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The acquisition of Turkish as a native language. A research review

Aylin Küntay & Dan I. Slobin

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The following research review summarizes materials that deal with linguistically relevant observations of first-language acquisition of Turkish by monolingual children. It is organized under the main headings morphology, grammar and discourse, and phonology.

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Introduction

The study of Turkish child language acquisition is relatively recent. The first review and theoretical discussion of this area was that of Aksu-Koç & Slobin (1985), summarizing and evaluating all material available at that time. Apart from several parental diary studies of the seventies, the review was based on experimental studies carried out by Slobin and his students, supplemented by tape-recorded naturalistic data, covering the range of 2 to 5 years of age.¹ Verhoeven (1991) provided a more recent

¹ The following studies were cited in Aksu-Koç & Slobin (1985); we include them here for the sake of completeness: Aksu (1973, 1978a, 1978b), Ammon & Slobin (1979), Clancy & Jacobsen & Silva (1976), Ekmekçi (1979, 1986a), Johnston & Slobin (1979), Özbaydar (1970), Savaşır (1982, 1983), Slobin (1977, 1981, 1982, 1985, 1986), Slobin & Aksu (1982), Slobin & Bever (1982), Slobin & Talay (1986). The data gathered in Istanbul by Slobin in 1972-1973 are now

review of selected research. In the current review, we carry on through the end of 1998, summarizing all material known to us that deals with (a) linguistically relevant observations of first-language acquisition of Turkish by (b) monolingual children. For this purpose, we set aside the large literature on the language development of bilingual Turkish children in Europe (especially France, Germany, the Netherlands, Denmark, and Sweden) and Australia. We also do not review the small number of studies on development of Turkish reading and writing skills in school-age children. Our focus is thus on preschool acquisition of spoken Turkish in Turkey, from a linguistic point of view.²

The majority of the studies discussed here are based on the language development of urban children growing up in professional and educated families. A Dutch research team headed by Ludo Verhoeven (Aarssen 1996; Akıncı 1999; Akıncı & Jisa (forthcoming); Boeschoten 1987, 1990; Boeschoten & Verhoeven 1986; Verhoeven 1987, 1989, 1990, 1991, 1993) has carried out comparable research with children of working-class families in small cities and rural areas (mainly in the Adana region) as well as village children in Central Anatolia (Polatlı region). The language development of these children does not differ in any significant ways from that of the several urban samples in this age range. The review is organized under the headings: Morphology, grammar and discourse, and phonology.

Morphology

As already noted by Aksu-Koç and Slobin, the morphological system of Turkish is acquired with remarkable ease and rapidity by children before their second birthday. The authors made the following observation in comparison with acquisition of grammatical morphology in other languages (Aksu-Koç & Slobin 1985: 847):

available to public access in the CHILDES archive (<http://childes/psy/cmu/edu>). There are 54 corpora of child speech in the age range 2;0-4;8.

- ² Much of the research in developmental psycholinguistics poses questions that do not concern the linguistic structure of the language being acquired, such as memory and cognitive capacities, speech perception, narrative skills, interpersonal interaction, and biological maturation. We have decided that such issues lie outside of the range of interests of readers of this journal.

“The discussion of typical morphological errors is briefer than comparable chapter sections on the development of other languages, since the remarkable regularity and transparency of Turkish morphology precludes a high rate of error in the early phases of development. Where errors typically occur is in later phases, when the Turkish-speaking child encounter problems of complex syntax, as discussed in relation to nominalization errors and errors in deverbal and denominal derivation, and late acquisition of relative clauses.”

This summary holds up in the light of recent research.

Aksu-Koç and Slobin had reported full mastery of the nominal inflection system, and much of the verbal paradigm, by the age of 24 months or earlier, noting productivity as early as 15 months (Ekmekçi's 1979 report of her child's production of *bebeki* for *bebeğin* baby+GEN). This finding has now been confirmed by large-scale studies of early language conducted at Anadolu University in Eskişehir (Özcan 1996, Topbaş & Maviş & Başal 1997). These investigators have made longitudinal observations of more than 100 children between the ages of 15 and 72 months, confirming that all forms of nominal casemarking are present by 23 months, and that multiple suffixes appear on nouns as early as 15 months: possessive + dative, possessive + accusative, possessive + locative. Several precocious examples follow:

(1) Age 16 months:

Ellerime (bak).
 hand:PL:POSS.1SG:DAT³ look
 ‘(Look) at my hands.’

³ The following abbreviations are used in glosses: ABL [= ablative]; ACC [= accusative]; AGENT [= agentive]; AOR [= aorist]; CAUS [= causative]; DAT [= dative]; DIM [= diminutive]; EREK [= converb *erek*]; ERKEN [= converb *erken*]; EVID [= evidential]; FUT [= future]; GEN [= genitive]; INCE [= converb *ince*]; IP [= converb *ip*]; INST [= instrumental]; LOC [= locative]; MOD [= modality]; NEG [= negative]; NOM [= nominalizer]; OPT [= optative]; PA [= direct past]; PAST.NOM [= past nominalizer]; PL [= plural]; POSS [= possessive]; PRO [= pronoun]; PROG [= present progressive]; PV [= passive]; REL [= relativizer]; TOP [= topical marker *da*]; YN [= yes-no question marker]; 1SG [= first-person singular]; 2SG [= second-person singular]; 3PL [= third-person plural].

(2) Age 18 months:

Ayağına koy bebeği.
 foot:POSS.2SG:DAT put baby:ACC
 'Put the doll on your legs.'

Kazağımı attım.
 sweater:POSS.1SG:ACC throw.away:PA.1SG
 'I threw away my sweater.'

(3) Age 23 months:

Senin arkanda değilim.
 PRO.2SG:GEN back:POSS.2SG:LOC NEG:1SG
 'I'm not in back of you.'

Sucukların arasına zeytin koy.
 Sausage:PL:GEN between:DAT olive put
 'Put (some) olives between the sausages.'

Productions such as *emzikimi* ([= *emziğimi*] 'my pacifier') at 19 months, like the earlier reported *bebeki* ([= *bebeğin*] 'baby's') at 15 months, are clear indications of productive control rather than rote imitation. Overregularizations are rampant in the acquisition of all Indo-European languages; in the case of *ğ* → *k* overregularization (i.e., ignoring the obligatory elision of intervocalic *k*) we have a rare example of a parallel phenomenon in child Turkish. The Eskişehir researchers also present data on multiple affixing to verbs, such as:

(4) Age 23 months:

Götürsünler beni.
 take:OPT:3PL PRO.1SG:ACC
 'Let them take me (there).'

Several studies by Özden Ekmekçi (1987), of Çukurova University in Adana, give ample evidence of the early creative use of grammatical morphology. The observations come from diary studies and recordings of at least 25 children, covering the age range of 15 months to 7 years. We reproduce here only a small number of the imaginative and competent linguistic formations of these young children. All of them demonstrate the productivity and flexibility of Turkish morphology. The data

show at least two types of verb derivation from adjectives and from nouns. (Ages are given in the format {years;months}.)

Adjective → verb:

- (5) *Saçımı* **güzelt.** (wanting mother to tidy her hair) [age 3;7]
 hair:POSS.1SG:ACC make.nice
 'Make-nice my hair.'
- (6) *Ben şimdi gerçekleşmişim.* (after pretending to be drunk) [age 4;0].
 I now come.to.self:EVID:1SG
 'Now I've come to myself.'
- (7) *Siz de teyzem gibi emeklendiniz.* [age 5;3].
 you also aunt:POSS.1SG like retire:PV:PA:2PL
 'You also became retired like my aunt.'

Noun → verb:

- (8) *Dondurma dilliyorum.* (licking ice-cream) [age 3;6].
 ice.cream tongue:PROG:1SG
 'I'm tongue-ing ice-cream.'
- (9) *Anneciğim, seni öpücükleyebilirmiyim?* [age 4;9]
 mommy:DIM:POSS.1SG you:ACC kiss:MOD:YN:1SG
 'Mommy, can I kiss you?'

There are also examples of noun derivations, chiefly with the agentive suffix:

Noun → noun:

- (10) *bakkalcı, berberci* [age 3;2]
 grocer:AGENT barber:AGENT

And there are complex derivations using two or more grammatical elements, such as:

Verb → noun:

- (11) *Buradaki herkes küstürücü.* [age 5;3].
 here everybody offend:CAUS:AGENT
 'Everybody here is (an) offender / causing offense.'

The degree of morphological productivity exhibited by Turkish preschoolers goes far beyond what has been reported for child speech in Indo-European languages, even those with the morphological complexity of the Slavic languages. Most of these forms cannot be labeled as "errors"; rather, they reveal the Turkish child's subtle grasp of the word-formational opportunities inherent in the language.

Parental speech to preschool children presents the child with rich opportunities for segmenting and combining grammatical morphemes and learning their meanings. Küntay & Slobin (1995, 1996) studied the speech of one Turkish mother to a child during the age period of 1;8 to 2;3. Consider, for example, two high-frequency words—the verb *koy-* 'put' and the noun *el* 'hand'. The lists in 12 and 13 present the forms of these two words in the mother's speech, in order of descending frequency of occurrence.

- (12) 18 forms of *koy*:
koy, koyma, koyalım, koyacağım, koyacağız, koyacaksın, koyucan, koymanı, koymak, koymadan, koydum, koydun, koyduk, koyarmısın, koyuyoruz, koymuşlar, koyayım, koyalım.
- (13) 17 forms of *el*:
ellerini, elini, elinle, elleri, elin, ellerin, ellerinle, eline, elinde, elimizi, ellerimi, eller, elinin, elindeyken, elindekini, elimden, el.

The child is thus presented with rich data for acquisition of the inflectional systems. Küntay and Slobin note that overall, verbs present the learner with a greater degree of complexity than nouns: Verbs tend to have more suffixes than nouns, and the suffixes occur in a greater number of combinations. On average, verbs directed to the child have 2.18 morphemes while nouns have 1.96 morphemes. Furthermore, the average verb occurs with 16.95 different combinations of suffixes, while the average noun occurs with 7.65 combinations. Essentially, this pattern is due to the fact that many different types of notions are marked on verbs,

while nouns are only marked for number, case, and possession. The relative difference between verb and noun complexity is reflected in pre-school speech. A study of 39 children between the ages of 2;0 and 4;8 (Slobin 1982) found mean morpheme lengths of 2.60 for verbs versus 1.67 for nouns. More extensive studies of the distribution of forms in corpora of parental and child speech would be valuable. To our knowledge, such frequency data are not yet available for Turkish.

Küntay and Slobin discuss the changing forms that a lexical item can undergo in successive adult utterances to a child. They propose the term *variation set* to characterize a sequence of utterances with a constant intention but varying form. Variation sets are characterized by three types of phenomena: (1) Lexical substitution and rephrasing, (2) addition and deletion of specific reference, and (3) reordering. Consider, for example, the following series of adult remarks, uttered while removing pits from fruit; note the changing positions and forms of the verb *çıkart-* 'remove':

- | | |
|---|----------------------------------|
| (14) <i>Çıkarttım benimkinin çekirdeğini.</i> | 'I.removed the pit from mine.' |
| <i>Sen de mi çıkartıcan?</i> [child nods] | 'Will.you.remove too?' |
| <i>Çıkart bakım.</i> | 'Remove (it), let's see.' |
| <i>İmmh! Aferin yavrum! Sen de</i> | 'Mm-hm. Good for you! |
| <i>çekirdeğini çıkarttın.</i> | 'You.removed your pit too.' |
| <i>İkimiz de çekirdeğini çıkarttık.</i> | 'Both of us we.removed the pit.' |

Küntay & Slobin point out the potential importance of variation sets for the learner (1996: 276):

"Several important features can be noted in this variation set. If you listen to it, even without knowing Turkish, the verb stands out as an acoustic unit. It is a sort of acoustic gestalt which achieves saliency as it stands out against a shifting background. The root, too, begins to stand out, against an array of different suffixes. This seems to be a figure-ground phenomenon in auditory speech perception."

It is possible that discourse and perceptual factors such as these have served to maintain the morphological and word-order patterns of the Turkic languages over millennia.

Grammar and discourse

Most early research on Turkish child language development was devoted to the learning of features that are prominent from an Indo-European point of view. Recourse to a discourse-level of analysis was not seen as immediately crucial for the study of the acquisition of agglutinative morphology, nominalized subordinate clauses, or evidential modality. The scarcity of acquisition research in the discourse area led Aksu-Koç and Slobin to call for future studies exploring “relations between grammar and discourse in various genres” (1985: 876). Much recent research in Turkish child language has undertaken the study of grammatical processes in discourse. Studies are based on two major types of data (occasionally supplemented by laboratory experiments): Spontaneous and prompted conversation between adults and children, and narratives elicited by picture storybooks. Data are available from the earliest productions of two-word utterances through to late childhood (about age 12), often with comparable adult samples. We review research on grammar and discourse under six headings: (1) Information structure: Word order and reference, (2) voice and valence, (3) tense, aspect, modality, (4) relative clauses, (5) converbs and conjunctions, (6) verbs of motion.

Word order and reference

Research reported in Aksu-Koç & Slobin (1985: 856-858) demonstrated that Turkish children by the age of 2;0 appropriately use a wide variety of pragmatic word orders in their spontaneous speech, and comprehend all six orders of subject-object-verb in controlled psycholinguistic experiments (Slobin & Bever 1982). More recent research confirms these findings for preschool-age speech and extends them to narrative discourse in preschool and school-age children (Aksu-Koç 1994). Aksu-Koç analyzed stories produced in response to a picture-book that tells a story without words (the “frog story” studied by Berman and Slobin 1994).⁴ She found that young children commanded the principles of pragmatic word order presented by Erguvanlı (1984): Sentence-initial position for topic, immediate preverbal position for focus, and postpre-

⁴ The frog-story texts are available to public access, in several computer formats, in the CHILDES archive (<http://childes/psy/cmu/edu>). There are ten narratives from each of the following age groups: 3, 5, 9, adult.

dicate position for background information. She found, however, a much higher percentage of verb-final orders in narrative (about 90%) than in conversation (about 50% for both preschoolers and parents, as reported in Slobin 1982). The two genres do not differ with regard to verb-medial orders, leading Aksu-Koç to suggest that (1994: 366):

“... both in conversational and in narrative discourse the nonstandard orders preferred for perspective shifting are the same, though the frequencies of their use are different. This difference probably has to do with the different demands of dialogic versus monologic discourse for organizing information in terms of emphasis, focus, and topic maintenance.”

Both genres have a high proportion of subjectless constructions, especially verb and object-verb sentences, with a lower rate of verb-object sentences. Thus preschool children deal adequately both with argument ellipsis and postposing of subject or object.⁵

It is important to consider the role of the adult model in established word-order patterns for the child's acquisition. Early research (Slobin 1975, 1982; Aksu-Koç & Slobin 1985) had already characterized the child-directed discourse of adults by variable word order, pragmatically employed to facilitate comprehension and compliance on the part of a child. In their case study of Turkish child-directed speech, Küntay & Slobin (1996) systematically studied patterns of reordering of nouns and verbs. They found that 25% of the variation sets that maintain the same set of lexical items feature a change in word order. For sets that preserve an explicit verb across successive utterances, the verb changes position from one utterance to the next 37% of the time. The following variation set is typical:

- (15) **Ver** *ellerini*.
 give hand:PL.POSS.2SG:ACC
 ‘Give (me) your hands.’

⁵ We are aware of a study of the acquisition of word order in the framework of Chomsky's Principles and Parameters approach (Ekmekçi & Cam, forthcoming), but we have not had the opportunity to access this report. There is also a paper on acquisition of negation in the GB framework (Koskinen forthcoming) that we have not obtained for this review.

Ellerini **verirmisin?**
 hand:PL:POS:ACC give:AOR:YN:2SG
 'Will you give (me) your hands?'

Ellerini **ver.**
 hand:PL:POSS.2SG:ACC give
 'Give (me) your hands.'

Studying the behavior of lexical items in successive rephrasals in discourse demonstrated that verbs are more prone to repositioning and morphological form alternations than nouns in Turkish child-directed speech. Küntay & Slobin pointed out that the Turkish language learner needs to pay attention to variation across utterances in discourse in order to learn to differentiate lexical categories: "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" (1996: 284).

The ways Turkish children mark information structure (Lambrecht 1994) in their own discourse have recently been the subject of several studies. In her analysis of conversational data, Ekmekçi (1986b) had illustrated early use of word order in encoding discourse status (givenness vs. newness) of nominal elements. The Turkish child studied by Ekmekçi (age 1;7-2;4) always placed indefinite noun phrases in the immediately preverbal focus position, reserving the postverbal position for backgrounded constituents. Several recent studies have systematically investigated how Turkish children of different ages manage referential continuity in extended discourse, especially in comparison to speakers of languages with an obligatory article system. The definiteness interpretation of a referent in Turkish is determined by a conglomeration of devices: Case, word order, optional article-like elements, and contextual cues. Accordingly, the system for expressing the discourse status of nominals is more diffuse than in languages with articles like English or French. Dasinger & Küntay (1998; also Küntay 1995) analyzed the nominal devices used for introducing referents into picture-book narratives elicited from Turkish and Finnish speakers of different ages. The comparative study aimed to contribute to the emerging area of interest regarding relations of language typology and the development of grammatical markers (Slobin 1997b). The analyses indicated that in both Turkish and Finnish, the rate of use of indefinite forms for introducing

characters into discourse increases with age. However, the Turkish children were observed to rely on the numeral *bir* 'one' as an indefinite marker from earlier ages compared to the Finnish children, who have access to a similar indefinite article-like element, *yks(i)* 'one'. Dasinger & Küntay speculated about a "higher degree of grammaticization of the numeral one as an indefinite article" (1998: 272) in Turkish. They concluded with a caution for typological studies built upon simple a priori dualisms (1998: 273):

"Global typological distinctions between article and non-article-bearing languages are inadequate to account for the differences between Turkish and Finnish. Although both languages are considered article-less languages, [other] language-specific pressures favor certain devices over others for expressing definiteness."

Özcan (1997) focused on a different subpart of the nominal system—third-person pronouns—in her analyses of referential continuity in children's connected discourse. In a study of video-elicited narratives of children of ages 3, 5, and 7, she laid out the factors that govern third-person pronominalization (*o, onlar* 'he / she / it, they') and null subjects (third-person marking on the verb). She reported that the rate of usage of overt pronominal subjects is rare in the narratives of children of all age groups. As in the speech of adults, explicit pronouns were used in only 5% of the clauses, with clear preference given to null subjects for continued reference to discourse entities. In addition, Özcan noted that, from early ages on, pragmatically motivated use of pronouns for contrast and switch-reference mirrors the usage of adults. In similar fashion, Küntay (1995), studying picture-elicited narratives, found that 3-year-old children appropriately use null subjects for maintaining reference to characters, making only infrequent use of overt pronouns. Children do not appear to have any difficulty in applying the unmarked strategy for continuing reference to narrative participants in Turkish through an unambiguous person marking on the verb. Despite early usage of anaphoric null forms, both Özcan (1993, forthcoming) and Küntay (1995) observed gradual development with respect to adult-like usage of referential introductory devices. In both studies, prefacing of nominal expressions with an indefinite form did not appear frequently in the speech of narrators younger than 7, and developed further thereafter.

Küntay (1997), in a dissertation study, further explored strategies employed by Turkish preschool children to introduce referents into different types of extended discourse. The guiding question was how children deploy their first-mention strategies in different kinds of discourse contexts, i.e., different kinds of picture-based storytelling, conversational narratives, and conversational lists. In addition to eliciting two types of picture-based narratives, she conducted naturalistic studies of various organized and free-time activities at two preschools in Istanbul. About 90 hours of extended discourse from 3- to 5-year-olds were collected over a course of three months. In the picture-elicited data, Küntay found an effect of the selected construction type for framing character-introductory referential expressions: For both of the picture-series tasks used, use of the *var* 'exists' construction included character references with *bir* 'one' plus a referential term. In general, static predicates such as presentatives tended to co-occur with indefinite forms in first-mention devices. However, in corroboration of many other studies of preschool children's referential strategies in picture-prompted connected discourse, Küntay's picturebook data showed that explicit indefinite noun phrases were not frequently used for first mentions.

Different strategies for introducing referents emerged in analyses of conversational lists and narratives collected from the same set of children. In producing lists, children focused on successive character introductions with simple predication frames, prefaced by indefinite forms. It is plausible that the predictable structure of lists, which allows ellipsis of non-nominal information, has a facilitative effect on children's abilities to incorporate many new entities while moving through extended discourse. In personal narratives, as well as in lists, children commonly used presentational constructions for referring to characters for the first time. In introducing third-person participants, they used a special presentational construction featuring the existential predicate *var* 'exists' together with possessive pronouns, linguistically establishing the relation of the referent to themselves (e.g., *Benim bir kameram vardı* 'I had a camera'). Such constructions allow children to postpone further description or elaboration about the referents until the following utterance(s). Küntay also found that some children used unexplained proper names in some of their stories, while providing detailed description accompanying the mention of proper names in other stories. It is clear that preschool children have fragile referential skills for the use of proper names; but

further studies are needed to tease apart the factors that lead to “appropriate” or “felicitous” use of proper nouns.

Another line of research that pertains to pragmatic issues of information structure has focused on the conversational pragmatics of subject pronouns. Slobin & Talay (1986) examined hour-long speech transcripts from nine children aged 2;4-8, analyzing all utterances containing subjects expressed by first-person pronoun or verb inflection alone. They found that young children overuse pronouns in comparison to adults, mainly in postposed positions to express assertive statements or to counter an adult’s stance; for example:

(16) Adult:

Sen hiç masal bilmiyormusun? Bir tane anlat bize.

‘Don’t you know any story? Tell us one.’

Child:

Anlatmıyorum ben masal. [age 2;0]

tell:NEG:PROG:1SG I story

‘I won’t tell (a) story.’

Topbaş & Özcan (1997) also set out to determine the pragmatic force of pronominals in Turkish child conversation, but mainly in discourse organizing rather than in interactional functions. Their data included naturalistic speech from 66 children, aged 15-72 months, recorded in different settings, such as conversations and elicited storytelling. They reported that even 15-month-old children have full control of null subjects for continued reference and full noun phrases for switched reference in third-person. Mastery of the functions of overt pronouns is also observed as early as 15 months of age. Below are some early examples provided by Topbaş & Özcan for different pragmatic functions of the first-person pronoun:

(17) Establishing a new topic:

Ben toppla oynuyom. [age 1;3].

I ball:INST play:PROG:1SG

‘I’ll play with (the) ball.’

Expressing contrast between referents:

Ben sayıcam. Sen söyleme. [age 1;3].

I count:FUT:1SG you say:NEG

'I'll count. You don't say.'

Switching referents:

Bak bu salıncak. Ben oturucam. [age 1;3].

look this swing I sit:FUT:1SG

'Look this (is a) swing. I'll sit.'

Emphasizing referent:

Bak bu:da ben söylüyorum. [age 1;6]

look this I tell:PROG:1SG

'Look I'm saying this.'

Another example from Topbaş & Özcan, given below, is similar in function and form to example 16 above from Slobin & Talay:

(18) Adult:

Hadi pamuk prensesi anlat.

'OK, tell "Snow White".'

Child:

Anlatmıycam ben pamuk prensesi. [age 2;4]

tell:NEG:FUT:1SG I "Snow White"

'I won't tell "Snow White".'

Voice and valence

The narrative studies (Aksu-Koç 1994; Berman & Slobin 1994: 515-538; Slobin 1994, 1995) show uses of causative, passive, and reflexive at age 3, with the addition of reciprocal at age 5. Whereas causative morphology serves to mark clauses of high transitivity, the latter three valence modifications have the effect of reducing transitivity. These forms increase in relative frequency with age, indicating narrative abilities for backgrounding, perspective shifting, and topic maintenance. The morphological patterns of all four forms, however, pose no problems for acquisition. Slobin (1994) reports early use of agentless passives (ages 2;0-2;6) in spontaneous speech, used to express two types of non-agentive perspective: (1) Resultant states in the past tense (e.g., *kırıldı*

break:PV:PAST '(it) got broken', *yırtılmış* tear:PV:EVID '(it) must have gotten torn') and (2) potential state changes in the present (e.g., *takılmıyor* attach:PV:NEG:PROG '(it) doesn't get attached') and aorist (e.g., *açılır* open:PV:AOR '(it) opens'). He suggests "that these types of non-agentive perspective are cognitively available to children before they are used in narrative" (1994: 357). Ketrez (forthcoming) characterizes such constructions as "middle structures" (e.g., *açıldı* open:PV:PAST '(it) opened') and "passive verbs" that have non-specific agents (e.g., *yenmeyecek* eat:NEG:FUT '(it) won't be eaten'). Using longitudinal data from three children between the ages of 1;3 and 3;3, she reports early acquisition of such structures. However, the children have difficulty with passives that include specific agents, resulting in errors such as:

- (19a) *Onu ellenmiyecem.* [age 1;11]
 that:ACC touch:PV:FUT:1SG
 'I won't be-touch it.' [=I won't touch it.]

- (19b) *Ben kapandım.* [age 1;11]
 I close:PV:PAST:1SG
 'I was.closed.' [=I closed (it).]

Ketrez suggests that the acquisition of passive morphology precedes the acquisition of its syntactic requirements. (She cites a report of similar findings by van der Heijden (1997), but we have not had access to that paper.)

Tense, aspect, modality

The acquisition of the tense-aspect-modality system in Turkish has been researched in detail in various studies by Aksu-Koç (1978a, 1998, forthcoming). She used three sets of data in her various analyses: (1) A longitudinal corpus of three children beginning at age 1;9, (2) an experimental study of 60 children from ages 3 to 6, and (3) longitudinally recorded mother-child conversations of four children, all between 1;1 and 3;3. In her studies of tense-aspect marking, Aksu-Koç focused on four verbal inflections: *-DI*, *-Iyor*, *-Ir*, and *-mİş*. The longitudinal observations allowed her to determine the developmental sequence of the use of these verbal suffixes in children's speech and in maternal input. The aggregated results indicate that the first inflection to emerge is the direct past (*-DI*), observed at 1;5 (forthcoming). Aksu-Koç & Slobin (1985)

had noted, reviewing tense-aspect markers in a less comprehensive dataset, that initial uses of the *-DI* suffix, “encoded punctual changes of state resulting in immediately observable end states at the time of speech” and only later “evolved into a general past tense, as the child became cognizant of the fact that a current state is the result of a past process” (p. 863). In a more recent study, Aksu-Koç (1998) examined the inherent aspect (Aktionsart) of verbs inflected for tense-aspect in both children’s and mothers’ speech in mother-child interaction data. During the initial period of use, all of the child utterances with *-DI* involved achievement verbs, such as *bul-* ‘find’, *aç-* ‘open’, *tak-* ‘insert, attach’, and *otur-* ‘sit.down’. Early divergences from this exclusive cooccurrence of direct past marking with achievement verbs were rather limited—primarily restricted to accomplishment verbs such as *boya-* ‘paint’, *kaka yap-* ‘defecate’, *bitir-* ‘finish (transitive)’. Aksu-Koç reports that although the mother’s past utterances refer to routine activities of non-present people and past activities, early child past utterances are used as a marker of actions completed in the immediate context.

The second tense-aspect marker to emerge is *-Iyor* at age 1;7, at first restricted to state and activity verbs. Two weeks later, achievement and accomplishment verbs appear with *-Iyor* as well. Using these data, Aksu-Koç (1998) makes a persuasive case against the innateness of the state-process distinction proposed by Bickerton (1981). The children, she suggests, follow the pattern presented by the input language in using the *-Iyor* marker for both processes and states.

The acquisitional precedence of *-DI*, the marker of direct past, to *-Iyor*, the present / imperfective, raises a question, since the latter is more frequent in child-directed speech. Aksu-Koç provides a plausible explanation for the observed frequency mismatch between the speech of mothers and children. She notes that *-Iyor* exhibits multifunctional uses in the mothers’ speech.⁶

⁶ Aksu-Koç notes the following functions: Reference to ongoing activity (*Bana mı el sallıyorsun?* ‘Are you waving at me?’), questioning of intentions and desires regarding subsequent activity (*Nasıl istiyorsun?* ‘How do you want (it)?’), reference to norms of behavior (*Onlar elleniyor mu?* ‘Are they to be touched?’), habitual activity *Nasıl çağırıyorsun kediyi?* ‘How do you call for the cat?’), and existing states (*Burada ne yazıyor?* ‘What is (he) writing here?’). By contrast, *-DI* is used mainly in reference to actions carried out and completed in the immediate

The third tense-aspect-modality inflection, *-Ir*, is first used for marking deontic modality, indicating positive or negative intention for action. Early examples cited by Aksu-Koç (1998) are:

- (20) Deontic modal uses of *-Ir*:

Bir daha yapmam.
again do:NEG:AOR.1SG
'I won't do (it) again.'

Yok ellemem yok.
no touch:NEG:AOR.1SG no
'No, I won't touch (it), no.'

Yerim.
eat:AOR.1SG
'I'll eat (it).'

At this first stage, the only types of verbs marked with *-Ir* are activity and state verbs in child speech, although the inflection is used most frequently with activity and achievement verbs in child-directed speech. From the second stage on, the most frequent category marked by *-Ir* in child speech consists of achievement verbs, such as *sıkış-* 'get.stuck', *vur-* 'hit', and *ver-* 'give'. Also, in this second period of acquisition, there is a differentiation within the modal function: 41% of the utterances with *-Ir* express epistemic modality, that is, possible consequences of action independently of the self. Some examples are given below:

- (21) Epistemic modal uses of *-Ir*:

Elin dıgıdıy [= sıkışır].
hand:POSS get.stuck:AOR
'Your hand will get stuck.'

context. Given the multiple functions of *-Iyor* in child-directed speech, Aksu-Koç suggests that the abstraction of a core meaning for *-Iyor* may not be as simple a process as it is for *-DI*.

Gavani vuyasin [= *kafanı vurursun*].
 head:POSS.2SG:ACC hit:AOR.2SG
 'You'll hit your head.'

In the final period observed, *-Ir* is used to refer to norms of action relevant to both epistemic modality and habitual aspect, such as:

- (22) Epistemic / habitual uses of *-Ir*:
Bebek geyekiyi [= gerekirmi]?
 baby required:AOR:YN
 'Is a doll required?'
O olmaz.
 that be:NEG:AOR
 'That won't work. / That can't be.'

The perfect / inferential *-mİş* is first observed in the child's speech at 1;7, used at first only with nonverbal, inherently stative predicates (e.g., *burdaymış* 'it is (evidently) here'). In the next stage the usage extends to all kinds of verbs, but is only observed in the context of picture descriptions and story-telling.⁷ In all other contexts the use of *-mİş* is limited to stative verbs and achievement verbs that comment on existing or newly achieved states. As we know from previous psycholinguistic research (Slobin & Aksu 1982; Aksu-Koç & Slobin 1986), *-mİş* is also a marker of nonwitnessed modality in adult speech. Furthermore, it is "a defining feature of baby talk, used by adults to direct the child's attention to what is worth noticing in the world and to what constitutes reliable evidence" (Aksu-Koç 1998: 275).

Interpreting the above findings, Aksu-Koç emphasizes the role of input in the emergence of tense-aspect morphology. She finds evidence for a "distributional bias hypothesis" in child-directed speech (Shirai & Andersen 1995), observing a tendency to use certain inflections with certain types of verbs. This bias is also reflected in the child's own speech, showing a strong correspondence to the distribution in the mother's speech. Aksu-Koç suggests that "input, by displaying the specific linguistic structures and the distributional properties of the language, plays

⁷ Aksu-Koç speculates that such use in the narrative genre leads to the discovery of the reportative function, which is a much later development.

a significant role in determining the course of language" (1998: 276). The data have also shown, however, that in the early period of acquisition the child has stronger preferences for using inflections with certain types of verbs than suggested by the input patterns. As established in her earlier studies of tense-aspect morphology (1978a, 1988), Aksu-Koç (1998) reports an early limitation of *-DI* to achievement verbs and *-Iyor* to activities and statives. Like Behrens (1993, 1996, in press), who found similar patterns in acquisition of tense-aspect marking in German, Aksu-Koç suggests that such a "predisposition involves cognitive-processing strategies which, guided by the dominant patterns of the input, become functional in delineating the semantics of tense-aspect marking" (1998: 277).

Aksu-Koç (forthcoming) also studied the modal system that is subsumed under tense-aspect distinctions in Turkish. With respect to acquisition of epistemic modality in Turkish, Aksu-Koç has focused on two verbal suffixes: *-mİş* and *-DIr*. In addition to indicating perfect and imperfect aspect respectively, *-mİş* and *-DIr* are used in evidential modal functions to indicate a speaker's level of commitment to the factivity or the certainty of the asserted statement: *-mİş*, an evidential marker, allows speakers to modify their commitment to the factivity of what is being stated in terms of available evidence, while *-DIr* provides information on the degree of confidence in the asserted proposition, thus serving as a judgment marker. The Aksu-Koç & Slobin (1985) review covers the acquisition of *-mİş* in its aspectual and modal functions. The initial uses of *-mİş* do not carry any inferential connotations; only later does the form evolve into a past tense marker of indirect experience. The hearsay function of *-mİş* is the latest to emerge, indicating that marking information for its source is a cognitively complex function.

In her most recent work on epistemic modality, Aksu-Koç (forthcoming) focuses on *-DIr*, the development of which starts later and takes longer than *-mİş*. As suggested by Aksu-Koç, *-DIr* is used in adult language to make certain, categorical assertions (e.g., *Uçan ve yumurtlayan bu hayvan bir kuştur* 'A bird is an animal that lays eggs and flies', and to make uncertain, hypothetical statements (e.g., *Bayatlamıştır onlar, yeme* 'They're spoiled, don't eat (them)'). That is, *-DIr* imparts two opposite meanings to the predicate, that of factivity and nonfactivity. In naturalistic studies of mother-child discourse, Aksu-Koç observed that the first uses of *-DIr* were nonfactive, mainly for questioning in search for knowledge (e.g., *Bunlar nedir anne?* 'What are these, mother?') or in

contexts where there is no available evidence for the proposition (e.g., in response to mother asking location of a toy, *Yatağındadır* '(It's) in bed.'). In experimental production studies prompting for uncertainty indications from children of ages 4, 5, and 6, she found that 4- and 5-year-old children used adverbs (such as *belki* 'maybe', *galiba* 'probably', or *bence* 'according to me') or negations in order to convey their degree of uncertainty. Even the oldest age group, 6-year-olds, used the *-Dir* marker sparingly, instead preferring adverbial strategies. These data suggest that the acquisition of the full range of functions of *-Dir* spans a longer period than examined by Aksu-Koç. Further studies with older children and in different kinds of settings are needed.

Relative clauses

Relative clauses are a late acquisition in Turkish, in comparison with Indo-European languages; they are also less frequently used in conversation and narrative (Slobin 1986). This is no doubt due to factors of morphological complexity and non-transparency (nonfinite verbs in nominalized or participial forms), along with word order (prenominal position). By contrast, Indo-European relative clauses retain most of the morphology of finite clauses; are marked by relative pronouns of various sorts; and are postnominal.

Dasinger & Toupin (1994) carried out a detailed analysis of relative clauses in the frog-story, comparing Turkish with English, German, Spanish, and Hebrew. Here we will briefly present their findings with regard to Turkish. As shown in Slobin's (1986) earlier studies of spontaneous speech, an early and frequent form is the locative form with *-ki*, as in:

- (23) *Elindekini* *atıyor*. [age 3;6]
 hand:LOC.REL:ACC throw:PROG
 'He throws the one that's in his hand.'

By contrast, relative clauses with the participial forms *-An* and *-Dik* are a later development, serving a more restricted range of functions than functionally comparable constructions in Indo-European and Semitic languages. For example, the prenominal position of relative clauses makes it unlikely that they will be used for the purpose of character introduction, such as the English, "Once upon a time there was a boy *who*...". Relative clauses are also not available for narrative continuation,

such as, “The bees start chasing the dog, *who ran away*” (that is, narrative flow does not allow for Turkish relative clause order, such as ‘The bees *the running-away dog* start to chase’). It is not until age 9 that Turkish children occasionally begin to use relative clauses for adult-like narrative functions, such as:

- (24) *Baktıkları her yerden çeşitli hayvanlar çıkıyor.* [age 9]
 ‘Various animals emerge from every place that they look.’

The late development of relative clauses in the frog-story texts is apparently due to narrative functions, rather than the grammatical morphology of deverbal forms. For example, a check of the original data (CHILDES archive) shows that *-Dik* is readily available to preschoolers for its temporal function (25a, 25b), its complement function (26), and its subordinate clause function (27).

- (25a) *Çocuk uyandığında kurbağa yok.* [age 5;4]
 ‘When the boy woke up there was no frog.’
- (25b) *Kurbağayı orada göremedikleri zaman her yere bakıyorlar.* [age 5;3]
 ‘When they couldn’t see the frog there they looked everywhere.’
- (26) *Annesinin yanına gittiğini anlıyorlar.* [age 5;0]
 ‘They understood that (he) had gone to his mother’s side.’
- (27) *Onlar da gülüyorlar, bakamadıkları için.* [age 5;0]
 ‘They’re smiling, because they couldn’t look.’

Özcan (1997, forthcoming) has replicated and extended experimental research on relative clause comprehension and production, reported earlier by Slobin (1982, 1986). In comprehension tests, children (ages 5, 7, 9) are asked to act out complex sentences using toy animals; in production tasks they are asked to describe pictures. At issue is the “parallel function hypothesis” advanced by Sheldon (1974), which proposes that it is easier to process relative clauses in which the embedded and matrix nounphrase have the same grammatical function (subject or object). Slobin (1982) had found that children younger than 5 could not perform such tasks. Özcan did not find strong support for the parallel function hypothesis in older children who could perform the tasks. However, the

sentences involved in such research are not typical of either spoken or written discourse, thereby posing problems for generalized interpretation of the findings.⁸

Converbs and conjunctions

Aksu-Koç & Slobin (1985: 862) had noted the use of converbs in spontaneous speech in the third year of life. Narrative research on the frog-story has enriched the developmental story, covering ages 3 to 9 (Aksu-Koç 1994; Aksu-Koç & von Stutterheim 1994; Berman & Slobin 1994: 538-554; Slobin 1988, 1995). The preferred type of clause linking at all ages is the use of converbs, with rare and late use of the non-Turkic conjunction *ve* 'and'. The uninflected nonfinite forms provided by converbs are morphologically transparent and syntactically non-complex. However, they differ in terms of the conceptual integration of events into sequences of linked clauses. Converbs marking simultaneity (*-ken*) and temporal overlap (*-ince*) are regularly used by 3-year-olds and are highly frequent by age 5, as in the following examples:

(28) Verb-*ken*:

Burda köpek düşmüş aşağıya camdan bakarken.
 Here dog fall:EVID down window:ABL look:ERKEN
 'Here the dog fell down while looking out of the window.'

(29) Verb-*Ince*:

Köpek de şaşırmuş onu görünce. [age 5;0] .
 dog TOP surprised:EVID PRO.ACC see:INCE
 'And the dog was surprised upon seeing him'

⁸ The following are examples of the four sentence types employed in this sort of research (to be acted out with sets of three toy animals): subject embedded, matrix subject: *Ineği düşüren kuş zebraı okşasın* 'The bird that knocks down the cow should kiss the zebra'; subject embedded, matrix object: *Lamanın ellediği kaz kediye ısırısın* 'The goose that the llama touches should bite the cat'; object embedded, matrix object: *Eşek devenin sevdiği koyunu itsin* 'The donkey should push the sheep that the camel pats'; object embedded, matrix subject: *Lama zürafayı iten kurdu ısırısın* 'The llama should bite the cow that pushes the giraffe'.

Sequenced clauses with *-Ip* develop slightly later, probably due to demands of narrative continuity and coherence; for example:

- (30) Verb-*Ip*:
Yavruyu alıp ona bakıyorlar. [age 6;0]
 baby:ACC take:IP PRO:DAT look:PROG:3PL
 'Taking the baby (frog), they looked at it.'

By the end of the preschool period there are even chains of clauses with several converbs:

- (31) *Sonra camdan bakarken, bir kavanozu*
 then window:ABL look:ERKEN a jar:ACC

alıp da köpek başına geçirmiş. [age 5;2]
 take:IP TOP dog head:POSS:DAT put.on:EVID
 'Then while looking out of the window, and having taken a jar,
 the dog put it over his head.'

The last example also contains the particle *DA*, which is used from a very early age to join clauses with contrasting reference or topics, such as:

- (32) *Çocuk uyuyor, köpek de uyuyor.* [age 4;0]
 child sleep:PROG dog TOP sleep:PROG
 'The boy is sleeping, the dog is sleeping too.'

By contrast to *-ken*, *-IncE*, and *-Ip*, the converb *-ErEk* is a late development, not appearing until age 7-9 in the frog-story data, and late to emerge in spontaneous speech as well. Slobin (Berman & Slobin 1994: 547-551; Slobin 1988, 1995) attributes this delay to the conceptual complexity involved, because this converb functions to treat two situations as constituent parts of a single superordinate event. He likens *-ErEk* linking to serial-verb constructions, following Li and Thompson's analysis of Mandarin. In both instances, the related elements "refer to events or states of affairs which are understood to be related as PARTS of ONE overall event or state of affairs" (Li & Thompson 1981: 594). Slobin proposes four types of event packaging with *-ErEk*. The only type to emerge before age 7 is used to describe the manner of movement

presented in the main clause. These uses are frequent in adult speech to preschoolers (Küntay & Slobin 1996: 228) and are found occasionally in the speech of 3-year-olds. An example from the frog-story is given below:

- (33) *Yüzerek geri gittiler.* [age 7]
 swim:EREK back go:PA.3PL
 'They went back swimming.'

The other uses of *-ErEk* occur only occasionally in the 7-9 age range. A very general use of the converb might be called circumstance, presenting component elements of an event as a kind of amalgam, such as:

- (34) *Çocuk bir kütüğe yaslanarak köpeğe "sus" diyor.* [age 9]
 child a log:DAT lean:EREK dog:DAT "shh" say:PROG
 'The boy, leaning on a log, says "shh" to the dog.'

In purpose uses, an act is defined in the *-ErEk* clause with a goal following in the main clause:

- (35) *Kurbağa kavanozundan çıkarak kaçtı.* [age 9]
 frog jar:POSS:ABL leave:EREK escape:PA
 'The frog, leaving the jar, escaped.'

Consecutive linking presents a retrospective view of a preliminary event phase that enables the subsequent phase. The preliminary phase can be a preparatory act or movement (36a), a cause (36b), or a motivating state (36c):

- (36a) *Hemen gözlerini kapayarak uyudu.* [age 9]
 immediately eye:PL:POSS:ACC close:EREK sleep:PA
 'Immediately closing his eyes, he slept.'
- (36b) *Baykuş çocuğu kovalayarak onu korkuttu.* [age 9]
 owl child:ACC chase:EREK PRO:ACC scare:CAUS:PA
 'The owl, chasing the boy, scared him.'

- (36c) *Geyik ayağa kalktı ve çok sinirlenerek*
 deer stand.up:PAST and very get-irritated:EREK

şiddetle koşmağa başladı. [age 9]
 force:INST run:NOM:DAT start:PA
 'The deer stood up and, getting very irritated,
 started to run with force.'

The last example (36c) is a rare instance of the use of *ve* 'and' in children's narratives. Note that it is not used to simply join two clauses, as English *and*; rather, it is part of a package that links several clauses in an event complex. Berman & Slobin note that *ve* is a rare and mature form, primarily used by adults "to build a special sort of event complex in which converbs are used to set up preparatory phases which are then linked to a consequence by means of *ve*" (1994: 552-553). They give the following example, containing *ve* along with two converbs, *-Ip* and *-ErKen*:

- (37) *Camın açık bırakıldığını farkedip*
 window:GEN open leave:PV:PAST.NOM:ACC notice:IP

camdan bakarlarken köpek aşağıya düşüyor,
 window:ABL look:PL:ERKEN dog down fall:PROG

kavanoz başında ve kavanoz kırılıyor. [age adult]
 jar head:POSS.3SG:LOC and jar break:PV:PROG

'Noticing that the window had been left open, the dog—while they were looking out of the window—fell down, with the jar on his head, and the jar got broken.'

Aksu-Koç (1994: 433) suggests that children's control of *-ErEk* at about age 9 leads to a re-allocation of converb functions. She proposes that *-ErEk* takes on functions of conveying simultaneity of events, thereby restricting *-Ip* to the indication of sequence of events. Her comparison of 5-year-old and 9-year-old narrations of the same situation clearly shows this change in pattern:

(38a) *Onlara güle güle deyip uzaklaşmış.* [age 5]
 PRO.3PL:DAT goodbye say:IP leave:EVID
 '(They) said goodbye to them and went away.'

(38b) *El sallayarak gidiyor.* [age 9]
 hand wave:EREK go:PROG
 'Waving his hand, (he) goes.'

The patterns of development of clause combining in narrative are also found in non-narrative speech. Özcan and Topbaş, at Anadolu University in Eskişehir, have been gathering spontaneous speech samples from 40 monolingual children in the age range from 2;6 to 5;6. As in the narrative samples, *-ken*, *-IncE*, and *-Ip* are present early on, whereas *-ErEk* is infrequent, cited only at age 4;0 (and missing in samples at 4;6, 5;0, and 5;6). As in the narrative data, *ve* is absent at all ages. The following connectives are used from 2;6 onwards: *-DIğl zaman*, *-mEdEn önce*, *için*, *-DIğl için*, *-mEk için*, *sonra*, *çünkü*, *ama*, *ki*. Verhoeven (1989), in a sample of village children, finds the same patterns with regard to clause combining, with the same three converbs present in his 5-year-old sample, and the addition of *-ErEk* in his 7-year-old-sample.

Özyürek (1996) examined children's use of temporal and evaluative connectors in a study of how children (ages 5, 9, 13) talk about a conversation that they have witnessed. She found that the connective *DA* 'in turn' was favored by 9- and 13-year-olds more than by 5-year-olds. Özyürek suggests that, with age, children assume a narrator role and tend to organize their reports as pairings of utterances for their listeners.

Verbs of motion

Slobin (1997a, in press; Berman & Slobin 1994: 620-639; Özçalışkan & Slobin, in press) has explored implications of lexicalization patterns for discourse organization, with particular attention to the domain of motion events. The work is crosslinguistic in plan, including Turkish among others. He makes use of a typological distinction proposed by Talmy (1985, 1991, in press) with regard to the preferred locus of expression for the path component of motion events. Compare the set of path verbs in Turkish (*girmek* 'enter', *çıkma* 'exit / ascend', *geçmek* 'cross / pass', etc.) with the set of path particles in English (*in*, *out*, *up*, *across*, *past*, etc.). The English pattern leaves the main verb slot open for either a general verb of motion (*go*, *move*, etc.) or a verb of manner of motion (e.g.,

run, crawl, stroll, etc.). This lexicalization pattern allows for compact expression of path and manner in a single verb-particle construction (*run in, crawl out*, etc.). In Turkish, by contrast, when the main verb slot is occupied by a path verb, manner can only be expressed by an associated nonfinite verb (e.g., *koşarak girmek* 'runningly enter': cf. English *run in*) or phrase (e.g., *ayaklarının ucunda inmek* 'on foot-tips descend': cf. English *tiptoe down*). The Turkish preference for expressing path in the main verb is shared by the other Turkic languages, along with the Romance, Semitic, and Dravidian languages, Japanese, Korean, and others. The English preference for expressing path in an element associated with the main verb is shared by the other Germanic languages, Slavic, Finno-Ugric, Chinese, and others.⁹

There are two major consequences of these lexicalization patterns for child language: (1) Size and diversity of the lexicon of verbs expressing manner of motion, and (2) narrative attention to the locations of physical landmarks.

Lexical diversity

Slobin finds that languages like Turkish, that rely on path verbs, tend to have a limited collection of manner verbs, in comparison with languages of the opposite type, such as English. This is apparently due to the free availability of the main verb slot for the encoding of manner in the latter type, facilitating attention to this dimension of motion. Slobin (in press) has documented the frequency and diversity of manner verbs in a number of languages of both types, across a number of genres (spontaneous and elicited narratives, novels, conversations, newspaper reports). The first group of languages includes Turkish, Spanish, French, and Hebrew; the second group includes English, German, Russian, and Mandarin Chinese. In all cases, languages of the second group have greater diversity (number of types) of manner verbs, and make more frequent use of such verbs (number of tokens). These patterns have been documented

⁹ Talmy refers to the Turkish type as "verb-framed", because it is the verb that "frames" the core element of a motion event; the English type is referred to as "satellite-framed", because this function is carried out by an associated element. Talmy's typology embraces not only motion, but also the encoding of a range of temporal and causal relations. Slobin & Hoiting (1994) suggest some revisions and extensions of the typology.

in narratives elicited from children by means of a picture storybook, the frog story (Aksu-Koç 1994; Berman & Slobin 1994; Özçalışkan & Slobin 1999). At all ages tested (3, 4, 5, 7, 9, adult), English narratives have higher type and token frequencies of manner verbs than Turkish. For example, in describing a picture in which an owl suddenly emerges from a hole in a tree, 100% of Turkish narrators—at all ages—simply use the verb *çıkma* ‘exit’, whereas English speakers at all ages prefer manner expressions such as *fly out* and *pop out*. Berman & Slobin (1994) suggest that language plays a role in directing the child’s attention to particular dimensions of experience, with the consequence that the domain of manner of motion becomes more elaborated for speakers of particular languages.¹⁰

Narrative attention to physical landmarks

Languages like English, that use path particles, allow for the compact expression of several components of a trajectory using a single verb. For example, in the “frog story”, the protagonist, a small boy, is caught in a deer’s antlers and thrown down by the deer. The following are typical patterns of “event conflation”, describing the actions of the deer:

(39a) *He threw him over a cliff into a pond.* [age 5]

(39b) *He tips him off over a cliff into the water.* [age 9]

It can be inferred from the English constructions that there is a cliff located above a body of water. In a language like Turkish, narrators often provide such information explicitly, as in the following examples:

¹⁰ Slobin (1996) and Berman & Slobin (1994: 611-641) broaden this proposal to embrace a range of notions of space, time, and causality, discussing the cognitive consequences of becoming a native speaker of a particular language. With regard to Turkish acquisition, they also note possible consequences of learning evidentials and converbs for conceptions of evidence and event structure.

- (40a) *Ancak önlerinde bir uçurum vardı. Altıda göldü. Çocuk hız yaptığı için, geyiğin başından köpeğiyle birlikte düştü.* [age 9]
 ‘Just in front of them there was a cliff. Below there was a lake.
 Because the boy was making speed, he fell from the deer’s head together with his dog.’
- (40b) *Geyik tam uçurumun kenarına geliyor. Orada da bir göl var. Onları oraya atıyor.* [age 9]
 ‘The deer comes right to the edge of the cliff.
 And there is a lake there. He throws them to there.’

Berman & Slobin (1994: 623) report that this sort of extended locative description is typical of 9-year-old narrations in Turkish, as well as Spanish and Hebrew. In all three of these languages, 42% of 9-year-olds provide such descriptions of landmarks, such as the cliff and the water in the above examples. By contrast, English and German 9-year-olds rarely provide this sort of detail, preferring to package path information in a series of directional verb particles. Berman and Slobin propose that differences in lexicalization patterns demonstrate “an impact of grammatical typology on rhetorical style”.

In concluding this section on studies of grammar and discourse, we underline the tight interrelations between lexicalization patterns, syntactic constructions, and discourse functions—in acquisition as well as in mature language use. The few studies of Turkish child language that have been conducted from this point of view are consistent with findings in other languages, and point to a number of issues for future research. Finally, we turn to a brief review of research on the acquisition of Turkish phonology.

Phonology

The 1985 overview of Turkish child language research (Aksu-Koç & Slobin 1985) does not include any phonologically relevant work. Although many (morpho)phonological properties of Turkish lie in the forefront of linguistics research, work on acquisition in this area is still quite sparse.

Topbaş (1996) studied the speech of 20 children between the ages of 1 and 3 from a phonological perspective. In addition, she observed the acquisition process of two children in the same age range in a longitudinal design. All the children were recorded during natural interaction with

their caretakers, such as mealtime and play with toys. Topbaş groups the phonological processes she observes in the children's speech into two categories: Syntagmatic simplification and paradigmatic simplification. The first category includes: Syllable elision (e.g., [pə] /para/), syllable reduplication (e.g., [dədə] /doktor/), consonant elision (e.g., [ku] /kuş/), vowel lengthening (e.g., [bə:mək] /parmak/), consonant cluster simplification, (e.g., [tək] /türk/), consonant assimilation (e.g., [kəmək] /parmak/). Among the paradigmatic phonological processes, Topbaş lists fronting, palatalization, plosivization, gliding, and voicing / devoicing. In her conclusions, Topbaş suggests that the speech of Turkish children is phonologically transparent and comprehensible at early ages. She speculates that Turkish phonotactic processes and syllable templates are perceptually and productively simple, facilitating phonological acquisition.

In another paper, Topbaş (1989) finds reliable correlations between the frequencies of the phonemes /k/, /t/, and /ç/ in adult speech to children and those in the speech of the children themselves. She finds that /k/ is the most frequent phoneme in the children's inventory, as in child directed speech. She points out that "fronting", which has been proposed as a universal in child phonology, is not observed in Turkish. Velar consonants are acquired from early on and, if anything, front consonants tend to be substituted by back ones.

Phonological acquisition of Turkish is an obvious area calling for further investigation. Some possible research directions could involve study of the acquisition of vowel harmony and disharmonic exceptions, vowel and consonant length, epenthesis, final consonant voicing and its exceptions—areas that have proven particularly interesting to theoretical phonologists working on Turkish (Sharon Inkelas, personal communication, 1999).

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