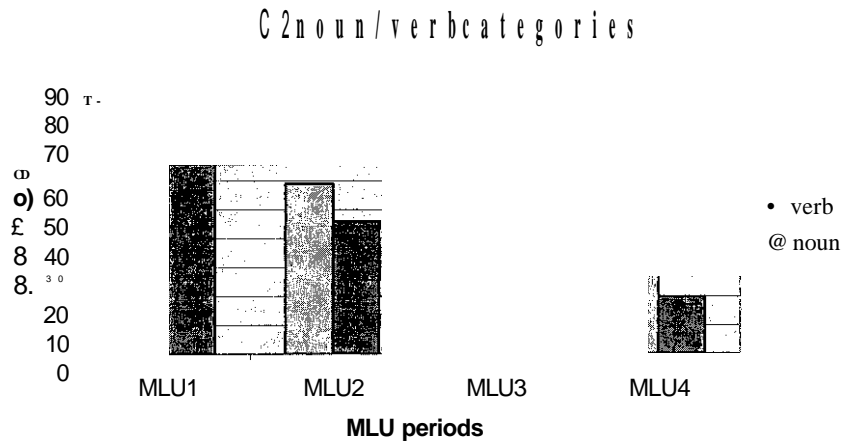
The toy was called as "matching pairs" in the study. There are several pictures of some concrete things and animals on wooden cubes. Each figure has its pair. The child is supposed to match them.



In all MLU periods, there is a verb dominance in M2's talk to her child. As explained before, these sessions are also free play ones. When compared to child's production, except for MLU period 1,

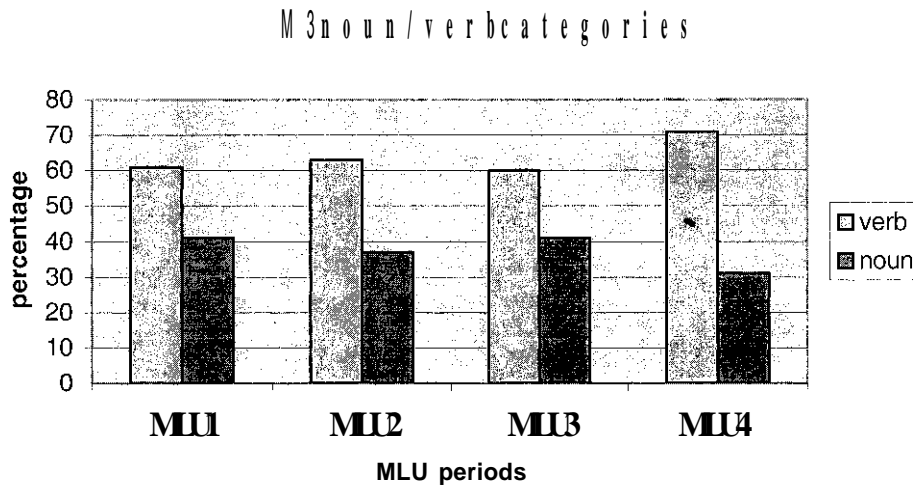
M2 was not given any instructions about how to play with this toy, so M2 was free to decide how to manipulate the toy. She mostly guided her daughter to match the pairs. This may have resulted in noun-dominance in MLU 1.

Table 3.5. C2 noun/verb categories



In the following MLU periods, C2 and M2 weren't directed to do something special. They were recorded during their daily routine. In MLU 2, 3 and 4, they played with toys, which are assumed as free play sessions in the study. The third caregiver also produces a high percentage of verbs.

Table 3.6. M3 noun/verb categories

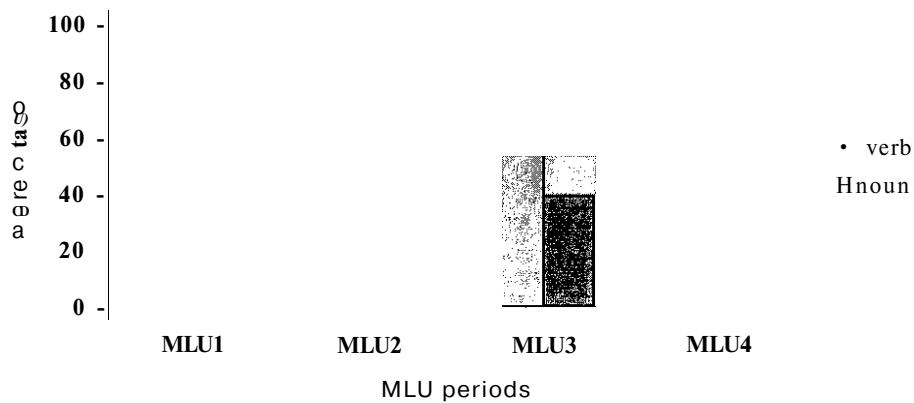


M3's speech is similar to other mothers' talks in that in all of them, the verb percentage is higher than the noun percentage. In the fourth MLU stage, the difference between the percentages of nouns and verbs is even higher.

but you have mixed two play dough.
 M3: iki hamuru birbirine karıştırma
 anlaştık mı?
Don't mix two play doughs! Did we agree on it?

Table 3.7. C3 noun/verb categories

C3 noun / verb categories



When we investigate the third child's production, we see that in MLU period 1, C3's noun category overdominates. In this session, C3 and her caregiver play with toys. In MLU period 2, the percentage of verbs start to increase although the percentage of nouns is still higher. In MLU periods 3 and 4, verbs become the dominant category. These two sessions were called free play since C3 sometimes played with toys, sometimes looked at the books or walked around. The verb category gradually increases as the child's MLU goes up.

The following dialogue illustrates the frequent use of verbs by the mothers when the child is in the fourth MLU stage:

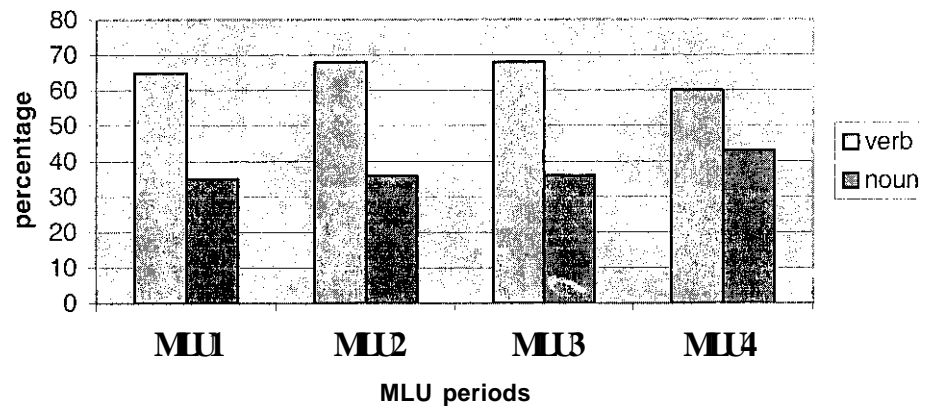
Example 4.

M3: al bakalım.
take it.
 C3: ac.
Open!
 M3: ama bak bu iki hamuru birbirine kanstirdin.

C3: annaştık.
We agreed.
 C3: aç bunu aç.
open it, open!
 M3: tamam, kızım açıyorum.
all right, dear, I am opening it.
 C3: ben açtım.
I opened it.
 M3: sen açtın mı?
did you open it?
 C3: ben açtım.
I opened it.
 C3: bak!
look!
 C3: bune?
What is this?
 M3: dur bakayım.
Let me look at it!
 M3: seni yükseltemem ki.
I could not make you high.
 M3: onu da aç bakalım.
Open it, too.
 C3: açtım.
(I) opened it.

Table 3.8 M4 noun/verb categories

M 4 noun / verb categories |

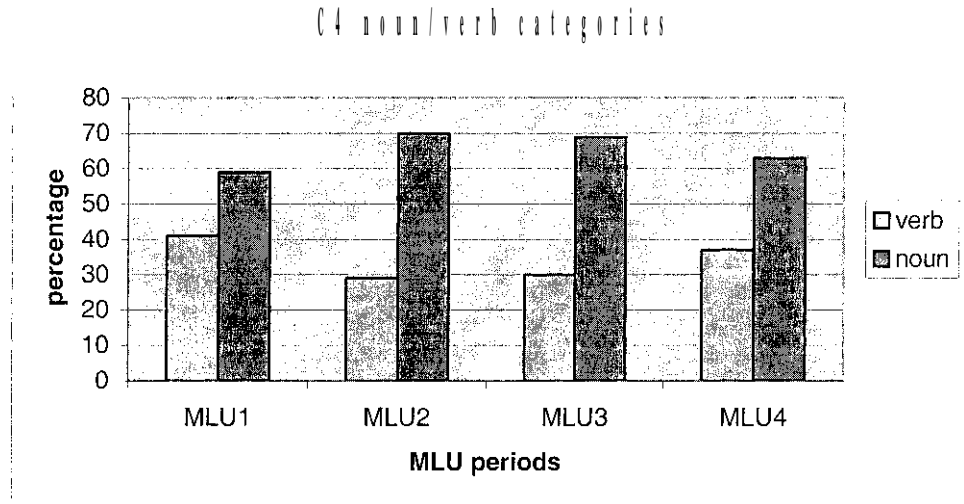


Although these three pairs of mothers and children showed similar tendencies, the results of the data from the other two pairs in our study reveal differences. For instance, verbs produced by the fourth mother are higher than nouns; however, the percentage of verbs produced by the fourth child is lower in the first three MLU stages, yet, the number of nouns and verbs seem to be closer to one another when the child proceeds to MLU4.

As can be seen in the following table, C4 uses more nouns compared to verbs in all MLU periods. This shows that the number of nouns or verbs utilized by the mother is not a determinant of the child's use of nouns and verbs for this specific child. However, as the child becomes more conservative at MLU period 4, her verbs also increase.

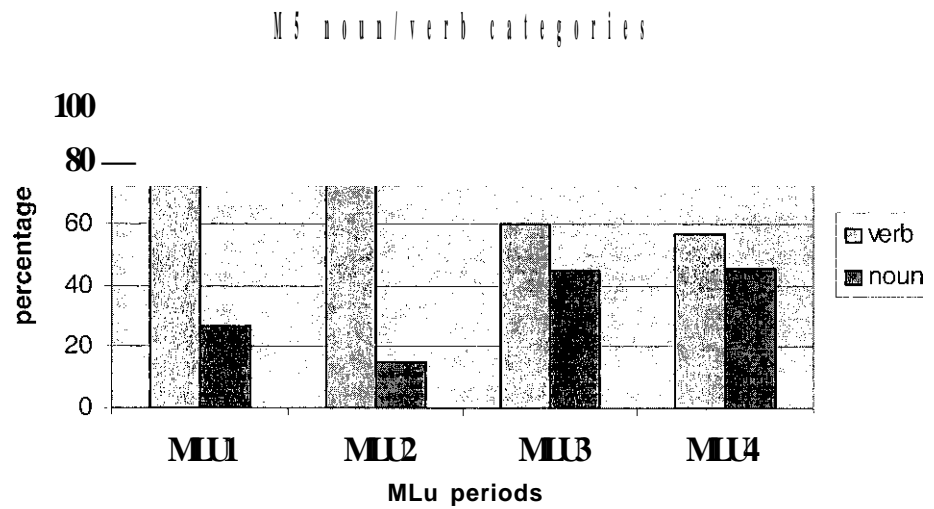
The data obtained from the last mother-child pair in our study also reveals differences in both mother's and child's productions.

Table3.9. C4 noun/verb categories



Similar to all other mothers, verb is the dominant category in M5's talks to her daughter in all MLU periods. However, we observe an inconsistent ratio of noun to verb. Especially in the first two MLU stages, she uses a very low number of nouns.

Table 3.10. M5 noun/verb categories

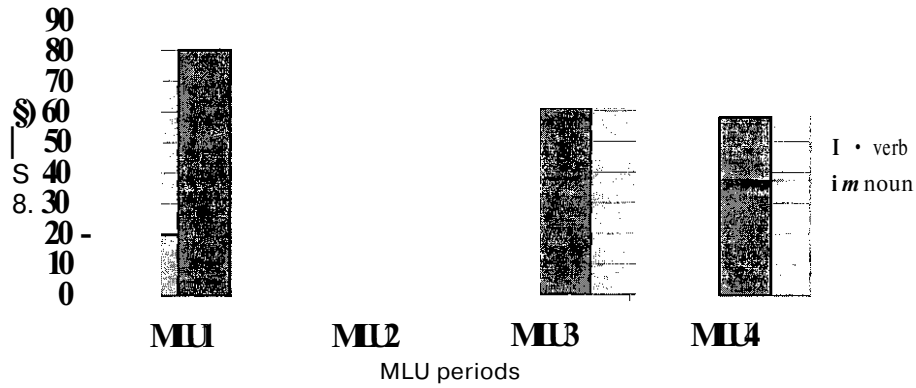


As can be seen in Table 3.10, noun is a highly dominant category in MLU 1 period. In this recording, C5 and M5 were given the toy "matching pairs" and asked to play with it. Since M5 directed C5 to name the figures, nouns became the dominant category.

Table 3.11 C5 noun/verb categories

M5: gel buraya gel.
come here, come
C5: kalem.
pen.
M5: kalem verdim tabii.
of course, I gave you a pen.
M5: başka ne verdim?
What else did I give you?

C5 noun / verb categories



The MLU 2 session was called as "free play". C5 and M5 looked at some brochures and played with the ball and other toys. In the next recording, C5 ate her meal with the help of her mother, so this can be called as "feeding session".

What is interesting with the recording is that although the mother and the child are busy with an action, M5 always guided C5 to name the figures on the packages. In MLU 4, C5 was busy with the "play dough". C5 and M5 made some animal figures using the play dough. Similarly, M5 wanted C5 to label the figures, so we can say that although the contexts of the recordings seemed verb-favoring, mother's style in directing her child is also a significant factor.

An example for illustrating one of these mothers' style is as follows:

Example 5.

M5: ne vereyim Ezgi sana ben?
What do you want me to give you?
M5: ben ne verdim kızım sana şimdi?
What did I give you?

C5: kalem.
pen
M5: bu ne bu?
what is this?
M5: bunun adı ne bunun?)
what is this called?
C5: kitap.
book

3.4. Discussion

As the results of all mothers' data exhibit, in Turkish, verbs appeared more in all mothers' talks to their children at different MLU levels and in various contexts. However, children's use of nouns or verbs differed. The common point in five children is that there is a noun dominance in MLU period 1, both in controlled or free play sessions. In MLU period 1, children's MLU were between 1-1,25. Following MLU period 1, the proportions of noun/verb use change. In the first three children, there is a gradual verb increase in MLU periods 2, 3, 4. We assume that it derives from the characteristics of Turkish. In Turkish, verbs are more highly inflected than nouns.

Turkish verbs are inflected for person, number, tense, aspect, modality, voice, negation and interrogation; whereas, nouns are inflected for number, case and possession. (Ex. 3) Therefore, using verbs requires more competency and wider input.

According to Aksu-Koç & Slobin (1985), Turkish speaking children's first productive morphology appears as early as one-word stage. We can see in our data that although nouns are the dominant category in MLU period 1, as children start to use language productively, verbs are used more except for two children. It also means that children become competent enough to use verb inflections (Example 6). For example,

- Example 6.** (S4 MLU2)
- M4: aç kapağını kızım aç.
**Open your mouth
 dear, open it.**
- C4: öldü.
 die-past
(It) died.
- M4: o öldü ama bir tane
 daha sinek var.
**It died but there is one
 more.**
- C4 : öldü.
 die-past
(It) died. M4: öldürdük
 tamam kızım.
We killed it, dear.
 (S4 MLU 3)
- M4: annecim ver o zaman.
My dear, give it to me.
- C4 : buraya koycam.
 Put-future- 1st person
(I) will put (it) there.
- M4: topunu oraya mı
 koyacaksın?
**Will you put your ball
 there?**
- (S4 MLU 4)
- C4 : bak benimki büyük
 oldu.
 Look! Mine is bigger
 than yours.
- M4: benimki küçük mü
 kaldı?
Is mine smaller?

C4 : bende büyük yapıcım.

I will do a bigger one.

M4: ben daha büyük

yapacağım o zaman.

**Then, I will do a
 bigger one, too.**

C4 : ben büyük yaptım.

I did a big one.

Another significant factor that may contribute to the difference among children may be the context-based factors. In a wider analysis of the study, there are some controlled sessions. To exemplify; all children are given the same toy to play with. However, most of the sessions are held as free play in order not to give a tendency to a specific category-bias. In free play contexts, there is always a mixture of different activities such as feeding, caring, book-reading and toy play in all children. It means that there is no specific-activity dealt with.

The exceptional cases of the study are C4 and C5. In deeper analysis of these two children's interactions with their caregivers, it can be seen that another factor, the caregiver's style, plays an important role. In C5' MLU 3 and 4, even though the sessions can be seen as activity-based (playing with "play-dough" and feeding), since the caregiver guided the child to label, the contexts tended to be a noun-dominant one. Similarly, C4 is exposed to such language behaviours by her mother. Despite the verb-dominance in all periods in the fourth mother's talks, there is always a noun-bias in C4. When the contexts are analysed, we can see that the activities that C4 and M4 dealt with are mostly labelling such as looking at a baby magazine and naming what the babies are playing with, playing "what's this? ", counting from 1 to 10 and telling the names of the colours. As a result, we can say that in C4' case as in C5, the mother's manipulation of the activity, namely her style, is effective on the child's production. At this point, we can refer to Goldfield (1993) who states that "mothers who more often labelled toys during play had children who learned more nouns."

4. Conclusion

The data collected from five Turkish speaking mothers and their daughters reveal that the

dominant words in mothers' production are verbs and children also produce more verbs immediately after the MLU first stage when mothers' styles are not taken into consideration. Gentner (1982) claimed that the conceptual/perceptual factors are the primary reasons for noun-dominance. However, our study shows that language-based factors are also an important element in reaching such a conclusion. For example, in Turkish, high inflections at the end of the verbs may cause children to start acquiring verb inflections earlier than they are acquired in languages like English. However, they start using verbs slightly later than nouns, but once they start using verbs their vocabulary is verb dominant. Therefore, we can conclude that language-based factors-language-specific input-should be taken into account in child language acquisition studies.

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