LISTENING TO A TURKISH MOTHER: SOME PUZZLES FOR ACQUISITION

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Most studies of child-directed speech (CDS), or “input,” have used English data. However, detailed studies of several other languages have begun to raise new questions, at all levels of linguistic analysis. In the present chapter we examine the speech of one Turkish mother, in natural settings, speaking to a child in the one-word period. Using these data, we seek to systematically explore several characteristic linguistic devices of Turkish in the light of some current claims about input and children’s strategies for dealing with it. We attend, particularly, to the “puzzles” presented to a child by a language with flexible word order, complex nominal and verbal morphology, and a high rate of nominal ellipsis. These factors are relevant to current debates about the roles of nouns and verbs in early acquisition, with regard to both lexical and morphological acquisition. More broadly, we attempt to characterize the structure of CDS in a language that is different in important ways from the other types of languages that have been described in the input literature.

Our data come from one mother, speaking to her daughter over the course of seven

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months, during the age period of 1:8 to 2:3. We have given the child the pseudonym Gül. Mother and child were videotaped at home, in routine interactions, such as dressing, bathing, and mealtime. The child was a slow developer in Turkish, perhaps because she was being raised in a bilingual household, with an English-speaking father. The parents each spoke their native language to the child. Both parents were college-educated professionals. Recordings were made in the United States and Turkey. During the period under study, the child remained at the one-word stage, with a limited vocabulary in both languages. It is our impression, on the basis of informal observation of many Turkish families, that this mother’s child-directed speech was in no way out of the ordinary; we will therefore cite child language data from other studies to suggest the consequences of this type of input.

The database consists of 3,167 maternal utterances, transcribed from the videotapes and grammatically coded. In this paper we consider aspects of the use of nouns and verbs, word order, and rhetorical devices in the mother’s speech, considering their significance for language acquisition.

Turkish is a canonically subject-object-verb (SOV) language, but all six possible orders of these three elements are both grammatical and freely occurring in discourse. More generally, there is a broad variety of word-order patterns in both spoken and written Turkish, signaling such discourse notions as topic and focus, given and new information, and the like (Erguvanli, 1984). Verbs are richly inflected, marking person, number, tense, aspect, modality, voice, negation, and interrogation. As a consequence, many clauses consist of a single verb and its affixes, often accompanied by pragmatic particles. Examples such as the following are frequent in our data of mother’s speech to a toddler:

1. Gööür-mi-youek-mi-sin?
take-NEG-PUT-Q-2SG
‘Won’t you take (it)?’

2. Koy-du-m	tanam,
put-PAST-1SG alright
‘I put (it) alright.’

wash-PASSIVE-PAST
‘It has been washed.’

Nouns and pronouns are inflected for number, case, and possession, resulting in as many as three grammatical morphemes following a stem, e.g.:

4. El-ler-in-i__
hand-PL-POSS.2SG-ACC give
‘Give (me) your hands.’

As is evident in these examples, morphological structures are agglutinative; that is, affixes are added to an initial stem, each bearing an additional meaning component. The morphological system is completely regular and transparent, and is quickly acquired by children younger than 2. Indeed, the first productive morphology is attested at the one-word stage, with regard to both noun and verb suffixes (Aksu-Koç & Slobin, 1985).

**THE SHIFTING TEXTURE OF INPUT: VARIATION SETS**

It is typical of parental speech to a small child that the same content is repeated and rephrased in successive utterances. This is, of course, a natural consequence of the difficulty of securing a toddler’s attention and compliance. Consider, first, an English example. A father is trying to prompt the memory of a child of 2;3 (Slobin, unpublished data):

5. (5) Who did we see when we went out shopping today?
Who did we see?
Who did we see in the store?
Who did we see today?
When we went out shopping, who did we see?
The basic question, *Who did we see?*, is repeated four times in first position, and then in second position. The first time, the question is accompanied by both a locational and a temporal setting: *shopping* and *today*. Both of these situating frames are then dropped, and afterwards reintroduced one after another: *in the store*, followed by *today*. In addition, there is lexical and phrasal substitution: *went out shopping* and *in the store*. Finally, there is a reordering.

We will refer to a series of adult utterances of this sort as a variation set. Underlying a variation set there is a constant intention — in this case, prompting the child to recall a particular event. Variation sets are characterized by three types of phenomena: (1) lexical substitution and rephrasing, (2) addition and deletion of specific reference, and (3) reordering. All three phenomena are present in the English example. In Turkish, however, there are richer possibilities for ellipsis and reordering, as well as a much broader range of morphological variation. As a result, the Turkish language learner is presented with complexly textured variation sets.

The majority of repetitions in our data are variation sets; there are 65 exact repetitions of multiword utterances in the entire corpus, compared with 220 variation sets — that is, partial repetitions of maternal utterances, with changes in lexical items, grammatical morphology, and/or word order, maintaining a constant communicative intent. There is a total of 667 utterances in variation sets; that is, about 21% of the mother’s child-directed utterances are in variation sets. The average variation set is three utterances long, with a range from two to twenty-five utterances in length. (However, except for a few outliers, six seems to be the typical upper bound of variation sets.)

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3 Transcriptions were made by the first author, who is a native speaker of Turkish.

4 Each author coded the entire corpus for variation sets. The small number of disagreements were resolved by discussion. Variation sets are defined as stretches of discourse in which the mother repeats a constant communicative intent in varying form, excluding question-answer sequences in which the mother provides both the question and the answer.
NOUNS AND VERBS

Nouns and verbs have been treated rather differently in the acquisition literature. With regard to nouns, there has been a concern with the “constraints” or “principles” that may aid the child in determining the meaning of the lexical item (for a recent review, see Golinkoff, Mervis, & Hirsh-Pasek, 1994). With regard to verbs, theorists have been concerned with how children use syntactic frames to help in identifying verb meanings (reviewed by Gleitman, 1990) and with how they acquire verb argument structure — that is, learning the types of nominal arguments that are expressed with various types of verbs (e.g., Pinker, 1989; Tomasello, 1992).

A prerequisite to all of these issues, however, is the child’s ability to differentiate nouns from verbs (Maratsos & Chalkley, 1980). An examination of variation sets in the input provides some clues as to how this problem might be solved in Turkish, due to the fact that nouns and verbs have different patterns of occurrence in the sequences of utterances in a set.

The core of a variation set — the constant intention — almost always consists of a verb, with optionally expressed arguments. There are only five variation sets without a verb (or implicit verb, since the copula is a zero form). By contrast, there are 44 sets without a noun (that is, 20% of all sets). Nominal and verbal categories also differ with regard to utterance position, morphological diversity, and substitution patterns. Together, this complex of factors should play a role in developing the child’s attention to the existence of two different lexical classes. (To be sure, these facts exist in isolated utterances as well. However, the variation set may play a special role, in that the same lexical items are presented within a short time frame, with regard to the same situation.)

We have a fair amount of acquisition data pointing to early acquisition of these major lexical classes. Although the child in the present study was not yet speaking, beyond a few single words, data on other Turkish children between the ages of 15 and 24 months give ample evidence that both nouns and verbs are represented in early vocabularies, and that children at the one-word stage have productive control of grammatical morphemes that are differentially applied to the word classes (Aksu-Koç & Slobin, 1985; Ekmecki, 1979). That is, both nouns and verbs receive several different types of inflections from very early on in Turkish child speech. Here we will consider patterns in the input that could help the child to distinguish nouns from verbs on distributional bases. Of course, semantic factors play a role as well; but we shall leave these aside, as Turkish does not seem to differ from other languages in this regard.

Word Order

As we have noted, a salient fact about Turkish speech is variability in word order. Slobin (1982) reported that adult speech to 2- and 3-year-olds uses five of the six possible orders of subject, verb, and object (omitting VOS), and that these five word orders are used by preschool children as well. Table 17.1 (from Slobin, 1982, p. 152) gives representative statistics, using the speech of two female research assistants interacting with fourteen 2- and 3-year-old Turkish children.

<table>
<thead>
<tr>
<th>Percentage Occurrence of Utterance Types in Natural Conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children (N = 14) (Age 2;2 – 3;8)</td>
</tr>
<tr>
<td>SOV</td>
</tr>
<tr>
<td>OSV</td>
</tr>
<tr>
<td>SVO</td>
</tr>
<tr>
<td>OVS</td>
</tr>
<tr>
<td>VSO</td>
</tr>
<tr>
<td>VOS</td>
</tr>
</tbody>
</table>

Note: The figures represent only utterances in which both subject and object were present, either as nouns or pronouns.

These patterns hold for each individual child in the sample, as well. In a larger sample, reported in Slobin and Talay (1986), VOS orders occur, typically with postposed subject pronoun (e.g., *Korkuttum onu ben ‘scared him I’ [= I scared him]). Slobin (1982, p. 152) also noted that, in a sample of 500 adult utterances to a child of age 3;2, the first noun in the sentence was the subject only 47 percent of the time. That is, over half of the sentences addressed to the child had a case-inflected noun at the beginning. In a study of comprehension, Slobin and Bever (1982) found that all six orders could be comprehended by children as young as 2;0 in an acting-out task. That is, case inflections are used as a reliable cue to agent-patient relations in preference to word-order patterns.

Our data show similar flexibility in word order in child-directed speech. Fully 25% of the variation sets that maintain the same lexical items have a change in word order. As a consequence of this flexibility, there is no fixed position for the verb. It is not in a privileged, utterance-final position, as is typical of other verb-final languages discussed in the literature (that is, Japanese and Korean). If we examine all of the sets that have an explicit verb maintained across utterances, we find that in 37% of the cases the verb changes position from one utterance to the next. The following is a simple example:

5. Aslin (1993), in a study of English and Turkish CDS, considers noun-final sentences to be “ungrammatical” in Turkish. This is a misunderstanding of the role of word order in Turkish. Each word-order pattern is grammatical, and each has pragmatic constraints on its felicitous use. Aslin’s example of a “clear instance” of an “ungrammatical sentence” (p. 310) is not only grammatical, but is typical in a variation set aimed at getting a child to point to a body part: *Güller kiz-im yez-an-ı ‘show daughter-POSS.1SG face-POSS.2SG-ACC’ [=My daughter, show (me) your face]. The final placement of the noun is not an indication “that mothers have tacit knowledge of some global strategies which may facilitate word-learning in young infants” (p. 311), but is simply the normal use of a word-order pattern in discourse context. A parallel example is given in example (6).
(6) *Ver el-ler-in-i.*
   give hand-PL-POSS.2SG-ACC
   ‘Give (me) your hands.’

   *El-ler-in-i* *ver-ir-mi-sin?*
   hand-PL-POSS.2SG-ACC give-AOR-Q-2SG
   ‘Will you give (me) your hands?’

   *El-ler-in-i* *ver.*
   hand-PL-POSS.2SG-ACC give
   ‘Give (me) your hands.’

Even in sequences in which word order does not change, patterns of addition and deletion of lexical items often function to change the utterance position of a verb. In the following variation set there are two verbs: *dök* ‘pour’ is the second word in the first utterance, is utterance-final in the third and fifth utterances, and in the sixth utterance the previously elided object noun, *su* ‘water’, takes over final position. The second verb, *gödür* ‘take’, is utterance-final in the fourth line, but ‘retreats’ deeper into the utterance as additional material is added:

(7) *Git dök-elim artık bu su-yu.*
   go pour-OPT.1SG just this water-ACC
   ‘Let’s just go and pour this water.’

   *Git.*
   go

   *Nere-ye dök?*
   where-DAT pour
   ‘Where (should we) pour it?’

   *Banyo-ya gödür?*
   bath-DAT take
   ‘Take (it) to the bath(tub)?’

   *Banyo-ya gödür dök.*
   bath-DAT take pour
   ‘Take (it) to the bath(tub) (and) pour.’

   *Kalk banyo-ya gödür dök su-yu.*
   get up bath-DAT take pour water-ACC
   ‘Get up (and) take (it) to the bath(tub) (and) pour the water.’

Note, also, that the object noun, *su* ‘water’ disappears in the middle utterances and returns at the end of the sequence. Both times it is in utterance-final position — the backgrounded slot for old or given information.

Another way to approach word-order factors is to ask if nouns and verbs, overall, tend to occur in distinct utterance positions. There are actually two sorts of questions that can be posed: (1) If nouns and verbs tend to occur in different utterance positions, this can serve as a positional cue to differentiate the two classes. (2) If a particular lexical class predominates in a salient position (i.e., initial or final), that class may be more salient for the learner.

Comparable data have been presented for English by Goldfield (1993) and for Mandarin by Tardif (1994). In English CDS, nouns appear much more frequently than verbs in final position. Verbs tend to appear somewhat more frequently than nouns in initial position, but the predominant position for verbs in English is utterance medial. In Mandarin CDS, verbs are the most frequent lexical class in initial position, and in final position they are more than three times as frequent as nouns. Tardif argues that verbs are more perceptually salient than nouns in Mandarin, because they are the most frequent lexical classes to appear in both initial and final positions. By contrast, Goldfield argues that nouns are more salient than verbs in English, because they predominate in final position, while verbs tend to be in less salient medial positions.

Turkish presents yet another pattern. Table 17.2 presents the proportions of nouns, verbs, and other part-of-speech categories in initial and final positions in utterances of two or more words (excluding vocatives and discourse particles).²

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>Nouns</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbs</td>
<td>33</td>
<td>35</td>
<td>32</td>
</tr>
<tr>
<td>Final</td>
<td>56</td>
<td>25</td>
<td>19</td>
</tr>
</tbody>
</table>

To begin with, it is striking that a fairly large proportion of utterances have neither a noun nor a verb in the salient initial and final positions. These two major classes occur 68% of the time in beginnings and 81% of the time in endings. When we look at beginnings, we find that no part of speech predominates. And although verbs predominate in final position, 44% of endings are not verbs, thus reinforcing previous studies that have demonstrated that Turkish is not a strongly verb-final language. The distributional differences between nouns and verbs do not seem to be sufficient to make verbs more salient than nouns. At best, these patterns may provide the learner with a weak cue that there is some difference between the two classes, but morphological cues are far more salient than positional cues.

**Morphological Form: Verbs**

It is thus evident that fixed utterance position cannot guide the child to the identification of verbs in Turkish, although the language is described in the textbooks as canonically verb-final. It is also evident that invariant form cannot be used to identify a verb. In the preceding two examples, we see morphological variation in verb form: *ver* / *veririmisin*, *dök* / *dikelim*. Overall, in 35% of the cases of verb repetition within a variation set,
there is a change in form of the verb. What remains constant, though, is the consistent pattern of suffixation. The verb stem is always in word-initial position; furthermore, it can stand alone as an imperative. The verb is also a reliably constant member of a variation set: In 81% of the sets with an overt verb, the verb is repeated in more than one utterance. To summarize: Most sets have repeated verbs. Although verbs change position one-third of the time, and change form about one-third of the time, the core semantic element is always in first position in the word.

Ellipsis and Substitution: Nouns

Nouns present a somewhat different pattern of distribution. They are repeated less frequently: 53% of the time, in comparison with 81% of the time for verbs. This is primarily due to patterns of ellipsis: once a nominal argument appears, as either a full noun or a pronoun, it is replaced by zero — that is, it is no longer acoustically present in the utterance. In addition, transitive verbs can appear without their object noun in Turkish. In many instances, the object is evident in context, and it is sufficient for the mother to simply say things like köy ‘put’, getür ‘bring’, ver ‘give’, without using a noun at all. Furthermore, there is more frequent lexical substitution for nouns than verbs, as discussed later, with regard to lexical acquisition principles. However, when a noun is repeated, it tends to reappear in the same morphological form, as in the cases of el-ler-in-i ‘hand-PL-POS.2SG-ACC’ in example (6) and su-yu ‘water-ACC in example (7). Repeated nouns change form 23% of the time, in comparison with 35% for verbs. Like verbs, the noun stem is always in word-initial position, and can stand alone as the citation form or sentence subject. But, as discussed later, bare nouns are much less frequent in this corpus than bare verbs. To summarize: nouns are more likely than verbs to come and go within a variation set, but, when they are repeated, they tend to preserve the same grammatical form across utterances.

Discourse Factors

These patterns take on more meaning when considered from the point of view of discourse. Our videos deal with everyday activities, such as bathing and dressing. There is little need to label objects in such interactions: They are physically present and familiar, and are the focus of ongoing activity. What is at issue is the activity itself, and the mother is at pains to engage the child in joint or directed action, repeating verbs with various modal nuances in an attempt to keep the practical action progressing. The naturalistic setting of our data differs considerably from both laboratory studies of the meanings of new object labels and from mother’s checklists of new vocabulary. Both of these techniques focus on noun learning. By contrast, routine activities of the sort sampled here focus on the actions involving objects, rather than the objects themselves. As Nelson, Hampson, and Shaw (1993) have pointed out, “non-object words referencing locations, actions and events . . . are used in distinctive pragmatic and grammatical contexts.” The context of action focus tends toward a verb-dominant pattern, as shown by differences between the numbers of verbs and nouns in the data. Goldfield (1993) has found similar patterns in English. She compared frequencies of nouns and verbs in maternal speech during two play situations, one with toys and one without. In the toy play situation there were more nouns — both types and tokens; in the non toy play situation there were more verb types and tokens.

In our situation, which was generally both non-toy and non-play, there are more types of nouns, but more tokens of verbs. Table 17.3 presents a summary.

<table>
<thead>
<tr>
<th>TABLE 17.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbs and Nouns: Types and Tokens</td>
</tr>
<tr>
<td>Verbs</td>
</tr>
<tr>
<td>Types</td>
</tr>
<tr>
<td>Tokens</td>
</tr>
<tr>
<td>Token/Type Ratio</td>
</tr>
</tbody>
</table>

The mother uses 153 different verbs, as opposed to 319 different nouns; however, these verbs are used 2,518 times, in contrast to 1,859 occurrences of the nouns. Expressed in terms of token-type ratios, the ratio for verbs is 16.5, while the ratio for nouns is 5.8. That is, verbs have less lexical diversity than nouns, but individual verbs tend to be used more frequently than individual nouns, overall. This is, in itself, unsurprising. Any similar corpus will have fewer, but more frequently repeated verbs than nouns. However, given the discourse patterns of Turkish, we propose that verbs are more stable and central elements of variation sets. Nouns, on the other hand, are ephemeral linguistic elements which move in and out of verbal frames. In addition, when we consider one-word utterances within variation sets, we find that 63% of them are verbs, whereas only 27% are nouns. (The remaining one-word utterances are pronouns, adjectives, and question words.) Thus the behavior of the two word classes in variation sets, along with the patterns of ellipsis and null-pronoun use, make verbs the more reliable lexical items in the input. We suggest that these patterns may facilitate the development of verbs. In a similar vein, Hoff-Ginsberg (1990) reports that although the number of mothers’ verb phrases per utterance did not predict verb development in children, self-repetitions and expansion — which repeat some constituents while changing others — did predict verb development. This is probably due to the pivotal role of verbs in variation sets.

Morphological Form: Verbs and Nouns Compared

Verbs and nouns also differ with regard to the inflectional forms in which they occur in maternal speech. Both parts of speech can occur in their root form: nouns in the nominative or citation form, verbs in the imperative. The most frequent nouns, however, do not appear in this zero-marked form, but rather in casemarked forms, as the examples of ‘hands’ and ‘water’, cited earlier. This is because, in the context of everyday activities, objects tend to be acted on rather than named or described. Some of the most frequent nouns never occur in the citation form at all — nouns such as body parts, items of clothing, and names of locations.

Verbs, by contrast, are more likely to occur in their root form, because that is the form of the imperative. This is the predominant version of most of the frequent
non-mental verbs, that is, verbs that can be used as imperatives, such as koy 'put', gel 'come', dur 'stop', al 'take', ver 'give'.

Both nouns and verbs, of course, occur in a range of inflectional forms. The diversity can be quite staggering from an English point of view. A graphic illustration can be seen in the following two examples, where we present the range of forms of a high frequency verb, koy 'put' and a high frequency noun, el 'hand'.

(8) Number of occurrences of forms of koy 'put':

<table>
<thead>
<tr>
<th>Form</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>koy [put]</td>
<td>53</td>
</tr>
<tr>
<td>koy-ma [put-NEG]</td>
<td>20</td>
</tr>
<tr>
<td>koy-alim 'put-OPT.1PL'</td>
<td>18</td>
</tr>
<tr>
<td>koy-acag-sm 'put-PUT-1SG' [=i'll put]</td>
<td>5</td>
</tr>
<tr>
<td>koy-acag-tz 'put-PUT-1PL' [=we'll put]</td>
<td>4</td>
</tr>
<tr>
<td>koy-acak-sin 'put-PUT-2SG' [=you'll put]</td>
<td>4</td>
</tr>
<tr>
<td>koy-aca-n 'put-PUT-2SG' (contracted)</td>
<td>2</td>
</tr>
<tr>
<td>koy-ma-n-ti 'put-NOML-POSS.2SG-ACC' [=your putting]</td>
<td>2</td>
</tr>
<tr>
<td>koy-nak 'put-INF'</td>
<td>2</td>
</tr>
<tr>
<td>koy-ma-dan 'put-NOML-ABL' [=before/without putting]</td>
<td>2</td>
</tr>
<tr>
<td>koy-du-n 'put-PAST-1SG' [=i put (past)]</td>
<td>2</td>
</tr>
<tr>
<td>koy-du-n 'put-PAST-2SG' [=you put (past)]</td>
<td>2</td>
</tr>
<tr>
<td>koy-du-k 'put-PAST-1PL' [=we put (past)]</td>
<td>2</td>
</tr>
<tr>
<td>koy-ar-mu-sm 'put-AOR-Q-2SG' [=will you put?]</td>
<td>2</td>
</tr>
<tr>
<td>koy-uyor-uz 'put-PRES-1SG' [=we're putting]</td>
<td>1</td>
</tr>
<tr>
<td>koy-mus-lar 'put-PAST-EVID-PL' [=they apparently put (past)]</td>
<td>1</td>
</tr>
<tr>
<td>koy-aym 'put-OPT.1SG' [=should i put]</td>
<td>1</td>
</tr>
<tr>
<td>koy-alim-mi 'put-OPT.1PL-Q' [=should we put?]</td>
<td>1</td>
</tr>
</tbody>
</table>

Total = 126

(9) Number of occurrences of forms of el 'hand':

<table>
<thead>
<tr>
<th>Form</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>el-ler-in-i 'hand-POSS.2SG-ACC' [=your hands (ACC)]</td>
<td>19</td>
</tr>
<tr>
<td>el-in-i 'hand-POSS.2SG-ACC'</td>
<td>11</td>
</tr>
<tr>
<td>el-in-le 'hand-POSS.2SG-INST'</td>
<td>7</td>
</tr>
<tr>
<td>el-lin-i 'hand-PL-ACC'</td>
<td>4</td>
</tr>
<tr>
<td>el-in 'hand-POSS.2SG'</td>
<td>4</td>
</tr>
<tr>
<td>el-in 'hand-POSS.2SG'</td>
<td>3</td>
</tr>
<tr>
<td>el-in-in 'hand-PL-POSS.2SG'</td>
<td>2</td>
</tr>
<tr>
<td>el-in- 'hand-POSS.2SG-DAT'</td>
<td>2</td>
</tr>
<tr>
<td>el-in-de 'hand-POSS.2SG-LOC'</td>
<td>2</td>
</tr>
<tr>
<td>el-in-init-i 'hand-POSS.1PL-ACC'</td>
<td>2</td>
</tr>
<tr>
<td>el-in-im-i 'hand-PL-POSS.1SG-ACC'</td>
<td>2</td>
</tr>
<tr>
<td>el-l 'hand-PL'</td>
<td>1</td>
</tr>
<tr>
<td>el-in-in 'hand-POSS.2SG-GEN'</td>
<td>1</td>
</tr>
<tr>
<td>el-in-de-yen 'hand-POSS.2SG-LOC-CONVERB'</td>
<td>1</td>
</tr>
<tr>
<td>el-in-de-ki-ni 'hand-POSS.2SG-LOC-REL-ACC'</td>
<td>1</td>
</tr>
</tbody>
</table>

Total = 57

With regard to inflectional diversity, verbs differ from nouns in two important ways:

1. There is a greater diversity of available verb inflections, because so many different types of notions are marked on the verb in Turkish, while nouns can only be marked for number, case, and possession. The average verb type occurs with 16.95 different combinations of suffixes, while the average noun occurs with 7.65.
2. The suffixes that apply to verbs and nouns, by and large, come from two different sets, with the salient exception of the plural, which applies to both (e.g. gel-di-ler 'come-PAST-PL [=they came], el-l 'hand-PL [=hands]).

There are extensive child language data with regard to these factors in Slobin's (1982) cross-sectional study of 39 children between the ages of 2.0 and 4.8. With regard to diversity of inflectional forms, we have calculated mean inflectional length of verbs and nouns in these data. At all age groups, and for each child, verbs exceed nouns in the number of morphemes added to the root, as shown in Table 17.4.

<table>
<thead>
<tr>
<th></th>
<th>Children (N = 39)</th>
<th>Mother (this study)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Age 2.0 - 4.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbs</td>
<td>2.60</td>
<td>2.18</td>
</tr>
<tr>
<td>Nouns</td>
<td>1.67</td>
<td>1.96</td>
</tr>
</tbody>
</table>

Overall, the average mean length in morphemes is 2.60 for verbs and 1.67 for nouns. This compares with adult averages of 2.18 and 1.96 in our maternal speech corpus. (Our CDS sample has a lower average verb length than the child sample due to the frequent use of imperatives, which consist of a bare verb stem. This form is infrequent in the child speech samples, drawn from child-adult interaction.) Furthermore, these child data are consistent with the second factor distinguishing nouns from verbs, in that the appropriate morphemes are added to each lexical class. Thus, the patterns we find in our maternal speech data are matched by patterns in a large sample of Turkish children. And, clearly, there is no evidence of a "noun advantage" at any point in the available data: early speech at the one-word stage, speech in the 2 to 5 age range, and maternal speech.

Verbs in Variation Sets

Returning to the maternal speech data, it is informative to track the successive occurrences of a verb through a variation set. An individual verb can change position, suffixes, and accompanying nouns from utterance to utterance. Consider the following extended sequence, in which the mother is trying to elicit action from the child:

| 1 'el-in-den 'hand-POSS.1SG-ABL' [from my hand] |
| 1 'el 'hand' |
| 1 'hand' |
| 1 'hand'

Total = 57
17. LISTENING TO A TURKISH MOTHER

Halının üzerine koy güzелиm.

'On top of the rug put, sweetheart.'

In this series, the object — block — is never mentioned, and the full locative goal argument — 'on top of the rug' — with location noun and postposition, does not occur in each utterance. In fact, the first utterance has neither patient-object nor goal, while it is the only one in the series that has subject pronouns. Thus, in order to extract the full argument frame for 'put' — AGENT, PATIENT, LOCATION — it is necessary to collapse across the variation set and extract the relevant elements.

Recall, also, that 79% of maternal speech in this sample does not occur in variation sets. This gives us a more realistic picture of the task facing a child learner of this type of language. It must be necessary to store information across a range of separate utterances — not only in order to discover the range of subcategorization frames for an individual verb, as Gleitman has proposed, but also to assemble any particular subcategorization frame, since the full frame may not be explicitly expressed in any individual utterance.

Patterns of suffixation may also serve as cues to the learner that there are semantic subclasses of verbs. It appears that some verbs appear to be "specialized" with regard to the suffixal patterns which they exhibit. For example, köy 'put' is often followed by the negation marker, since babies are notorious in placing objects in locations where they don't belong. The verbs at 'take', ver 'give', gel 'come', and git 'go' often occur with the connective suffix -Ip, followed by another verb, because these verbs function in serial directives, such as:

(13) Gid-İp alt-ma-sun bi mendîl bana.

go-CONNECTIVE get-Q-2SG one kerchief to.me

'Can you go get me a kerchief?'

(14) Gül-cüm mavî peçeteyi al-İp yüzünü siltirin.

Gül-dim blue handkerchief take-CONNECTIVE your.face can.you.wipe

'Gülüm, can you take the blue handkerchief and wipe your face?'

The verb iste 'want' is used with the conditional in a sort of mitigating function for directives, such as:

(15) Übür pabuçunu giyelin istersem Gülcüm.

'Let's put on the other shoe if you want, Gülüm.'

Such patterns might, at first, be learned verb-by-verb, as Tomasello (1992) has suggested in characterizing a "Verb Island" hypothesis. That is, each verb is "an island onto itself" with regard to its inflections and argument structure. The next step, however, might be an examination of the verbs that can occur with a given suffix. For example, the verbs that can be suffixed by the connective -Ip describe a preparatory movement or action to that described in the following main verb. At first, these may constitute a small, closed set for the child, all having to do with moving to act and causing objects to move in the process: 'go', 'come', 'give', 'take', 'get', 'bring'. These verbs, when suffixed by -Ip, are followed by a consequent action. The pattern of VERB-ip VERB may orient the child, at first, to the sequence of 'orienting act, consequent act', and later generalize to other verbs. In the process, of course, the syntactic function of the suffix is also acquired. This is, to be sure, pure speculation at this point — but speculation
stimulated by the observation of cooccurrence patterns in child-directed speech.

Nouns and Verbs Again

To summarize: Nouns and verbs differ not only semantically, but with regard to their privileges of occurrence in individual utterances and sequences of utterances. Neither word class has a fixed utterance position. Each has a distinctive set of suffixed inflections. Verbs are more likely to change position and form across utterances, whereas nouns are more likely to be elided or replaced, but maintaining form when repeated.

LEXICAL ACQUISITION PRINCIPLES

Learning Noun Meanings

In recent years there have been numerous proposals for principles or constraints that may aid the child in lexical acquisition. Much attention has been paid to difficulties that the child may have in determining the referential range of a lexical item, particularly a noun. Here we wish to focus on one sort of problem: differentiating the meanings of two nouns that are used to refer to the same type of object in child-directed speech. Markman (1989, 1990, 1991) provides the child with a Mutual Exclusivity Assumption: “children constrain word meanings by assuming at first that words are mutually exclusive — that each object will have one and only one label” (Markman, 1990). Thus, for example, if a child knows the referent of mittens and is offered a new hand-covering called glove, she will not assume that mitten and glove both mean ‘hand-covering’, but rather will look for a new meaning for glove. Golinkoff, et al. (1994) provide a different explanation for such situations. They propose the Novel Name – Nameless Category Principle (N3C): “Novel terms map to previously unnamed objects” (p. 143). That is, a child using mutual exclusivity thinks: “Glove can’t mean the same thing as mitten, because my mitten already has a name, so glove must mean something else”; whereas the child using N3C thinks: “I know what mitten means, so glove must be the name of this new kind of object.” Note that, in both scenarios, the child must be able to notice a difference between the two referent objects. This is a basic factor in most of the research and theorizing on strategies for acquiring the meanings of object names.

Both of these proposals can be treated as part of a broader principle, the Principle of Contrast proposed by Eve Clark (1987, 1988, 1990, 1993): “Speakers take every difference in form to mark a difference in meaning” (1993, p. 64). Clark argues that languages have no true synonyms; even words that have the same reference differ in sense, reflecting different registers (e.g., teach vs. instruct), dialects (e.g., truck vs. lorry), or various pragmatic nuances, such as “emotive coloring” (e.g., dog vs. mutt).

Equipped with any or all of these principles, the child will not use mitten and glove interchangeably, and will seek to discover some difference in the references or contexts of use of the two nouns. Our data suggest, however, that this may not always be possible. This mother — and probably parents in general — substitutes nouns referring to the same object, in the same communicative situation, with the intent of securing the child’s attention or compliance. Consider, for example, the following variation set, with two terms for ‘shoe’, pabuç and ayakkabı. In the adult language these two terms are not synonyms. Pabuç, originally from Persian, simply means ‘shoe’. Ayakkabı is transparently Turkish in origin: ayak ‘foot’ plus a form of the root kapa, referring to covering or closing — thus, ‘foot-cover’. Ayakkabı can refer to a boot as well as a shoe, and it also serves as the generic term for footwear. Thus the two words clearly adhere to Clark’s Principle of Contrast. But do they in the following variation set, in which the mother is unsuccessfully urging the child to remove her shoes?

(16) Pabuç-lar-in-ı çıkarrımsın lütfen?
‘Will you take off your shoes (pabuç) please?’
Gülcem pabuç-lar-in-ı çıkar.
‘Gülce, take off your shoes (pabuç).’
Yavru council pabuç-lar-in-ı çıkarrımsın?
‘My pet, will you take off your shoes (pabuç)?’
Çıkarrımsın ayakkabı-lar-in-ı?
‘Will you take off your shoes (ayakkabı)?’

Here there is no difference in register, in referential scope, in taxonomic level, or in emotive coloring. Rather, the lexical substitution marks the mother’s frustration in achieving her communicative intent.

In a recent experimental study with 2-year-olds, Mervis, Golinkoff, and Bertrand (1994) have demonstrated that, in certain circumstances, children will accept two names for the same object. They conclude: “A novel term heard in the presence of only objects for which the child already has a name will most likely be interpreted as a second basic-level name for the category to which the object(s) belongs” (p. 1175). However, they are vague about the facts that might guide the child to such an interpretation, rather than, for example, a decision that the second term is a subordinate or superordinate of the first. And they have nothing to say about the child’s possible search for such pragmatic factors as “emotive coloring,” although children clearly hear a variety of diminutives, augmentatives, pejoratives, and affectionate terms for the identical objects. Yet this is a start. They propose that 2-year-olds are capable of searching for cues of communicative intent, and will treat two terms as labels for the same object if, in their terms, “the input is relatively neutral” (p. 1174).

We believe that it is possible to go further, by allowing the child to make more subtle use of communicative cues than simply identifying a context as “relatively neutral.” In the variation set we have been considering, the child knows that she is not involved in a “naming game,” but rather in a negotiation about removing the objects on her feet. Lois Bloom, in a recent paper with Tinker and Margulis (Bloom, Tinker, & Margulis, 1993) has proposed a Principle of Relevance, inspired by the work of Sperber and Wilson (1986). Bloom et al. propose (p. 447): In the successful language-learning scenario, a language tutor shares a child’s focus of attention and the word the child hears has relevance because its target is already part of what the child has in mind. . . . [T]he representations one
already has in mind from the discourse context narrow the possible meanings one might set up on hearing a sentence.

We would add to this principle, the child’s awareness of the sort of activity type in which she is engaged and the sort of speech act used by the mother. As Susan Ervin-Tripp has pointed out (1986, p. 420):

(Activity conditions in which interaction is occurring set up the context for language acquisition. The relevant features include shared goals, pertinent objects and actions, and presuppositions which underlie what is easily understood in talk, and what must, on the other hand, be made explicit. . .)

In the “shoe-removal” scene, the mother is trying to instill a shared goal, directing the child’s action to the pertinent objects, the shoes. What is at issue is not what the objects are called, but what is to be done with them — that is, the activity type. This should be evident to the child on the basis of the mother’s requesting/demanding speech act. Many years ago, when “input” or “child-directed speech” was still called “baby talk,” Ervin-Tripp pointed out the importance of a speech-act analysis (1980, p. 394):

It now appears that many of the structural peculiarities of baby talk are a result of the different interactional goals of adults interacting with children. Control acts reflect adult managerial and protective roles, naming reflects teaching, confirmation checks and repetition reflect concerns with intelligibility.

We suggest that Bloom’s Principle of Relevance can only function in contexts of joint attention to activity type and speech act. A variation set that consists of a repeated control act is a cue to the child that the Principle of Contrast need not apply. This is signaled in our example by the constant verb-stem çıkar ‘remove’ across utterances, with grammatical inflections indicating directive speech acts — the yes—no question, which is an indirect speech act, and the bare stem, which is the imperative. In the naming game, by contrast, these inflections would be replaced by declarative forms. In that context, pabuç and ayakkabı may indeed have different senses, but in the context of a control act directed at the objects on the child’s feet, the lexical variation is not relevant. Thus, to expand on Mervis et al. (1994), we suggest that children do not only accept multiple names for the same object in “relatively neutral” contexts. They are more adept social beings than that. They are able to assess the relevance of lexical choice to the inferred communicative goals of the speaker.

Lexical Substitutions Not Limited to Nouns

Gathercole (1989), in a critique of the Principle of Contrast, introduces Gricean conversational principles to guide the child in determining the speaker’s communicative intent. Her cases, however, are all based on the assumption that speakers do, indeed, use contrasting forms to carry out contrasting conversational purposes. She would not expect to find many examples such as pabuç and ayakkabı. In fact, she states directly (p. 699): “The probability that any two forms will be heard in exactly the same set of contexts is, if not nil, near nil.” However, in our variation set data there are numerous examples of substitutions of lexical items, and within a range of part-of-speech categories. The following are typical examples:

(17) Verb substitution:
Şapka!
‘Hat!’
Tak kafa şapkasy...
‘Put (tak) the hat on your head.’
Bak şapka.
‘Look, hat.’
Koy kafa şapkayi.
‘Put (koy) the hat on your head.’

(18) Adjective Substitution:
Güzел mi erik?
‘Is the plum nice?’
Tatl mı?
‘Is (it) sweet?’

(19) Postposition Substitution:
Ayaklarını keyma masanın üstüne.
‘Don’t put your feet on top of (üstüne) the table.’
Ayaklarını masanın üstüne keyma.
‘Don’t put your feet on top of (üstüne) the table.’

(20) Vocative Substitution:
Gel benin sevgili.
‘Come my love.’
Gel benin yavrum.
‘Come my pet.’

In some cases, the words that are substituted have different overall distributions, as is true of ‘nice’ and ‘sweet’, for example. But, in the context of this variation set, they are equivalent: they both refer to a positive evaluation of the taste of the plum, and the child should not be led to try to differentiate their meanings, recognizing that they are being substituted within a variation set. In other cases, the words seem to be true synonyms. The two locative postpositions, üstüne and üstüne seem to have identical distributions as locative terms, though the latter may have temporal extensions not available to the former. Yet, in locative contexts, the child would be led astray to search for contrasts. And, finally, in probably all cases of CDS, caretakers use a wide range of pet names for the child, all occurring in identical vocative contexts. Gül was not only called sevgili ‘my love’ and yavrum ‘my pet’, but was also frequently called canım ‘my soul’, güzelim ‘my pretty one’, maymunum ‘my monkey’, and more. Furthermore, these terms also occur with diminutive suffixes, with no change in affective or interactive meaning: yavrum, canıkan, güzelim, and the like. In sum, synonymity is not such a rare phenomenon — especially when we consider such “functional synonyms” as those that co-occur in variation sets.
THE CAPACITY TO INFERENCE

As has been frequently pointed out, a linguistic message does not fully determine an interpretation. Rather, by providing particular lexical items in a particular grammatical frame in a particular context, the speaker “nudges” the listener towards a preferred interpretation. Child-directed speech is no different, as we have seen, for example, in patterns of ellipsis. However, the mother’s assumption of Gül’s capacity to infer is more pervasive than simply the assumption that an elided noun can be filled in from context. A similar phenomenon occurs repeatedly in constructions which we characterize as “verb ellipsis.” These occur in serial verb constructions using nonfinite forms that are designated as “gerunds” or “converbs” (Slobin, 1995). In some instances, the mother uses a construction with both a nonfinite and a main verb, such as:

(21) **Otur-arak**  iç
    sit-GERUND drink-IMP
    ‘Drink sitting.’

The gerund *oturar* “sitting” describes the manner in which the action designated by the main verb is to be carried out. However, often the child is simply presented with a gerund, and must infer the elided main verb. The following example is typical:

(22) [Gül refuses to sit while eating.]
    **Otur-arak.**
    sit-GERUND
    ‘(Eat) sitting.’

In such communications, the focus is on the manner in which the action is to be carried out. In some situations, the action itself is not so much elided as simply not at issue — perhaps not even easily lexicalizable. In the following example, the mother wants Gül “to do something to her arm” in a particular manner:

(23) [Gül bites mother on arm; mother objects and wants to be kissed]
    **İsr-arak değil, öp-erek.**
    bite-GERUND not, kiss-GERUND
    ‘Don’t (act on my arm) bitingly, (but rather) kissingly.’

Another frequent elided verb construction uses a negative form, focusing an implicit imperative on the manner of action. Here are two examples, one with an explicit verb and one with an implied verb:

(24) **Gel, denize kenarına gidelim, çomuru bas-madan.**
    ‘Come, let’s go to the sea shore, without stepping in the trash.’

(25) **Başır-madan.**
    ‘Without-shouting.’
    [=Whatever you’re doing, do it without shouting.]

Again, we are faced with a learning task in which the child must successfully infer the mother’s communicative intent in order to correctly assign meaning to linguistic form. These nonfinite forms are not used for description of actions, and they are not morphologically imperatives. In order to be interpreted, they must be understood as control acts

directed at the manner in which an action — named or unnamed — is to be performed (or not performed).

COMPLEXITY: SCOPE OF INTERROGATION

As a final “puzzle for acquisition,” we present data on the mother’s use of the yes–no question suffix -mi. This suffix is affixed to the verb for general polar questions, and is affixed to any particular lexical element that is the focus of specific interrogation. Its scope is thus determined by position with regard to the preceding content word. Lexically, however, it is always treated as part of that word, since it matches the final syllable of the word in vowel harmony. (That is, it occurs in the forms -mi, -mi, -mu, and -mil, depending on the preceding vowel.) The suffix occurs in the following range of contexts in our data:

(26a) **Verb:**
    Açı-a-n-mi? open-PAST-2SG-Q
    ‘Did you open (it)?’

(26b) **Adjective:**
    Güzell-mi?
    pretty-Q
    ‘Is (it) pretty?’

(26c) **Noun:**
    Kabuk-mu ist-iyor-sun?
    peel-Q want-PRES-2SG
    ‘Is it the peel that you want?’

(26d) **Pronoun:**
    Ban-a-m telefon?
    PRO.1SG-DAT-LOC telephone
    ‘Is the telephone for me?’

(26e) **Adverb:**
    Bur-da-da-m bubu var?
    here-LOC-FOCUS-O sore exist
    ‘Is it here that there’s a sore?’

A further level of complexity occurs with regard to verbs in which the person/number marker is a form of the copula. This occurs in present progressive and future forms, among others. In such verbs, the question particle precedes the person-marker. For example:

(27) **İst-iyor-mu-sun?**
    want-PRES-Q-2SG
    ‘Do you want?’

(28) **Yut-abil-ecek-mi-sin?**
    swallow-ABILITY-FUTURE-Q-2SG
    ‘Will you be able to swallow?’
CONCLUSIONS

In conclusion, this detailed analysis of some aspects of Turkish CDS makes it clear that each language presents the learner with a particular set of multiply-intersecting problem spaces. Part of acquiring a language lies in determining the relevant cues to each of those spaces. In Turkish, the child must learn to track lexical items across varying utterance positions, with different associated collections of agglutinated morphemes, moving in and out of patterns of ellipsis. This mother did not seem at pains to simplify these tasks for the child. If anything, we would propose that the entire set of cues is necessary for the child to be able to solve the problem. That is, without being exposed to this range of variety, it would probably take much longer to identify the relevant dimensions of lexical, morphological, and syntactic variation in the language.

Because so many factors interact, we would urge caution in generalizing from one language to another. For example, Turkish, Korean, and Japanese are all verb-final languages with a great deal of nominal ellipsis. Yet Turkish differs in several important respects — particularly with regard to its extensive and obligatory system of agglutinative morphology and its considerable use of post-verbal elements in discourse.

Finally, we underline the importance of studying the acquisition of linguistic forms in the context of their use in communicative situations. The child is working at understanding the structure of interpersonal action as part and parcel of the task of deciphering and organizing linguistic structure. It would be strange, indeed, to equip the child with subtle means for detecting lexical, morphological, and syntactic structures, while leaving her with only the most primitive equipment for learning to become an interactive member of human society. Every linguistic structure that we have explored in CDS takes its meaning in definable communicative contexts. We believe that the child is at least as good at defining those contexts as we are.

In conclusion, of course, we will not be able to tell the full story until we have detailed data on both CDS and the speech of the child, gathered longitudinally, across children and languages. We are only at the beginning of understanding the roles of individual differences and individual languages in the process of language development.


