

**ÇUKUROVA UNIVERSITY
THE INSTITUTE OF SOCIAL SCIENCES
IN THE SUBJECT OF
ENGLISH LANGUAGE TEACHING**

CHILDREN'S EARLY LEXICON IN TERMS OF NOUN/VERB DOMINANCE

N. Feyza ALTINKAMIŞ TÜRKAY

A Ph. D. DISSERTATION

ADANA/2005

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SUPERVISOR: Assoc. Prof. Dr. Hatice SOFU

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ÖZET

İSİM/FİİL BASKINLIĞI AÇISINDAN ÇOCUKLARIN KELİME DAĞARCIĞI

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Çocukların kelime hazinesi gelişimi hakkında daha bütüncü bir bakış açısı kazanmak için isim, fiil veya sıfat gibi belirli kelime sınıfları üzerinde birçok çalışma yapılmıştır. Bu çalışmaların amacı, belirli bir kavram yapısının diğerine üstünlük sağlayıp sağlamadığını ve bu yapının çocukların anadil gelişimini nasıl etkilediğini anlamaktır. Birçok araştırma sonucu, temel nesnelerin dilde isim tarafından temsil edilmesinden dolayı, isimlerin, fiillerden daha erken edinildiğini göstermektedir. Bu da isimlerin dil gelişiminde fiillere baskınlık kurmasına neden olmaktadır. Bunun yanı sıra, birçok araştırmacı, isimlerin fiillerden önce edinildiği görüşünün, hangi dil olduğu fark etmeksizin, evrensel olduğunu iddia etmektedir. Ancak, bazı araştırmacılar bu görüş açısına katılmamaktadır. Onların görüşüne göre, çocuklar anne tarafından kendilerine yöneltilmiş konuşmada fiille daha çok karşılaştıkları için, fiilleri isimlerden daha önce edinirler. Bu bakış açısı, çocukların kelime hazinesinde isim-fiil baskınlığı tartışmasının diğer ucunu temsil etmektedir. Bu yüzden, görüşler iki farklı uca yoğunlaşmıştır: evrensel isim avantajına karşılık girdiye bağlı bakış açısı.

İsim veya fiil üstünlüğü İngilizce, Almanca, Korece ve Çince gibi farklı dillerde birçok veri toplama yöntemi ile çalışılmıştır. Ancak bu konu, Türkçede boylamsal veri toplama ve sıklık analizi yöntemi kullanarak çalışılmamıştır. İşte bu yüzden, bu araştırma, temelde, Türkçe konuşan çocukların sözcüksel ilerlemesine isim ve fiil açısından odaklanmıştır. Buna ek olarak, bu kategorilerin, Türkçe çocuğa yöneltilmiş konuşmadaki dağılımsal özelliklerini de araştırmaktadır. İsim ve fiillerin, ilerleyen gelişimini gözlemleyebilmek için, veri toplama süreci yaklaşık on beş ay sürmüştür. Beş anne, çocukları ile gündelik etkileşimde iken video ile kaydedilmiştir. Yazılı hale

getirilmiş video kayıtları CHILDES çocuk dili analiz programında, sıklık analizi yöntemi ile analiz edilmiştir. Daha sonra, çocukların bireysel olarak isim ve fiil ilerlemesine odaklanılmıştır. Bununla ilişkili bir şekilde, sıklık analizi, annelerin isim ve fiil kullanımları üzerinde de yapılmıştır. Bir sonraki aşama da anneler ve çocukların isim ve fiil sıklıkları arasında ilgileşim analizi yapılmıştır. Bu analiz aşamasına ek olarak, veri toplama süreci içerisinde çocuklardaki aşamalı değışiklikleri görebilmek amacıyla, her çocuğun isim, fiil ve genel sözcüksel ilerlemesi çizgi grafikleri ile de gösterilmiştir. Her çocuğun isim ve fiil ilerleme modeli ile annesinin isim ve fiil kullanım modeli, arada paralellik olup olmadığını görmek amacıyla karşılaştırılmıştır.

Bu çalışmanın sonuçları, Türkçe konuşan çocukların erken dönem sözcük hazinesinde isim sıklığının dikkat çekici şekilde fiillerden daha yüksek olmadığını göstermiştir. İsimler çok sınırlı sayıda gözlemde fiile istatistiksel olarak bir üstünlük sağlamıştır. Bu araştırmadaki bulgular isim ve fiil edinimi modeli ile ilgili önemli bir açığı desteklemiştir. Tüm çocuklarda fiil ediniminin daha aşamalı ve ilerleyici olduğu, ancak isimlerin bağlam faktöründen -fiile kıyasla- daha çok etkilendiği görülmüştür. Bazı çocuklarda, veri toplama sürecinin sonlarına doğru, isimden daha yüksek bir fiil sıklığı görülmüştür.

ANAHTAR KELİMELEER: isim/fiil edinimi, isim/fiil baskınlığı, isim eğilimi, Türkçe çocuğa yöneltilmiş konuşma

ABSTRACT

CHILDREN'S EARLY LEXICON IN TERMS OF NOUN/VERB DOMINANCE

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Specific categories are investigated in many studies in order to gain a complementary point of view about children's lexical development, such as noun, verb or adjective. The main aim of those studies is to see whether a particular conceptualization pattern becomes privileged over another one and how this affects children's language development. A great number of research findings reveal that nouns are acquired earlier than verbs because basic level object categories are represented by nouns, leading to dominance of nouns over verbs. This noun-before-verb acquisition pattern is universal regardless of the language. However, some researchers are in disagreement with this claim and they propose that verbs can be acquired earlier than nouns as children are exposed to more verbs in the maternal input. This constitutes the other end of this controversial topic. Therefore, the arguments show two opposite ends: universal conceptual constraints versus language characteristics.

The primacy of nouns or verbs have been studied in different languages, such as English, German, Korean and Chinese by using various data collection tools. However, this issue was not studied in Turkish by means of longitudinal data-frequency analysis. That is why, this study mainly concentrated on Turkish speaking children's lexical development in terms of noun and verb categories. In addition, the distributional properties of those categories in Turkish child-directed speech was studied. In order to see the progressive development of nouns and verbs, the data collection period lasted nearly thirteen months. Five Turkish speaking children were video-recorded during their routine interactions with their mothers. Then, the transcribed data was computed with CHILDES, freq analysis. Next, children were focused on individually with a particular reference to noun and verb development. In line with this, the freq analysis was

conducted on the mothers' child-directed speech. Then, mothers' frequent use of noun and verb categories was correlated with that of children's. In addition to this analysis, each child's noun, verb and overall lexical development was given through line graphs in order to see the progressive changes during the data collection period of the study. Each child's noun and verb development pattern was compared to her mother's noun and verb use to see whether any parallelism could be observed.

The findings of the study indicated that the frequency of nouns in Turkish speaking children's early lexicon was not considerably higher than their verbs. Nouns became statistically dominant over verbs in a very limited number of observed times. The results of this study supported an important point regarding noun and verb acquisition pattern. In all children, verb acquisition was more progressive, whereas the nouns were context-dependent. In some children, towards the end of the data collection period, a higher verb frequency over nouns was seen.

KEY WORDS: noun and verb acquisition, noun/verb dominance, noun bias, Turkish child-directed speech

Affectionately dedicated to my daughter, ZEYNEP & my husband, SAMİ
and
my parents, NECLA and HÜSEYİN

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I and I alone am responsible for the shortcomings of what follows.

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CHAPTER 1

INTRODUCTION

1.0. Introduction

Though first language acquisition studies were reported in their infancy stage some years ago, research in this field has developed rapidly and provided underlying considerations for second language research and pedagogy. Most second language acquisition researchers tend to count on the research findings from first language acquisition because they are able to shed light on the myriad of questions in their own field. According to leading researchers in the field, the rationales of the first language acquisition research can be summarized as below.

First, first language learning experiences are supposed to reflect principles of second language learning. Therefore, first language acquisition studies help us to be equipped with a better understanding of second language learning environment. The researchers are aware of the fact that the differences and similarities between second and first language learning processes require caution. Teaching methods and techniques for second language teaching classrooms have been based on first language acquisition principles, by focusing on the points that require attention. Basic findings from first language acquisition guide us to learn about human nature and the relationship between cognition and environment.

Second, following the normal language learning processes, we can be informed about language disorders. Therefore, the findings from language acquisition studies have also been referred to in medicine. Education designers and curriculum developers for children with language impairments analyze first language acquisition field very closely.

Third, by observing children's language development stages, deductions can be made related to cognition. For this reason, the first language acquisition field is also a

research environment for cognitive psychologists. The relationship between language and cognition has always been emphasized in related studies (Brown, 1987; Clark, 2003; Hoff, 2001).

As learning languages gains increasing interest, it is undoubful that future research will always be required and processes and mechanism working during our mother tongue acquisition will receive more consideration.

As in other scientific studies, child language acquisition studies have passed through several stages especially parallel to the dominant theoretical issues. From 1930s till 1950s, behaviouristic approach influenced the field, whereas after 1950s with the raising interest towards innate mechanism underlying language learning, cognitivism has gained importance. Research began to focus on how the mind works in acquiring a language. However, researchers' disagreements about the cognitive path that the child follows in his language development have been the primary source for studies (O'Grady, 2005).

Another factor that highly marks the developments in child language acquisition studies is technology. The related literature can be divided into three eras: the period of dairy studies, from 1876 to 1926; the period of large sample studies, from 1926 to 1957; the period of longitudinal studies, from 1957 till present (Ingram, 1989). In terms of the dominant perspective in the field, Bloom's and Chomsky's perspectives have led many studies for long periods (Gleitman & Wanner, 1982). Today's efforts to find out the underlying mechanisms of language acquisition process comes from their agreements and disagreements in their perspectives.

1.1. Background of the Study

After realizing the importance of language acquisition studies for second language learning environment, specialized studies on acquiring one particular aspect of language started to be conducted, such as semantic and syntactic properties of the language. Several languages have been analyzed from different perspectives. More research has been accumulated on the specific languages such as English, Japanese,

Russian, Italian and Korean. As the findings on these languages became controversial depending on the method used, the view approached, the analysis conducted, data about other languages has been required in order to support the findings. Among those languages, Turkish has received considerable attention, especially in recent years. Research dealing with Turkish both as a first and second language from various perspectives and comparative studies based on Turkish took place. To exemplify; studies by Ekmekçi (1979, 1986, 1987, 1988); Aksu-Koç & Slobin (1985), Kuntay & Slobin (1996, 2001), Sofu (1995, 2005), Ketrez (2004), Ketrez & Aksu-Koç (2003) have been made.

In the light of the above mentioned research, this study, conducted in Turkish, concerns about children's early lexicon and aims to provide necessary data for one of the challenging issues in child language acquisition: dominance of one specific category in children's early lexicon: noun or verb.

One of the main goals of the studies is to directly address the noun or verb dominance in children's early language development and to understand the cognitive developmental process that children pass through. Developmental scientists have been trying to explain the relationships between cognitive development and language development for several years. Different hypotheses have been put forward. The most influential view is supported by Piaget and has been called the cognitive prerequisite view in the related field. According to him, children establish non-linguistic concepts before they become linguistically competent, and children start production in their native language after they have reached their conceptual readiness. In addition, he claims that the view that conceptual development precedes language development is universal (Bloom, 2002).

Contrary to Piaget, Vygotsky's perspective into the field has also been considered important. He proposes that the interaction between language and cognitive development is essential. The interactionist view does not emphasize the predominance of one part over another in the language development process. According to Hoff (2001), the child's cognitive development is activated in social interaction and then individuated in Vygotsky's theory.

Another attempt to answer whether children's early lexicons have noun or verb dominant nature focuses on the effects of child-directed speech. It can not be denied that the speech that children are exposed to is a determinant factor on their language development. At least, it is the input language that activates the language acquisition device.

The language that children hear, starting from the first days of their life, is mostly language used by their main caregivers. The caregiver may change according to the different circumstances in families. Although this is the case, caregiver speech has some common characteristics, such as frequent repetition and short utterances. In addition, the claim is that the child-directed speech may also affect the acquisition of noun/verb categories by children (Choi & Gopnik, 1995; Tardif, 1996). The distributional properties of nouns and verbs in caregiver speech have been studied as well as the language specific characteristics.

1.2. Statement of the Problem

As the acquisition of a specific language means being competent in the sound patterns, vocabulary, grammar, morphosyntax, and discourse functions of that language, research into a language may also deal with one of these complementary parts. In general sense, this research particularly focuses on children's lexical development. Lexicon, the mental dictionary, is a concrete reflection of what processes are working in the mind. According to Hoff (2001), lexicon shapes the mechanism that Chomsky calls as LAD. Research, individually focused, into the structure of lexicon is plentiful. Efforts to find out the internal structure of lexicon and to shed light on the developmental phases in lexical growth are very significant for child language acquisition.

Controversial crosslinguistic findings on the composition of children's early vocabularies have motivated researchers to study the lexicon in detail and to investigate the lexicon from various perspectives. All these efforts are to understand whether a dominance of a specific type of concept highlights the cognitive structure of the mental dictionary. There has been an increasing number of reports and studies pointing that

children's early lexical development has been dominated by a large number of nouns (Goldfield & Reznick, 1990; Nelson, 1973; Halliday, 1975; Caselli et al., 1995; Gentner, 1982). However, after this strong proposal, findings of research rejecting this universal claim about the noun predominance in children's early lexicon have accumulated, especially since 1980s. Researchers in favour of the universality of the noun-primacy hypothesis have been criticized since they have conducted their studies in English and have limited their findings to English. Therefore; the counter arguments derived from the limitation of this claim only representing English data. For example; Choi & Gopnik (1993) points out that such a pretentious proposal should have been supported by data from other languages that are structurally different from English. Consequently; she carried out her study in Korean. The findings and data have been mostly based on her efforts in the counter argument group. The result of her studies point out that the verb is also an emerging category in Korean-speaking children's early lexical development.

Turkish, as a structurally different language from English but a similar one to Korean, has especially gained interest in recent years. This phenomenon, the universality of noun-first predisposition, has been dealt with by some Turkish researchers with different research methods (Küntay & Slobin, 1996; Ketrez, 2004). Nonetheless, they all suggest doing longitudinal studies with more children to put forward the same claim or reject it in Turkish.

Following the line of argument summarized above, in this study, this issue is addressed presenting longitudinal data from five Turkish speaking children. Their productive lexicon during nearly fifteen months is analyzed to see whether nouns or verbs predominate over the other.

1.3. The Aim of the Study

The goal of this study is mainly two fold: to observe the progressive development of nouns and verbs in Turkish speaking children's early productive lexicon and to see whether one of these categories emerges earlier and provides a dominance

over another. Secondly, we also address the probable influence of the Turkish maternal input with particular reference to nouns and verbs on children's lexical development.

1.4. Research Questions

- 1) Do Turkish speaking children acquire nouns earlier than verbs?
- 2) Do nouns predominate over verbs in Turkish speaking children's early lexicon?
- 3) Do the frequencies of noun and verb categories in Turkish speaking children's early productive lexicon show parallelism with the frequencies of those categories in Turkish child-directed speech?
- 4) Does the frequency of verbs in salient positions have an effect on Turkish speaking children's earlier acquisition of this category?
- 5) Does Turkish speaking children's early lexical pattern of noun or verb dominance show any similarities or differences with languages known as verb-friendly or noun-friendly?
- 6) Does the pattern of Turkish child-directed speech regarding noun or verb dominance show any similarities or differences with child-directed speech of languages known as verb-friendly or noun-friendly?

1.5. Operational Definitions

Although it is assumed that the key words that this study is based on are not really technical, only the ones presented below need to be mentioned in order to set common criteria with other related studies.

Middle-Socio Economic Class: Taking into consideration the criteria that Wells (1985) sets about the status, education and occupational positions of parents, this study truly represents the middle-socio economic class. That is; all mothers are language teachers and have, to some extent, the same professional experience and working contexts. All fathers are university graduates and are working in the jobs that are assumed to be middle-socio economic occupations (cited in Bennett-Kastor, 1988).

Noun and Verb: The main discussion in all previously conducted studies has come from the different ways that these two linguistic categories have been defined. For this reason, in order to present comparable data with other findings, the different level of analysis, each representing a more liberal or conservative definition of noun and verb, is included in the study. However, the common point in all studies is that noun and verb categories are counted in the way they are counted in the adult language (Caselli et al., 1995, 2001).

Caregiver Talk / Child-Directed Speech: In this study, mothers are accepted as main caregivers and their talk to their children is defined as caregiver talk / child-directed speech. In other related studies, grandmothers were sometimes referred to as main caregivers. However, since there was a consistency in the time period that the mothers spent with their children, the assumption is that it would not lead to any bias within the children's productive language.

1.6. Assumptions and Limitations

The methodological discussion in the child language acquisition studies derives from how much data will be enough, how long the data collection period will go on, what intervals will be appropriate to observe the language development and how many children will participate in the study (Tomasello & Stahl, 2004; Bennett-Kastor, 1988). They also mention that it is the research question that will determine the way the data is collected. Since this study deals with the emergence and growth of specific linguistic items, which are noun and verbs, longitudinal data would be an appropriate method. Also, as noun and verb are two basic categories in sharing one's communicative intention representing the content, the researcher believed that nearly fifteen-month data would be satisfactory to meet the expectations that the research questions pointed in this study. Similarly, almost all longitudinal data trying to answer the same research questions in the field were compromised of the same kind of data. In addition, by including different contexts into the data collection period as well as free play sessions, the aim is to include as many various situations as in nearly all the previous studies conducted.

Since there is a strong consistency in the background of all parents, the results of this study can be thought as representative data for only middle-socio economic class. Therefore, it may be misleading to generalize the findings for all socio-economic classes.



CHAPTER 2

REVIEW OF LITERATURE

2.0. Introduction

The general scope of this study is the detailed analysis of Turkish speaking children's early lexicon, specifically, the universality of the noun-primacy hypothesis proposed by Gentner in children's lexical development. As well as presenting data from Turkish in line with this argument, crosslinguistic findings from related research will be given in order to establish a position for the Turkish data. For this reason, a brief summary of underlying theories, hypothesis and claims - under two headings as the universal noun advantage view vs. the input-dependent view- will be reviewed in this chapter. Moreover, research results from other languages, both in favor of and against the noun-first predisposition, will be discussed. This chapter will also provide a background of literary review of why such a study in Turkish is required.

2.1. An Overview into Lexical Development

Children's early lexical development goes back as early as their first months in their babyhood. Their meaningless cries change into intentional symbols of their biological and emotional needs, such as hunger and love. The period between three months and ten months can be reflected in three steps of cooing, babbling and late babbling, and are called pre-linguistic steps (Yule, 1985). Just after children have recognized their own names, their communicative development starts to be a real-life link between their caregivers and themselves. This purposeful interaction gives rise to the emergence of more rapid language production (Hoff, 2001). At about one-year, the first words in early lexical development appear. This one-word stage is characterised as using a specific term intending to express demands. These one-words produced by children at that period mostly name the things with which they are in contact.

After the emergence of first words in a lexicon, an important but controversial category is observed. This lexically significant period is called word spurt and occurs when children have nearly a 50 word productive vocabulary. In fact, various labels to refer to this period have been utilized in the related field, such as word burst, vocabulary expansion, vocabulary spurt or burst. Benedict (1979), Goldfield & Reznick (1990) and Nelson (1974) are in relative agreement concerning the approximate number of words defining the phase when the word spurt is observed. 50-word has been the common mark that their studies indicate. In a different perspective, Dromi (1987) and Mervis & Bertrand (1995) claim that vocabulary expansion happens somewhere after the 50-word mark when children gain more syntactic competence in the input language. However, their claim comes from a different definition criterion. The word spurt in Gopnik & Meltzoff's study (1986) is 10 or more words in a three-week interval. Furthermore; while Lifter & Bloom (1987) believe that 12 or more words in a three-week interval are an indicator of word spurt. Moreover, Goldfield & Reznick (1990) use 10 or more words in a two-and-a half week period as a criterion in their study.

Despite many researchers' conclusions about the sudden increase in children's early lexicon, Bloom (2002) has revised his perspective into early lexical development and states that generalizing the word spurt for all children's lexical development may be misleading. He also exemplifies his argument by data from two children, one of whom has a word burst, whereas the other shows a continuous gradual vocabulary expansion. Bloom (2002) adds that the increase in overall vocabulary size may not mean that the child is able to use all these words productively both in syntactic and semantic domains. Moreover, a gradual accumulation in lexicon, not a sudden one, may reflect more competent use of words.

Following this argument in the field, several researchers have focused on the content of children's lexicons in the vocabulary spurt period. This research perspective has become a challenging topic for numerous researchers for a long time and many research findings have accumulated in the field (Clark, 1993; Gökmen, 2004; Kern, 2004).

Among a wide range of word classes, nouns and verbs have received more attention in understanding children's early lexical development since they are the only

word classes to defend universal status (Trask, 1999). Then, a great number of research was conducted investigating especially noun and verb acquisition. As a result of this focus related to the children's early stages of word learning, Gentner (1982) has proposed that nouns will be acquired earlier than verbs. Also, nouns will predominate over verbs in children's initial words, which is known as the universal noun advantage view.

The theoretical background and rationale for these studies can be placed in two groups: a) perceptual-conceptual constraints underlying noun primacy in children's early lexicon b) language-specific input via child-directed speech as a determination of the nature of children's early lexicon.

The researchers who are in favour of the noun-first predisposition in children's early lexical development have supported their argument, mainly referring to Gentner's Natural Partitions Hypothesis. This hypothesis has widely been taken into account, but her second hypothesis and the corollary of the Natural Partitions Hypothesis, the Relational Relativity hypothesis has been neglected. However, it is believed that both Natural Partitions and Relational Relativity Hypothesis should be taken as a whole to set a justification for noun superiority.

2.2. The Universal Noun Advantage View

All hypothesis and claims related to the noun-first predisposition are given below in order to present a coherent view of all.

2.2.1. Natural Partitions Hypothesis

The Natural Partitions Hypothesis proposed by Gentner (1982) mainly attempts to explain the noun-dominant nature of children's early lexicon in terms of cognitive perspective.

Gentner (1982) explains that children are equipped with specific innate cognitive and perceptual constraints. Taking a position on these constraints, she claims

that the distinction between nouns and verbs across languages derives from the conceptual difference between them. Since nouns mostly refer to concrete things, they are conceptually easy to establish and more fundamental than verbs. This simple conceptualization of nouns does not differ from one language into another. Therefore, she concluded that noun-primacy in children's early lexicon is a language general characteristic. She (1982) states that

This position, which I will call the Natural Partitions Hypothesis, holds that (1) The linguistic distinction between nouns and predicate terms, such as verbs and prepositions, is based on a preexisting perceptual-conceptual distinction between concrete concepts such as persons or things and predicative concepts of activity, change-of-state, or casual relations; and (2) that the category corresponding to nouns is, at its core, conceptually simpler or more basic than those corresponding to verbs and other predicates.

(Gentner, 1982, p. 301)

On the other hand, verbs and other predicates represent relational terms and these terms vary from one language to another. Also, the relations that verbs and predicates represent are more various than those of nouns even in a specific language. Therefore; setting the constraints related to verbs and predicates require more time and complex processing (Gentner, 1982).

According to Gentner (1982), a child's language learning is a matching process between entities in the real world and their representations in the language. Cognitive access especially to stable concepts is easier. These stable concepts are mostly lexicalized as nouns in adult language. Consequently; the noun category predominates children's early lexicons.

Before Gentner, the cognition-based approach into the structure of an early lexicon has been supported by many psychologists. Particular Macnamara's (1972) perspective is close to Gentner's in how cognitive difficulty of a concept affects its language acquisition. The acquisition order of word meaning is determined by its cognitive ease. To illustrate; object references are easy to visualize and to place in the

semantic network of the lexicon. Therefore; concluding that children's early lexicon is made up of nouns is not surprising.

Gentner in her paper (1982) wants to make the point clearer. She states that concrete object concepts are assumed to be learned first, because they are possible to grasp without difficulty, and they are also people or objects that children are in contact with in their daily life experiences. These object reference concepts are syntactically referred as nouns in adult language. However, their adult form is not a discussion point concerning the child. When the content of these early nouns are analyzed, she finds nouns refer to concrete things, namely individual objects and beings. Abstract nouns such as joy and collective nouns such as forest do not appear in children's early lexicon as early as object reference nouns. In line with this, Gentner (1982) adds that even these individual objects or beings are underextended. For example; a dog represents only a particular dog or Teddy Bear in the child's book. However, underextension is not a frequent process in children's language development (O'Grady, 2005). Therefore; children can easily overcome underextension and start to utilize the noun category properly.

Gentner firstly revised previous English data by Nelson, 1973 and Goldin-Meadow, Seligman & Gelman, 1976 (in Gentner, 1982). She has reached to a conclusion about noun-primacy frame of children's early lexicon. After this, she overgeneralized this by claiming that noun-first predisposition in children's early language development is a universal phenomena. The study that this generalization is derived from was conducted with German, Kaluli, Japanese, Mandarin Chinese and Turkish children. Furthermore; Gentner has searched for conceptual similarities in the content of children's early lexicon. She has presented data parallel to Nelson's categorization (1973) in that proper nouns, food, animals, toys, body parts, vehicles and other well-defined objects appear in the nominal category, whereas the early verb-like terms are simple change-of-state, action verbs, terms expressing experiential states of speaker and expressive terms.

After presenting supportive claims in terms of cognitive point of view, Gentner examines the possible non-conceptual commonalities of which the counter argument group is in favor. She groups them into three, depending on the language-based factors

of word-frequency, position in the sentence and morphological transparency. Since these language-based factors are also the main argument points of both parties, they are discussed here in detail.

2.2.1.1. Word Order

One of the factors that is said to interfere with the ease of acquisition is the word order. Slobin is an important linguist that notes the significance of word position in sentences with one of his operating principles. Slobin (1973) claims that children tend to pay attention to the ends of words. Gentner (1982) extends this approach by stating that syntactic category in final position in utterances receives more attention, so the noun-dominant nature of English speaking children's early lexicon might be the result of this SVO word order of English. In order to argue against final position as a determinant of acquisition, Gentner (1982) included languages of which word orders differ from English in her main study. She hypothesized that if utterance final position had been sufficient to explain the early acquisition of nominals, Turkish, German, Kaluli and Japanese learn verbs first. As a result of her analysis, the data in these languages still show preponderance of nouns. Thus, she concludes that word order is not a sufficient predictor of noun-first predisposition in early language acquisition.

2.2.1.2. Word Frequency

Word frequency has also been assumed to be a significant determinant in language acquisition; however, to some extent, that can be a sole rationale for dominance of a specific category is debatable. In line with this, researchers argue about the contribution of linguistic input factors into the early emergence of nouns. One discussion concerns whether children acquire nouns earlier because the noun category is more frequent in the language directed to children by their caregivers. Brown (1973) states that if word frequency had been accepted as a main determinant of children's lexicons, children would have acquired verbs and verb-like words before they learn nominals. If there had been a parallelism between the child's production and the child-directed speech, not a verb or a noun, but an article, the, would have appeared in children's early lexicon. However, Gentner (1982) criticises this finding saying that

these implications are derived from adult-to-adult speech. The frequent use of a specific category in adult-to adult speech may not mean a similar pattern in child-directed speech. He suggests a deeper analysis of language especially directed to children in terms of word frequency. In relation to this, Gentner asks two questions: (1) Do children learn certain kinds of words because their parents say them often or (2) do their parents say certain words because their children find them easy to understand? These two questions still have guided most of the studies in the field.

2.2.1.3. Morphological Transparency

Another non-conceptual rationale derives from how morphological units are fitted into nouns and verbs. In English, nouns are inflected for plurality and possession whereas verbs are for tense, person, number and aspect. To be neutral, Gentner (1982) does not mention Turkish and Kaluli which have very rich verb morphologies but Mandarin Chinese in which there are equivalent morphological markings on verbs and nouns. She refers to Erbaugh (1980) to show a strong advantage for nouns in Mandarin (in Gentner, 1982). This finding leads her to conclude that the morphological structure of a language does not present satisfactory rationale for noun-dominance in early language acquisition.

2.2.1.4. Patterns of Language Teaching

Language teaching patterns are another linguistic input feature that are assumed to determine the nature of children's early lexicon. Gentner (1982) analyses language teaching patterns in line with culture and refers to Schieffelin (1979) and Erbaugh (1980) to compare cultural patterns of Kaluli, Mandarin and English speaking caregivers (in Gentner, 1982). Mandarin and English child-directed speech are mostly based on teaching to talk, to initiate conversational interaction, whereas Kaluli speaking caregivers tend to teach their children the names of objects and things (in Gentner, 1982). However, no matter how the child-directed speech is dominated, the noun category emerges earlier and frequent in Gentner's data.

With these four language-based factors- word order, word frequency, morphological transparency and patterns of language teaching- , Gentner (1982) claims that linguistic input factors can not be accepted as the perceptual and cognitive explanation for noun-bias in children's early lexicon.

2.2.2. Relational Relativity Hypothesis

After Gentner presents noun-primacy justifications for children's early lexicon in terms of cognitive and language-based factors, she analyzes verb conceptualization crosslinguistically. All her claims related to semantic representations of verb lexicon appear in her Relational Relativity Hypothesis. Considering the rationale from a cognitive perspective, she explains that when children search for the referent of the specific verb, their task is demanding. They have to look for both the word and the semantic relations, which means that word-to-world meaning should also be acquired in order to use the verb productively. The next point that Gentner mentions is that there is a number of crosslinguistic differences in terms of verb and verb-like relations. Verb lexicalization varies from language to language. That is, as Hudson (1980) puts forward, language is a shared and cultural knowledge and the cultural impacts on languages can not be ignored. Parallel to this; Gentner adds that these cultural effects are mostly reflected in verbs in languages. Therefore, the child has a challenging task to acquire these cultural reflections of verbs. It may lead to late emergence of verbs in children's early lexicon. Gentner (1981) states that

In a given perceptual scene, different languages tend to agree in the way in which they conflate perceptual information into concrete objects, which are then lexicalized as nouns. There is more variation in the way in which languages conflate relational components into the meanings of verbs and other predicates. ... Loosely speaking, noun meanings are given to us by the world; verb meanings are more free to vary across languages.

(Gentner, 1981, p. 169)

Bowerman, et al. (2002) take into consideration the typological differences among languages and focus on Talmy's typological classification (1985). According to

Talmy (1985), languages can be placed in two groups, satellite-framed and verb-framed, depending on the meaning of particles that are included in the verb body. This makes a difference and causes a difficulty even among the languages in the same family group. Thus, children need more exposure and input in order to find out the conflation pattern of their first language. Bowerman, et al. (2002) state that they do observe that this typological distinction plays an important role in the course of language development. According to Talmy's classification (1985), in verb-framed languages, the path of motion such as into, out of, upward is characteristically encoded in the verb, whereas the path of motion is encoded in a satellite to verb such as prefixes or directional adverbs in the satellite-framed languages. Bowerman, et al. (2002) conducted a study to observe the use of "putting" events in verb and satellite-framed languages. They focused on the verb "put", a frequently used placement word in child-directed speech. They conclude that the typology of the language does play a significant role in the frequency of verb use in children's preferences of expressing themselves regarding placement. They schematize some of their observations as in the following figure:



Figure 2.1. Typology influences -frequency of verbs in early constructions (in Bowerman et al., 2002, p. 56)

Bowerman et al., (2002) justify Talmy's typology that whether the language is verb or satellite-framed matters. Because children learning verb-framed languages go for the action expressed in the verb, whereas children learning satellite-framed languages go for the spatial relation and/or the vector, expressed outside the verb. They (2002) add that "the typology of the language plays a role in the frequency of verb use in children's preferred ways of talking about placement" (p. 56).

Since Gentner's perspective in her papers (1981, 1982) has been evaluated as a bi-polar one about noun-verb dominance by many researchers, she has revised her point of view in the following years and prepared a continuum-like presentation, not a bi-

polar one, in order to shed light on noun-verb dominance (Gentner, 2001). The classic distinction between open and closed class words has been reshaped by this larger pattern, a division of dominance.

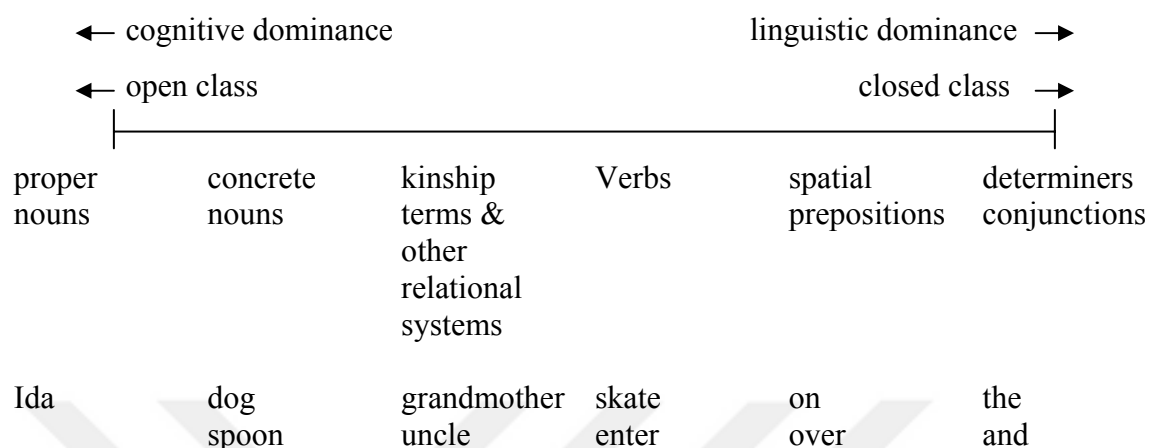


Figure 2.2. The Division of Dominance (in Gentner & Boroditsky, 2001, p.216)

As can be seen in Gentner's and Boroditsky's revised analysis of noun and verb acquisition in Figure 2.2, verbs, as a fixed open-class category can be placed somewhere in the middle of the continuum, not at the extreme pole. Verbs and spatial prepositions are placed closer to the linguistic dominance since they carry relational function that is provided in the linguistic connection.

All aspects considered, the main aim of Gentner's paper (1982) is to compare her Natural Partitions Hypothesis, a result of the interpretation of the noun-verb syntactic division, and Whorf's Linguistic Relativity. She hypothesizes that if her rationales in favor of noun superiority had been satisfactory, the Natural Partitions Hypothesis would have been proved. If her argument in favor of specific language-based factors-word frequency, word order, and morphological transparency- had been justified by crosslinguistic evidences, Whorf's Linguistic Relativity approach to children's early lexicon would have been proven, so as a result of the arguments given above from her paper, she concludes that the Natural Partitions Hypothesis and the Relational Relativity Hypothesis (Figure 2.3) are strong enough to explain the noun-based nature of children's early lexicons in terms of cognition and language input factors (Gentner & Boroditsky, 2001).

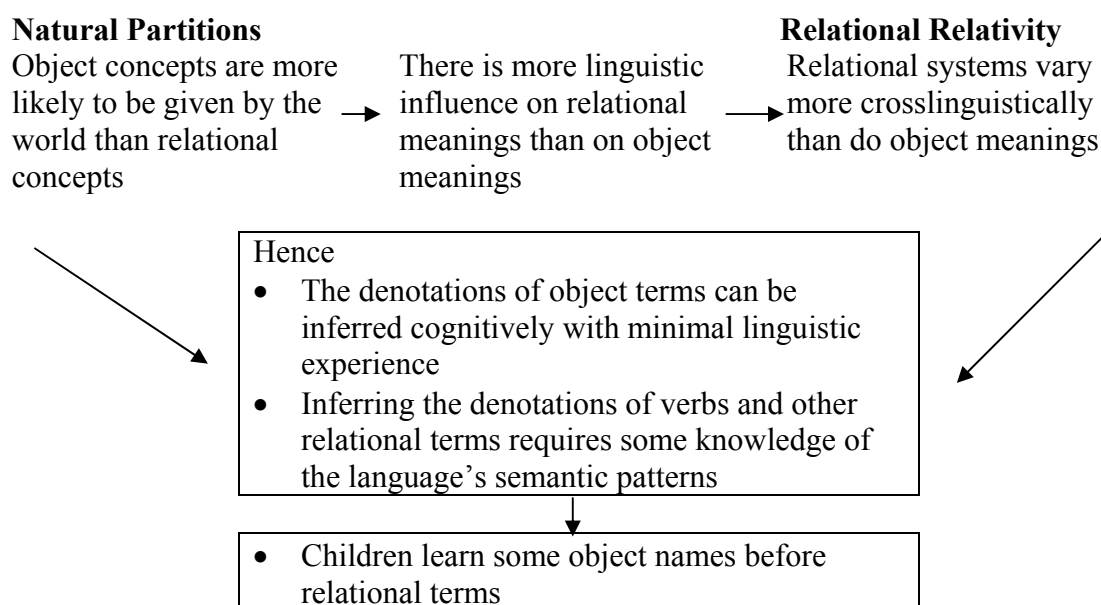


Figure 2.3. Natural Partitions and Relational Relativity (in Gentner & Boroditsky, 2001, p. 217)

As presented in Figure 2.3, Gentner, Brown and Braun (2005) state that according to the Natural Partitions and Relational Relativity Hypotheses, the noun bias partly stems from language-universal semantics and partly from conceptual differences between the kind of information embedded in noun referents and the kind embedded in verb meaning.

Although the noun-dominant nature of children's early lexicons was first proposed by Nelson (1973), Gentner's claims into this issue has received considerable interest and has become the focus of challenging research for both supportive and counter argument groups particularly in recent years. After considering these recent findings, Gentner takes a new path with Boroditsky, and they add a new label for the cognitive aspect of lexicalization (Gentner & Boroditsky, 2001). They state that since interaction with concrete things are easy, their individuation in children's language acquisition is simple, too. Furthermore, they think that some objects are easier to individuate than others. According to O'Grady (2005), children's cognitive-perceptual system is especially set to be aware of objects. The term "object" has also been defined differently by many researchers in the field. When the connotations of object was mentioned, another controversy developed. What an object represents or what should be called as an object has been debated. According to Bloom (2002), the object concept has best been elaborated by Spelke on the basis of her infant research. Spelke (1994) mentions three object characteristics: cohesion, contact and continuity. The principle of

cohesion points out that being an object requires being connected and bounded when it moves (in O'Grady, 2005). Kellman & Spelke (1993) note that even three-month olds are sensitive to hidden objects. By this time, infants are equipped with abilities to grasp the object by seeing, touching or acting on (in O'Grady, 2005). Following this, the principle of contact indicates that objects move together as long as they touch each other. Lastly, the principle of continuity asserts that objects do not disappear and then reappear at one point but have continuous presence. The significant point that Spelke mentions here is that this initial knowledge about objects is innate and serves to activate learning mechanisms. Spelke adds that the knowledge that infants lack about objects is gained through experience. Different researchers have conducted studies violating these principles in infant cognition. However, since the research context of this study is mainly limited to language-specific input, the debate on Spelke's claims is not deeply dealt with here.

Spelke (1994) and Gentner & Boroditsy (2001) have come to an agreement about the significance of experience though there are different points about which they do not agree. Proposing an individuation continuum, Gentner & Boroditsky (2001) explain the position of experience in their point of view. (see Figure 2.4) According to them, in order to self-individuate a thing, experience both with the language and the thing is necessary. Spelke's object characteristics are in line with this continuum. As the common requirements of an object is fulfilled with the object to which the child is exposed, setting a symbol for it and going along the continuum is easier.

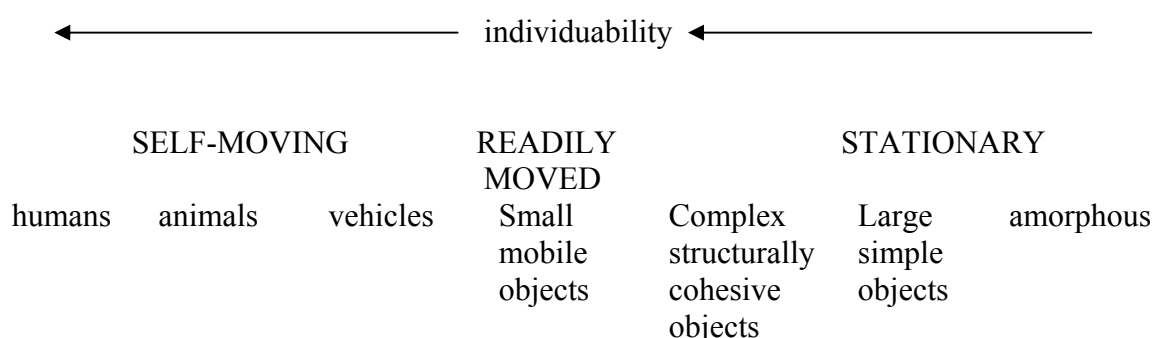


Figure 2.4. The Individuation Continuum: range of individuability across types (in Gentner & Boroditsky, 2001, p. 230)

Gentner & Boroditsky (2001) state that the object-concepts can be pre-individuated even before children become productive, however, verbs require life

experience to individuate, and children need to come across as many uses of verbs as possible to individuate.

Tomasello's item-based approach (2000) into children's word learning also emphasizes the input experience. According to Tomasello's usage based model (2000), children first learn concrete linguistic expressions from the input around them and then utilize their general cognitive and social-cognitive skills –categorize, schematize and combine these individually from expressions and structures to which they are exposed. Tomasello (1992) takes a parallel view and deals with the cognitive structures underlying his daughter's early use of verbs. He gathers his findings particularly through systematic observations about her daughter's language development and proposes the Verb Island Hypothesis. Tomasello (1992) mentions that children's early verb learning is like an individual island of an organization. The child learns about arguments and syntactic properties on a verb-specific basis. The learned characteristics of a specific verb can not be generalized to other verbs in the early stages. He (1992) adds that this verb-by-verb learning is a transition and is the major step of children's syntactic development. Tomasello & Brooks (1999) say that children's verb learning is cognitively grounded in children's understanding of different events that require both cognitive understanding and complex linguistic expressions. Therefore; scenes are packed into a complex conceptual package. As the emphasized studies and claims show, linguists have looked for the relationship between cognitive and language development so as to present a satisfactory background. Since this is one of the vital points of the related arguments regarding Gentner's point of view, it will be presented here under a separate heading.

2.2.3. Whole Object Constraint

The next claim in favor of noun-bias nature of children's early lexicon has been proposed by Markman (1987). According to Markman (1987), there are three constraints on word meanings that children acquire: the whole object constraint, the taxonomic assumption constraint and the mutual exclusivity constraint. The whole object constraint is directly assumed to relate with noun-first predisposition. Markman (1987) states that "children acquire the knowledge that single nouns more probably

refer to objects of the same kind than to objects associated by their participation in a common event or theme” (p. 74). Children, by acquiring the knowledge that nouns refer to object categories, eliminate relational and thematic meanings. This constraint results in children in expecting terms representing the whole object-not its parts or substances or other properties. In order to overcome the gaps of the whole object constraint, the mutual exclusivity constraint has been offered by Markman (1987). Once children have recognized the objects as whole units, they are motivated to learn terms other than object labels. In this way, children analyze the object for some other properties. The whole object and the mutual exclusivity constraints are complementary in explaining the process of word learning. Moreover, the taxonomic assumption constraint directs children to become aware of objects of like kind. According to Markman (1987), children test their initial hypothesis about word representation through these assumptions. Children can overcome the inductive problem of word learning by filling the gaps in each phase with the help of the constraints proposed by Markman (1987).

2.2.4. Predicate-argument analysis

The next researcher participating in this important debate regarding noun-verb dominance in language acquisition is Maratsos (1991). He (1991) believes that since nouns and verbs are different in syntactic categories, their acquisition path is also different. Within language-patterns in some languages, the verb-adjective distinction may disappear since adjectives are counted as verbs of the utterances with additional morphological markings. Although they can easily be distinguished from each other in adult language, they may be difficult to realize for children. However, nouns always constitute a separate category as the core of concrete object reference when small-scale structural properties are applied. In fact, the reason why noun-verb dominance has become such a controversial issue lies in the definitional core of these specific categories. Maratsos (1991) suggests that a word counted as a noun should only refer to a concrete object in order to be able to limit its properties. Abstract nouns should be categorized separately. He (1991) suggests that when small scale structural properties are applied, the definitional core of the noun category lies in the semantic coherence, whereas verbs involve morphological unity. In addition, since the morphology of verbs is richer than that of nouns, noun learning seems privileged over verb learning.

The result one might draw from the first part of the chapter above is that the early acquisition of nouns in children's lexicons can be explained by focusing on the cognitive underlying principles. Furthermore, the cognitive perspective can also address why verbs are acquired later. On the other hand, several recent studies result in the hypothesis that input language characteristics and maternal speech do play a vital role in the development of children's early lexicon (Tardif, 1996; Choi & Gopnik, 1993; Hoff-Ginsberg & Shatz, 1982). The following part of this chapter shifts to the other side of this controversial issue. It not only summarizes the results of the studies conducted in different languages but also discusses the influential language-specific input factors.

2.3. The Input-Dependent View

Gentner's claim about the universality of the noun-biased pattern of children's early lexical development has been challenged by data from a great number of researchers. With the increasing interest in this phenomena, research findings have accumulated. Among those researchers, Choi receives the utmost attention. Choi (1997) states that the attempts to look for regularities in children's early lexicons are mostly focused on the analysis of their vocabulary spurt (Nelson, 1973; McShane, 1980; Halliday, 1975). Several researchers have observed a rapid growth of nouns in this period, leading Gentner to put forward the noun-before-verb pattern of acquisition. On the other hand, Choi (1997) states that the most essential limitation of this assumption stems from the accumulative data solely in English. Also, she adds that even English data has to be looked at more closely. Bloom, Tinker & Margulis (1993) and Nelson, Hampson & Kessler Shaw (1993) agree that though concrete-object nouns occupy a considerable proportion in children's lexicons, their dominance is lower than previously claimed. Moreover, when children's very early lexical development is taken into account more deeply, non-nominal words such as *there*, *up*, *down* can be seen and all of them carry relational concepts (Tomasello, 1992; Kauschke & Hofmeister, 2002). Choi (1997) proposes that emergence of expressions such as *out*, *more*, and *up* encode not only actions and objects but also relationships between objects. She also issues a reminder that there may be an overrepresentation of nominal children in the related studies. Choi and Gopnik (1993) say that children in the reported studies are from

middle-socio-economic status and are mostly first borns in their families, characteristic of nominal children. Therefore, the data from only nominal children may lead to a wrong generalization about the universality of noun primacy. In a study with children from various socio-economic classes, the total proportion of nouns is only 50 % (Bloom, Tinker, & Margulis 1993). Choi and Gopnik have been in agreement that solely English data would not be explanatory since English has its specific language characteristics. They have claimed that the noun bias may have been restricted to English. In order to generalize such an insistent claim, the assumption regarding the noun-before-verb pattern should be investigated in structurally different languages.

Furthermore, child-directed speech has been assumed as a determinant factor on children's language. Although new studies solely focus on the nature of child-directed speech (Camaioni & Longobardi, 2001), the correlation between adult-to-child speech and children's language development has also received interest. Goldfield (1993) states that in an English speaking community, a similarity can be found between input directed to children and frequency of nouns in children's language. Choi & Gopnik (1993) present significant data shedding light into this controversial topic by analyzing these claims in Korean, a verb-friendly language. They also compare Korean and English.

Two studies have been conducted by Choi & Gopnik (1995), one following each other, which present satisfactory findings. The first study was carried out with nine Korean-speaking children from the mean age of 1;2 until 1;10. It was a longitudinal study to investigate in detail the lexical development of these children. The results of this study show that two thirds of the Korean children have a verb explosion before a noun explosion. The results have been important since no English data show verb spurt before noun spurt. Some children in this study were also observed after their noun spurts. Even when they reached 50-word-mark, verbs had a higher percentage than nouns. However, Bates et al (1994) say that when English-speaking children are at the 50-word-mark, their lexicon is made up of nouns. A follow-up study was carried out in order to investigate possible effects of the caregivers' input. This cross-sectional study was with eight Korean-speaking mothers and twenty English-speaking mothers. The mothers were tested with their children, aged between 1;5 and 1;7. Three level of analyses were done on the transcribed sessions: syntactic, semantic and pragmatic. The

findings of this study point out that the input to which Korean-speaking children are exposed is not identical to that which English-speaking children hear. The main pattern in Korean mothers' talk contains more verbs and fewer nouns, so Korean children hear accordingly. In terms of pragmatic perspective, a Korean mother's style differs from that of an English mother. Korean mothers encourage less naming-oriented activities but more action-oriented routines than English mothers. As a result, Bates et al. (1994) have concluded that this language-specific grammar in the maternal input and mothers' stylistic difference lead children to produce more verb and verb-like terms.

Drawing on this, Tardif (1993) set up a study in Mandarin Chinese. Her study is significant since Mandarin Chinese is one of the languages that Gentner has conducted her study and proposed her hypothesis, the Natural Partitions hypothesis. Ten children and their families participated in Tardif's study. She mentions the importance of defining the noun and verb categories and uses the two counting methods, which she calls conservative and liberal. She wanted to compare her data with Gentner's, so a common definition criterion was chosen. The results of her study show that Mandarin speaking children produce more verbs than nouns. Also, there is correlation between Mandarin Chinese speaking mothers and children.

The common property of Korean and Mandarin is that both languages allow more extensive ellipsis of arguments than English and both languages are pro-drop. In another study, Tardif, Shatz and Naigles (1997) compare and contrast Italian, Mandarin and English. They have gathered naturalistic speech samples from six 2;0 English, six 1;11 Italian and ten 1;10 Mandarin speaking children and their caregivers. They have conducted different levels of analysis: type frequency, token frequency, utterance position, and morphological analysis over nouns and verbs. They have discovered that English-speaking caregivers tend to emphasize nouns versus verbs, whereas Mandarin-speaking caregivers are in favor of verbs in their utterances. However, the Italian data does not present very satisfactory results, although still reported as noun-oriented in the related field.

Tardif (1996) emphasizes that these findings do not mean that cognitive-perceptual constraints are not determinant on children's language but language-specific characteristics, input language, do make a difference on children's language.

In order to establish parallel justifications to Gentner's claims, the results and discussions from main studies by Choi & Gopnik (1993, 1995), Tardif (1993, 1996) and Tardif, Shatz and Naigles (1997) are given in the same headings borrowed from Gentner's paper.

2.3.1. Word Order

The shared properties of Korean and Mandarin, the extensive use of ellipsis and the pro-drop nature, appear to contribute to the use of verbs at both the beginnings and ends of utterances that are salient relative to words in medial utterance positions. Since both languages allow frequent use of ellipsis of objects as well as subjects, verb-initial, and verb-final utterances mostly appear. Therefore, as a basis for comparing the salient position of nouns and verbs, Tardif, Shatz and Naigles (1997) and Choi & Gopnik (1995) conclude that this characteristic, word order, may be considered as one of the determinant input features.

2.3.2. Word Frequency

The next common characteristic between Korean and Mandarin is the significantly frequent use of verb types and verb tokens by the caregivers. That the structural property of Korean and Mandarin leads appropriate contexts for verb-bias to emerge in child-directed speech is not surprising. Tardif (1993, 1996) and Choi & Gopnik (1993, 1995) have observed verb-dominance in Mandarin and Korean language directed to children.

2.3.3. Morphological Transparency

Mandarin verbs are marked only for aspect with no subject-verb agreement. In addition, aspect in Mandarin is marked by a separate morpheme that does not change the stem in any way. Mandarin nouns are marked with a numeral-classifier compound that precedes the noun and again does not alter the noun stem itself. Consequently, Mandarin nouns and verbs are equally inflected. Korean is a richly inflected language.

However, Korean nouns are not inflected, instead postpositional articles mark the seven cases. Korean verbs are morphologically more complex than nouns. Gentner's claims that this property causes verbs to be acquired later. However, the Korean data by Choi & Gopnik (1993) and Mandarin data by Tardif (1993), strongly suggest that these language characteristics do not lead to late emergence of verbs.

2.3.4. Patterns of Language Teaching

Language learning games may be played differently in different languages (Tardif, 1996). Regarding this, Korean mothers highlight actions more than labelling (Gopnik & Choi, 1995). However, no similar finding has been reported about the interaction style of Mandarin caregivers.

2.4. The Relationship between Cognitive Development and Language Development

In recent years, there has been a great deal of research dealing with the interactions between cognitive and linguistic development in children's language learning experiences (Barrett, 1995). In line with this, the studies directly addressing noun-verb dominance with a clear-cut link to semantic and cognitive development have mostly been conducted by Gopnik & Meltzoff (1984, 1985, 1986, 1987). In fact, the emphasis on the primacy of cognitive development before language behaviours has been mentioned since Piaget's view. Though significant revisions of Piaget's perspective have been made, researchers have agreed on the claim that some conceptual constraints are prerequisites for semantic developments in language (Gopnik & Meltzoff, 1986; Tomasello & Farrar, 1986). In their specificity hypothesis, Gopnik & Meltzoff (1993) claim that earlier cognitive development is a prerequisite for language development. However, it is also motivating for linguistic growth. In other words, if children concentrate on a specific task at a particular time, it is probable to see words in line with this task in their language production. Gopnik & Meltzoff add that through these steps, specific characteristics of both individual languages and parental speech might interact with cognitive development. They have also mentioned the necessity of

not only longitudinal but also cross-sectional studies to confirm the interaction between cognitive and semantic development.

Acquisition of words like *all gone*, coded for disappearance, showed a link between the object-permanence abilities and language development. Also, the next observation was between means-end abilities and success and failure words (Gopnik & Meltzoff, 1984, 1986). Gopnik & Meltzoff (1987) point out another connection between naming spurt and categorization abilities. To look at the issue from a crosslinguistic perspective, Gopnik & Choi (1990) have carried out a study with 8 Korean and French speaking children. They have compared the results from these two languages with 12 English speaking children. The children were given object permanence, means-ends tasks and categorization tasks, and their language development parallel to these tasks was observed. As a result of their study, Gopnik & Choi conclude that Korean and French-speaking children use very different forms from English speaking children for disappearance, success and failure. Korean speaking children produce more verbs and categorization and naming are the late emerging cognitive skills in them. Fernald & Morikawa (1993)'s observation of similar pattern for Japanese children also reinforce this result. Gopnik & Choi (1990) think that this may stem from the language-specific property of Korean. Above all, they emphasize that these findings show how linguistic development may affect and motivate cognitive development.

The specificity hypothesis by Gopnik & Meltzoff shows the significant link between semantic and cognitive development. A number of cognitive abilities develop when children are about 18 months old which is also a significant period regarding linguistic development. They (1993) suggest that there is a complex bidirectional interaction between conceptual and semantic development. According to the Piagetian view, earlier cognitive developments may not only function as a prerequisite for language development but also leads to motivation for those processes. Since children are active participants in specific conceptual problems at particular times, it is not surprising for related words to emerge parallel to this. To exemplify; Gopnik & Meltzoff (1986) carried out a study with 19 children to observe the connection between particular language item and cognitive development. They have found out in their study that children acquire disappearance words within a few weeks of their solution of a

complex object-permanence task and success/failure words within a few weeks of their solution of complex means-ends tasks.

To conclude, the links between linguistic and cognitive development are significant regarding the language acquisition studies. Clark (2004) also mentions that when children start acquiring their first language, they rely on what they know –their conceptual information about the thing. These conceptual sets are directly related to cognitive readiness for linguistic production.

2.5. Issues at the Center of Debate

Tardif, Gelman and Xu (1999) summarize the issues at the center of this strong debate in three groups. First, the definition of noun and verb categories is problematic because of the different language-specific input and lack of a one-to-one parallelism in terms of verb term. Therefore, researchers analyze their data according to varying definition criteria.

Second, the measurement method of children's lexical development is a matter of contention. The main disagreement among findings stem from research methods: naturalistic speech samples versus checklists. The variety in method results in different findings, even in the same language. To exemplify, Gentner (1982) requests non-English data from researchers working on different issues. Therefore, a consistency in terms of data collection and aim of data collecting is lacking. That is why, her findings were harshly criticised. The most crucial example in line with this comes from Korean data. In their research, Gopnik & Choi (1990, 1995) and Choi & Gopnik (1993, 1995) present verb-bias in Korean speaking children with the data obtained by both regular recordings and mothers' dairies. However, Au, Dapretto and Song (1994) in a Korean study report a pattern similar to English through data collected via the MacArthur Communicative Development Inventory (MCDI). These controversial results from Korean show that the findings from different data collection methods are not consistent, leading to biased data. As a result, when used in isolation, each measure is probably to be biased.

The third issue is whether noun-bias is a universal phenomenon in all comparable methods of assessment. Therefore, data from languages should be collected by using different data collection tools and the results should be compared.

2.6. Context-based Analysis into Children's Data

In related studies, the type of activity has been observed to be one of the determinants that may lead different proportions of object nouns or action verbs to emerge regardless of language. Therefore, after pointing out the verb or noun pattern in a specific language, researchers focus on the activity, itself. Tardif, Gelman and Xu (1999) have carried out a study to compare the proportions of nouns and verbs in the early vocabularies of 24 English and 24 Mandarin speaking toddlers at around 20 months old. Three different methods were used to measure the proportion of noun types relative to verb types: controlled observations in three contexts (book-reading, mechanical toy play, regular toy play) identical across languages, a vocabulary checklist (MCDI) and mothers' reporting of their children's first words. As a result, across all measures, Mandarin speaking children are found to use relatively fewer nouns and more verbs than English speaking children. On the other hand, context, itself, plays an important role in the proportions of nouns found in children's vocabularies, regardless of the language spoken. Children's vocabularies appear dominated by nouns when they are in a book reading context, but not when they are playing with toys. Parallel to this, mothers' speech to children follow the same language differences (relatively more verbs in Mandarin) though both Mandarin and English speaking mothers produce relatively more verbs than their children. To conclude, Tardif, Gelman and Xu (1999) point out that noun bias in language learning toddlers' lexicon depends on a variety of factors regarding the sampling method and the context. They also add that the definition of nouns and verbs is indeed a confusing step but that a definition type is consistent across languages and measures, that is, common nouns versus main verbs is preferred.

The next study mainly investigating context effects is by Choi (2000). Choi (2000) carried out a study to observe structural and pragmatic aspects of caregiver input in English and Korean, namely the contextual variations. She asked 20 mothers in each

language to interact with their one-and-a-half-year-old children in two contexts: book-reading and toy-play. She has discovered that, in general, English speaking mothers use more nouns than verbs, placing more emphasis on objects than on actions. On the other hand, Korean speaking mothers prefer a balanced use of nouns and verbs while focusing on objects and actions to a similar degree. In line with contextual variation, there is noun-emphasis in both contexts by English speaking mothers, whereas Korean speaking mothers only focus on nouns in the books context. In the toys context, Korean speaking mothers provide more verbs and focus more on actions. These two studies highlight the importance of systematic comparisons of caregiver input within and across different contexts to provide valid and reliable data.

2.7. The Noun-Verb Dominance Issue in Turkish

Until recent years, Turkish has been reported as one of the languages on which no systematic observations have been done. However, especially after Aksu-Koç and Slobin's (1982) summative chapter of available data and findings, the attempts were made to do more studies in Turkish. Aksu-Koç and Slobin (1985) state that research analyzing Turkish data in terms of individual differences is especially missing.

Turkish, with its flexible SOV word order, rich morphology, and agglutinative language characteristic, has been the focus in many crosslinguistic studies. The issue of noun-verb dominance in Turkish speaking children by Küntay & Slobin (1996, 2001) and Ketrez (2003, 2004), focuses on the issue from different perspectives.

Küntay & Slobin (2002) study Turkish data from adult-child discourse perspective; namely, variation sets. According to them, a variation set is characterized by a sequence of utterances with a constant intention but in a different form. Three types of phenomena identify variation sets: (1) lexical substitution and rephrasing, (2) addition and deletion of specific referential terms, (3) constituents reordering. The underlying message of variation sets is constant communicative intention. In an analysis of the interactional functions of variation sets in their study, they summarize three sets: (1) control-oriented variation sets, (2) ideational variation sets, (3) information-querying variation sets. They have conducted a speech act analysis of a Turkish mother's speech

to a child at 1;3 and 2;0. They have aimed to answer two questions: (1) in what kinds of communicative functions are variation sets used by caregivers? (2) can changes be documented in the nature of variation sets as the child gets older and linguistically more competent? They conclude that there is parallelism in the change of mother's variation sets as the child gets older. To exemplify; the number of information-querying variation sets is 43 when the child is 1;3, whereas it decreases drastically when the child is 2;0. This shows that when the child is 1;3, the mother wants to clarify her utterances more as she wants to be sure of her communicative intent. The changes in other variation sets are not as drastic as information-querying sets.

In another study by Küntay & Slobin (1996), they have observed a child's seven-month between 1;8 and 2;3. The video-recordings of the child with her mother in their routine interactions have been coded. Their main perspective into data has been again based on variation sets. They conclude that verbs are more likely to change position and form in utterances, whereas nouns are more likely to be elided or replaced. Although these findings do not point out results related to the distributional patterns of nouns and verbs, they show that in adult-child utterances, the variation sets in Turkish are mainly verb-centered.

Ketrez (2003) has carried out a study to determine whether or not any regularity in noun and verb distributions that may be useful to children in acquiring those categories exists. She has observed four children between 1;1 and 2;0. The interactions of children with their mother, father, grandmother and caregiver have been audiotaped. She adopted Mintz's window-size-model and concludes that although there is no regular distribution of nouns, verbs display a regular distribution pattern, which may be assumed to help this category in Turkish.

The deeply-seated claim of noun universality in children's early lexical development has not been studied longitudinally in Turkish. This research aims at presenting results related to the noun-verb dominance in children's early lexicons longitudinally.

Keeping in mind the primary aim of the study, language-based properties of Turkish are summarized below as structural and developmental. Understanding both the

structural and developmental characteristics of Turkish is crucial so as to have a command of Turkish data in terms of noun-verb dominance.

2.7.1. The Structural and The Developmental Properties of Turkish

The canonical word order of Turkish is SOV. However, the adult language has six different word orders, each with a changing percentage. To illustrate; Slobin (1982) presents a percentage occurrence of each word order in both adult speech directed to children and in children's language.

Table 2.1. Percentage Occurrence of Utterance Types in Natural Conversation (in Slobin, 1982, p. 152)

	Children (N=14) (Age: 2;2-3;8)	Adult speech to children
SOV	46	48
OSV	7	8
SVO	17	25
OVS	20	13
VSO	10	6
VOS	0	0

Table 2.1. reveals Turkish adults use five different word orders in their speech to their children. Similarly, Turkish children make use of these word orders parallel to that of their caregivers. Especially, a parallelism occurs in SOV, OSV, SVO between mothers and children. What is more, children prefer OVS, VSO more than their caregivers. This exemplifies that Turkish children also express themselves in a wide variety of word order.

Although VOS word order seems not preferred in Slobin's data (1982), Slobin & Talay (1986) report the occurrence of VOS word order as well. Also, in a study with an acting-out task by Slobin & Bever (1982), these six orders used by adults are comprehended by children at the age of two. Küntay & Slobin (1996) say that these variations in word order do not present privileged use of verbs over nouns as word order is accepted as one of the determinant factors in other verb-final languages such as Japanese and Korean. As a result, Turkish is not a strongly verb-final language.

Turkish is an agglutinative language and each agglutinated morpheme keeps its own phonological, semantic and positional property in the word in which it is used. The Turkish inflectional system works differently for nouns and verbs. Verbs are marked for person, number, tense, aspect, modality, voice, negation and interrogation, whereas nouns are inflected for number, case and possession. Turkish verbs are more inflected than nouns. This may cause the belief that children acquire verbs later than nouns. However, data from Aksu-Koç & Slobin (1985) and Ekmekçi (1979) show that Turkish children at the one-word stage can use grammatical morphemes for both nouns and verbs successfully. In addition, Turkish children, as young as two years old, acquire morphological structures and have a productive control of them (Aksu-Koç & Slobin, 1985). To support this, Küntay & Slobin (1996) have gathered data from their study and Slobin's (1982) and have calculated the mean morpheme lengths of verbs and nouns in child speech and child-directed speech.

Table 2.2. Mean Morpheme Lengths of Verbs and Nouns in child speech and child-directed speech (in Küntay & Slobin, 1996, p.269)

	Children (N=39) (Age: 2;0-4;8) (Slobin, 1982)	Mother (in Küntay & Slobin's study, 1996)
Verbs	2,60	2,18
Nouns	1,67	1,96

As can be seen in Table 2.2., the number of verb morphemes is higher than that of nouns both in child speech and child-directed speech. Moreover, Sofu & Türkay (2005) make a list of inflectional suffixes of a common noun and a verb used by a mother in the same session.

Example 2.1:

Verbs

2 yap (do/make)

1 yapabiliriz (-ebil-pl.)

1 yapacaksın (-ecek-2nd sing.)

5 yapacağım (-ecek-1st sing.)

5 yapalım (-alım-opt. pl.)

1 yapalım mı (-alım-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)

1 yapıyordum (-yor-du-1st sing. (prog+past)

2 yapıyormuş (-yor-muş (heresay))

Nouns:

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

In the above examples, the verb “yap” (do/make) and the noun “kaplumbağa” (turtle) as used with all possible inflectional suffixes provide children with rich input. The total number of verb “yap” is 32, inflectional form 15; whereas, the total number of noun “kaplumbağa” is 14, inflectional form 10. This leads to think that the variety and the intensity of verb used may be a determining factor in the acquisition process, exposing Turkish children with a more challenging task regarding verbs.

These results contradict with the claim that in child-directed speech, since verbs are mostly used in imperatives, they are uninflected; in addition to that, the most frequent nouns are not in the zero-marked form, too. Because object nouns are the things that children and mothers handle, they are used more in inflected forms.

The next structural property of Turkish is nominal ellipsis. Turkish is a language which allows for very frequent nominal ellipsis. Subject and object noun phrases can be deleted in a sentence but verb is the essential element. Turkish also allows the use of verbs in short answers to yes/no questions.

Example 2.2: A: keselim mi?

“Shall we cut (it)?”

B: keselim.

Cut-opt.-pl.

“Yes, let’s cut (it)”

The dialogue taken from Sofu & Türkay (2005) exemplifies the use of verbs in yes/no questions. Verbs are fully referred to in answers echoing the verbs in the first speaker’s question. This reinforces the repetition of verbs in dialogues. In this respect, Turkish is similar to Korean and Japanese. In all these three languages, verbs can stand for a whole

sentence, thanks to the pro-drop parameter of these languages. However, elliptic sentences are also widely used by caregivers and children as in the following example.

Example 2.3: A: kaç yaşındasın?

“How old are you?”

B: üç.

“three”

These examples from Turkish child-directed speech show that existence or non-existence of verbs in sentences and their positions in the sentence may not be a determining factor for the acquisition of verbs over nouns.

Eight main groups are identified in Turkish by leading Turkish linguists (Banguoğlu, 1990; Koç, 1990; Atabay, et al., 1983). Those are nouns, verbs, pronouns, adjectives, adverbs, postpositions, conjunctions and interjections. Since the central focus of the study is related to noun and verb categories, more information is given below so as to provide linguistic background for the discussion in Chapter 4.

2.7.1.1.Nouns in Turkish

The major classification of nouns in general are proper/common, abstract/concrete, singular/plural. Apart from prefixal republication, Turkish has a suffixing pattern. Turkish nouns can take two types of inflectional suffixes: inflectional and derivational. Inflectional suffixes are case markers and plurality indicators. Derivational suffixes are used to produce new words. The most used derivational suffixes are “-cEk”, “-cl”, and “-Ik” (Sofu, 1995). The elements of nouns are, in order, a) noun stem b) plural –lEr c) possessive d) case e) relative –ki (Underhill, 1986).

2.7.1.2.Verbs in Turkish

The major classification of verb is action/state. The function of the verbs can change according to their positions in the sentence. A verb can be used as a predicate and a gerund. This is also same for Turkish verbs. In order to provide background for the discussion in Chapter 4, the predicate category is also mentioned here. Turkish has two types of predicates, one of which is a verbal and the other a non-verbal. In verbal

predicates, a verb with its appropriate morphological function can stand as a predicate. In non-verbal predicates, a noun phrase or an adjective, again with proper morphology, can be used as a predicate.

Regarding the noun/verb dominance issue in the related studies, the boundaries of a noun and a verb have always been the point upon which the researchers could not agree. They have sometimes used a broader definition of nouns and included proper and abstract nouns in their analysis. On the other hand, they have changed their definition criteria and preferred a narrow scope when talking about nouns and verbs (Gentner, 1982; Tardif, 1996; Goldfield, 1993). Keeping this variety in mind, the researcher has used two ways of defining noun and verb categories and has compared her results accordingly.

CHAPTER 3

METHODOLOGY

3.1. Research Design

This research is a longitudinal study, in which Turkish speaking children's lexical development between 1;0 years old until they were 2;5 years old are analyzed. Five children and their mothers, as caregivers of the children, participated in the study. The researcher also took part in the study as a participant. All of the children are female and first-borns in their families. They were born in Adana. Turkish is the only language spoken at home for all the children. In order to determine that the children all had the representative characteristics for their age group, the mothers were given an information form to complete before the data collection period started. Caselli et al., (1995) also used this method for the representativeness of their participants. The inventory consists of items that asked about both biological and behavioral developmental steps that the children have passed through and called "Ankara Development Inventory".

3.2. Subjects

A total of five female children and their mothers participated in the study. All children come from middle-socio economic class. They all live in Adana, the fourth largest city in Turkey, located in the southeast. All of the participants live in the city center.

The oldest child in the study, C1, was 1;4.24 years old at the beginning of the data collection period. She was observed till she was 2;4.14 months old. She is the first and the only child in her family. C1's parents are university-graduates and working in jobs with regular and average salaries. Since C1's father works for a private company, his working hours are very demanding. Therefore, he cannot spend a lot of time with C1 except Sundays. C1's mother is a Turkish Language and Literature teacher and works at

a state high school. The age range of her students change from 13 to 17. Her weekly teaching hours range between 20 and 26. Thus, the time she spends with her daughter is, to some extent, limited. When her grandmother was in Adana, C1 was looked after by her when her mother was at school. However, after the first few months, C1 started attending a nursery school for nearly 3-4 hours during the day.

The second child in the study, C2, was 1;4.19 when the data collection period started. She was 2;5.0 months old at the end of the study. Similarly, she is the first and the only child in her family. C2's parents are university-graduates and receive permanent and average incomes. As C2's father is a primary school teacher, he has the opportunity to spend much time with C2. C2's mother is an English language instructor and teaches tertiary-level English. The age group that she deals with at school is between 17 and 20. Her weekly teaching hours are between 15 and 20. Consequently, C2's grandmother cares for her when her mother is at work. C2 did not go to a kind of nursery school during the study.

The third child in the study, C3, was 1;4.6 at the beginning of the study and 2;3.26 at the end. She is the first and the only child during data collection period. However, just as the data collection period was completed, her mother gave birth to her second child. Both parents are university-graduates and have regular, average income. C3's father works for a private company, so he is too busy to spend time with his daughter. However, he does not have to work at weekends. Therefore, weekends are the only time period that he can comfortably play or travel with C3. C3's mother is a language teacher, working at a state secondary school. She teaches English to a group of students between 9 and 15 years old. Her weekly teaching hours vary from 15 to 25. While she was at school, CA was looked after by her grandmother, who also lived in the same building. During the data collection period of the study, C3 did not attend any kind of nursery school.

The fourth child in the study, C4, was between 1;3.3 and 2;3.11 months old. She is the first child in her family. After the first six-month period of data collection, her mother gave birth to her second child. Both parents are university graduates. C4's father works for a private company. Therefore, he has to work full-time, sometimes including weekends. The time he can spend with his daughter is limited. C4's mother teaches

university-level English to students between 17 and 29. Her weekly teachings hours range from 15 to 20. As a result, when she was at work, C4 was looked after by her grandmother. C4 did not go to a nursery school during the study period.

The fifth and the youngest child in the study, C5, was 1;0.23 at the beginning and 2;3.4 at the end of data collection period. She is the first and the only child in her family. Her parents are university graduates. Both teach English at state schools. Her father works at a high school with a weekly 25 hours teaching load. He teaches students between 16 and 18. Since he is free after he completes his weekly teaching, he is able to play and travel with C5. C5's mother teaches English at a secondary school to students between 9 and 13. When both parents were teaching, C5's grandmother who also lived in the same building cared for her. C5 did not attend a nursery school during the data collection period.

As can be seen in detailed family descriptions of the families, it is clear that all children and the mothers in this study are from the middle-socio economic class. Also, the time that they spend with their children, to some extent, is the same. Apart from C1's attendance at nursery school in the second half of the study, the other children were all cared by their grandmothers when their mothers were at school.

3.3. Procedure

The main data of this study come from the video-recordings of interactions between mothers and their children. In order that the video-camera did not cause a disturbance, the researcher visited the families twice and tried to help both the mothers and the children to get acquainted with the video-camera. Also, so as to make both parties feel relaxed during recordings, the researcher called on them once or twice with her own family. These visits were intended to inform the families about the objectives of the study and to observe the children's behavioral and biological developments. The fathers also gave consent to the study. In line with this, the purpose of the first regular video-recording was to allow the participants to adjust to the use of the camera. Since they were all relaxed and acted naturally, the data from this session from all families were used as reliable and valid data in the study. The visits all took place when the

mothers wanted the researcher to call on them, that is, when they were not busy, but relaxed.

Because of the home-settings, some outsiders, such as neighbours or grandmothers were involved in the video-recordings. However, this time-period was limited and not used for analysis purposes. Only the mother-child dyads were analysed.

The researcher's interruption into the video-recordings was avoided. However, when there was a long silence or verbal interaction, the researcher was involved in the sessions just to initiate the talk. In addition, when the mother was willing to make background comments on the child's specific action, the recording was stopped but the researcher wrote the mother's background description of the specific action with the idea of using it in the analysis.

3.4. Data Collection

The data in this study has been based on video-recordings of interactions between mothers and their children and the diaries that the mothers kept while observing their children's lexical growth for the intervals that were not recorded by video. The mothers were also informally interviewed about their observations of their children. The mothers also spoke of their children's behavioral developments in order that these comments could be used for analysis. Moreover, they shared the feedback that they received from the grandmothers and in the case of C1, the teacher at the nursery.

The average interval between video-recordings were three-weeks. However, for some reasons, this interval changed from two-week to four-week. These early or late recordings derived from not the researcher's excuse but from the mothers. They were sometimes very busy, ill or did not feel good.

Table 3.1 shows the whole data collection period of the longitudinal data in this study.

Table 3.1. Longitudinal Data in Turkish

Child	Study Period
1 (C1)	1;4.24 - 2;4.14
2 (C2)	1;4.19 - 2;5.0
3 (C3)	1;4.6 - 2;3.16
4 (C4)	1;3.3 - 2;3.11
5 (C5)	1;0.23 - 2;3.4

Average interval between sessions: 24 days

In addition, Table 3.2 is provided parallel to Table 3.1 in order to see the representativeness of the six chosen times in the study (see Table 4.1)

Table 3.2. Recording Schedule

	C1	C2	C3	C4	C5
<i>Date of Birth</i>	18.5.2002	24.05.2002	08.06.2002	16.07.2002	12.10.2002
Recording 1	01;04.24	01;04.19	01;04.06	01;03.03	01;00.23
Recording 2	01;05.21	01;05.25	01;05.03	01;04.00	01;01.20
Recording 3	01;06.17	01;06.21	01;05.26	01;04.24	01;02.10
Recording 4	01;07.8	01;07.12	01;06.14	01;05.15	01;03.06
Recording 5	01;07.30	01;08.12	01;07.12	01;06.03	01;04.01
Recording 6	01;08.19	01;09.04	01;08.03	01;06.27	01;04.22
Recording 7	01;09.10	01;09.27	01;08.23	01;07.17	01;05.14
Recording 8	01;10.02	01;10.19	01;09.15	01;08.13	01;06.07
Recording 9	01;11.01	01;11.01	01;10.05	01;09.11	01;07.02
Recording 10	01;11.23	02;00.00	01;11.00	01;10.10	01;08.06
Recording 11	02;00.16	02;01.06	01;11.23	01;11.05	01;09.01
Recording 12	02;01.08	02;02.03	02;00.20	02;00.11	01;10.22
Recording 13	02;01.26	02;03.12	02;01.10	02;01.17	01;11.20
Recording 14	02;03.05	02;04.09	02;02.26	02;02.17	02;12.00
Recording 15	02;04.14	02;05.00	02;03.26	02;03.11	02;1.09
Recording 16					02;2.00
Recording 17					02;3.04

The transcription of the video-recordings were completed by the researcher, herself. All transcription related matters were based on the CHILDES project (Child Language Data Exchange System) (MacWhinney, 1991) which was downloaded from the web-site (<http://chilides.psy.cmu.edu>). The symbols utilized were chosen from CHAT Manual (Codes for the Human Analysis of Transcripts), based on assumed helpfulness in data analysis (see appendix II). A specific CHAT file consists of three main components: file headers, the main tier, the dependent tiers. File headers include background information about the session in which the recording is made and identifies

the involved parties in the session. Next, main speaker tiers come and they are the lines telling what the participants said. Lastly, dependent tiers work for giving extra information for the utterance to be analysed. An example from the transcribed files in the study can be seen in Appendix I.

When the transcription of the file was completed, a frequency analysis from CLAN programs was computed on the transcribed data. As a result of the frequency analysis, alphabetical lists and type/token ratios were received. To check the reliability of the symbols, some chosen transcribed files were e-mailed to MacWhinney and controlled. For the technical problems encountered during transcription, the researcher was in contact with MacWhinney.

In addition to the transcriptions, the mothers kept dairies observing their children's lexical development. Before they started taking notes about their children's productive language, they were guided about what to include in their dairies. Contextual information was needed and any change in the form of the word that the children used were observed by the mothers. Diaries were sometimes analysed by the researcher during the data collection period and any missing information was obtained from the mothers. After the data collection period was over, dairies were collected from the mothers. Also when the video-recordings were completed, they were recorded on CDs and given to the families.

CHAPTER 4

RESULTS AND DISCUSSION

4.0. Introduction

This chapter presents the results and the discussion of the findings in this research in the following way:

- I- An overall presentation of the data (4.1)
- II- Numerical presentation of the data (4.2-4.3)
- III- Presentation of the data through line graphs (4.4-4.5-4.6)
- IV- Numerical analysis of salient-utterance position (4.7)
- V- Crosslinguistic comparison of Turkish data (4.8)

4.1. An Overall Presentation of the Data

As mentioned in Chapter 3, the data collection period lasted nearly fifteen months. However, in order to present the findings in an exploratory point of view, six representative time points are determined, and the results are given accordingly. The reason guiding the researcher to decide on such a grouping is the overaccumulation of data. The presentation of the data in this way helps researcher to control the findings and present them in a meaningful way. Table 4.1 illustrates the children's ages in year, month, and day order in which the video-recordings were done.

Table 4.1. Time Points Determined for the Presentation of the Data

	C1	C2	C3	C4	C5
Time 1	01;05.21	01;05.25	01;05.03	01;05.15	01;05.14
Time 2	01;07.08	01;07.12	01;07.12	01;07.17	01;07.02
Time 3	01;09.10	01;09.04	01;09.15	01;09.11	01;09.01
Time 4	01;11.01	01;11.01	01;11.00	01;11.05	01;11.20
Time 5	02;01.08	02;01.06	02;01.10	02;01.17	02;01.09
Time 6	02;03.05	02;03.12	02;03.26	02;03.11	02;03.04

4.1.1 Language Coding

As a result of the related research revision, some common criteria have been chosen and used in this study in order to identify the grammatical category of a new word. Although both detailed morphosyntactic and semantic properties have been taken into account in similar studies for the same purpose, the semantic criteria are the ones mainly referred in this study. Although not the main objective of the study, systematic morphosyntactic analysis is sometimes referred to in order to understand the category of the word. In short; when the children's words approximate adults' conventional noun and verb forms, they have been coded as a noun or verb. This coding approach is the one used in the parallel studies (Gentner, 1982; Choi & Gopnik, 1995, Caselli, et al. 1995).

As mentioned in Chapter 2, one of the controversial aspects of noun bias stems from the way nouns and verbs are defined. In order to overcome this, two ways of coding have been chosen in this study. In presenting data from Turkish-without comparison, a more global approach has been taken. However, for crosslinguistic comparisons, a more conservative one has been used, sometimes including proper nouns but sometimes leaving them out. The detailed content of the noun and verb categories is given below.

In a broader perspective for the Turkish language-specific data, the noun category includes proper nouns as well as concrete/abstract nouns. The inclusion of abstract nouns into the noun category may seem problematic. However, subjects in the study have produced nearly no abstract nouns. This result may derive from the children's cognitive development during the data collection period. The same issue in Turkish regarding abstract nouns has also been observed by Sofu (1995). The subjects in her study did not produce any abstract nouns between nearly two and three and a half years of age. In addition to this, the mothers used so few abstract nouns that they did not make up even 1% of the language used by the mothers. For this reason, abstract nouns have not been excluded from the general noun category. Furthermore; onomatopoeic words-the common lexical items in baby talk-were coded as a noun when they have a specific and common referent. The same criterion has been applied for kinship terms. However, when both kinships terms and onomatopoeic words have been used with

vocative or attention-getting purposes, they have not been included in the noun category.

The verb category includes words referring to action, change of location and change of state. Nouns and adjectives in predicate position in utterances have not been coded in a noun or verb category. In contrast to other studies, gerunds have been included in the verb category since they associate to verbs cognitively (Aylin Küntay, personal communication, 22.04.2005). Verb-like items in child language, such as “hoppa” (jump!), have not been categorized in the verb category-though they represent verb-like relation-, in order not to diverge from the common definition of the categories in the related studies.

The “other” category includes the rest of the lexical items, such as adjectives, adverbs, and interjections. Since these linguistic items are not the main focus of this study, they have been grouped under the “other” heading.

4.1.2 Means and Standard Deviations of Noun and Verb Categories in Caregivers’ and Children’s Speech

An overall demonstration of the data in tables 4.2 and 4.3 are given at the beginning of the results and discussion so as to provide a specific look at noun and verb categories. In other words, they are given to identify the center and the variability of the data. The means and standard deviations of the data are used as overall language measures (Camaioni & Longobardi, 2001).

Table 4.2. Overall Means and Standard Deviations of Nouns/Verbs in children’s lexicon

	Nouns			Verbs		
	Mean	±	SD	Mean	±	SD
C1	14,33	±	10,40	8,33	±	6,41
C2	13,67	±	11,71	8,83	±	9,32
C3	20,17	±	8,75	15,33	±	10,55
C4	29,0	±	12,71	26,0	±	12,69
C5	19,67	±	8,29	14,5	±	10,13

Table 4.2 shows the mean scores and standard deviations of children’s nouns and verbs in the study. Among the five children, C4 has the most consistent scores. The mean of

her nouns and verbs is the highest with a moderate level of standard deviation. On the other hand, the lowest mean score of nouns belongs to C2, whereas C1 has the lowest mean score of verbs. Also, it can be seen in table 4.2 that the mean score of nouns is higher than that of verbs in all children.

Table 4.3. Overall Means and Standard Deviations of Nouns/Verbs in caregivers' speech

	Nouns			Verbs		
	Mean	±	SD	Mean	±	SD
M1	37,0	±	12,0	53,67	±	9,77
M2	82,33	±	8,50	83,17	±	3,43
M3	83,0	±	13,62	96,5	±	11,06
M4	73,83	±	13,06	88,5	±	20,12
M5	41,33	±	17,91	49,0	±	16,62

The means and standard deviations of mothers' noun and verb categories are presented in Table 4.3. Among the five mothers, M3 is the most consistent one in that her mean scores of nouns and verbs are the highest. On the other hand, the lowest mean score of nouns belongs to M1, and the lowest mean score of verbs belongs to M5. In addition, Table 4.3 points that the mean scores of verbs is higher than that of nouns. Consequently, an inconsistent parallelism can be observed between mothers' and children's means of nouns and verbs.

4.2. Detailed Paired Analysis of Nouns and Verbs

The paired tables such as C1-M1 or C2-M2 below show the coding of nouns and verbs for type frequency, percentage and type/token ratio. Mothers' type/token ratios have not been calculated since type/token ratios have been used as a measurement for children's lexical diversity (Richards, 1987). In addition; p and chi-square values are given to determine the statistically significant dominance of noun or verb category in each child. Total vocabulary and the other columns are added to complete each child's and mother's lexical frame.

4.2.1. Paired Analysis: C1&M1

Table 4.4 presents the frequency, percentage, and type/token ratio of noun and verb categories of the first child. Also, Table 4.4 shows the frequency and percentage of M1's nouns and verbs. First, each table is analyzed separately, then the child's and the mother's numerical data are compared, as seen below.

Table 4.4. C1's Detailed Analysis of Noun/Verb Categories

	Noun			Verb			p	X ²	Oth.	Total Vocab.
	f	(%)	Type/Token	f	(%)	Type/Token				
T. 1	3	(75,0)	1	1	(25,0)	1	-	-	-	4
T. 2	5	(62,5)	0,294	3	(37,5)	0,428	0,480	0,500	-	8
T. 3	25	(67,5)	0,423	7	(18,9)	0,466	0,001*	10,125	5	37
T. 4	21	(50,0)	0,567	9	(21,4)	0,692	0,028*	4,800	12	42
T. 5	7	(26,9)	0,636	11	(42,3)	0,500	0,346	0,889	8	26
T. 6	25	(44,6)	0,568	19	(33,9)	0,558	0,366	0,818	12	56

(p<0,05) (d.f.=1)

Table 4.4 shows that apart from time 5, C1's noun frequency is always more than her verb frequency. P value as a result of chi-square analysis points out that noun dominance over verbs at time 3 and 4 is also statistically significant. Similarly, in all sessions, the percentage of nouns is higher than verb percentage except for time 5. However, the difference between C1's noun frequency/percentage and her verb frequency/percentage is not very striking at times 1, 2, 5 and 6. Also, Table 4.5 reveals that M1's verbs are always higher than nouns in terms of not only frequency, but also percentage. In addition, the verb superiority over nouns is statistically significant at time 2 and 5. Nonetheless, M1's noun frequency/percentage and verb frequency/percentage do not show a drastic difference at times 1, 3, 4 and 6.

Table 4.5. M1's Detailed Analysis of Noun/Verb Categories

	Noun		Verb		p	X ²	Oth.	Total Vocab.
	f	(%)	f	(%)				
T.1	31	(25,2)	46	(37,3)	0,087	2,922	46	123
T.2	33	(22,6)	61	(41,7)	0,004*	8,340	52	146
T.3	39	(26,0)	54	(36,0)	0,120	2,419	57	150
T.4	51	(32,2)	54	(34,1)	0,770	0,086	53	158
T.5	19	(18,6)	40	(39,2)	0,006*	7,475	43	102
T.6	49	(28,6)	67	(39,1)	0,095	2,793	55	171

(p<0,05) (d.f.=1)

When both tables (4.4 and 4.5) are compared, it can be seen that time 5 requires a closer look. Time 5 represents the only period that C1's verb frequency and percentage are more than nouns, though not statistically proven. Parallel to that, from M1's view, time 5 is one of the two periods when verb dominance over nouns is statistically significant. In terms of total vocabulary, M1's total lexicon is the lowest; similarly, C1's productive vocabulary is considerably low at time 5. Evidently, both C1 and M1 are not very talkative or initiative at time 5. This result may also derive from the nature of the specific activity that C1 and M1 are engaged in during this recording.

The underlying rationale of this parallelism between C1 and M1 in terms of a common verb dominance can be understood when the context of the session is analyzed. With this opinion in mind, we have referred to the notes taken by the researcher. Before the session, M1 mentioned that "C1's behaviours have changed nowadays, being very aggressive". M1 added that this was because C1 changed the kindergarten that she attended and started to be very difficult to understand. M1 also said that in such situations, she didn't interrupt her. C1 hit her mother and cried. But the mother just listened and looked at her, then waited her to calm down during the video-recording of such a situation. C1 was very aggressive, while playing with toys, was not properly responsive to her mother's questions. The specific conditions of the recording session may help us to understand why verbs are more dominant but not the nouns. To illustrate the situation, we have provided an example of a dialogue between the child and her mother:

Example 4.1: (time 4)

- M1 : tamam ben yatmıyorum.
"OK. I am not lying."
C1 : kalk.
"stand up."
M1 : otur.
"sit down."
M1 : hadi salla, beni cici yap.
"let's swing, love me."
C1 : kalk.
"stand up."
M1 : kızım saçımı çekme.
"my dear, don't pull out my hair."
C1 : yat.
"lie down."
M1 : senin adın ne?
"What is your name?"

C1 : O.
 (C1 does not respond).
 C1 : yat.
 “lie down.”

As Example 4.1 indicates, C1 keeps giving orders but does not answer her mother, leading to verb superiority. Therefore, C1’s psychological situation is the determining factor in understanding the verb-bias nature of Time 5.

When it comes to elaboration of C1’s type/token ratios, no systematicity can be observed. At times 5 and 6, C1’s noun type/token ratio is higher than verbs; whereas, at times 2, 3 and 4, the verb type/token ratio is higher than the noun ratio. C1 has the highest and equal type/token ratio of nouns and verbs at time 1. However, the actual examples (Example 4.2, 4.3 and 4.4) from the interaction between C1 and M1 illustrate that both the linguistic simplicity of the interaction and the very limited number of C1’s total vocabulary (4) and the nouns (3) and verbs (1) seem to be responsible for the high type/token ratio.

Example 4.2: (time 1)

M1 : su içer misin bebeğim?
 “Do you want to drink water,
 honey?”
 C1 : mama.
 “food.”
 M1 : mama.
 “food.”
 %act : M1 repeats what C1 says.
 M1 : su.
 “water.”
 %act : M1 helps C1 to drink water.
 M1 : aferin bebeğime
 “Well done, my dear baby.”

Example 4.3: (time 1)

M1 : döktük çok güzel.
 “We spilt it very well.”
 M1 : çok güzel döktük.
 “We spilt it very well.”
 C1 : <su> [/].
 <water> [/].
 %act : C1 wants to take water.
 M1 : al.
 “take it.”
 %act : C1 drinks a glass of water.

Example 4.4: (time 1)

M1 : pis hayır pis.
 “No, it is dirty, dirty.”
 %act C1 gets something to eat.
 : pis annem ağzına + ...
 “dirty, not to your mouth + ...”
 M1 : annecim, lütfen.
 “honey, please.”
 M1 <pis> [/].
 “dirty.”
 C1 : anne.
 “mummy!”
 M1 : tamam pis tamam.
 “OK, this is dirty.”

As the examples justify, it may be misleading to elaborate on C1’s noun/verb type/token ratio as reliable indicators showing noun or verb type/token superiority at time 1.

In spite of C1’s verb superiority on frequency and percentage over nouns at time 5, her verb type/token ratio does not follow the same pattern. C1’s noun type/token ratio is higher than verbs at time 5. In order to see the central point in type/token ratios, the mean of noun and verb type/token ratio is calculated. The mean of C1’s noun type/token ratio (0,581) is lower than her verb type/token ratio (0,607).

In short, verbs can also be seen in C1’s lexicon, starting from the very early developmental phases. However, nouns are always more frequent, and in terms of percentages, they always occupy more place than verbs. There is only one time that C1 uses more verbs than nouns. On the other hand, the verb type/token ratio is higher than the noun type/token ratio at time 2, 3, and 4, which means that C1 very often uses verbs to express herself.

4.2.2. Paired Analysis: C2 & M2

Table 4.6 is presented here to show C2’s noun and verb frequencies, percentages and type/token ratios. In addition, table 4.7 identifies M2’s frequency and percentage of noun and verb categories.

Table 4.6. C2's Detailed Analysis of Noun/Verb Categories

	Noun			Verb			p	X ²	Oth.	Total Vocab.
	f	(%)	Type/Token	f	(%)	Type/Token				
T. 1	2	(100)	0,500	0	(0)	0	-	-	-	2
T. 2	3	(75,0)	0,750	0	(0)	0	-	-	1	4
T. 3	4	(44,4)	0,500	3	(33,3)	0,375	0,705	0,143	2	9
T. 4	24	(54,5)	0,571	11	(25,0)	0,392	0,028*	4,829	9	44
T. 5	24	(41,3)	0,500	17	(29,3)	0,340	0,274	1,195	17	58
T. 6	25	(34,2)	0,555	22	(30,1)	0,231	0,662	0,191	26	73

(p<0,05) (d.f.=1)

Table 4.7. M2's Detailed Analysis of Noun/Verb Categories

	Noun		Verb		p	X ²	Oth.	Total Vocab.
	f	(%)	f	(%)				
T.1	94	(39,0)	79	(32,7)	0,254	1,301	68	241
T.2	83	(32,8)	89	(35,1)	0,647	0,209	81	253
T.3	72	(30,2)	81	(34,0)	0,467	0,529	85	238
T.4	90	(36,8)	84	(34,4)	0,649	0,207	70	244
T.5	75	(34,0)	84	(38,1)	0,475	0,509	61	220
T.6	80	(34,6)	82	(35,4)	0,875	0,025	69	231

(p<0,05) (d.f.=1)

According to Table 4.6, a regular superiority of noun frequency and percentage over verbs occurs at all times in C2's lexical development. However, this noun dominance is only statistically significant at time 4 when there is a sudden increase in her total vocabulary. From M2's perspective, the picture is more complex. At times 1 and 4, noun frequency and percentage dominance can be observed over verbs, whereas at times 2, 3, 5 and 6, verb superiority can be seen over nouns. In addition, dominance of any category in M2's speech is not statistically significant because the difference between M2's nouns and verbs are not very striking.

A comparison of both tables (Table 4.6 and 4.7) reveals that at time 4, when C2 has experienced an important burst in her language development, her nouns show a dominance that is statistically proven. However, from M2's perspective, her nouns are slightly more than her verbs. This simultaneous noun spurt represents a common point between C2 and M2. Among all times, the transition from time 3 to time 4 in C2's language development seems important because there is a sudden spurt in her overall vocabulary as well as her nouns and verbs. Examples 4.5 from time 3 and time 4 are given to illustrate the change in C2's language competence.

Example 4.5: (time 3)

- ...
- M2 : dedeyi mi çağıracaksın?
“Will you call your grandfather?”
- M2 : nereye bebeğim?
“Where are going, my dear?”
- C2 : dede gel.
“come here, grandpa”.
- M2 : dedesi çabuk gel dedesi.
“My daughter’s grandpa come here quickly.”
- M2 : kızım Öykü seni bekliyor.
“My daughter, Öykü, is waiting for you.”
- M2 : ama yiyeceksen soy.
“but if you eat it, peel it.”
- : al.
- M2 “take it.”
- : dede.
- C2 “grandpa”
- : dedesi saatini verdi benim kızıma.
- M2 “Her grandpa gave his watch to my daughter.”.

The mutual interaction between C2 and M2 in example 4.5 does not seem real-life like.

C2 is not very initiative though her mother leads her to talk.

Example 4.6: (time 4)

- M2 : bu ne?
“What is this?”
- C2 : aydede.
“the moon”
- M2 : aydede, evet kızım.
“yes, this is the moon, my dear.”
- M2 : bu ne?
“What is this?”
- C2 : top.
“a ball”
- M2 : top.
“a ball”
- ...
- M2 : sen arabanın neresine oturuyorsun, kızım?
“Where do you sit in the car, my dear?”
- M2 : önüne mi arkasına mı?
“at the back or at the front”

- C2 : akka.
“at the back”
M2 : arkasına, evet.
“Yes, at the back.”

On the other hand, at time 4, C2’s total vocabulary shows an important increase. Parallel to this, her communicative intention improves. In example 4.6, she answers her mum and helps the communication go on.

As for C2’s type/token ratio of nouns and verbs, her noun type/token ratio is higher than her verb type/token ratio at all sessions. Also, the mean of C2’s noun type/token ratio (0,562) is higher than the verb type/token ratio (0,223).

In conclusion, C2’s lexical frame is different from C1. Although verbs are present in C1’s lexicon even in the very early days of data collection period, C2 produces no verbs in the first two video-recordings. For a broader perspective into her lexicon, her mother’s dairy has been analyzed. According to her diary, only three verbs have been jotted down by M2 for C2’ four month-observation period in this study. These verbs are “gel” (come), “bak” (look) and “aç” (open). They are all used in imperative form. The high values in C2’s noun type/token ratio also support the conclusion that C2 uses nouns more than verbs in communicating and expressing herself.

4.2.3. Paired Analysis: C3 & M3

Table 4.8 demonstrates C3’s noun/verb frequencies, percentages, and type/token ratios. M3’s noun/verb frequencies and percentages are given in Table 4.9.

Table 4.8. C3’s Detailed Analysis of Noun/Verb Categories

	Noun			Verb			p	X ²	Oth.	Total Vocab.
	f	(%)	Type/Token	f	(%)	Type/Token				
T. 1	14	(87,5)	0,274	2	(12,5)	0,666	0,003*	9,000	-	16
T. 2	9	(52,9)	0,750	3	(17,6)	0,750	0,083	3,000	5	17
T. 3	24	(42,1)	0,600	15	(26,3)	0,500	0,150	2,077	18	57
T. 4	33	(60,0)	0,523	24	(36,3)	0,393	0,233	1,421	9	66
T. 5	16	(26,2)	0,551	25	(40,9)	0,641	0,160	1,976	4	61
T. 6	25	(44,6)	0,694	23	(41,0)	0,450	0,773	0,083	8	56

(p<0,05) (d.f.=1)

Table 4.9. M3's Detailed Analysis of Noun/Verb Categories

	Noun		Verb		p	X ²	Oth.	Total Vocab.
	f	(%)	f	(%)				
T.1	74	(34,2)	82	(37,9)	0,522	0,410	60	216
T.2	63	(27,6)	96	(42,1)	0,009*	6,849	69	228
T.3	102	(35,9)	92	(32,3)	0,473	0,515	90	284
T.4	92	(34,0)	110	(40,7)	0,205	1,604	68	270
T.5	82	(30,3)	109	(40,3)	0,051	3,817	79	270
T.6	85	(33,3)	90	(35,2)	0,705	0,143	80	255

(p<0,05) (d.f.=1)

Table 4.8 indicates that except time 5, C3's noun category frequency and percentage are higher than verbs. However, noun dominance in her lexicon is only statistically significant at time 1. As the child gets older and her exposure to the language increases, the difference between her noun and verb categories gets closer. C3's lexical development in terms of noun and verb categories is similar to C1's. Both children's verb frequency and percentage are higher than their nouns at time 5. However, their total vocabulary is very different from each other. The reason for this, on the behalf of C1, has been explained above. From C3's perspective, time 5 has been a completely toy-play session. C3 is busy with the toys that her cousin left her in the session. The nature of toy-play sessions has been accepted as verb dominant in the related literature (Choi, 2000). C3's active participation in the toy setting is important because they are not her old toys that she was used to playing with, so it is not surprising to come across verb dominance over nouns in this session though it is not statistically proven.

Example 4.7: (time 5)

- ...
- M3 : tamam aldın mı?
"OK, did you take it?"
- C3 gel, hadi.
"come here."
- M3 : geliyorum.
"I am coming."
- M3 : şuraya götürelim kızım
oyuncaklarımızı.
"Let's take our toys there."
- %act : C3 carries the toys.
- M3 : dur oraya değil.
"stop, don't put them there."
- M3 : gel burada oynayacağız çünkü.
"come here, because we will play"

here.”
 C3 : geldim.
 “I came.”
 ...
 M3 : kızım şuna bak.
 “my dear, look at this!”
 %act M3 points a part of the toy.
 M3 : çıkıyor mu?
 “Is it coming out of it?”
 C3 : çıkmıyor.
 “It is not coming out of it.”
 M3 : çok tehlikeli açma istersen.
 “It is very dangerous. If I were you,
 I won’t open it.”
 C3 : açtım.
 “I opened it.”
 ...
 M3 : ne istiyorsun?
 “What do you want?”
 C3 : şunu da kaldır.
 “Hold this one.”
 M3 : bir poşet bulalım.
 “Let’s find a plastic bag.”

An instance taken from time 5 in example 4.7 illustrates C3 and M3’s busy engagement with the toys and how M3 gives prompts to initiate the talk.

As for M3 in Table 4.9, except time 3, M3’s verb frequency and percentage are, to some extent, higher than nouns. Also, verb dominance over nouns is statistically proven at time 2. In this session, the striking point is that M3 always instructs C3 what to do. However, C3 does not respond to her instructions properly but just acts or does what her mother says, so there is a regular ongoing talk by the mother but there is no consistent answers from C3 as seen in the example below.

Example 4.8:

M3 : gel yaptın mı kahvemizi kızım?
 “come, did you make a coffee, my dear?”
 M3 : hani kahvemiz?
 “Where is the coffee?”
 %act : C3 is preparing coffee.
 M3 : gel şeker at hadi.
 “come and put some sugar.”
 M3 : hadi şeker atar mısın kahvemize?
 “Let’s put some sugar into the coffee.”
 M3 : gel hadi benimkini de doldur.
 “come and put some sugar into my coffee.”

M3 : tamam şunu da doldur, şeker de atalım.
 “OK and pour into this one and put some
 sugar.”

As the example illustrates, C3 does not respond to her mother’s instructions verbally but does what she instructs. Therefore, the verb dominance in M3, but low frequency of nouns and verbs by C3 can be understood at time 2.

Time 3, also, exhibits a period when M3’s noun frequency and percentage are higher than verbs. In this recording, C3 and M3 are in the kitchen. They both prepare something to eat and drink. Also, M3, by referring to the materials around, asks C3 to give and take something she needs during her activity. This may explain why nouns are used more than verbs by M3 at time 3.

When it comes to C3’s type/token ratio, her verb type/token ratio is higher than her noun type/token ratio at time 1 and 5. This shows that C3 can use verbs more varied than nouns in sharing her feelings. In an overall look, C3’s means of noun and verb type/token ratios are very close to each other (0,565) for nouns and (0,566) for verbs. Therefore, it can be said that an equal amount of nouns and verbs are uttered by C3 in different contexts.

In short, C3’s overall noun and verb development is similar to C1 but different from C2. Though not dominant every time, verbs can be observed in her lexicon, starting from the beginning of the study. Her mother also reports C3’s verbs in her diary. They are first in the imperative form, then there are inflected forms of verbs in the notes taken by M3. Moreover, her verb type/token ratios support that there is a lexical diversity in C3’s verb use.

4.2.4. Paired Analysis: C4 & M4

Table 4.10 presents C4’s noun/verb frequencies, percentages and type/token ratios. Also, her mother’s noun/verb frequencies, percentages are given in table 4.11.

Table 4.10. C4's Detailed Analysis of Noun/Verb Categories

	Noun			Verb			p	X ²	Oth.	Total Vocab.
	f	(%)	Type/Token	f	(%)	Type/Token				
T. 1	17	(51,5)	0,772	10	(30,3)	0,625	0,178	1,815	6	33
T. 2	16	(45,7)	0,470	13	(37,1)	0,276	0,577	0,310	6	35
T. 3	42	(50,6)	0,656	28	(33,7)	0,444	0,094	2,800	13	83
T. 4	20	(33,3)	0,645	28	(46,6)	0,549	0,248	1,333	12	60
T. 5	43	(38,3)	0,544	44	(39,2)	0,354	0,915	0,011	25	112
T. 6	36	(39,1)	0,450	33	(35,8)	0,279	0,718	0,130	23	92

(p<0,05) (d.f.=1)

Table 4.11. M4's Detailed Analysis of Noun/Verb Categories

	Noun		Verb		p	X ²	Oth.	Total Vocab.
	f	(%)	f	(%)				
T.1	60	(37,7)	64	(49,6)	0,179	0,129	35	159
T.2	78	(32,9)	105	(44,3)	0,046*	3,984	54	237
T.3	94	(36,8)	99	(38,8)	0,719	0,130	62	255
T.4	78	(36,9)	75	(35,5)	0,808	0,059	62	211
T.5	74	(29,2)	114	(45,0)	0,004*	8,511	65	253
T.6	59	(28,5)	74	(35,7)	0,193	0,692	74	207

(p<0,05) (d.f.=1)

According to Table 4.10, C4 uses a bit more nouns than her verbs at times 1, 2 and 6 in terms of frequency and percentage. At time 3, the difference between her nouns and verbs is a bit striking. In contrast, at times 4 and 5, her verb frequency and percentage are higher than nouns. When compared to the other children, C4 is the only one whose verbs show a slight dominance over nouns at two different times. Also, her verb dominance in her lexicon takes place in the earliest period in comparison with that of the other children. As the example 4.9 indicates, she can respond to her mother properly with verbs in their inflected forms. However, noun or verb dominance at any of the times is statistically proven.

Example 4.9: (time 4)

- M4 :hadi bana bir kahve yap.
 “Let’s make a coffee for me.”
- C4 kahve nerede?
 “Where is the coffee?”
- C4 : yapmayacam.
 “I will not make it.”
- M4 : ama yapmayacağım olur mu, çok ayıp.
 “Why don’t you make it, it is very

- shameful”
- ...
- M4 burada bebek var, başka ne var?
“There is a baby doll here, what else are there ”
- C4 : bebek var.
“There is a baby doll.”
- M4 bebeği var kızımın.
“There is my daughter’s baby doll”
- ...
- M4 öbür gözlüğünü getireyim mi?
“Do you want to me take another pair of glasses”
- M4 öbür gözlüğün nerede?
“Where are your other glasses?”
- C4 : bebeği götürcem.
“I will take the baby doll away.”
- M4 : bebeği oraya mı koyacaksın?
“Will you put the baby doll there?”

C4’s lexical development regarding noun or verb use does not follow a pattern similar to that of the other children. In fact, she is the most productive child in the study. Her total vocabulary at the beginning of the study is 33, her noun frequency is 17 and her verb frequency is 10 even at the age of 1;5.

As for M4, apart from time 4, her verb frequency and percentage are lightly higher than nouns at times 1, 2, 3, 5 and 6. This dominance at times 2 and 5 is statistically significant. A closer look at time 2 reveals that in this recording C4 is given a present by the researcher on which there are mini figures, such as a circle and a heart . The present is like a mini board that has a board marker to write down. M4 teaches her daughter how to use the board and the other parts of the toy as can be seen in the example below.

Example 4.10: (time 2)

- M4 : çok heyecanladık.
“We have felt very excited.”
- M4 : tamam vereceğim.
“OK, I will give it to you. “
- %act: C4 wants to take the mini parts.
- M4 : bu ne işe yarıyormuş?
“What is it used for?”
- M4 : al bak bakalım.
“Take and have a look at it.”
- M4 : bak kalem.

- “Look! This is a pen.”
M4 : buraya çiziyorsun.
“You are drawing here.”
M4 : bunlar ne işe yarıyor?
“What are these used for?”
M4 : şekil yapıyor.
“They are doing some figures”

At time 5, M4 reminds her daughter what they did in the park the previous day in the main part of the video recording.

Example 4.11: (time 5)

- M4 : peki parkta bir kızla tanışmış
mıydın?
“ Did you meet a girl in the park?”
M4 : o kızın adı neydi?
“What was her name?”
M4 : Banu.
: Banu, bir de Alara gelmişti.
“Banu, and Alara came, too.”
M4 : Alara.
M4 : sen nereye çıktın, tırmandın değil mi
öyle?
“Where did you climb? You climbed,
didn’t you?”
M4 : Böyle tırmandın, yukarı çıktın.
You climbed like this and went
upstairs.
M4 : Ben de sana yardım ettim.
“I helped you, too.”

These examples can explain the significant verb dominance in M4’s language use and her expressive style.

Regarding C4’s type/token ratios, her noun type/token ratio is higher than her verb type/token ratio at all times, which means that C4 use of nouns is more varied than her verbs. The mean of her noun type/token ratio (0,586) is higher than her verb type/token ratio (0,421) but the difference is not drastic.

To conclude, C4’s lexical frame in terms of noun/verb dominance does not have any similarities or differences with other children in the study. She is the most effective child in this research regarding noun and verb uses. The verb category always appears in her lexicon, even from the very first days of the data collection period. This can also

be seen in her mother's dairy. Interestingly, although the initially reported verbs by other mothers are in the imperative form, C4's first verbs are in the inflected form. Another striking point in C4's lexical development is that there is no statistically significant dominance of verbs or nouns. It points out that verbs or nouns do not occupy such a place that causes another category to come back. In only two periods are C4's verb frequency a bit higher than nouns, while in other sessions, the noun and verb frequencies are very close to each other.

4.2.5. Paired Analysis: C5 & M5

C5's noun/verb frequency, percentage, and type/token ratio are demonstrated in table 4.12. M5's frequency, percentage of nouns, and verbs are presented in Table 4.13.

Table 4.12. C5's Detailed Analysis of Noun/Verb Categories

	Noun			Verb			p	X ²	Oth.	Total Vocab.
	f	(%)	Type/Token	f	(%)	Type/Token				
T. 1	9	(42,8)	0,250	7	(33,3)	0,350	0,617	0,617	5	21
T. 2	15	(51,7)	0,300	10	(34,4)	0,555	0,317	1,000	4	29
T. 3	15	(65,2)	0,535	4	(17,3)	0,571	0,012*	6,368	4	23
T. 4	22	(44,8)	0,523	15	(30,6)	0,468	0,250	1,324	12	49
T. 5	32	(52,4)	0,340	19	(31,1)	0,250	0,069	3,314	10	61
T. 6	25	(31,6)	0,367	32	(40,5)	0,592	0,354	0,860	22	79

(p<0,05) (d.f.=1)

Table 4.13. M5's Detailed Analysis of Noun/Verb Categories

	Noun		Verb		p	X ²	Oth.	Total Vocab.
	f	(%)	f	(%)				
T.1	16	(17,0)	37	(39,3)	0,004	0,004*	41	94
T.2	39	(29,3)	53	(39,8)	0,144	0,144	41	133
T.3	26	(31,7)	25	(30,4)	0,889	0,889	31	82
T.4	51	(28,0)	63	(34,6)	0,261	0,261	68	182
T.5	52	(32,5)	46	(28,7)	0,544	0,544	62	160
T.6	64	(34,4)	70	(37,6)	0,604	0,604	52	186

(p<0,05) (d.f.=1)

Table 4.12 points out that noun frequency and percentage in C5's lexicon are mildly higher than verb frequency and percentage apart from time 6. The noun dominance over verbs can be seen at time 3 when C4's total vocabulary is 23 words, which is statistically significant. C5's lexical growth on noun/verb dominance is similar to C1 and C3 to some extent. C1 and C3 also show one time more frequent verb use than

noun. However, their more frequent verb use appears earlier than that of C5. In that respect, C5's high frequency over noun appearing at time 6 is later than C1 and C3. A closer look is required here to understand what C5 and M5 mainly deal with, especially in the video-recording at time 6. C5 plays with a puzzle and asks for help from her mother when she can not understand some of the images on parts of the puzzle. Clearly, C5 was an active participant of the activity. Consequently, her verb frequency and percentage become dominant.

As for M5, her verb category is higher than nouns at times 1, 2, 4, and 6 regarding frequency and percentage; whereas, at times 3 and 5, her nouns seem slightly higher than verbs. The verb dominance over nouns is only statistically proven at time 1. A parallelism between C5 and M5 appear at time 6 when both C5's and M5's verb categories are higher than nouns. The detailed analysis of the session as mentioned above indicates that M5 is also actively engaged in the puzzle with her daughter and answers her questions immediately.

Example 4.12: (time 6)

- C5 : teyze ne getirmiş, anne?
 “What did the aunt bring, mummy?”
- M5 : ne mi getirmiş?
 “What did she bring?”
- M5 : sen bilmiyor musun ne getirdiğini?
 “Don't you know what she brought?”
- C5 : oyuncak.
 “A toy.”
- M5 : oyuncak.
 “A toy”
- ...
- %act : they are looking at the figures on the puzzle.
- M5 : bu ne yapıyor?
 “What is this doing?”
- C5 : oyuncaklarıyla oynuyor.
 “She is playing with her toys.”
- M5 : oyuncaklarıyla oynuyor.
 “She is playing with her toys.”
- M5 : bunlar ne yapıyor?
 “What are these doing?”
- C5 : top oynuyorlar.
 “They are playing with the ball.”
- M5 : bu ne yapıyor?
 “What is this doing?”
- C5 : top oynuyor.

“She is playing with the ball.”

The example given here indicates that the interaction between C5 and M5 is very initiative. Both C5 and M5 make the communication go on by asking further questions. The questions asked also show that M5’s prompts direct C5 to produce verbs, not nouns, particularly in that session.

In terms of C5’s noun and verb type/token ratio, C5’s verb type/token ratio is higher than her noun type/token ratio at times 1, 2, 3, and 6. The mean of C5’s noun type/token ratio is 0.385; whereas, her verb type/token ratio mean is 0.464, showing that the verb variety is more than the noun variety.

To summarize, C5’s lexical development on nouns and verbs shows some commonalities with C1, C2, C3 and C4. Similar to them, as well as nouns, verbs are also present in her early lexicon. Apart from the statistically proven dominance of nouns or verbs, all children’s and mothers’ noun frequency/percentage and verb frequency/percentage are, to some extent, the same. The slight differences between those categories do not lead us to conclude that one specific type of word class provides a dominance over the other.

4.3. Correlation of All Children’s and Mothers’ Noun and Verb Categories

One of the main aim of this study is to help understand the effect of Turkish maternal input on language acquisition regarding noun/verb dominance. Also, a focus is placed on the relation between input and developmental patterns of nouns and verbs. For that reason, the study’s first concern is the parallelism between noun/verb frequencies, percentages and the type/token ratios of an individual child and the noun/verb frequencies of a mother. Then, as presented below, correlations are examined between an individual child’s and her mother’s use of noun and verb categories. Since it is the only way to conduct correlation analysis, all six times in the study have been calculated as a whole. Correlation analysis can not be done solely on a specific time as there are no changing values.

The level of correlation is shown by r value, which is the correlation coefficient, and the significance level is given by p value. The correlation coefficient (r value) may change between -1 and $+1$. 0 (zero) point means that no correlation exists between variables. A positive correlation between the variables means that variables show a parallel increase or decrease. A negative relation between variables means that one variables rises; whereas, the other one falls. An r value getting closer $+1$ or -1 symbolizes the strength of the correlation. In this study, an r value lower than 500 is accepted as a weak correlation and an r value higher than 500 is accepted as a strong correlation.

4.3.1. Correlation of an Individual Child and a Mother in terms of Verb

Table 4.14 exhibits the verb correlation between each mother and child such as C1-M1 or C2-M2. As stated above, pairs, such as C1-M1 or C2-M2, represent the verb correlation between the mother and the child in all six sessions as a whole.

Table 4.14. Correlation of an Individual Child and a Mother in terms of Verb

Verb Pearson Correlation	r	p
C1-M1	0,456	0,000
C2-M2	-0,242	0,000
C3-M3	0,583	0,000
C4-M4	0,275	0,000
C5-M5	0,790	0,000

As Table 4.14 indicates, there is a positive but weak correlation between C1 and M1 regarding verb category. A positive correlation means that the child's verb category rises as her mother's verb use increases. However, the r value, $0,456$, between C1 and M1 indicates that this observed correlation is not very high. Next, a negative weak correlation is observed between C2 and M2 in the same category. This negative correlation means that the mother's verb frequency does not any effect on her child's verb growth. The third pair, C3 and M3 show a different correlation pattern: a medium positive correlation. This finding means that C3's use of verbs correlates with her mother's at a medium level. The observed correlation pattern between C4 and M4 is similar to C1 and M1 but the calculated value, $0,275$, is different. C4's use of verbs rise as her mother's verb category increase, but at a low level. The most striking correlation can be seen between C5 and M5. There is a high positive correlation between them.

This finding is very different from that of the first four pairs and indicates that C5's verbs increase as her mother's verbs rise.

4.3.2. Correlation of an Individual Child and a Mother in terms of Noun

The noun correlation between each mother and child is given in Table 4.15 below. The same criterion used for the verb correlation has been taken into account for the noun correlation.

Table 4.15. Correlation of an Individual Child and a Mother in terms of Noun

Noun Pearson Correlation	r	p
C1-M1	0,821	0,000
C2-M2	-0,043	0,498
C3-M3	0,810	0,000
C4-M4	-0,024	0,711
C5-M5	0,759	0,000

Table 4.15 shows the correlation values regarding noun frequency between an individual child and her mother. A positive high correlation exists between C1 and M1. This correlation shows that C1's nouns are in rise when they are used at the same level by her mother. No correlation can be found between C2 and M2 in terms of noun category. When M2's nouns rise, C2's nouns increase. The next pair, C3 and M3 reflects a similar pattern to the first pair. A positive high correlation can be seen between C3 and M3. However, the fourth pair, C4 and M4, shows no correlation regarding noun category, which is similar to the pattern between C2 and M2. Lastly, C5 and M5 have a positive high correlation.

As a result, when the noun and verb correlations are taken into account as a whole, child-directed speech has more effect on children's lexical development in terms of noun category, and less in verb category. Although a positive high correlation occurs among three pairs, C1&M1, C3&M3, C5&M5, only one pair shows a positive high correlation in verb category, C5&M5. This correlation may imply that children's noun production is more affected than verb production by the specific features of child-directed speech. In addition, C5 reflects an important point: the positive high correlation between C5 and M5 regarding both categories, noun and verb. This finding indicates

that M5's child-directed speech has an essential effect on C5's noun and verb categories.

4.4. Children's Noun, Verb and Overall Vocabulary Development Patterns

The ups and downs in the verb, noun, and overall vocabulary development are also presented in the line graphs below so as to illustrate the general picture of all children's lexical growth. The following figures are provided as a support into the data given in the tables above:

4.4.1. C1

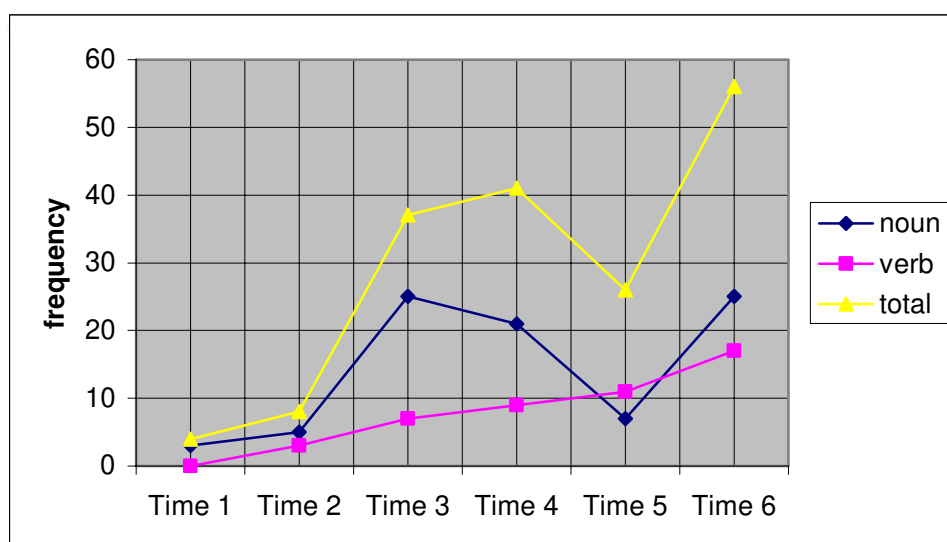


Figure 4.1. C1's Total Vocabulary and Developmental Noun/Verb Pattern

Figure 4.1 shows the overall vocabulary development as well as noun and verb development of C1. C1's verb use rises steadily throughout the study whereas her nouns fluctuate. Her nouns shoot up between time 2 and time 3, then decreases gradually. Between time 4 and 5, there is a dramatic fall in her nouns, parallel to her overall vocabulary development. Following this, there is again a substantial growth in both her nouns and her vocabulary development between time 5 and 6. In relation to C1's general vocabulary growth, it can be said that verbs are always in a steady increase. However, nouns in relation with her overall lexical development do not show a regular pattern.

For detailed contextual analysis of significant points in C1's lexical development, times 3, 5 and 6 have received attention. A sudden increase is observed in C1's nouns at time 3. In order to understand the rationale of this substantial increase, the contexts of time 2 and time 3 are compared. At time 2, C1 and M1 play with toys but M1 asks C1 to point to the part of the face of the toy with which they are playing.

Example 4.13: (time 2)

M1 : annecim hani göz?
 "Where is the eye?"
 %act: M1 gets another toy and shows it to C1.
 M1 : göz.
 "the eye"
 %act : C1 does not utter "eye" but points it.
 M1 : burun.
 %act : M1 points the nose of the stuffed animal.
 %act : C1 does not utter "nose" but points it.
 ...
 M1 : bir de bunu göster bakayım.
 "Let's show this one?"
 M1 : hani göz?
 "Where is the eye?"
 %act : C1 does not respond.
 M1 : saç.
 : "hair"
 %act : M1 wants C1 to point the hair.
 C1 : saç.
 "hair"
 %act : C1 points the hair and utters "hair".

As can be seen in example 13, M1's style is important. She gives such prompts that C1 points at the object but not answers. However, in the next session, although the general frame of the activity is similar, M1 changes her style. They look at C1's books in the recording.

Example 4.14: (time 3)

M1 : Bak! araba, gördün mü kızım?
 "Look! A car. Did you see it, my dear?"
 M1 : bu ne?
 "What is this?"
 C1 : bebek.
 "a baby"

- M1 : bebek değil ama bu ayı.
 “This is not a baby but a bear.”
- M1 : burda ne var?
 What is there here?
- C1 : ayı.
 “a bear.”
- M1 : bu ne, Melek?
 “What is this, Melek?”
- C1 : akabı.
 “shoes.”

At time 3, M1 asks C1 to not only point at the certain figures in the book but also to say what they are. Therefore, C1’s use of nouns dramatically increases. Obviously, the type of prompt from the mother has an effect on the child’s production of language. M1 may have changed her prompting technique because of her awareness about her child’s language capacity. She knows that her daughter is not productive enough to tell the parts of the face, and she directs her to point, but in the following session-after nearly two months-she asks her questions and wants her to answer them.

Time 5 is also a significant period in C1’s lexical development. At time 5, verbs dominate over nouns. A context analysis reveals that time 5 is a free play session, and C1 and her mother are busy with toys, especially dolls. To exemplify, C1 acts like a mother and tries to make her baby sleep. In addition, as explained in the paired analysis 4.2.1, C1 is being very aggressive. Therefore, the context of the session is basically an activity-oriented one. During the whole recording, C1 orders her mum, leading to high verb use but the verbs used by C1 are all in the imperative form, not inflected.

Example 4.15: (time 5)

- M1 : adı ne olsun bebeğin?
 “What do you want the baby to be called?”
- %act: M1 does not wait for the answer but gives choices to C1.
- M1 : Ayşe mi olsun?
 “Is “Ayşe” ok?”
- C1 : Ayşe.
 ...
- M1 : tamam ben burada oturacağım.
 “OK, I will sit here.”
- C1 : kalk.
 “stand up”
- ...
 M1 : konuşmam seninle.
 “I don’t talk to you.”

- C1 : elleme.
“Don’t touch!”
- ...
- M1 sen de gel, buraya gel.
“You come, too, come here”
- C1 : bana ver.
“give it to me”

Example 4.15 illustrates the verbs used by C1 in playing with her mother. As can be seen here, C1 tends to use verbs, not nouns. Moreover, in examples 13, 14, and 15, the mother talks to her child by using very short sentences. Also, although the mother seems very initiative in this discourse, C1 answers her shortly.

4.4.2. C2

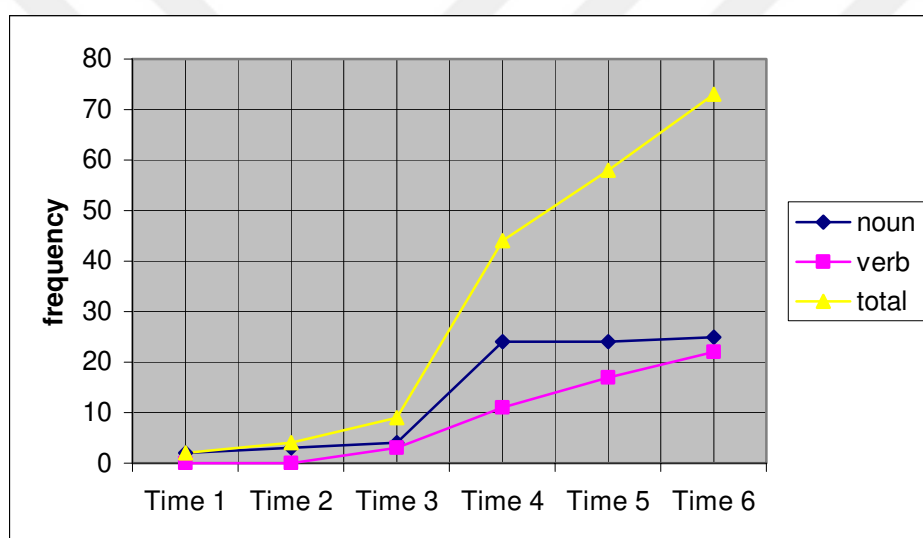


Figure 4.2. C2’s Total Vocabulary and Developmental Noun/Verb Pattern

As shown in Figure 4.2, C2’ noun and verb categories remain stable between time 1 and time 2. C2 utters no verbs; moreover, her limited nouns do not show any substantial change in the same period. Although C2’s lexicon has no productive verbs, she uses nouns repeatedly, causing no change in the line graph. However, time 4 reflects a significant period in C2’s vocabulary development. The rising tendency starting from time 2 and time 3 shows a dramatic change at that period. Regarding nouns, a sharp rise is observed between time 3 and 4. Similarly, she has a parallel growth in her verbs. When analyzing the context of time 4, no dominance of a specific activity can be seen in the recording. C2 and M2 play with toys in the first half of the session, then they look at C2’s books. For this reason, time 4 reflects a rise in both nouns and verbs. After this

period, C2's nouns level off, showing solely a slight increase between time 5 and time 6. On the other hand, C2's verb use rises steadily.

Time 4 and time 6 seem important periods that require contextual analysis. Time 4 is a starting period for continuous verb increase, whereas in the same period C2's nouns start to be stable, showing no ups and downs in the following periods.

Example 4.16: (time 4)

M2 : bu ne?
 "What is this?"
 C2 : aydede.
 "the moon"
 M2 : aydede, evet kızım
 "yes, this is the moon"
 M2 : bu ne?
 "What is this?"
 C2 : top.
 "a ball"
 M2 : bu ne?
 "What is this?"
 C2 : ağaç.
 "a tree".

One specific extract from time 4 in example 16 illustrates that C2 and M2 are in an activity which is similar to the one between C1 and M1 in examples 4.13 and 4.14. They look at the child's book and name the figures. On the other hand, in different parts of the recording, they deal with the child's old shoes.

Example 4.17: (time 4)

C2 : ayabetti.
 "shoes"
 %act: C2 points her old shoes.
 M2 : ne?
 "What?"
 %act: M2 cannot understand what C2 says and wants her to repeat.
 M2 : ayakkabı.
 %act : M2 understands what C2 means and repeats herself.
 M2 : kediler ayakkabı giymez ki.
 "Cats don't wear shoes."
 M2 : ne giydi?
 "What did it wear?"
 C2 : ayabetti giydi.
 "It wore shoes."
 ...

- M2 : senin bisikletin varmı?
 “Have you got a bicycle?”
 C2 : gok.
 “No”

The interaction style of M2 and C2 in this specific context seem interactive. C2 answers her mother’s questions communicatively. However, in the previous recording, at time 3, C2 does not verbalize herself.

Example 4.18: (time 3)

- M2 : ne seyrediyorsun sen yavrum?
 “What are you watching?”
 %act : C2 does not answer but
 laughs.
 M2 : sevindik, dede geldi.
 “We have felt happy, the
 grandfather came.”
 ...
 M2 : deden bütün muzları sana mı
 verdi?
 “Did your grandfather give you
 all the bananas?”
 %act : C2 does not answer, goes on
 eating the banana.
 M2 : bunu da anne yesin.
 “The mother will eat this one.”
 C2 : al mama.
 “take the food.”

As example 4.18 shows C2 can not express herself at time 3. However, at time 4, she can communicate with her mother. This shift can explain the sudden burst in C2’s overall vocabulary, noun and verb development at time 4.

Next, at time 6, C2 is basically busy with the play-dough. She makes some figures representing some animals and names them, which can be thought as a period reinforcing noun uses. Also, during figure-making, M2 instructs her about how she has to play with the dough in order to make a specific figure. Such a situation may have directed both C2 and M2 to produce verbs more than nouns.

Example 4.19: (time 6)

- M2 : birlikte yapalım mı benim
 yardıma ihtiyacım var.
 “Let’s do it together, I need
 help.”

- C2 : yok.
“No.”
- M2 : ama benim yardıma ihtiyacım var.
“But I need help”.
- C2 : dur yapalım anne.
“OK, let’s do it.”
- M2 : kafasını sarıyla yapacağım, olur mu?
“I will do its head with the yellow dough, is it OK?”
- C2 : olur.
“OK”
- ...
- M2 : daha bitmedi benim yapacaklarım.
“I have not finished it yet.”
- C2 : bunu koyalım.
“Let’s put this one!”
- M2 : koyalım onu.
“Let’s put it”

As can be seen in example 4.19, C2 properly gives her mum full answers. In terms of syntactic growth, she seems to produce sentences similar to adult forms. That is why, her nouns are stable but her verbs are in rise in the last three periods. As Turkish word order dictates, a verb can stand for a whole sentence. Therefore, more verbs but less nouns can be observed in children’s later language development.

4.4.3. C3

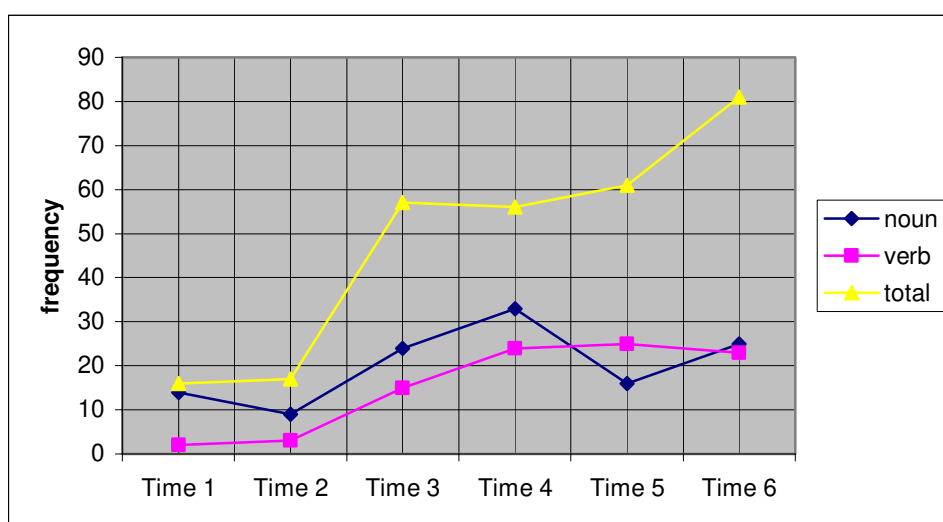


Figure 4.3. C3’s Total Vocabulary and Developmental Noun/Verb Pattern

Figure 4.3 represents the general language development of C3's lexical phases. As can comfortably be observed, between time 1 and 2, C3's verbs and overall vocabulary growth are stable. However, her nouns slightly decrease from time 1 to time 2. After time 2, a significant spurt is observed in all categories. Her verbs start to rise dramatically and this rising tendency lasts in the following sessions, except time 6. Her nouns also show a gradual rise after time 2 and they peak between time 3 and 4.

Time 4 and time 5 can be regarded as significant points in C3's lexical development. At time 4, the continuous noun and verb increase peak. On the other hand, at time 5, the child uses more verbs than her nouns.

The observed rising tendency of nouns and verbs lasts through time 4. The activities at time 4 include looking at car brochures, birthday photos, reading books and toy playing. However, the dominant one is book reading. Though book reading can be assumed as a noun-oriented session (Choi, 2000), the way M3 deals with the books is interesting. She not only names the things she sees in the books, but also tells C3 what the people in the pictures are doing. M3 also guides her daughter to tell what the people are doing. Therefore, a balance is observed regarding noun or verb use.

Example 4.20: (time 4)

- M3 : ona başka hediyeler vermiş.
"He gave her other presents."
- M3 : bitti, kızım.
"It is finished, my dear."
- M3 : burda da bir şarkı var, Elif.
"There is a song here, Elif."
- C3 : işte, bak!
"Look at this!"
- M3 : prensmiş kızım bu.
"This is a prince, my dear."
- C3 : prens.
"a prince. "
- M3 : bu ne yapıyordu?
"What was this doing?"
- C3 : ağlıyordu.
"She was crying."
- M3 : bu ne yapıyordu?
"What was this doing?"
- C3 : gülüyordu.
"She was smiling."

As shown in example 4.20, the ways M1 at time 3 and M3 at time 4 deal with the books are very different. Even though both contexts are called book-reading, each mother's style plays a crucial role in guiding her child to produce a specific category. M1 looks at the figures in the book and instructs her daughter to label the figures. However, M3 guides her daughter to talk about the action. Another controversial point is the content of the book. Though not the same one, the books that M3 and M1 engage in are story books, not picture books. This difference reinforces the importance of the mothers' styles. For example, C3 can answer her mother by correctly inflected verbs. For example; M3's question "bu ne yapıyordun?" (What was this doing?) is answered by the parallel inflections by the child as "ağlıyodu" (crying) –ağla-prog-past or "gülüyordu" (smiling) gül-prog-past.

Time 5 is also significant because C3 uses more verbs than nouns in this session. M3 and C3 play with trucks, a train, mini soldiers and mini animal figures that her cousin has given her. M3 helps C3 to make the figures get on the truck. They talk about actions of the figures as illustrated in example 4.21.

Example 4.21: (time 5)

- M3 : cufcuf gidiyor mu?
"Is the train going?"
- C3 : Ben de oynayayım.
"I will play, too."
- M3 : Sen de mi oynamak istiyorsun?
"Do you also want to play?"
- M3 : al bakalım.
"Let's take it."
- C3 : çalışmıyor.
It's not working.

Example 4.21 also presents the activity-oriented atmosphere of that specific recording, time 5. Therefore, observing verb dominance at that period is not surprising.

In addition to the atmosphere effect on the observed verb dominance, C3's more productive language requires attention. In this session, C3 tends to respond to her mother by using one verb. To illustrate:

Example 4.22: (time 5)

- M3 : bakayım, soğuk mu?
"Let me look at it, is it cold?"

- C3 : bakayım.
“Let me look at it.”
- ...
- M3 : ama soğuksa yeme hayatım.
“Don’t eat it if it is cold.”
- C3 : yiycem.
“I will eat it.”
- ...
- M3 baban bugün saçlarını
toplayamadı mı senin?
“Your father can not put your
hair in a bun, today.”
- C3 : toplamadı.
“He didn’t put my hair in a bun.”
- ...
- M3 : şuna bak, çıkıyor mu?
“Look at this, is it coming out of
it?”
- C3 : çıkmıyor.
“It is not coming out of it.”
- ...
- M3 : Salih ağlıyor mu?
“Is Salih crying?”
- C3 : ağlıyor.
“He is crying”.

The mini extracts from the recording support that C3 can verbalize herself comfortably. That is why, a verb dominance over nouns can be observed at that session.

4.4.4. C4

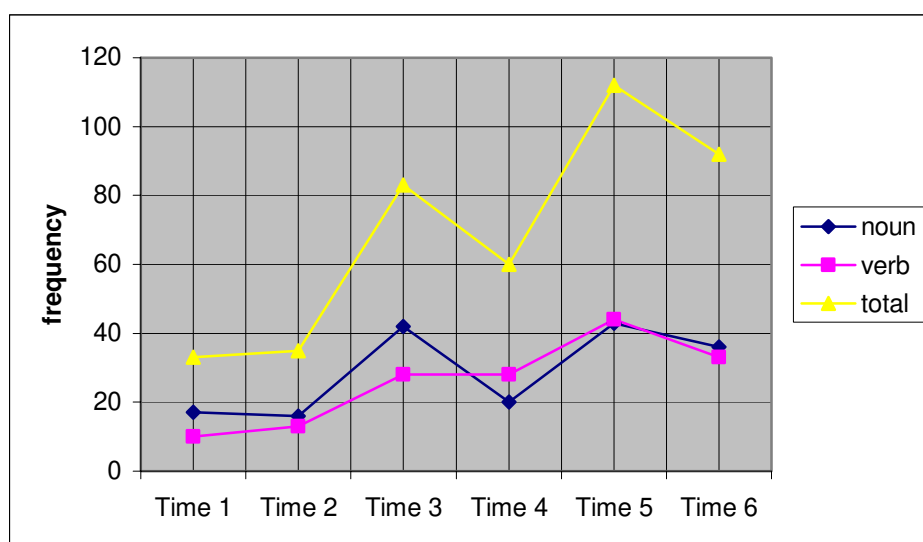


Figure 4.4. C4’s Total Vocabulary and Developmental Noun/Verb Pattern

Figure 4.4 outlines the C4's overall lexical growth as well as noun and verb categories. The first striking point in C4's vocabulary development can be observed at time 1. Her total vocabulary, nouns and verbs are more than other children at time 1. However, in a general look into the figure, her nouns and overall vocabulary fluctuate in wide intervals but her verbs show a steady rise apart from a slight fall between time 5 and 6.

At time 3 recording, noun dominance in this session can easily be seen. During part of the recording, M4 and C4 play with cubes. These cubes are C4's own toys. Therefore, C4 is used to playing with them. M4 asks C4 whether she remembers the names of the figures on the cubes. Next, they stack the cubes on top of each other. Example 4.23 is taken from time 3 recording.

Example 4.23: (time 3)

- M4 : bunlar neymiş böyle?
"What are these?"
- M4 : bu kim?
"Who is this?"
- % act M4 points some figures on the cube.
- C4 : bilgisayar.
"A computer"
- M4 : bilgisayar mı?
"Is it a computer?"
- C4 : kızıyor.
"He is getting angry".
- M4 : kim kızıyor?
"Who is getting angry?"
- C4 : ağbi.
"Brother."

M4 refers to the computer she has seen on the cube. However, C4 remembers her experience with the computer and does not answer her mother's following questions but starts to tell what she remembers related to the computer. Also, in this session, M4 asks C4 questions reminding her of the farm that C4 has visited with her father. Example 4.24 illustrates this;

Example 4.24: (time 3)

- M4 : sen köyde ne gördün başka?
"What else did you see in the village?"
- C4 : fil.
"An elephant."
- M4 : köyde fil yok ki.

- “There is no elephant in the village.”
- M4 : ne gördün başka?
“What else did you see?”
- C4 : inek.
“A cow.”
- M4 : inek.
“A cow.”
- M4 : koyun gördün mü?
Did you see any sheep?
- C4 : koyun gördüm.
“I saw a sheep.”

As can be seen in the example, the nature of the recording is noun-oriented, so the context is the determinant factor here in order to explain the noun dominance in the recording.

Time 4 also reflects an important phase in C4's noun and verb categories. There is a dramatic decrease in both C4's overall vocabulary and nouns, although her verbs outweigh the nouns. Regarding the context of the session, C4 is the only subject of the study who acquires a brother in the second half of the data collection period of the study. For this reason, excluding the effect of having a brother is not possible. During this session her brother is mentioned in the recording. Example 4.25 shows how C4 is busy with her little brother.

Example 4.25: (time 4)

- M4 : başka bir şarkı öğret Ahmet'e.
“let's teach Ahmet another song.”
- C4 : Ahmet'le beraber uyuyacaz.
“We will sleep with Ahmet.”
- M4 : evet, Ahmet'le beraber uyuruz ama Ahmet uyanmış.
“Yes, we can sleep with Ahmet but he woke up”
- C4 : öyle yapsana.
“do like this.”
- M4 : ne yapayım?
“What will I do?”
- C4 : uyu
“sleep.”
- C4 : yorgan.
“a puff.”
- M4 : yorgan değil annecim bu pike.
“This is not a puff, my dear, this is a pique.”

- M4 : pikeyi mi örtelim?
 “Let’s cover ourselves with a pique.”
 C4 : ört.
 “cover me.”

At time 6, there is a decrease in overall lexical growth. This is also parallel in nouns and verbs but in a slighter pattern. In this recording, C4 does not feel content and she is stubborn. C4 and M4 draw pictures and play with logos. However, C4 does not seem very interactive during whole recording. When M4 is asked about why C4 behaves strangely, she says that because of her brother, C4 sometimes acts in a strange way.

Example 4.26: (time 6)

- M4 : kaldırıyorum.
 “I am holding it.”
 M4 : kaldırayım mı?
 “Will I hold it?”
 C4 : <sil> [/].
 “You erase it.”
 C4 : sil anne sil.
 “erase it mummy, erase it.”
 ...
 M4 : Winnie dosyası nerde?
 “Where is the Winnie file?”
 M4 : gidip getirsene o dosyayı, bir ara bakalım.
 “Go and bring that file, let’s look for it.”
 M4 : getir bakalım ne resmi yapmışsın?
 Let’s take it here and see what you drew?”
 C4 : bakmayacağım.
 “I will not look at it.”

The example also shows that C4 is not very talkative and initiative in this recording. Although she is very good at sharing her feelings, she, in this session, does not behave as she usually does. This can explain why a fall in overall lexical growth is observed at time 6.

4.4.5. C5

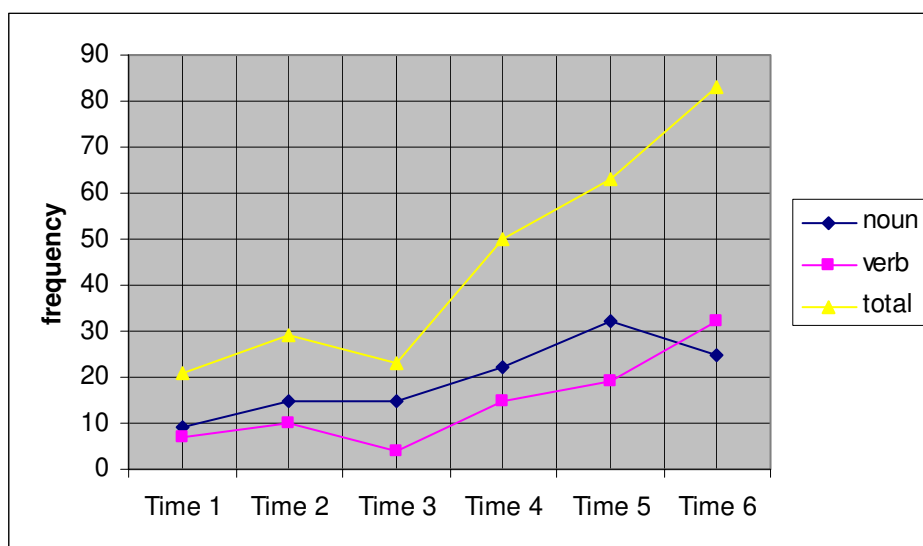


Figure 4.5. C5's Total Vocabulary and Developmental Noun/Verb Pattern

Figure 4.5 illustrates the developmental phases in C5's lexical development. The most significant period in the overall development can be seen between time 3 and 4. There is a substantial rise in her overall vocabulary. Moreover, the parallel increase is observed in nouns and verbs as well.

Time 5 and time 6 seem important periods in C5's lexical development. The noun dominance at time 5 is immediately followed by a verb superiority in the following session. On the other hand, at both sessions, C5's ability to produce grammatical sentences to express herself is noticeable as illustrated in example 4.27. Example 4.27: (time 5)

- C5 : bunlar benim totolarım.
 "These are my totes."
 M5 : hayır benim totolarım.
 "no, these are my totes."
 M5 : bana almış.
 "She bought them for me."
 C5 : hayır, bana almış.
 "No, she bought them for me."
 M5 : ne yaptık?
 "What did we do?"
 C5 : sildim anne.
 "I erased it, mummy."
 ...
 (time 6)
 C5 : anne bu niye çıkmıyor?
 "Mummy, why doesn't this

- come out?
 C5 : getirmiş.
 “She brought it.”
 M5 : ne getirmiş?
 “What did she bring?”
 C5 : hediye, anne.
 “a present, mummy”
 C5 : hediye getirmiş bana.
 “She brought me a present.”

At time 5, a noun superiority over verbs can be seen. In this recording, C5 and her mother are busy with the play-dough. They make some figures-animals and fruit-and label them. Such activities may lead to noun emergence, not verbs. Example 4.28 shows that:

Example 4.28: (time 5)

- M5 : ben ne yaptım.
 “What did I do?”
 C5 : adam.
 “a man”
 M5 : annenin adamı.
 “the mother’s man”
 M5 : tıpkı baban.
 “It is like your father.”
 C5 : babam bu.
 “This is my father.”
 C5 : şapka
 “a hat”
 ...
 M5 : ne yapalım, kızım?
 “What will we do, honey?”
 C5 : muz.
 “a banana”
 M5 : “muz mu yapalım?”
 “Will we make a banana?”

Time 6 is also a significant period in which C5 uses more verbs than nouns. The rising tendency in the three categories from time 4 goes on in overall vocabulary and verbs but not in nouns. Nouns show a gradual fall at time 6. In terms of the dominant activity, C5 plays with a puzzle with her mum. This is a puzzle on which there are people of different occupations, and they perform their jobs. For example, there is a teacher and a group of students. The teacher is at the board teaching and the students are sitting and listening to their teacher. C5 often wants help from her mum to find the right part of the puzzle and talks about the picture on that part.

Example 4.29:

- C5 : Hediye, anne.
 “A present, mummy.”
 C5 : hediye getirmiş bana.
 “She brought me a present.”
 C5 : ben bunu açamam.
 “I can’t open this one.”
 C5 : hediyemi yapıyorum anne.
 “I am busy with my present.”
 M5 : hediyeni yapıyorsun.
 “You are busy with your
 present.”
 C5 : bak! top oynuyorlar.
 “Look! They are playing with
 the ball.”
 M5 : evet, top oynuyorlar.
 “Yes, they are playing ball.”

The example taken from the video-recording illustrates that C5 is actively engaged in the puzzle, sometimes demanding some help or clarification from her mum. As a result of this, verbs are in an increase but not nouns.

4.5. Comparison of All Children’s Noun and Verb Development Patterns

Figure 4.6 and Figure 4.7 are given here to reflect the developmental similarities and differences among all the children. At first, their developmental patterns of nouns are presented; then their verb patterns are shown.

4.5.1. All Children's Noun Development Patterns

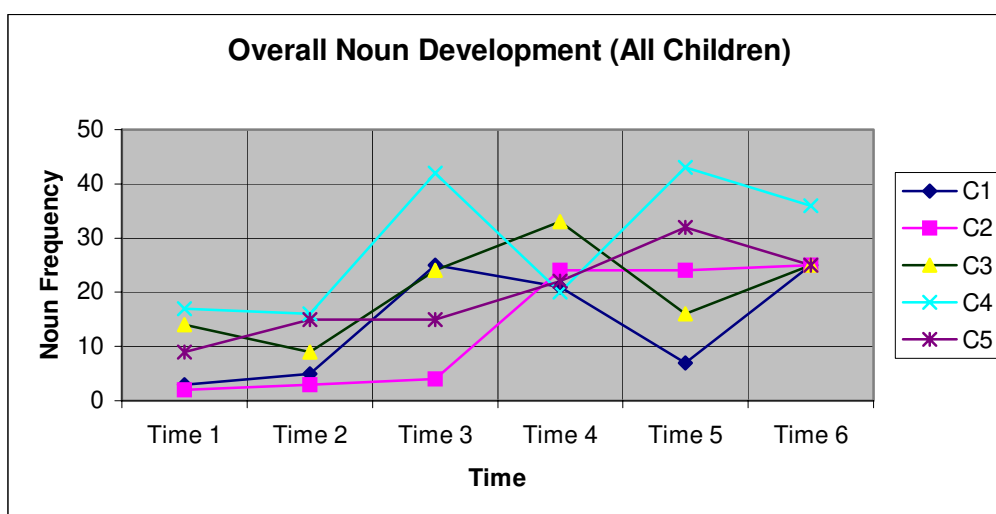


Figure 4.6. Comparison of All Children's Noun Development Patterns

As Figure 4.6 shows that the noun pattern of each child is different from the other children. Although this is the case, some commonalities are observed and presented below.

The ups and downs in C1's, C3's and C4's developmental noun patterns are more drastic than C2's and C5's. On the other hand, the noun path that C2 and C5 go through seem more linear. C2 shows a significant increase between time 3 and 4; whereas, C5's rise takes place in longer period, between time 3 and 5. Furthermore; C2's and C5's nouns do not show any decreases, except for C5's slight fall between time 5 and 6. However, C1's, C3's and C4's noun uses change very sharply depending on the context. To illustrate; of the children, C4's nouns is the highest at the beginning of the study. In the following period, her nouns shoot up but then they suddenly plummet. Her nouns go back to the same level at time 4.

In short, the developmental noun pattern that is followed by each child reflects a very incomparable frame and context-dependent.

4.5.2. All Children's Verb Development Patterns

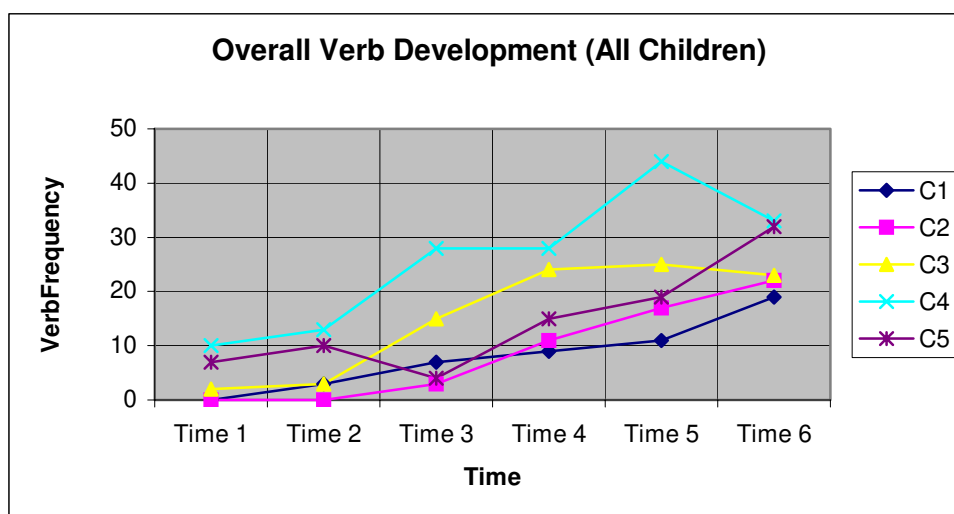


Figure 4.7. Comparison of All Children's Verb Development Patterns

Figure 4.7 provides an explanatory summary of all the children's verb development patterns. As can be seen in the figure, the path the children in the study follow presents an interconsistency among children. The ups and downs in the overall verb development of each child resemble each other as compared to that of the children's noun development. In comparison with noun growth, the increases and decreases in verb development are not very dramatic/sharp. In addition, the verbs mostly have a rising tendency.

C1's, C2's and C3's verb development patterns are globally similar to each other. C1's level of increase in verbs start at time 1 and then goes on steadily in the following times of the study, showing no significant ups and downs. Only her verb development between time 5 and 6 requires attention. This tendency is also, to some extent, the same for C2. Her verbs are stable between time 1 and 2. However, they start to rise between time 3 and 4 especially and this increase goes on till time 6. Therefore, her nouns reach a level which is slightly more than that of C1. As for C3, her verbs rise steadily between 2 and 4. Then they level off between time 4 and 5. Her verbs show a very slight decrease between time 5 and 6. C1's, C2's and C3's number of verbs are close to each other at time 6.

C4, also, experiences a steady rise in verbs except a decrease between time 5 and 6. She is the child whose verbs reach the highest level during the data collection

period of the study. So as to understand the rationale the fall in the last session, the context of the video-recording has been analyzed. The child deals with legos and draws some figures in collaboration with her mother. In fact, C4's both noun and verb categories show a decrease between time 5 and 6. According to the researcher's dairy, significant notes have not been taken affecting C4's vocabulary development, but her brother's presence has been mentioned. Therefore, C4 does not appear to be very productive in this video-recording.

The last child is C5. Her verbs rise steadily, too. Nevertheless, they fall between time 2 and 3. An important rise is observed after time 3. Most importantly, her verbs reach a higher level than C1, C2 and C3's at the end of the study. Her verbs reach the same level where C4's verbs show a decrease. However, the researcher's dairy must be taken into consideration for C5's time 3 video-recording. It was less than 45 minutes, which is the mean time period of all video-recordings. Owing to the technical problems, it lasted only twenty-eight minutes.

The striking differences in the comparison of all the children's noun development patterns and the consistent similarities in the children's verb development patterns highlight the structural properties of Turkish.

4.6. Comparison of All Children's and Mothers' Noun, Verb and Overall Lexical Development Through Line Graphs

Line graphs in the analysis part are provided so as to have a look at the mothers' and children's noun and verb paths in an overall view. The numerical data presented in part 4.2 has been completed with the line graphs.

4.6.1. C1 & M1

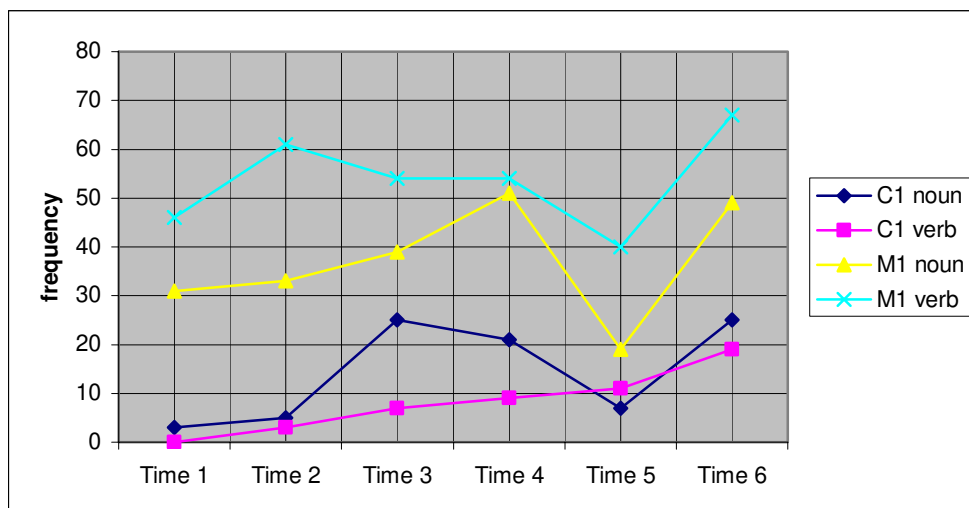


Figure 4.8. Comparison of C1's and M1's noun/verb development patterns

Figure 4.8 shows the noun and verb development patterns that are followed by M1 and C1. C1's verb use reflects a linear increase without any downs during the data collection period. It also indicates that her verb use is not very much effected by contextual factors. As her language capacity increases in time, the number of verbs she uses rises. However, M1's verb use is not very consistent when compared to C1's. As for noun category, the main parallelism between C1 and M1 can be seen between time 4 and time 5. A significant fall occurs here in both C1's and M1's nouns. Then, the parallelism goes on and an increase in their nouns is observed.

The main shared pattern can be osberved between C1 and M1 is the parallel increase in both nouns and verbs between time 5 and time 6. The reason of the significant fall at time 5 has been mentioned in 4.1.1.

4.6.2. C2 & M2

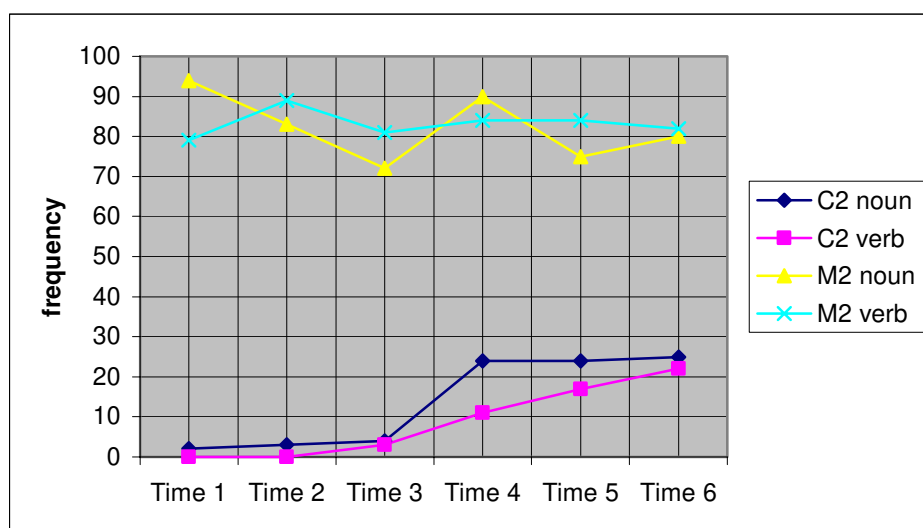


Figure 4.9. Comparison of C2's and M2's noun/verb development patterns

As can be reflected in figure 4.9, M2's verb use does not show important ups and downs and C2's verbs, too. Her verbs show an important increase between time 3 and 4, then they rise steadily. M2's verbs indicate a fall between time 2 and 3, then they follow the linear pattern in the following times. As for nouns, both C2's and M2' nouns have a parallel rise between times 3 and 4. However, while C2's nouns become steady after this time, M2' nouns fluctuate.

The significant point in the mother's noun and verb use in Figure 4. 9 is that her nouns and verbs seem very close to each other. The same focus was found in 4.2. M2 is the only mother whose verb category does not show a statistically significant dominance over the noun category at any time. However, one or two statistically proven verb dominances can be seen in the other four mothers' language use. Therefore, the finding from the frequency and percentage analysis of the second mother has been approved by her line graph.

An overview of her utterance type reveals that her utterances are different from other mothers. Her utterances are considerably longer and mostly combined by connectors.

Example 4.30:

(Time 1)
M2 : resim yapıyor abla.
"The sister is drawing."

- M2 : benim kızım da yapacak ama benim kızım odanın kapısını çiziyor.
 “My daughter will also draw but she is drawing the door of the room.”
 ...
- (Time 1)
 M2 : çok büyük oldu ama dur bir dakika renkler birbirine karışmamalı.
 “It is very big but let’s stop, we shouldn’t mix the colors.”
 ...
- (Time 6)
 M2 : sonra da şu tahtalarınla bu kaplumbağalara ev yaparım, annecim.
 “Then, we can make a house for your turtles by using these woods.”

Also, the mother adds extra information into her utterances by using clauses, so her sentences become longer.

Example 4.31:

- (Time 2)
 M2 : eğer uyuyacaksan çoraplarını da çıkart ama uyumayacaksan çıkartma.
 “If you want to sleep, take your socks off but if you don’t want to sleep, don’t take them off.”
 ...
- (Time 4)
 M2 : biz sana bağlarken burayı ön tarafa getiriyoruz, hatırlamadın mı?
 “While we are making you wear this one, we change it like this, didn’t you remember?”

Although child-directed speech is known to consist of short and simple sentences, mostly in the imperative form, the exact examples taken from a specific mother-child dyad shows that this mother does not simplify her utterances in order for her daughter to understand her more easily. This may make the child’s task difficult both in receiving the message and giving an answer. What is important to notice is that C2’s sudden lexical increase in her line graph is also later than other children. The child has a striking still period between time 1 and time 3. Such a long and still period has not been observed in the other children (see figure 4.2). Therefore, the conclusion is that the linguistic complexity of the input may be a contributing factor in language development.

4.6.3. C3 & M3

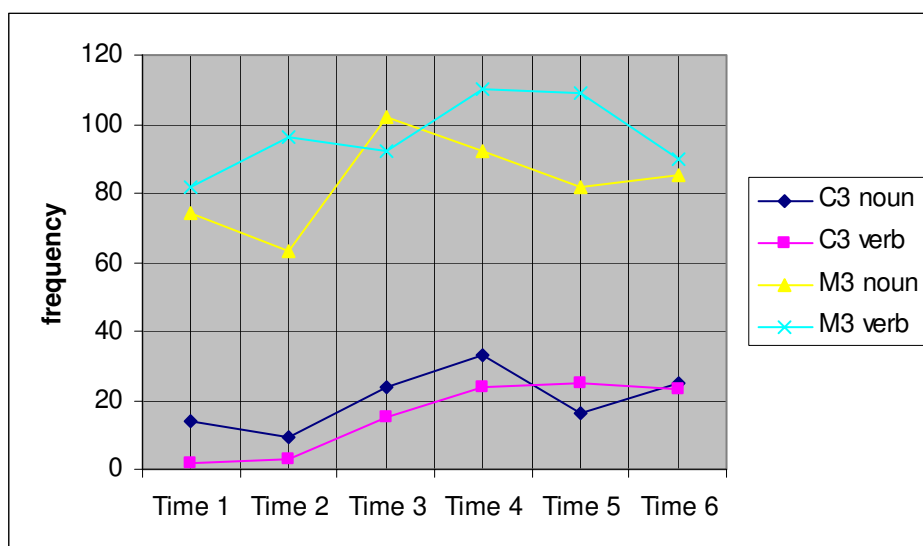


Figure 4.10. Comparison of C3's and M3's noun/verb development patterns

According to the line graph showing C3's and M3's noun/verb development patterns, the common increase can firstly be observed between times 3 and 4 in M3's and C3's verb uses. Following this phase, a steady period occurs in their verb uses between time 4 and 5. However, after that period, although there is a dramatic fall in M3's use of verbs, the parallel pattern can not be observed in C3's verb use. When it comes to nouns, there are both similarities and differences. There is a substantial rise in M3's nouns between times 2 and 3. However, this rise is not as dramatic in C3's lexicon as in M3's. Then, this increasing tendency goes on in C3 but this is not the case in M3. Her nouns decrease between times 3 and 4. After that period, both parties' noun category show a decrease. In the last period of the study, a rising tendency can be observed in M3's and C3's noun uses.

M3 is the most talkative caregiver in the study as the mean of her utterances of total times shows. Parallel to this, her daughter is good at expressing her feelings communicatively.

4.6.4. C4 & M4

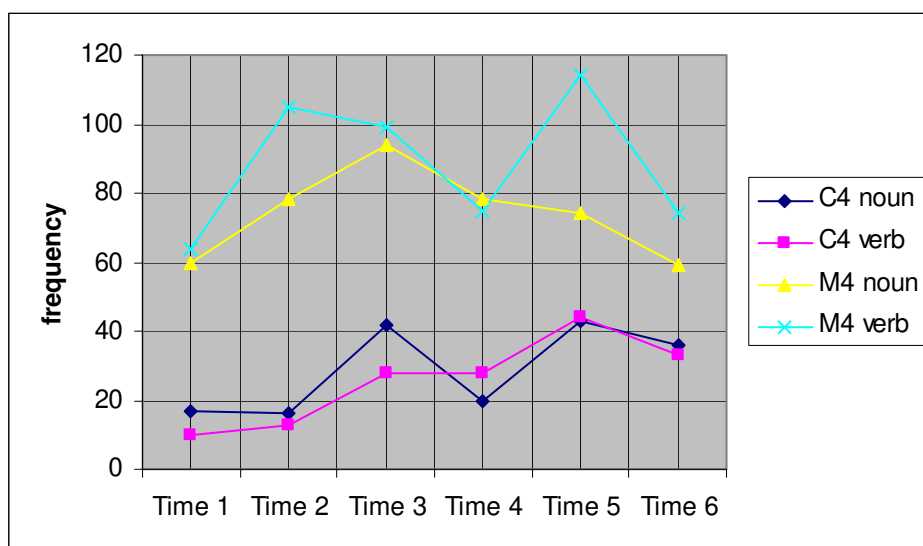


Figure 4.11. Comparison of C4's and M4's noun/verb development patterns

As Figure 4.11 indicates, C4's verbs do not show any important falls, except a slight decrease between time 5 and 6. However, her nouns reflect significant ups and downs. In a closer look, at time 3, both C4's and M4's nouns are at peak but though their noun patterns are same at this period, their verb pattern is not same. Following time 3, M4's noun category shows a progressive decreasing tendency. However, this is not the case with C4. As for verb comparison, the gradual verb increase can be seen in C4 except a slight decrease between times 5 and 6. In contrary, M4's verb use is not as linear as C4's verb development. What is interesting, the peak points of M4 and C4 with reference to nouns and verbs are same.

C4 is the most talkative child in the study. Starting from the early days of the data collection process, she has been good at communicating verbally. In addition, her mother is the second most talkative one.

4.6.5. C5 & M5

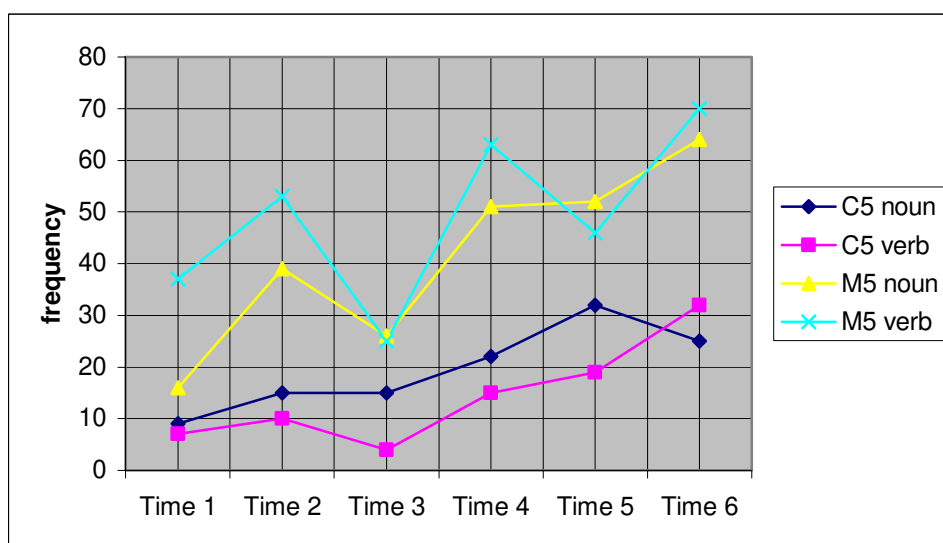


Figure 4.12. Comparison of C5's and M5's noun/verb development patterns

Figure 4.12 points out that C5's both noun and verb categories do not reflect very drastic ups and downs. Her nouns start to rise between times 1 and 2 and M5's nouns also rise in the same period. The same increase in the verb category by M5 and C5 can be observed between times 1 and 2. Then, M5's verbs and nouns decrease drastically between times 2 and 3. This important fall on M5's verbs can also be seen in C5. C5's nouns do not rise but become stable during the same period. In the next phase, both C5 and M5's noun and verb categories show an increase tendency. This rise continues in C5's lexical development. However, such increase is not the case for her mother. M5's verbs decrease, whereas her nouns are stable in this period. After that, C5's verbs still rise but her nouns fall slightly. As for M5, her noun and verb categories go up between times 5 and 6, which means that there is a parallelism in the verb rise but not in the noun fall of M5 and C5.

From the researcher's observation, what is important to mention here is that the child is more initiative than her mother. Furthermore; the mother's utterances are considerably shorter than those of M2.

Example 4.32:

- M5 : onu buraya takacaksın buraya.
 “You will fit it into here.”
- C5 : tak.
 “You fit it.”
- M5 : girmedi mi?
 “Didn’t it fit?”
- ...
- M5 : hadi benimle beraber say hadi.
 “Let’s count with me.”
- M5 : hadi bunları sayalım, gel.
 “Let’s count these ones, come.”
- ...
- M5 : sen çok seviyorsun, yiyorsun ya bunu.
 “You love this one, you are eating it.”

In terms of input complexity, important differences exist between the input to which C2 and C5 are exposed. The researcher believes that such drastic changes in the input may have resulted in the children’s language production.

Since Turkish allows maximum dropping of nominal elements, seeing usage differences depending on the context on the children’s noun uses is not surprising. On the other hand, the flexible word order and high inflections on verbs may make verbs more vital elements than nouns. In Turkish, a verb with appropriate inflection can represent a wholly meaningful sentence. In fact; this verb inflection is the actual input pattern that Turkish children hear starting from their babyhood. Therefore, it is probable that as Turkish speaking children complete their syntactic development, they start to drop nominal elements confidently. Keeping in mind that Turkish children are reported to be successful language learners in the related literature, the conclusion is that the substantial ups and downs in all children’s noun development stem from the elliptic use of nouns by the children in different contexts. Such drastic changes have not been observed in the children’s verb development patterns because verbs in Turkish are an essential constituent of the sentences. Since verbs are more inflected than nouns in Turkish, it may be thought that children need more exposure to language to acquire the verbal morphology when compared to the nominal morphology. Once Turkish children gain competence and use verbal inflections appropriately, their nominal ellipsis

increases. The following examples illustrate how nominal elements are dropped in Turkish. The examples (4.33, 4.34, 4.35) are taken from the actual transcriptions in this study.

Example 4.33: C3&M3 (time 6)

- M3 : oyuncuğun küçük parçalarını hemen toplayalım.
 “Let’s collect the small parts of the toy.”
 M3 : sen koyadur, ben tabak getireyim, sonra hemen yiyelim.
 “While you are collecting them, I will take a plate, then we can eat it.”
 M3 : (oyuncuğun küçük parçalarını) koydun mu?
 “Have you collected the small parts of the toy?”
 M3 : (oyuncuğun küçük parçalarını) yerleştirdin mi?
 “Have you located the small parts of the toy?”
 C3 : (oyuncuğun küçük parçalarını) kaldırdım.
 “I have lifted them.”

Example 4.34: C2&M2 (time 6)

- %act : they are making some animal figures with the play dough.
 M2 : niye karıştırdın sen hamurları annecim?
 “Why did you mix the play doughs?”
 C2 : (hamuru) keselim.
 “Let’s cut the dough.”
 M2 : keselim hadi.
 “Let’s cut the dough.”
 M2 : sen sevmiyor musun yılanı?
 “Don’t you like the snake?”
 M2 : (yılanı) kesecek misin?
 “Will you cut the snake?”
 C2 : kescem.
 “I will cut it.”

Example 4.35: C4&M4 (time 5)

- %act : they are talking about the film they watched.
 M4 : sonra ne oldu filmde?
 “What happened in the film?”
 C4 : film de bozulmuştu.
 “There was a problem with the film.”
 M4 : (film de) bozulmuş muydu?
 “Was the film out of order?”
 C4 : (film) bozuldu.
 “The film was out of order.”

As the exact examples indicate, nominal parts of speech, given in parathesis, are not repeated as long as the referent is clear.

4.7. Salience/Utterance Position

Referring to the focus on the pro-drop nature of Turkish in Chapter 2, what is important to restate is that Turkish may emphasize verbs more than nouns and may make verbs the vital element of the utterances. Moreover, free ellipsis of subjects and objects in sentences and word order flexibility in Turkish may tend to make verbs appear more often in the sentence-final or sentence-initial position. Tardif, Shatz and Naigles (1997) extends one of Slobin's operating principle (1985) and say that the linguistic unit at the end or at the beginning of the utterances receives more attention. Therefore, verbs may become more salient in Turkish child-directed speech. For that reason, the sentence-initial and sentence-final positions of verbs in the caregivers' speech are calculated. Only the verbs that have been accepted in the main verb category have been focused on for that position.

Table 4.16. The Salience/Utterance Position in the Caregivers' Speech

	The Mean of Utterance	Verb-Salient Position (%)	Other (%)
M1	267	46,8	53,2
M2	449,6	45,2	54,8
M3	478,5	43,5	56,5
M4	452,3	58,9	41,1
M5	258	45,9	54,1

Table 4.16 shows the two specific positions in the mothers' sentences: the verb salient and the other. The verb-salient category includes the use of main verbs as predicates in verb-initial and verb-final positions in the utterances. The other category includes the main verbs in the mid position, adjectival verbs, and all possible linguistic units in the utterances. The mothers' sentences in each recording have been grouped into three as verb-initial, verb-final, and other. Then, their mean has been calculated and given above.

In order to get a control of the data presented in Table 4.16, the numerical findings in 4.2 are recalled. As Table 4.16 points out, M4 is the only one who places main verbs to more salient position than the other linguistic units although the difference is not very striking. It is significant at that point because C4 is the single child whose verb frequency has been higher than noun frequency at two different times

(at times 4 and 5) and earlier than the other children (at time 4). According to the mean of the utterances in all six times, M4 is also the second talkative mother in the study. This indicates that the language property -salience/utterance position- in M4 may be an effective determinant on her daughter's language development process in terms of noun or verb dominance. As a result, it can be said that the mother's emphasis on the verbs regarding salience/utterance position may be regarded important. On the other hand, M1, M2, M3 and M4 do not put main verbs into the salient positions in their utterances. Other linguistic items can be seen more in salient positions in terms of percentage analysis. Therefore, we can say that word-order may not be referred as a reliable indicator showing verb-saliency.

4.8. Crosslinguistic Comparisons of Turkish Data

After Gentner's cognitive basis into children's early lexicon, crosslinguistic evidence suggesting the importance of language-specific input characteristics has been accumulated especially over the last decade. The results from different languages have been challenged. The main languages that have been considered and studied are mainly Korean, Mandarin Chinese, English, Navajo and Italian. However, no parallel findings have been discovered in Navajo and Italian. Therefore, they have not been used in direct comparison. Instead, only Mandarin Chinese and Korean data have been compared. Since our main objective is to present data related to this issue in Turkish, subjects in this study have been studied in detail so far. In addition, crosslinguistic comparison is necessary to see the place of Turkish in this challenging topic of discussion.

In order to be able to reach consistent comparison with the findings from other studies, appropriate modifications have been done on the analysis of the data in this study. Recommendations from similar studies have been taken into account related to the inclusion of proper nouns or common verbs.

Firstly, the English and Korean data taken from Choi & Gopnik (1993) presented in Tardif (1996) have been compared with the Turkish data in this study. Table 4.17 indicates the numerical data relating to the frequencies of noun and verb categories in the mentioned languages. Types and tokens of per 100 utterances of child-

directed speech in a naturalistic house-play setting with 20 English-speaking and 15 Korean-speaking caregivers talking to their 18-month-old children have been calculated by Choi & Gopnik (1993) in Tardif (1996). Data representing the same age group in Turkish have been chosen from the data pool. Turkish data have also been collected in very similar conditions. Therefore, no bias can be observed regarding contextual factors. The main difference stems from the number of children in the studies. There are more Korean and English caregivers and children than the Turkish ones. Therefore, the Korean and English data may be more representative regarding language characteristics.

Table 4.17. Comparative data on English-Korean-Turkish Nouns and Verbs in Child-Directed Speech (18 months)

Form Class	English	Korean	Turkish
Types			
Verb	23,9	19,3	16,5
Noun	24,7	11,4	13,2
Tokens			
Verb	52,6	62,5	89,4
Noun	47,5	32,7	43,75

As can be seen in Table 4.17, regarding type analysis, English-speaking mothers use more verbs and nouns than Korean and Turkish-speaking mothers. Turkish caregivers use the fewest verbs and Korean caregivers prefer the fewest nouns. However, Korean and Turkish caregivers use more verbs than nouns but English caregivers use more nouns than verbs. As for token analysis, all caregivers prefer more verb tokens than noun tokens. Among three caregivers, Turkish-speaking mothers are the least repetitive ones.

As an overall look into the data, it can be said that there is an observed parallelism between Korean and Turkish caregivers in terms of verb superiority over nouns both in type and token. However, the pattern that English-speaking mothers follow is different from them.

A similar comparative approach is followed below between Mandarin Chinese and Turkish. The Mandarin Chinese results have been taken from Tardif (1996) and two chosen times (22 and 26 months) from her study have been matched with the Turkish data in this study as presented in the following tables.

It is essential to mention the comparison details here. Tardif has included proper nouns into her data to have consistent pattern with Goldfield's study. Therefore, proper nouns have also been included in the Turkish data. The comparison time period in Table 4.18 is based on frequency per minute.

Table 4.18. Comparative data on Turkish-Mandarin Chinese Nouns and Verbs in Child-Directed Speech (22 months)

Form Class	Mandarin	Turkish
<i>Types</i>		
Verb	1,50	1,38
Noun	1,23	1,61
<i>Tokens</i>		
Verb	10,40	7,45
Noun	6,65	4,98

Table 4.18 points out that at 22 months, the number of verbs that Mandarin caregivers use is higher than Turkish caregivers' but Turkish-speaking mothers use more nouns than Mandarin-speaking mothers regarding type comparison. On the other hand, it can be seen that Mandarin caregivers use more verbs than nouns; whereas, Turkish caregivers use more nouns than verbs. As for token analysis, the lexical frame is different. Mandarin-speaking caregivers' both noun and verb tokens are higher than Turkish-speaking caregivers'. It means that Mandarin mothers use a wider variety of verbs not repetitively. However, there is a similarity between Mandarin and Turkish caregivers in that their verb tokens are higher than their noun tokens.

Table 4.19. Comparative data on Turkish-Mandarin Chinese Nouns and Verbs in Child-Directed Speech (26 months)

Form Class	Mandarin	Turkish
<i>Types</i>		
Verb	1,73	1,59
Noun	1,60	1,45
<i>Tokens</i>		
Verb	1,64	8,40
Noun	1,51	5,10

At 26 months, again, Mandarin caregivers use more noun and verb types than Turkish caregivers. This may imply that they are more talkative to their children. The difference between Mandarin and Turkish caregivers in terms of the dominance of the category has changed at 26 months. Both caregivers use more verbs than nouns.

However, this comparison criterion, frequency per minute, is debatable. Because such a criterion can easily be affected by individual differences, even in the same language.

When the noun/verb tokens are compared, it can be seen that Turkish-speaking caregivers prefer more verbs and nouns than Mandarin-speaking caregivers. On the other hand, both caregivers' verb tokens are higher than their noun tokens. However, Mandarin caregivers' difference between noun and verb category tokens is not very considerable.

The next comparison (Table 4.20 and 4.21) is done again between Mandarin Chinese and Turkish with a different comparison criterion from above; frequency per utterance.

Table 4.20. Comparative data on Mandarin-Turkish Nouns and Verbs in Child-Directed Speech (22 months)

Form Class	Mandarin	Turkish
<i>Types</i>		
Verb	12,8	14,2
Noun	8,8	14,9
<i>Tokens</i>		
Verb	87,6	76,8
Noun	32,6	46,3

According to Table 4.20, at 22 months, Turkish-speaking caregivers use more noun and verb types than Mandarin-speaking caregivers. In terms of noun or verb superiority, Mandarin caregivers use more verb types than noun types but at a first glance, Turkish-speaking mothers seem to prefer more verb types than noun types but the difference between them is very low. Therefore, it can be said that Turkish caregivers use equal number of nouns and verbs at 22 months.

When the noun/verb tokens are compared, the verb token that Mandarin caregivers use is higher than Turkish caregivers; whereas, Turkish caregivers use more noun tokens than Mandarin caregivers. However, both caregivers use more verb tokens than noun tokens at 22 months.

Table 4.21 illustrates the same comparison above at 26 months. Similar to 22 months, Turkish-speaking caregivers seem to prefer more verb and noun types than

Mandarin-speaking caregivers at 26 months. Also, there is verb superiority over nouns in both Mandarin and Turkish caregivers' talks. As for token analysis, the verb token that Mandarin caregivers use is higher than that of Turkish caregivers; whereas, Turkish caregivers' noun tokens is higher than Mandarin caregivers'. The shared point between Mandarin and Turkish-speaking caregivers is that both caregivers' verb tokens are considerably higher than their noun tokens.

Table 4.21. Comparative data on Mandarin-Turkish Nouns and Verbs in Child-Directed Speech (26 months)

Form Class	Mandarin	Turkish
<i>Types</i>		
Verb	13,9	18,7
Noun	11,1	17,8
<i>Tokens</i>		
Verb	85,8	83,3
Noun	37,3	55,7

As an overall look into the comparison of child-directed speech, for the first comparison, we can say that Korean and Turkish caregivers have the shared points regarding the noun/verb dominance. For the comparison between Mandarin Chinese and Turkish, Mandarin Chinese and Turkish also have parallelism in verb token superiority over noun tokens in both 22 months and 26 months but in terms of type analysis, Turkish mothers seem to prefer more nouns than verbs at 22 months whatever the comparison criterion is. However, this tendency changes into verb dominance over nouns at 26 months.

The following comparative approach is based on the percentage of total vocabulary of children. Tardif (1993) has converted frequencies into a percentage of noun and verb types and tokens in each of 10 children's vocabularies to compare her data with Gentner's. This is also the way the researchers in this study has followed. Each of five children's frequency of noun and verb types and tokens have been changed into a percentage of total vocabulary. Tardif has excluded proper nouns to arrive at a common criterion with Gentner, so the proper nouns in the Turkish data have been taken out.

Again, 22 and 26 months have been taken separately in Table 4.22 and 4.23. According to Table 4.22, at 22 months, the percentage of Turkish children's verb and noun type categories is higher than that of Mandarin children's. As for the noun-verb comparison, Turkish children's verb percentage is less than their noun percentage; whereas, Mandarin children's verb percentage is higher than their noun percentage. When it comes to token analysis, Turkish children's both noun and verb token percentages are higher than Mandarin children's. Parallel to type, Turkish children's noun token percentage is higher than verb token percentage but Mandarin children's verb token percentage is higher than their noun token percentage.

Table 4.22. Comparative Data on Mandarin Chinese-Turkish (Percentage of Total Vocabulary) (22 months)

Form Class	Mandarin (%)	Turkish (%)
<i>Types</i>		
Verb	25	27,4
Noun	20	42,7
<i>Tokens</i>		
Verb	24	32,1
Noun	19	43,5

In Table 4.23, Mandarin and Turkish children at 26 months have been compared. As for type analysis, Turkish children's noun and verb percentages are higher than Mandarin children's. Regarding noun-verb superiority, both Turkish and Mandarin children's verb percentage is higher than their noun percentage. When it comes to token analysis, again, the same pattern can be seen between Mandarin and Turkish children. Verb token percentage is higher than noun token percentage in both parties.

Table 4.23. Comparative Data on Mandarin Chinese-Turkish (Percentage of Total Vocabulary) (26 months)

Form Class	Mandarin (%)	Turkish (%)
<i>Types</i>		
Verb	26	41,2
Noun	22	36,5
<i>Tokens</i>		
Verb	22	37,4
Noun	14	28,8

To summarize; whatever the comparison criterion is, the noun and verb dominance pattern in both Mandarin children/caregivers and Turkish children/caregivers have not changed. There is an observed consistency between Mandarin caregivers and their children, Turkish caregivers and their children. At 22 and 26 months, verbs outweigh in both Mandarin children's and caregivers' speech. However, there is a noun dominance at 22 months between Turkish caregivers and children but at 26 months, a verb dominance can be observed between them.

Though both Mandarin and Turkish point language characteristics that may favour verbs over nouns, there are important differences that may create a change in language acquisition patterns of nouns and verbs. The language property of the null-subject works differently for Mandarin than it does for Turkish. As mentioned above, Hyams (1987) categorises languages according to their position on the morphological agreement spectrum (cited in Tardif et al., 1997). In this spectrum, Turkish and Mandarin seem at very opposite poles. When Turkish nominals are deleted in utterances, the meaning is still conveyed because the verb in the utterance can represent the message with appropriate inflections. This language characteristic makes verbs more loaded in terms of language processing. On the other hand, Mandarin is a language which requires a discourse level agreement for morphological harmony. Therefore, when nouns are deleted, verbs still represent the same level of processing task. This striking difference may challenge Turkish children leading to the emergence of verbs later than nouns. They may need more time and exposure to language to start producing verbs with full inflections. In order to exemplify the characteristics of Turkish in terms of noun and verb morphological transparency, we chose a highly inflected noun and a verb from the actual transcriptions of this study in Chapter 2 (Example 2.1). This leads us to think the variety and the intensity of verb used may be a determining factor in the acquisition processing.

CHAPTER 5

CONCLUSION

5.0. Introduction

This study mainly focuses on Turkish speaking children's early productive lexicon regarding noun or verb dominance. Next, it presents an informative map of Turkish child-directed speech through the same aspect. Specifically, whether the characteristics of Turkish maternal input reinforce the dominance of nouns or verbs in children's productive language is studied. In addition, more globally, this study aims to investigate the position of Turkish in a very much debated topic, lexical mapping of children's early lexicon: noun or verb superiority.

This chapter reviews the theoretical background of the study and summarizes the findings with reference to the research questions. Lastly, suggestions for further research, and the limitations of the study are given.

5.1. Study Review

The universality of the noun bias in children's early lexicon has taken place in the related field by Gentner's Natural Partitions and Relational Relativity Hypotheses. A bi-polar perspective into the preponderance of nouns representing object terms has been revised. Then a uni-polar point of view has been established to explain privileged use of nouns over verbs (Gentner & Boroditsky, 2001; Gentner, Brown and Braun, 2005). Contrary to Gentner and Boroditsky's cognition-based explanation of noun-before-verb theory, crosslinguistic studies on typographically different languages have led researchers to conclude that language characteristics, such as word order, morphological properties, ellipsis may also reinforce noun or verb dominance to emerge (Tardif, 1993, 1996; Choi, & Gopnik, 1995; Kim et al., 2000). Therefore, language-specific maternal input patterns should also be taken into account. Though this controversial discussion goes back to Nelson's content analysis of children's early

lexicon (1973), still it raises interest and is being studied by various researchers in different languages (Kauschke, Lee and Pae, 2005; Kauschke & Ari, 2005; Imai et al., 2005; Poulin-Dubois & Takane, 2005).

All these attempts by a great number of researchers have shown that the overall theoretical composition of the universality of the noun bias should be explained regarding two different perspectives: linguistic and psycholinguistic (Kauschke & Lee, Pae, 2005). This seems the only way to understand the underlying rationale of noun bias or verb bias nature of children's early lexicon because nouns and verbs are differentiated by languages in different means and in different degree (Broschart, 1991). In fact, this challenging topic has based on two claims: nouns are learned earlier than verbs and predominance of nouns over verbs can be seen in children's early lexicon.

In the light of the arguments above, we sought to answer the following research questions:

- 1) Do Turkish speaking children acquire nouns earlier than verbs?
- 2) Do nouns predominate over verbs in Turkish speaking children's early lexicon?
- 3) Do the frequencies of noun and verb categories in Turkish speaking children's early productive lexicon show parallelism with the frequencies of those categories in Turkish child-directed speech?
- 4) Does the frequency of verbs in salient positions have an effect on Turkish speaking children's earlier acquisition of this word class?
- 5) Does Turkish speaking children's early lexical pattern with particular reference to noun and verb categories show any similarities or differences with other languages known as verb-friendly or noun-friendly?
- 6) Does the pattern of Turkish child-directed speech regarding noun or verb dominance show any similarities or differences with child-directed speech of other languages known as verb-friendly or noun-friendly?

In order to answer the research questions, five Turkish speaking children's early lexical development were video-recorded with particular reference to their acquisition of nouns and verbs. Following this, frequency analysis of those categories in both

mothers' talks to their children and in children's productive lexicon were conducted and the data was correlated. Finally, the numerical results were compared with the findings reported in the related studies.

5.2. Results

5.2.1. Research Questions and Findings

The findings of the study are discussed below regarding the research questions. In order not to miss the individual differences in this study, findings will be presented with regards to each child or each pair. Then, an overall conclusion will be presented.

Research Question 1: Do Turkish speaking children acquire nouns earlier than verbs?

❖ C1: From C1's perspective, the frequency of nouns and verbs are very close to each other, with a slight dominance of nouns over verbs at times 1, 2, and 6. Her verbs are a bit more than her nouns at time 6. On the other hand, only at times 3 and 4, her noun dominance over verbs is statistically significant. From a developmental point of view, a regular increase in her verbs, starting from time 1 till time 6 but irregular noun frequency can be seen.

❖ C2: In a general sense, C2 is not very productive in the first two video-recordings. No verbs but a very limited number of nouns is observed at times 1 and 2. However, in the following times, her noun and verbs develop very closely to each other. Only at time 4, her noun dominance over verbs is statistically significant. Different from C1, C2's both nouns and verbs are in an increasing tendency.

❖ C3: C3's early lexicon seems to be dominated by nouns at time 1, which is statistically proven as well. Then, the frequencies of nouns and verbs start to get closer and at time 5, her verbs are slightly more than her nouns. Similar to C1, C3's verbs reflect an ongoing increase starting from the first video-recording but the frequency of her nouns do not seem consistent among times.

❖ C4: Among the four children, C4 is the most productive one when the frequency of nouns and verbs is considered. At times 1, 2, and 3, her nouns are moderately more than her verbs. Then, in the next session, a slight verb dominance over

nouns is observed. After this observed superiority of verbs, she uses nouns and verbs equally. Different from the other children in the study, there is no statistically proven noun or verb dominance in C4's noun and verb growth. Regarding developmental lexical growth, her nouns reflect a more fluctuated pattern than her verbs.

❖ C5: Apart from time 3, the frequency of C5's nouns and verbs develops very closely to each other. A slightly more frequent verbs than nouns is observed at time 6. Only at time 3, her nouns are significantly more than her verbs. The effects of contextual factors is more evident in C5's noun and verb development.

To summarize, though the statistically significant noun dominance periods are observed in the children's lexical growth, only referring to slight differences between the frequencies of noun and verb categories, it can not be concluded that nouns are learned earlier than verbs by Turkish speaking children. What should be said that when the strong effects of contextual factors and mothers' individual styles have been ignored, verbs are acquired on a par with nouns by Turkish children.

Research Question 2: Do nouns predominate over verbs in Turkish speaking children's early lexicon?

With regards to our answers to the first research question, the frequencies of noun and verb categories are mostly close to each other. Among thirty times in the study, only at five times, statistically proven noun dominance over verbs are observed. This does not lead us to conclude that Turkish speaking children's early lexicon is dominated by nouns.

Research Question 3: Do the frequencies of noun and verb categories in Turkish speaking children's early productive lexicon show parallelism with the frequencies of those categories in Turkish child-directed speech?

❖ C1-M1: The frequency of M1's verbs is a bit higher than that of her nouns at all times. Only at times 2 and 5, this dominance of verbs over nouns is significantly proven. Therefore, we can conclude that M1's maternal input to her daughter is not in favor of a specific pattern. As an overall perspective, it can be said that M1 uses an equal number of verbs and nouns, which is a similar pattern to her child.

❖ C2-M2: Similar to M1, M2's noun and verb frequencies are very close to each

other. Different from M1, no statistically proven pattern is observed. This shows a similarity with her daughter. Apart from time 4, C2's noun and verb categories do not outweigh each other. Thus, a parallel pattern with a particular reference to noun and verb categories is possible to see between C2 and M2.

❖ C3-M3: M3 also uses verbs along with nouns at times 1, 3, 4, 5 and 6. Only at time 2, her verb dominance is statistically proven. As a result, it can be said that C3 and M3 follow a similar path in terms of noun and verb uses.

❖ C4-M4: M4's noun and verb use pattern does not show a striking difference from other mothers in the study. Only at times 2 and 5, verb dominance over nouns is statistically meaningful. This is very similar to her daughter's pattern.

❖ C5-M5: M5 uses an equal number of nouns and verbs, too. Only at time 1, there is a statistically proven verb dominance over nouns. This results in a parallelism between M5 and C5 regarding noun and verb use.

To conclude; in a general sense, the children in this study use nouns and verbs equally. Also, mothers' noun and verb uses do not reflect a pattern which leads one of the categories become privileged in the maternal input. Among thirty times of the data collection period, only at six times, verbs are used statistically more significant than nouns. Therefore, it can be concluded that a parallelism is observed between mothers and children in this study when the frequency comparison of nouns and verbs is considered.

Research Question 4: Does the frequency of verbs in salient positions have an effect on Turkish speaking children's earlier acquisition of this category?

The analysis of individual mothers' use of verbs in salient positions has shown that among all mothers in the study, only M4 uses verbs more frequent in salient positions than other positions. From C4's perspective, her verb frequency is higher than other children and very close to the frequency of her nouns, starting from the beginning of the data collection period. Keeping in mind that children seem to be sensitive to verbs and their syntactic frames at an early age (Gleitman & Gleitman, 1995; Naigles, 1990), we may say that this may be related to her mother's use of verbs more frequent in salient position. No parallelism is observed between other children and mothers in the study.

Research Question 5: *Does Turkish speaking children's early lexicon pattern of noun or verb dominance show any similarities or differences with languages known as verb-friendly or noun-friendly?*

Turkish speaking children's early lexical pattern with regard to noun and verb categories show some similarities with languages known as verb-friendly. Children acquiring verb-friendly languages, such as Korean and Mandarin Chinese do not show a noun dominance in their early lexicon. They acquire nouns along with verbs. This is also the pattern with Turkish speaking children in this study. Verbs are acquired and used on a par with nouns by Turkish speaking children as well.

Research Question 6: *Does the pattern of Turkish child-directed speech regarding noun or verb dominance show any similarities or differences with child-directed speech of languages known as verb-friendly or noun-friendly?*

Turkish child-directed speech does not show any similarities or differences with child-directed speech of languages known as noun-friendly or verb-friendly. In noun friendly languages, caregivers use considerably more nouns than verbs in their talk to their children, whereas in verb-friendly languages, caregivers provide remarkably more verbs than nouns. This language-specific pattern in the maternal input has been accepted as one of the determinants on children's early lexicon, leading to one of the categories to emerge earlier than the other and become the dominant one. However, the frequency analysis of nouns and verbs of five Turkish speaking mothers has shown that Turkish maternal input does not provide a lexical frame in which nouns or verbs are more dominant than the other. Turkish mothers in their talks to the children use nouns and verbs at an equal number. The difference between the noun and verb categories in Turkish mothers' speech is so minimum that it can not be regarded as a factor, causing one of the categories to emerge earlier and become the dominant one. What can only be said that Turkish mothers do not use nouns in a privileged way as noun-friendly languages.

5.2.2. Results regarding linguistic factors

Studies of language development help us gain a deeper perspective into both conceptual and linguistic development. In this part, conclusions of this specific study are given with regard to language-based factors.

One of the language factors that favors acquisition of verbs is word-order. With a canonical word-order, Turkish is supposed to be a verb-friendly language. However, it is known that six possible word orders are used for pragmatic purposes by Turkish caregivers, even in their speech to children. The canonical word order of Turkish is supposed to highlight verbs, by placing verbs at the beginning and end of utterances, so children pay attention to these positions and acquire verbs earlier. However, the findings of this study have shown that Turkish mothers do not prefer word orders that place verbs in more salient positions. Instead, they frequently place verbs in the middle of their utterances. Therefore, verbs are not used in salient positions so frequent. It is believed that verb-friendliness of Turkish should be revisited and degree of verb-friendliness in Turkish should be determined. Instead of referring to word order as an aid for verb learning, the degree of morphological clarity among languages and how morphosyntactic cues aid verb learning should be focused on (Imai et al., 2005; Imai et al., in press).

The numerical data of this study has also shown that there is a consistent verb increase in all children's language development, whereas children's noun frequency always fluctuates from time to time and from child to child. This derives from the argument-dropping structure of Turkish. Ellipsis leads nouns to be context-sensitive in Turkish. As a result, it can be said that not word-order but ellipsis can be studied as a more reliable language characteristic of Turkish, bringing about late or early emergence of noun or verb categories.

Recent studies have focused on the morphological simplicity of verbs as a determinant factor on children's noun and verb acquisition. It is known that children tend to look for some linguistic cues available in their language to determine whether the word is a noun or a verb. Since Turkish verbs are highly inflected when compared to Turkish nouns, Turkish speaking children's language task is challenging, especially in

production. Haryu et al. (in press) state that “The process of extracting the adult-like meaning seems to take place only gradually and progressively, requiring many instances of the verb with different objects in different contexts”. This is also the parallel pattern observed in Turkish speaking children’s verb development in this study.

As for crosslinguistic comparison of verbal morphology, when compared to English speaking children, Turkish speaking children’s language acquisition task is more demanding due to the heavy inflection system on verbs. However, in comparison with Chinese children, Turkish speaking children’s task is easy because as well as argument-dropping, Chinese verbs are not inflected and therefore can not be distinguished from nouns.

All in all, the results of this study in relation to language-based characteristics reveal that the factors which foster or delay noun or verb acquisition in languages should be revisited.

If a certain position is required in order to confirm or reject the noun before verb hypothesis in particular reference to Turkish, we can say that Turkish does not reinforce strong noun-bias hypothesis. In this sense, we can only conclude that, by borrowing Kauschke & Hofmeister’s terms (2002), Turkish supports a weaker version of noun-bias hypothesis in children’s productive lexicon.

5.3. Implications of the Study for Further Research

Though this study has provided a position for Turkish in a noun-before-verb discussion, several follow-up questions have emerged for future research. Firstly, in parallel crosslinguistic studies, three different data collection tools have been used: longitudinal video-recording, maternal diaries and checklists. Then, the results from all instruments have been analyzed together in order to present a more cohesive perspective of the language about which the data was collected. MacArthur Development Inventory (MCDI) is one of the most used checklist in parallel studies having the same purpose (Fenson et al., 1993). Since MCDI has not been adapted into Turkish yet, findings of this study have not been supported with a checklist data. It seems essential to refer to

the checklist method to provide a more complementary view into Turkish noun or verb dominance.

This study only dealt with mothers as main caregivers since there was a shared background in all parents. However, the term “caregiver” can be extended and the effects of fathers, grandparents, babysitters or peers on children’ noun and verb use can be focused on.

In order to see the conceptual differences and similarities among languages, the content of children first nouns and verbs can be investigated. For example; Naigles & Hoff-Ginsberg (1998) claim that specific verbs are acquired earlier by children and these verbs are especially used by caregivers in syntactically diverse utterances. We believe that this investigation is crucial to have a further understanding of children’s early lexicon (Goldfield, 2000a; Snyder et al., 2000).

As strictly mentioned in Chapter 2, researchers have intended to acquire a complementary point of view into the structure of children’s early lexicon. The further attempts in Turkish should also focus on this issue in the parallel perspective. This is advised to come back to this challenging topic by taking into consideration both conceptual and grammatical packaging of nouns and verbs, which Bassano (2000) calls as constructivist approach.

The comparative analysis of all children’s noun and verb development have pointed out that each child’ noun and verb growth has been unique (see 4.5). Therefore, in a follow up study, we suggest focusing on a very detailed analysis of each child’s noun, verb and language development in order to reflect the individual differences (Huttenlocher et al., 1991; Olguin & Tomasello, 1993). In addition to this, maternal input in this specific research has especially been studied regarding its relation into the emergence of noun and verb categories. In some instances, a limited amount of syntactic and stylistic references have been made into the caregiver talk. A further analysis into the same data in terms of mothers’ style will help us understand the contribution of child-directed speech better (Goldfield, 1987; Hoff-Ginsberg, 1986).

5.4.Assumptions and Limitations of the Study

Five Turkish speaking children, all of whom were females, participated in this study. Therefore, the results are limited to the female population. When such a study is also conducted with boys, more generalizable results for Turkish can be reached. Next, the subjects of this research were all from middle socio-economic class according to the criteria set in the related literature. Data from high and low socio-economic classes will help us acquire an objective point of view.

The longitudinally video-recorded mother-child interactions have constituted the data of this study. Therefore, both children's and mothers' productive language have been studied. However, there is a claim in the related studies that production measures of children's language may underestimate of verbs. Therefore, a follow-up study dealing with the comprehensiveness of noun and verb categories is needed (Goldfield, 2000b; Snyder et al., 2000).

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Appendix I

An Example of a CHILDES/Chat Transcription file

@Font: : Win95:Courier:-13:0

@Begin

@Filename : YASEMIN14

@Participants : YAS Yasemin Target_Child, MER Mercan_mother
FEY Feyza Turkish researcher

@Age of YAS : 2;02.17

@Birth of YAS : 16-JUL-2002

@Sex of YAS : female

@SES of MER : middle

@Coding : Chat 1.0

@Registration : Video-recording

@Target Language : Turkish

@Date : 03-OCT-2004

@Location : Adana, at YAS's home

@Room Layout : sitting room

@Time Duration : 11.30-12.30

@Bck : This is YAS's fourteenth recording. There is
YAS, her mother, her father and her little brother.
as well. However, they aren't mostly with us during
the recording. This is the second matching pairs
session.

*MER:peki bu tavuktan varmı bir tane daha bu masada?

*MER:bu tavuktan varmı masada bak.

*YAS: var.

*MER:hani nerde?

*MER:bu tavuktan bir tane daha var, göster bakalım.

*YAS: burda.

*MER:o, salyangozdu.

*MER:sen bana bir tavuk bul.

*MER:bak bu resme bak.

*YAS: tavuk.

*MER:evet, bir tavuk daha bulduk.

- *MER:iki tane tavuğumuz oldu.
- *YAS: ona koy.
- *MER:tamam getirelim.
- *MER:tavukları bulduk biz, inekleride bulduk.
- *MER:o ne?
- *YAS: fil.
- *MER:fil, evet.
- *MER:Yasemin, bundan bir tane daha var burda, hani nerde?
- *YAS: salyangoz.
- *MER:salyangozdan burda bir tane daha var, hani.
- *MER:iki tane oldular.
- *YAS: elma.
- *MER:evet, elmayıda koyalım, dizelim.
- *YAS: buldum.
- *MER:bulduk.
- *MER:o ne?
- *YAS: ayakkabı.
- *MER:burda bir tane daha ayakkabı vardı.
- *MER:hani nerde ayakkabı?
- *YAS: buldum.
- *MER:evet.
- *MER:onuda buraya koyuyoruz.
- *MER:bak iki tane ayakkabı.
- *MER:iki tane tavuk, iki tane koyun, iki tane salyangoz.
- *MER:iki taneleri buraya koyalım, ne dersin?
- *YAS: oraya.
- *MER:orayamı koyalım?
- *MER:peki, tamam.
- *MER:buraya ayıralım ama.
- *YAS: ayırmayalım.
- *MER:ayırmayalım mı?
- *YAS: xxx.
- *MER:ne?
- *YAS: çünkü orda bir sürü böcekler var.

- *MER:böceklermi var bir sürü?
- *MER:peki bak burdan başka birşey varmı?
- *MER:başka bir tane daha şçelim.
- *MER:ne varmış?
- *YAS: elma.
- *MER:nerde elma?
- *YAS: şemsima.
- *MER:evet, şemsiyeyi bulduk.
- *MER:şemsiye.
- *MER:burda varmı şemsiye başka?
- *YAS: koyun.
- *MER:koyun.
- *MER:o neydi?
- *YAS: sincap.
- *MER:sincapmıydı salyangozmuydu?
- *YAS: YASgayyoz burda.
- *YAS: inekelr mö der.
- *MER:evet, koyunlar ne der?
- *MER:koyunlar?
- *YAS: xxx.
- *MER:atıyorsun kafadan.
- *MER:me der.
- *YAS: sangayyoz ner der?
- *MER:salyangozlar ne der?
- *MER:salyangozlar ses çıkartmaz.
- *MER:salyangozlar konuşmaz.
- *YAS: ama burda konuşuyorlar.
- *MER:ne diyorlar birbirlerine?
- %act: YAS kisses.
- *MER:öpüyorlarmı birbirlirini?
- *MER:buda senin ayakkabılarını?
- *YAS: xxx.
- *MER:bu iki tane oldu.
- *YAS: iki tane oldu.

- *MER:buda iki tane koyun oldu.
- *YAS: oraya koyma.
- *MER:koymayalım.
- *MER:bir bakalım ne çıkacak?
- *MER:bir tane daha bakalım.
- *MER:çıkar bakalım, ne çıkacak?
- *MER:neymiş o?
- *YAS: yıldız.
- *MER:aa! yıldız.
- *MER:yıldızın yanındaki kim?
- *YAS: aydede.
- *MER:evet, aydedeyle yıldız ne yapıyorlar?
- *YAS: öpüşüyorlar.
- *MER:nasıl öpüşüyorlar.
- *YAS: öpüyolar.
- *YAS: buda kayık.
- *MER:bakayım kayığa.
- *YAS: ev.
- *MER:evmi?
- *YAS: kayık değil.
- *MER:yayık değil, ev.
- *MER:o neymiş?
- *YAS: ağaç.
- *MER:ağaç.
- *YAS: xxx buldum.
- *YAS: yukarı çıkar.
- *MER:yukarımı çıkar?
- *MER:ağacın tepesinemi çıkar?
- *MER:ağacın tepesinemi çıkıyor tavuklar?
- *MER:elinde ne var?
- *MER:bu ne?
- *YAS: gemi.
- *YAS: pil.
- *MER:o, pil.

- *YAS: bu mö.
- *MER: bakayım.
- *MER: buda inek.
- *MER: oda inek dimi?
- *MER: o neydi?
- *MER: kalem.
- *MER: bir tane böyle kalem koymuşlar.
- *YAS: sincap.
- *MER: bir tanede böyle koymuşlar.
- *MER: sincap değildi bu, salyangoz.
- *YAS: sayyangoz.
- *MER: o neydi?
- *YAS: benim ayakkabım o.
- *YAS: annenin ayakkabısı.
- *YAS: bu annenin ayakkabısı.
- *YAS: bu tavuğun annesi.
- *YAS: bunun bir tanesi vardı.
- *MER: nerde öbürü?
- *MER: öbürünü bul bakalım, nerde?
- *MER: o ne?
- *YAS: bu yazı.
- *MER: evet kalemle yazı yazıyoruz.
- *MER: ne çıktı?
- *YAS: ayıcık çıktı.
- *MER: ayıcık çıktı.
- *MER: bakalım başka ne çıkacak?
- *MER: o neydi?
- *YAS: fil.
- *MER: fil.
- *MER: bakalım başka ne çıkacak ordan?
- *MER: o neymiş?
- *YAS: bu vak vak:
- *MER: evet, ördek çıktı.
- *MER: o ne, bakayım?

- *MER: banada göster.
- *MER: bunu sen hiç görmedin.
- *MER: mantar.
- *YAS: mantar.
- *MER: mantar yenilir.
- *YAS: mantar yenmez.
- *MER: yenmezmi?
- *MER: <yenilir> [/].
- *YAS: yenmez bu yenmez.
- *YAS: o, çocuklar için.
- *MER: ne o?
- *YAS: şey o.
- *YAS: hızlı koşuyordu o.
- *MER: kim hızlı koşuyordu?
- *MER: bu ne?
- *MER: kim koşuyordu tatlım?
- *MER: bu ne?
- *YAS: pibi ayıcık koşuyordu.
- *MER: he! pibi ayıcık koşuyordu.
- *MER: peki bu ne?
- *YAS: şemsiye.
- *MER: şemsiyeyi ne zaman açıyoruz?
- *YAS: yağmur yağmasın diye.
- *MER: yağmur yağmasın diyemi açıyoruz?
- *YAS: yağmur yağmasın diye.
- *MER: yağmur yağınca şemsiyenin altında duruyoruz ıslanmayalım diye.
- *MER: bu ne?
- *YAS: uçak.
- *MER: peki şemsiyeyi ne zaman kullanıyoruz?
- *MER: ıslanmayalım diye dimi?
- *MER: iki tane oldu.
- *MER: ayıcığın arkadaşı nerde?
- *YAS: arkadaşı orda.
- *YAS: bir tane daha buldum.

- *MER:bir tane dahamı çıktı vakvak?
- *YAS: aydede.
- *MER:aydedemiymiş o?
- *MER:sen bana şakamı yaptın vakvak buldum diye.
- *YAS: vavvak değil bu yıldız.
- *YAS: oda aydede, buda yıldız.
- *MER:neydi onun adı?
- *MER:mantar.
- *YAS: mantar.
- *MER:ah! bir tane daha.
- *MER:neydi onun adı?
- *YAS: elma.
- *MER:evet.
- *MER:kaldımı onun içinde varmı daha?
- *MER:bakayım o elindeki ne?
- *YAS: ev.
- *MER:ev.
- *YAS: bitti.
- *MER:ben bir tane ev aldım, şimdi sende bir tane ev al bakalım.
- *YAS: ev nerde?
- *MER:Yasemin, bak ben bir tane ev aldım.
- *MER:sende bir tane ev al eline bakalım.
- *MER:hani senin evin?
- *MER:bu benim evim, hani senin evin nerde?
- *MER:burda bir bak bakalım.
- *YAS: bitti.
- *MER:o ne?
- *YAS: güneş.
- *MER:güneş.
- *YAS: bitti işte.
- *MER:bu ne?
- *YAS: pasta.
- *MER:Yasemin çok seviyor pastayı.
- *MER:bak ben bir tane ev aldım, senin evin nerde?

- *MER:hani bir tane ev bul ordan.
- *YAS: oraya koyayım.
- *MER:sen bana bir tane ev bulmadın.
- *MER:benim burda ayım var, senin ayın nerde?
- *MER:hani senin ayıcık?
- *YAS: ayıcım burda.
- *MER:peki ben bir tane fil aldım.
- *MER:peki senin filin nerde, filini göster bana.
- *MER:şimdi topluyoruz.
- *MER:her zaman oyuncaklarını toplasan ne güzel olacak.
- *MER:bunu adı neydi Yasemin?
- *YAS: sincap.
- *MER:sincap değildi salyangoz.
- *YAS: sayyangoz.
- *MER:bu ne?
- *YAS: şemsiye.
- *MER:şemsiye, evet.
- *MER:hiç kalmadı burda ya!
- *YAS: bak dolu.
- *MER:şimdi bak bir oyun oynayalım mı?
- *MER:bir oyun oynayalım olmaz mı?
- *MER:ben bir oyun oynamak istiyorum seninle?
- *YAS: O:
- *MER:bundan hangisi farklı?
- *MER:hangisi farklı?
- *MER:bundan hangisi aynı?
- *MER:iki tane.
- *MER:bak bununla bu kalam aynı.
- *YAS: koyalım.
- *MER:peki koyalım.
- *MER:kalemi kalemin üstüne koyalım.
- *MER:üstüste koyalım.
- *MER:iki tane oldu.
- *MER:onun altında ne var?

- *YAS: onun altında.
- *MER:kalemleri üstüste koyalım.
- *YAS: orası değil.
- *MER:bak iki koyun öpüşsünler.
- *MER: getir böyle yanyana koyalım, öpüşsünler koyunların.
- *YAS: yanyana koyalım öpüşsünler.
- *YAS: öpüyolar onlar.
- *YAS: baba gelsene.
- *YAS: ne yapıyosun?
- *MER:ne yapıyor baba?
- *MER:bir bak bakalım ne yapıyor?
- *MER:şuna bakabilirmiyim?
- *MER:değişikmiş bu Yasemin ya!
- *MER:ne güzlemiş.
- %act: the researcher gives a differet toy.
- *MER:aa! kocamanmış.
- *MER:bizimki küçücük.
- *MER:bunlar üçgen.
- *MER:üçgenleri çıkaralım mı?
- *MER:o, yuvarlak.
- *MER:çıkarmayacağım mı?
- *YAS: çıkarttım.
- *MER:bu nasıl Yasemin ya, ne şekliydi?
- *MER:şekli ne bunun?
- *MER:bu üçgen.
- *MER:üçgeni buraya takıyoruz.
- *MER:o, beşgen.
- *MER:o, buraya.
- *MER:beşgen buraya.
- *MER:bir dene bakalım.
- *MER:dur yardım edeyim.
- *MER:tamam, aferin.
- *MER:çok güzel yaptın.
- *MER:başka bir tane yap, bakalım.

- *MER:afetin sana.
- *MER:o, oraya oluyormu?
- *MER:dur bakalım yapacakmısın?
- *MER:afetin sana.
- *MER:kare.
- *MER:bu kareden nerde var?
- *MER:bak buna benziyor, bak şuna çok benziyor, gördünmü?
- *MER:girdi kendi kendine, gördünmü?
- *MER:bunu biraz böyle çevir, buraya tak.
- *YAS: sen bunu tak.
- *MER:takabilirsin.
- *MER:bak böyle takıyorsun.
- *MER:burya bir delik, burayada bir delik.
- *MER:o, bak üçgen.
- *MER:üçgenler oraya.
- *YAS: olmuyor.
- *MER:afetin.
- *MER:bir bak o hangisine benziyor?
- *MER:bunların hangisine benziyor, bir bak bakalım.
- *MER:bak bunu aynısından bir tane daha var burda.
- *MER:bu kare.
- *MER:bir tane daha kare bulalım.
- *YAS: dur.
- *MER:kare nerde başka?
- *MER:o, üçgen.
- *MER:bak bu kare.
- *MER:afetin, ne kadar güzel yaptın sen öyle.
- *MER:oda kare.
- *MER:birazcık daha uğraşalım, dur ben yardım edeyim sana.
- *MER:afetin ya!, oda bitti.
- *MER:onu çevir, birazcık daha çevir.
- *MER:yok buraya doğru yaptın.
- *MER:şimdi olacak.
- *MER:afetin.

*MER:oda üçgen.

*MER:bunun aynısındanda bir tane bul.

*MER:çevir, buna takacağız bak üçgen.

*MER:bak, bir, iki, üç.

*MER:üçgen.

*MER:taktı, aferin sana.

*MER:hadi çıkaralım.

*MER:çıkartalım, onları bir daha takalım.

*MER:hadi buraya tak bakalım onları.

*YAS: <çıkartalım> [/].

*MER:aferin çıkarttın bunları.

*MER:bak oraya delğe takacaksın onu.

*MER:oraya deliğe koy.

*MER:o nereye idi?

*MER:o buraya, beşgen.

*MER:bak deliklerin üstüne bakacaksın.

*MER:bak oluyor, bak Yasemin.

*YAS: bak, anne gördünmü?

%act: YAS wants to look at her mum on the screen.

*YAS: el sallamıyor.

*YAS: salladı işte gördünmü?

*MER:merhaba Yasemin.

*MER:nasılsın, bana bir öpücük atsana.

*YAS: niye sallamıyor?

*MER:işte salladım.

*MER:gelsene yanıma.

*MER:hadi gel üçgenleri takalım.

*MER:gel bak bunu nereye takacağız?

*YAS: bunu takacağız.

*MER:o ne?

*MER:o neymiş Yasemin?

*MER: burda oynayalım, hadi gel.

*MER:o neymiş?

*MER:ev.

- *MER:bir tane daha ev bulalım bakalım.
- *MER:o evin yanına koyalım.
- *MER:yanyana diziyorsun.
- *YAS: döktük.
- *MER:ne yapacaksın?
- *MER:hepsini dökmeyelim.
- *MER:tek tek alalım.
- *MER:dökmeyelim tatlım.
- *MER:sen peki şimdi ne yapacaksın?
- *YAS: bir sürü oldu.
- *MER:ne yapacaksın Yasemin şimdi?
- *MER:böyle çevirelim bunları.
- *YAS: burda oynayalım mı?
- *MER:orda yere düer.
- *MER:orda oynayamayız.
- *MER:buraya topla.
- *YAS: orda yapma anne, orası pis.
- *MER:yerde mi oynayalım?
- *YAS: yerde.
- *MER:hadi geldim..
- *MER:bende yardım edeyim.
- *YAS: burda işte burda.
- *MER:gel şimdi bunları böyle çevirelim.
- *YAS: açtın mı?
- *MER:yok açmamış tatlım.
- *MER:ayakkabı bul.
- *MER:bundan var mıymış burda.
- *MER:bir ara bakalım.
- *MER:bunları götürecektir hadi gel biz oynayalım.
- *MER:bu Yasemin'in ayakkabısı.
- *MER:hadi sen ayakkabını koy, bende buraya koyayım.
- *MER:ben bir tane Yasemin burda bir tane elma buldum.
- *MER:sende bir tane elma bul, bunların içine bak bakalım.
- *MER:bir tane bul bakalım.

- *MER: benim elmam bu.
- *MER: ben bir tane ısıyorum.
- *MER: sende elmanı bul, bak.
- *MER: burada bir tane elma var.
- *MER: bunların içinde elma var.
- *MER: nerde bakalım elma?
- *YAS: burda.
- *MER: ben elmamı yedim.
- *MER: buraya koyuyorum ayakkabımın yanına.
- *MER: hadi sende koy bakalım.
- *MER: şimdi ben bir tane koyun buldum.
- *MER: sende bir tane koyun bul bakalım.
- *MER: me.
- *MER: bunların içine bak bakalım.
- *MER: burda koyun varmı?
- *MER: bak bakalım koyun varmı burda?
- *MER: elmalarımızı yiyoruz.
- *MER: hadi koyunumuzu bulalım.
- *MER: benim koyunum bu.
- *MER: adı Ayşe.
- *MER: sende koyununu bul bakalım.
- *MER: senin koyunun nerde?
- *MER: bak bakalım bunların içine, nerdeymiş?
- *MER: o ne?
- *YAS: O.
- *MER: o, salyangoz.
- *MER: benim ama bak koyunum var.
- *MER: senin koyunun nerde?
- *MER: senin koyununa bakayım, Yasemin.
- *YAS: burda.
- *MER: bak benim koyunumun adı Ayşe.
- *MER: senin koyununun adı ne?
- *YAS: xxx.
- *MER: efendim.

- *MER: elmayı yedik, koyduk buraya.
- *MER: bak benim elmayı koyduk buraya.
- *MER: sen koyunumu aldın.
- *MER: bak koyunumun adı Ayşe.
- *MER: senin koyununun adı ne?
- *MER: yemiyoruz hiç, bunlar yenilirmi?
- *MER: elma diye biz bundan bir tane ısırдық.
- *MER: Yasemin, tamam.
- *MER: koyunuda koyduk.
- *MER: ben bir tane aydede buldum, sende bul bakalım.
- *MER: aa! buldunmu aydedeyi?
- *MER: hani nerde aydeden?
- *YAS: burda.
- *MER: öpüşsünler.
- *MER: hadi koyalım.
- *MER: ne yapacaksın?
- *MER: ne yapıyorsun annecim?
- *YAS: saklanıyor.
- *MER: saklanıyorlarmı?
- *YAS: saklanıyor.
- *MER: benim topım saklanmadı.
- *MER: senin topun nerde hani?
- *YAS: benim topum gitti.
- *MER: hani nerdeymiş topun?
- *MER: ne yapıyorsun?
- *MER: hadi bunların arasından topumuzu bulalım.
- *MER: nerdeymiş hadi Yasemin?
- *MER: tavuk varmı Yasemin bak baban yumurta istiyor.
- *MER: yumurta istiyor baban.
- *MER: tavuk bulsun bana bir tane Yasemin diyor.
- *MER: o ne?
- *MER: Yasemin onu versene tatlım.
- *YAS: bittimi?
- *MER: gel o çalışmıyor gel.

*YAS: bitti.

%act: they play hide and seek.

*MER: burdayım.

*MER: hadi bir daha say, ben saklanayım.

*MER: ama gözünü kapatmamışın.

*MER: hadi gözünü kapat.

%act: MER hides.

*YAS: şimdi sen saklan.

*MER: ben sayayım, sen saklan.

%act: MER counts.

*YAS: burdayım.

*MER: çıktın mı sen?

*YAS: sen saklan.

*MER: ben mi saklanayım?

*MER: tamam sen say hadi ona kadar say.

*MER: duyamıyorum ama bağırarak say.

*YAS: anne nerde?

*MER: buldu beni hemen Yasemin.

*YAS: yakaladım seni.

*MER: hadi gel birşey söyleyeceğim sana.

*MER: ay! kaçacağım tutuyor beni.

*MER: ay! dur ayağa kalkacağım, dur.

*MER: hadi gel şu şeylerle oyanayalım.

*MER: birazcıkta bunlarla oynayalım mı?

*MER: bu karelerle oynayalım.

*MER: bu kareler buraya Yasemin.

*YAS: orası değil.

*MER: bak bu üçgen, bu kare.

*MER: orayamı koymak istiyorsun?

*MER: bak bu deliklere sokacağız.

*MER: bak bu çubuklara, deliklere sokacağız, gel.

*YAS: başladın mı?

*MER: nereye götürüyorsun onları?

*YAS: elleme.

%sit: they are in the bedroom with her brother and father.

*MER: sana gel birşey söyleyeceğim.

*MER: Ahmet'ide alıp içeri gidelimmi?

*YAS: içeri gitmeyelim.

*MER: neden?

*YAS: çünkü orası yerler pis.

*MER: yerler pis.

*MER: hadi Ahmet'ide alıp gidelim içeriye, ne dersin?

*YAS: gitmeyelim.

*MER: ne yapacaksın peki?

*MER: oyunmu oynamak istiyorsun?

*YAS: bir, iki, üç.

*MER: yavaş ama eli altında kalır senin.

*YAS: kafasına değicek senin.

*YAS: yapma.

*MER: Yasemin, ben Ahmet'i alıp içeri gitcem.

*YAS: gitme.

*MER: neden?

*YAS: çünkü orası pis.

*YAS: <cicim> [/].

%act: YAS plays with her little brother.

*YAS: hadi yapsın.

*YAS: cici.

%act: YAS loves her little brother.

*MER: ne yapıyor Ahmet, Yasemin?

*YAS: O.

*MER: Yasemin, Ahmet ne yapıyormuş?

*MER: sen ne yapıyorsun orda?

*MER: gel, ne yapıyorsun, Yasemin?

*MER: ne oldu, ağzına saçmı geldi?

*MER: ne oldu ağzına?

*MER: bakayım.

*MER: bakayım ağzını aç.

*MER: birşey yok.

- *YAS: ağzından su akıyor.
- *YAS: Ahmet dur.
- *YAS: xxx.
- *MER: Ahmet'ın saçımı yok ağzında?
- *YAS: saçı yok ağzında, benim var.
- *YAS: senin adın?
- *YAS: Selçuk.
- *MER: anneannenin adını hatırlıyormusun?
- *YAS: O.
- *MER: anneannenin adı ne?
- *YAS: O.
- *MER: Hatice.
- *YAS: Hatice.
- *MER: amcanın adı ne?
- *MER: ayı getirmiş ya sana.
- *MER: peki İpek'in babasının adı ne?
- *YAS: Selçuk.
- *MER: Cansu'nun babasının adı ne?
- *YAS: annesi.
- *MER: Yasemin gel birazcık oyuncaklarınla oynayalım mı?
- *MER: hadi gel oyuncaklara gidelim.
- *MER: Yasemin, hadi gel oyuncaklara gidelim.
- *YAS: ısırca.
- *YAS: acıyo popom.
- *YAS: Ahmet'ı ısır.
- *MER: hadi gel Yasemin, biz oyun oynamaya gidelim mi?
- *YAS: kovalamaca.
- *MER: kovalamacamı oynamak istiyorsun?
- *MER: ben seni yakalayayım mı istiyorsun?
- *YAS: sen yakalasana.
- *YAS: saggambaç oynayalım mı?
- *MER: efendim.
- *MER: saklambaç mı oynamak istiyorsun?
- *YAS: saggambaç.

*MER:ben o zaman sayayım, sen saklan.

*YAS: saggambaç.

*YAS: anne, saggambaç oynayalım mı?

*YAS: hadi beni yakala, ben kaçıyorum.

*YAS: kaçıyorum, yakalasana.

*MER: geliyorum, yakalayacağım şimdi seni.

*MER: hadi bunları toplayalım da öyle oynayalım.

*YAS: yakala.

*MER: yakalayacağım seni.

*MER: bunları toplayalım da öyle oynayalım.

*MER: yakalarsam seni şimdi.

*MER: sen istedin şimdi bunu.

*MER: yakalarsam öperim.

*MER: hadi gel biraz oyuncaklarla oynayalım mı?

*YAS: gidelim.

*MER: nereye gidelim?

*YAS: koşalım.

*MER: niye koşacağız?

*YAS: çünkü.

*YAS: hadi.

*MER: ayaklarına batar ama onları toplayalım da öyle koşalım.

*MER: ayaklarımıza batmasın hadi.

*MER: hadi gel burada koşacağız.

*MER: hadi gel bunları toplayalım da.

*MER: ama ben bunları toplayamam.

*MER: yardım et.

*YAS: kapandımı?

*YAS: açıldımı?

%act: YAS wonders whether the camera is on or off.

*YAS: açarmısın?

@end

Appendix II

CHAT Transcription Symbols

Obligatory Headers

@Begin marks the beginning of a file

@End marks the end of the file

@Participants lists actors in a file

Constant Headers

@Age of XXX marks a speaker's age

@Birth of XXX shows date of birth of speaker

@Coder people doing transcription and coding

@Coding version of CHAT coding

@Educ of XXX indicates educational level of speaker

@Filename shows name of file

@Font sets the font for the following text

@Transcriber gives the transcriber's name or initials

Changeable Headers

@Activities component activities in the situation

@Bg begin

@Bck backgrounding information

@Comment comments

@Date date of the interaction

@Location geographical location of the interaction

@New Episode point at which a new episode begins and old one ends

@Room Layout configuration of furniture in room

@Situation general atmosphere of the interaction

@Time Duration beginning and end times

@Time Start beginning time

Word Symbols

xxx unintelligible speech, not treated as a word

[?] best guess

() non-completion of a word

Scoped Symbols

[>] overlap follows

[<] overlap precedes

[<>] overlap follows and precedes

%act: actions

%com: comments by investigator

%sit: situation



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