MORPHOLOGICAL VARIABILITY IN EARLY CHILDHOOD TURKISH: EVIDENCE FROM CASE MARKING

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Abstract: It has long been argued that Turkish inflectional morphology is acquired flawlessly at a rather early age (e.g. Aksu-Koç and Slobin, 1985). This view rules out morphological variability reported in the acquisition of nominal and verbal inflection in many child grammars, as characterizing child Turkish. On the basis of longitudinal data from a normally developing Turkish-speaking child, this paper re-examines the acquisition of morpho-syntax in child Turkish.

The results show that unlike previous work, at the time tense and agreement marking are acquired and productively used, the child has difficulties in case marking. I show that while no problems are attested in supplying tense and agreement markers, the child fails to provide the case markers. Further analysis of the data reveal that morphological difficulties experienced in the suppliance of case markers disappear when scrambling mechanisms come into play in the early grammar of the child.

Key words: Acqusition of Turkish, language acqusition of children, Turkish morpho-syntax, child Turkish, Turkish Acqusition of children.

Erken Çocukluk Döneminde Türkçenin Morfolojik Değişkenliği: İsmin Hâlleri Örneği

Öz: Türkçe çekim ekleri ediniminin oldukça erken bir yaşta mükemmele ulaştığı uzun zamandan beri tartışılmaktadır. Bu görüş, çocukların kullandığı Türkçeyi biçimlendiren birçok çocuk gramerinde isim ve fiil çekim eklerinin kazanımında ortaya konan biçimsel değişkenlik düşüncesini göz ardı eder. Bu makale, gelişimi normal, Türkçe konuşan bir çocuğun düzenli aralıklarla gözlemlenerek, bu gözlemden elde edilen bilgiler doğrultusunda çocuk Türkçesindeki morfo-sentaks edinimini yeniden incelemektedir.

Sonuçlar, önceki çalışmaların tersine, çocuğun zaman ve özne yüklem uyumu belirten ekleri kolayca edindiğini ve etkili bir biçimde kullandığını gösterirken, ismin hâl eklerinde zorluklar yaşadığını göstermektedir. Böylece çocuğun zaman kipi ve özne yüklem uyumu belirten ekleri oluşturmakta sorun yaşanmazken, ismin hâllerini üretmekte başarısız olduğu ele alınıyor. Daha sonraki veri analizleri, ismin hâl eklerinin ediniminde yaşanan morfolojik güçlüklerin çocuğun erken dönem gramer yapısında sözcük diziliminin rol oynamaya başlamasıyla ortadan kaybolduğunu göstermektedir.

Anahtar kelimeler: Türkçe öğrenimi, çocukta dil edinimi, Türkçe morfosentaks, çocuk Türkçesi, çocukta Türkçe edinimi.

Introduction

A well-known characteristic of child language in the early stages of acquisition is that children frequently omit nominal and verbal inflection in their production

(e.g. Brown, 1973; Bloom, 1970; Radford, 1990). Inflectional morphology associated with tense, agreement, number, case, gender as well as functional elements such as determiners, auxiliaries and complementizers are sometimes supplied and sometimes dropped. While the inconsistent use of inflectional morphology and functional elements in the child's speech is uncontroversial, the crucial question is whether the lack of inflectional morphology in production is attributed to the absence of underlying properties in the child's syntax. To this end, the question of whether or not morphological variability reflects some kind of syntactic deficit in underlying child grammars still remains (e.g. Clahsen, Penke and Parodi, 1993/1994; Radford, 1990).

The aim in this study is to investigate the issue of morphological variability in first language (L1) acquisition of Turkish, whose acquisition is considered by many researchers to be rather straightforward and flawless (e.g. Aksu-Koç and Slobin, 1985). On the basis of longitudinal data from a Turkish-speaking child, 'Murat', I specifically examine the acquisition of verbal and nominal morphology in early Turkish, with special reference to case marking vs. tense and agreement, as well as the interaction of case marking with word order. I compare the acquisition of verbal versus nominal morphology around the same time in the same learner up to age 2. Results reveal that despite perfect acquisition patterns in tense-aspect marking and subject-verb agreement, case omission errors are abundant to varying degrees in early Turkish, providing counter evidence for previous work in the literature. I then show that despite the morphological variability observed in the suppliance of case marking, omission errors disappear with the emergence of scrambling in the child's Turkish. To this end, I hope to provide a unified account for the relationship between the omission of case markers and the acquisition of scrambling.

The organization of the paper is as follows: First, previous work on the issue of morphological variability in child language acquisition is discussed, with special reference to the optional infinitive (OI)/ Root Infinitive (RI) stage observed in a number of non-null subject early grammars. Then, theoretical background concerning morphosyntactic properties of Turkish is provided. Next, the subject of this study 'Murat' is discussed, followed by a presentation of the findings on his development of subject-verb agreement, tense-aspect marking and case marking. We then discuss the interaction of case marking and scrambling in the Turkish data. In the concluding section, the implications of the findings are discussed, in particular with reference to the issue of morphological variability in recent L1 as well as second language (L2) acquisition research.

1. Morphological Variability in L1 Acquisition

Over the past decade research on L1 acquisition has shown that crosslinguistically young children acquiring in particular non-null subject languages go through a period in which they consistently produce both finite and nonfinite verbs in main clause declaratives, where the adult grammar requires a finite form (e.g. Boser, Lust, Santelmann and Whitman, 1992; Bromberg and Wexler, 1995; Haegeman, 1995; Hoekstra and Hyams, 1995; Jordens, 1990; Krämer, 1993; Phillips, 1995; Poeppel and Wexler, 1993; Rizzi, 1993/94, 1994; Sano and Hyams, 1994; Schütze and Wexler, 1996; Wexler, 1994). This phenomenon is known as Optional Infinitives (OI, Wexler, 1994) or Root Infinitives (RI, Rizzi, 1993/94, 1994) and has been attested for a variety of languages including English (e.g. Wexler, 1994), French (e.g. Pierce, 1992), German (e.g. Poeppel and Wexler, 1993) and Dutch (e.g. Haegeman, 1995; Wijnen, 1996, 1998).

According to Wexler (1994), during the OI stage English-speaking children produce nonfinite forms, as in (1).

(1) a. John eat fish

b. John not eat fish

c. John eating fish

(1a) is ruled out in adult English because the 3sg present tense morpheme *-s* is not used; (1b) is ungrammatical as *do*-support is not provided; and in (1c) the auxiliary *be* is omitted. Children's use of nonfinite forms given in (1) is shown to be rather high. Phillips (1995), for example, demonstrates that the two L1 English children from the Brown corpus (Brown, 1973)[1], Adam (2;2-3;1) and Eve (age 1;5-2;4) used nonfinite verb forms more than 60% percent of the time. Phillips argues that there is no evidence for a sudden change in the proportion of root infinitives used by the children. Rather there is a gradual decrease over time, with considerable variation from one recording session to the next.

For Wexler (1994), one important aspect of the OI/RI stage is that finite and nonfinite forms produced during the OI/RI stage are structurally different. In French and German, for example, finite forms and nonfinite forms appear in different positions, in accordance with the structure of adult French and German (see Pierce, 1992; Poeppel and Wexler, 1993). In an analysis of child French, Pierce (1989, 1992) observes that the negative element pas is correctly positioned either to the right of finite verbs or the left of nonfinite verbs, as shown in (2).

[1] The English data examined in Phillips (1995) are available on CHIILDES, www.psy.cmu.edu/childes.

(2) a. Veux pas lolo (Nathalie 2;0)[2]
want not water

b. Pas casser (Daniel, 1;8)
not break (from Pierce, 1992, 65)

Similarly, on the basis of data from a German-speaking child, Andreas (age 2;1, monolingual), Poeppel and Wexler (1993) also observe that finite verbs are systematically placed in V2 position, while nonfinite verbs consistently appear in clause-final position[3].

(3) a. Ich mach das nich
I do that not (Poeppel and Wexler, 1993, 5)

b. Du das haben
you that have (Poeppel and Wexler, 1993, 6)

What is crucial here is that the finite and nonfinite verbs occur in different distributional contexts: finite verbs systematically move to positions in which they occur in the adult language, and nonfinite verbs appear in clause-final positions. These findings are important because they show that young children do not use verbs randomly in different verb positions, but know the distribution of finite and nonfinite verbs and the facts about head movement.

In addition to differentiating between finite and nonfinite verbs structurally, children also appear to know the morphological specifications of finiteness: when they use finite verbs, inflection is nearly always correct (e.g., Clahsen and Penke, 1992; Poeppel and Wexler, 1993; Harris and Wexler, 1996; Rice and Wexler, 1996). What this suggests is that while utterances such as *John eats fish* and *John eat fish* are predicted to occur, those involving *I eats fish* are not.

The syntactic behaviour of nonfinite forms and the lack of incorrect verbal morphology in children's finite utterances both suggest that nonfinite verbs are syntactically different from finite verbs child grammars. According to the Agreement and Tense Omission Model (ATOM) of Schütze and Wexler (1996), infinitival forms are allowed in young children's speech because Tense and/or Agreement can be optionally left underspecified. In adult grammars, on the other hand, Tense and Agreement must be specified, so root clauses are always finite. Other proposals have attributed the OI stage to an underspecified Number

[2] The French data examined in Pierce (1989, 1992) originally come from Lightbown (1977).

[3] See Jordens (1990) for similar findings on the acquisition of verb placement in Dutch: finite verbs rarely occur in clause-final position or nonfinite verbs in first or second position.

category (Hoekstra and Hyams, 1995, 1996) or to truncation (Rizzi, 1993/94; Haegeman, 1995).

In their earlier work, Hoekstra and Hyams (1995, 1996) tie the optionality of verb inflection, of overt subjects and of definite determiners to the underspecification of Num(ber) P. For them, the phenomena of OIs/RIs, null subjects and the absence of determiners are all related in that these properties of early child language appear to co-occur during development. Hoekstra and Hyams argue that OIs/RIs occur in the speech of children acquiring languages such as Dutch which has obligatory Number specification. For them, due to the underspecification of the functional head Number in early grammar, children do not have adult-like finiteness, overt subjects and definite determiners. Overall, Hoekstra and Hyams (1996) propose that the temporal interpretation of a sentence depends on the existence of a connection between the head of the Tense projection, which encodes event time, and the complementizer, which encodes speech time. In technical terms Tense is a pronominal variable bound by an operator in the complementizer. This syntactic connection, the tense chain, depends on the specification of intermediary functional categories. What they argue is that in root infinitive clauses the tense chain cannot be established, because one of the intermediary functional heads (Number) does not have a specified value. In such cases, Tense will function as a pronominal element, which is interpreted contextually rather than grammatically. The prediction then is that RIs can have any kind of temporal reference, and that the range of possiblities is not necessarily similar to that of the finite structures used during the same period.

In more recent work, Hoekstra and Hyams (1998) examine temporal/aspectual properties of OIs/RIs infinitives and show that OIs/RIs in non-pro-drop languages such as Dutch, German and French occur with eventive predicates such as *eat*. They refer to this phenomenon as the eventivity constraint, according to which during the optional infinitive stage only eventive verbs appear in root contexts, while stative verbs such as *know* in the same period are finite. Indeed, Ferdinand (1996) shows that in early French, stative verbs are exclusively finite, whereas eventive verbs occur both in finite and non-finite forms. Similarly, Wijnen (1996) observes that 95% (1790/1883) of root infinitives in the Dutch corpora from four children (age range 1;9-3;2) occur with eventive verbs, with the remaining 5% (93/1883) with stative verbs. Hoekstra and Hyams (1998) report that the data from child Dutch, German and Swedish show similar developmental patterns (Plunkutt and Strömqvist, 1990; Hoekstra and Jordens, 1994).

Rizzi (1994) argues that properties of RIs can be attributed to the optional truncation of projections in the clause structure. Under this account, while the adult grammar requires the projection of the full CP, child grammars in early L1

acquisition have the possibility of not projecting the full CP and can, therefore, be truncated at any syntactic node below CP. In other words, (it is possible that) young children might project truncated structures below CP. Thus, if truncation applies below TP, for example, no CP, AgrP or TP is projected. If CP is projected, so are AgrP and TP. Variability, therefore, is seen as the consequence of the projections of different roots. These three approaches all assume that some categories or features may be underspecified in early syntactic representation.

Among others, two major perspectives are identified on how morphology is variable/optional in L1 acquisition. For some L1 researchers, there is a direct relationship between overt morphology and syntax and the absence of overt morphology indicates towards the absence of associated syntactic categories (e.g. Clahsen, Penke and Parodi, 1993/1994; Clahsen, Eisenbeiss and Vainikka, 1994; Radford, 1990, Vainikka, 1993/94). For others, variability in the suppliance of overt morphology is attributed to the underspecification of abstract categories or features in early child grammars (e.g. Wexler, 1994; Hoekstra and Hyams, 1995).

As has been pointed out previously, while OI/RIs are found in non-null subject languages such as English, French, German, they do not occur to the same extent in other languages. In Romance pro-drop languages, for instance, the rate of OIs/RIs is rather low (e.g. Italian (Guasti, 1994, age range: 1,8-2;7), Spanish (Grinstead, 1994, age range: 1;7-2;1) and Catalan (Torrens, 1995, age range: 1;9-2;6). The proportion of OIs/RIs in Romance pro-drop language is around 6%, while the OI/RI effect in Germanic languages and French range from 26% to 78% (e.g. Pierce, 1992; Weverink, 1989). As will become clear in the following sections, a close examination of previous work on the L1 acquisition of Turkish also points to a similar pattern in that OIs/RIs do not appear to occur in early Turkish. While none of the earlier studies on L1 Turkish specifically examined the acquisition of Turkish from the perspective of the OI/RI stage, we will see that the characteristics of OIs/RIs discussed in this section are not found in Turkish, as Turkish-speaking children do not alternate between finite and nonfinite forms in finite contexts. It is therefore useful to review some early work on the L1 acquisition of Turkish. Before proceeding with the acquisitional facts in Turkish, however, I first present morphosyntactic properties of Turkish to prepare our discussion for acquisitional facts to be investigated in the paper. The next section therefore briefly reviews some morpho-syntactic assumptions about clausal architecture in Turkish.

2. Theoretical Background

2.1. Morphosyntactic Properties of Turkish

Under standard analyses, Turkish is classified as a head-final language with an unmarked SOV word order both in main and embedded clauses, as shown in (6).

(6) a. Deniz şiir-i sev-er-Ø
Deniz poetry like-pres-Ø
'Deniz likes painting'

b. (Siz) Deniz-in şiir-i sev-diğ-in-I bil-mi-yor-sunuz
(you) Deniz-gen poetry like-NOMIN+3SG+ACC know-neg-pres-2sg

'You don't know that Deniz likes poetry'

Examples (6a-b) show that both the main-clause verb and the embedded verb appear at the end of the clause. They also exemplify the highly agglutinative character of Turkish morphology. The verb in the root clause, *bil-mi-iyor-sunuz* 'know', consists of the root plus the morphemes *–iyor*, *mi* and *-sunuz*, referring to present progressive tense, negation and 2sg agreement, respectively. Inflectional verbal affixes mark negation, tense and aspect, modality, number and person. It should be noted that all bound morphemes undergo rules of Turkish vowel harmony and consonant assimilation which operate at the word level[4]. The right-most inflectional suffix on the verb is person/number agreement, which identifies null subjects in Turkish.

(7) gel-ir-im 'come-pres-1sg'
gel-ir-sin 'come-pres-2sg'
gel-ir-Ø 'come-pres'
gel-ir-iz 'come-pres-1pl'
gel-ir-siniz 'come-pres-2pl'
gel-ir-ler 'come-pres-3pl'

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[4] Contrast (i) with (ii).
(i) Yarın gel-e-me-m
Tomorrow come-possibility-negative-1SG
'I can't come tomorrow'
(ii) Bunu al-a-ma-m
This-ACC take-possibility-negative-1SG
'I can't take this'.
In (i) and (ii) the morphemes –E possiblity, -mE 'negative' and –(y) Ebil 'ability' have low unrounded vowels unspecified for the -/+ back feature. They harmonize with the -back feature of the vowel /e/ of gel- 'come' in (i) and with the +back feature of the vowel /a/ of al- 'take' in (ii).

In terms of tense-aspect markers (TAM), we identify five forms: (i) definite past (*-dI*),[5] (ii) reported past (*-mIş*), (iii) aorist -(*A)r*, (iv) future (*-AcAK*), (v) present progressive *-(I)yor*, each of which is shown in (8).

(8) a. Deniz dün çiçek-ler-i sula-**dı**
Deniz yesterday flower-pl-acc water-**PAST**-Ø
'Deniz watered the flowers yesterday'

b. Deniz çiçek-ler-i sula-**mış**
Deniz flower-pl-acc water-**reported past**-Ø
'(It seems that) Deniz watered the flowers'

c. Deniz her gün çiçek-leri sul-**ar**
Deniz every day flower-pl-acc water-**AOR**-Ø
'Deniz waters the flowers every day'

d. Deniz yarın çiçekleri sula-**yacak**
Deniz tomorrow flower-pl-acc water-**FUT**-Ø
'Deniz will water the flowers tomorrow'

e. Deniz şimdi çiçekleri sul-**uyor**
Deniz now flower-pl-acc water-**PROG**-Ø
'Deniz is watering the flowers now'

The examples in (8) also show that Turkish nominals are marked for case, which is an area we will discuss in detail in the data analyzed in this study**.** Following Kornfilt (1987), we assume that there are six cases: (i) nominative: not overtly realized; (ii) accusative: *-(y) I*; dative: *-(y) A*; locative: *-DA*; ablative: *-DAn*; genitive: *-(n)I(n)*.

Importantly, Turkish has relatively free word order in which constituents can undergo scrambling. Scrambling is allowed both preverbally and postverbally. Some examples are given in (9).

(9) a. Deniz çiçek-ler-I Elif-e ver-di S DO IO V
Deniz flower-PL-ACC Elif-DAT give-PAST
'Deniz gave the flowers to Elif'
b. Deniz Elif-e çiçekleri verdi S IO DO V
c. Çiçekleri Deniz Elif-e verdi DO S IO V
d. Çiçekleri Elif-e Deniz verdi DO IO S V
e. Elif-e çiçekleri Deniz verdi IO DO S V
f. Elif-e Deniz çiçekleri verdi IO S DO V
g. Deniz verdi çiçekleri Elif-e S V DO IO

[5] In this paper we follow standard Turcological practice of representing underspecified segments with upper case letters (for further discussion on vowel harmony in Turkish see Clements and Sezer, 1982).

h. Çiçekleri verdi Deniz Elif-e DO V S IO
i. Elif-e verdi Deniz çiçekleri IO V S DO

Erguvanlı (1984) argues that topicalized elements appear in the initial position of the sentence and the immediately preverbal position is the default position associated with focus[6]. According to Kural's analysis (1992), due to scope facts, scrambling in Turkish adjoins phrases to AgrP. For Kornfilt (1994), preverbally scrambled constituents can be considered as topicalization in Spec, IP or Spec, CP or Spec of Topic Phrase.

It should be noted, however, that not all elements can move freely. There are restrictions on what moves where in terms of wh-elements and specific vs. non-specific objects. Therefore, in the next section I first focus on specificity/definiteness facts in Turkish and then consider such restrictions in order to show how scrambling interacts with case marking, which is an area crucial to the analysis of the acquisition data presented in this study.

2.2. Specificity/definiteness in Turkish

Turkish has no definite article. The numeral *bir* 'one' is used in indefinite contexts (Dede, 1986). Kornfilt (1997) considers *bir* to be an article. Underhill (1976), however, argues that it is a numeral[7]. While no definiteness distinction is expressed similar to English-type languages, Turkish realizes specificity. Word order, for instance, affects definiteness and indefiniteness in Turkish (Tura, 1973; Dede, 1986).

(10) a. Kedi içer-de uyu-yor
cat sofa-LOC sleep-PROG
'The cat is sleeping on the sofa'

b. Içer-de kedi uyu-yor
sofa-LOC cat sleep-PROG
'A cat is sleeping on the sofa'

The word '*cat'* in (10b) refers to a non-specific NP. On similar grounds, Erguvanlı (1984) argues that stress also plays a role in the definite or indefinite readings of an NP. Subject NPs in the nominative case are interpreted as definite and indefinite according to their position in the sentence. If an NP is

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[6] See Göksel (1998), Göksel and Özsoy (2000) and Kılıçaslan (1998) for arguments that the immediately preverbal position is not the only place where foci can appear in Turkish.

[7] A similar approach is taken in Tura (1973). For Tura, the use of the indefinite article is an instance of number marking and the main function of it is a pragmatic function. (The function of *bir* 'one' as an indefinite article has been disputed in recent work (see e.g. Öztürk, 2004).

uttered as a sentence-initial subject, it typically has [+ definite] reading, whereas if the NP is a preverbal subject it often has [-definite] reading, as shown in (11).

(11) a. Kedi o oda-da uyu-yor (sentence initial subject/ definite)
Cat that room-LOC sleep-PROG
'The cat is sleeping in that room.'

b. O oda-da kedi uyu-yor (preverbal subject/ indefinite)
that room-LOC cat sleep-PROG
'A (some) cat is sleeping in that room.'

2.3. Word Order Restrictions

According to Enç (1991), case marking determines the specificity of an NP in Turkish. If the NP bears the accusative case morpheme *–(y)I*, it is obligatorily interpreted as specific as in (12). If the NP does not carry case morphology, it is obligatorily interpreted as nonspecific, as in (12).

(12) a. Deniz bir oda-yı boyamak isti-yor
Deniz one room-Acc paint-INF want-PROG
'Deniz wants to paint a certain room.'

b. Deniz bir kitap almak istiyor
Deniz one book buy-INF want-PROG
'Deniz wants to buy a (nonspecific) book.'

Importantly, a non-specific DP *bir kitap* 'a book' and a wh-phrase *ne* 'what' must appear preverbally, as shown in (13 a-b).

(13) a. Deniz **bir** **kitap** oku-muş
Deniz a book read-reported past-Ø
'Deniz read a book'

b. Deniz **ne** oku-muş?
Deniz what read-reported past-Ø
'What did Deniz read?'

Non-specific DPs and wh-phrases, however, cannot be placed in sentence initial or final positions, as in (14a-b). For Erguvanlı (1984) and Kelepir (2001), the sentence initial position is reserved for new information in Turkish.

(14) a. *Deniz okumuş **bir kitap**
b. ***Bir kitap** Deniz okumuş
c. *Deniz okumuş **ne**?
d. ***Ne** Deniz okumuş?

It should be noted, however, specific DPs with a case marker are not subject to similar restrictions.

(15) a. Deniz bir kitab-ı oku-muş
Deniz a book-acc read-reported past- Ø
'Deniz read one book (a specific book)'
b. Bir kitab-ı Deniz oku-muş
c. Deniz kitab-ı okumuş
d. Kitab-ı Deniz okumuş
'Deniz read the book'

As can be seen in (15) DPs with the overt accusative marker can freely scramble, yielding OSV orders (15b-d). According to Kornfilt (2003), overtly Case-marked constitiuents in Turkish can scramble regardless of specificity (Kornfilt, 2003). Under Kural's (1992) analysis, AgrP is the highest functional projection and the subject moves to Spec-AgrP, where its nominative Case is checked under Spec-head agreement. Kural argues that scrambled elements adjoin to AgrP in Turkish. Having presented the theoretical background, I now turn to early studies on L1 acquisition of Turkish.

3. Previous Work on the L1 Acquistion of Turkish

Previous research on the acquisition of morphosyntax in L1 Turkish has focused primarily on tense-aspect and agreement morphology, as well as on the use of various word orders (e.g. Aksu-Koç and Slobin, 1985; Aksu-Koç, 1988; Aksu-Koç and Ketrez, 2003; Ekmekçi, 1979, 1982, 1986).

One early study concerns Ekmekçi's (1979, 1982, 1986) longitudinal study, with a focus on the use of word order variations that a Turkish-speaking child observed during the age range of 1;7-2;4. Ekmekçi also notes that the acquisition of inflection in Turkish starts as early as one-word stage around age 1;3. In another early study Aksu-Koç and Slobin (1985) present an extensive review of child L1 acquisition of Turkish, focussing on word order, negation and the acquisition of syntactically complex patterns such relative clauses. They argue that with 'the exception of certain marginal errors in deverbal and denominal derivation, Turkish child speech is almost entirely free of error' (Aksu-Koç and Slobin, 1985, 854). They attribute the early acquisition of inflectional morphology to the transparency of grammatical relations and the 'extreme regularity of the morphological systems' in Turkish.

Ketrez (1999) examines the acquisition of verbs and argument structure in early child Turkish and argues for an early pre-morphological stage. This perspective has been extended in more recent work by Aksu-Koç and Ketrez (2003) in which they examine earlier Turkish data (ages 1;3-2;0). Aksu-Koç and Ketrez (2003) analyze early morpho-syntactic development in the speech of Turkish boy, Deniz, in terms of two stages. Stage I refers to sessions between 1;3-1;5 and is argued to be the pre-morphological stage during which no verbal or nominal inflection is found. Stage II, between the ages of 1;5-1;9, refers to the

proto-morphological stage where tense-aspect morphology along with case and number morphology are used productively. Between 1;3 -1;5, they find mainly one word utterances without inflectional morphology or some rote-learned words that are in general monosyllabic nouns such as da-at = kağıt 'paper' (Aksu-Koç and Ketrez, 2003, p. 33). Lack of productive use of inflectional morphology in Stage 1 leads Aksu-Koç and Ketrez to argue for a pre-morphological stage during which there is no evidence for syntactic categories.

As can be seen, much of the early work reviewed thus far has focused on the development of verbal morphology, in particular on the acquisition of tense-aspect morphology and word order restrictions. Regarding the nominal domain, in an investigation of nominal case marking (ACC, DAT, LOC, ABL, GEN), Topbaş, Maviş and Başal (1997) examine cross-sectional data from 66 children (age range: 1;3-6;0), analyzing one recording from each child. For Topbaş, Maviş and Başal (1997), at age 23 months case marking is acquired, with DAT and ACC first appearing at age 15 months. It is not clear in the paper, however, whether the researchers refer to the first emergence of case markers or the productive use of case morphology. Similarly, Aksu-Koç and Ketrez (2003) argue that children start producing the accusative case quite early and they can use case morphology productively in obligatory contexts. In her recent study Ketrez (2005) tested Turkish-speaking children's (age range 3;0-6;0) comprehension of indefinite objects with a particular focus on the effect of the accusative case marker on the scope assignment to objects with respect to negation and adverbs. In a detailed analysis of one particular subject,[8] Ketrez reports that except for the accusative marker which is not supplied in 8% of the obligatory contexts,[9] omission of other nominal morphology such as dative, locative and genitive is less common during the period analysed especially after 1;9 (Ketrez, 2005, pp. 258-259). Overall, Ketrez (2005) suggests that young children can consistently produce case morphology in early Turkish.

Overall conclusion in all these studies is that Turkish-speaking children do not experience difficulties in the acquisition of morphosyntactic properties of Turkish and their speech is almost flawless[10].

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[8] The data analyzed in this section are also discussed in Aksu-Koç and Ketrez (2003).

[9] It should be noted that Ketrez's (2005) study mainly focusses on accusative-marked indefinite objects. For her, although the accusative case is one of the earliest acquisitions, emerging before 2;0, its adult-like comprehension is not achieved until a much later age. As in the Schaeffer study (2000), these results are attributed to children's late mastery of discourse pragmatics and information structure of the language.

[10] Among the error types discussed in Aksu-Koç and Slobin (1985) are those associated with deverbal and denominal errors, mainly occurring after age 3 onwards.

Although much of the previous literature reviewed in this section holds that typically developing Turkish-speaking children acquire morphosyntatic properties of Turkish early, there has been little discussion of the acquisition of verbal and nominal elements at the same period of time in children's production. While Aksu-Koc and Ketrez (2003) argue that morphological development proceeds simultaneously in the nominal and verbal domains, this view does not necessarily mean that nominal and verbal morphology are acquired or used productively in a similar manner around the same time in child L1 Turkish. Our aim in this paper is to examine the acquisition of nominal and verbal morphology around the same time period up to age 2 (1;7-2;1). In what follows, I present longitudinal data from a Turkish-speaking child, Murat, with special reference to the acquisition of tense-aspect and agreement markers, as well as case markers and their interaction with the word order properties in Turkish.

4. Early Child Turkish Data

4.1. Data Analysis

The subject, 'Murat', son of an academic couple, was born in Istanbul, Turkey. At age 18 months he began to attend a university day care center which he attended until age 4.5. The Turkish data examined in this study come from a corpus of 3420 utterances collected over 5 months up to age 2 (between 1;7-2;1). The data primarily consist of spontaneous production data and include (i) transcriptions of audio-taped and video-taped recordings, (ii) utterances written down systematically in the form of diary notes, (iii) elicited data depending on the phenomena under investigation, mainly in the form of questions to coax the child to speak.

The utterances produced by Murat were examined for the overt suppliance of case marking, tense-aspect and agreement marking. In regard to the early data up to age 2, recordings were made 2 or 3 times a week. While data collection covers a period of 3.5 years, for the purposes of this paper, we concentrate only on Murat's early morpho-syntactic development, up to age 2. In more specific terms, our analyses in this paper deal with data from the period between 1;7 and 2;1, during which while verbal morphology shows significant development, case morphology appears to be problematic. The data were transcribed and coded following CHAT transcribing conventions (MacWhinney, 1995), but when needed new symbols were created along the lines of morpho-synactic phenomenon under investigation.

Table 1 presents the descriptive statistics in terms of the child's age, number of utterances, morphemes and MLU[11].

Table 1. Descriptive Statistics
(Age, number of utterances, morphemes and MLU)

Samples	Age	total num. utterances	total num. morphemes	MLU in morphemes
12 Nov 2001	1;7.9	60	102	1.7
6 Dec 2001	1;8.3	132	255	1.93
15 Dec 2001	1;8.12	126	283	2.35
4 Jan 2002	1;9.1	117	326	2.79
23 Jan 2002	1;9.20	105	312	2.97
2 Feb 2002	1;9.29	95	274	2.88
8 Feb 2002	1;10.5	152	477	3.14
16 Feb 2002	1;10.13	195	682	3.50
25 Feb 2002	1;10.22	320	1312	4.10
2 March 2002	1;10.29	251	915	3.65
9 March 2002	1;11.6	257	975	3.79
18 March 2002	1;11.15	259	1065	4.11
25 March 2002	1;11.22	204	895	4.39
1 April 2002	1;11.28	331	1342	4.05
10 April 2002	2;0.7	353	1341	3.80
17 April 2002	2;0.14	270	1383	5.12
26 April 2002	2;0.23	193	882	4.57

The next section presents results regarding both the emergence and the consistent use of verbal and nominal inflection, including tense-aspect marking, subject verb agreement morphology and case marking.

5. Results

5.1. Subject-verb Agreement

Results of subject verb agreement are presented in Table 2, which reports on suppliance of 1st and 2nd singular and 1pl agreement morphology in obligatory

[11] Following Aksu-Koç (1988), mean length of utterance, used as a measure of linguistic competence, refers to the mean number of productive morphemes per utterance in this study. As pointed out by Aksu-Koç (1988), unlike English, the use of words per sentence would miss the complexity that morphemes carry in Turkish, due to its agglutinative morphology.

contexts at 1;7 and 2;0. Suppliance of agreement on verbs is rather high, with almost 100% correct use during the period under investigation.

Table 2. Subject-verb Agreement

Samples	1SG-agr	2SG-agr	1PL-agr	Total
1;7 Nov 2001	11/11 (100%)	-	-	11
1;8 Dec 2001	13/13 (100%)	-	7/7 (100%)	20
1;9 Jan 2002	32/32 (100%)	7/7 (100%)	12/12 (100%)	51
1;10 Feb 2002	74/77 (96.1%)	6/6 (100%)	29/29 (100%)	112
1;11 Mar 2002	120/120 (100%)	14/14 (100%)	120/122 (98.4%)	256
1;12 Apr 2002	343/344 (99.7%)	8/8 (100%)	75/75 (100%)	427
Total	597 (68%)	35 (4%)	245 (28%)	877

Very few errors in subject-verb agreement paradigm are found in the data. Consider the following dialogue between the child (C), I (Investigator), Father (F)

(16) a. C: Memet del (come Mehmet) (S 7, 1;10.5)
I: oglum, baba uyu-yor, kalk de ben uyandım de
son, dad sleep-PROG wake up, say, I woke up, say
'son, daddy is sleeping, tell him 'I woke up'
C: memet # Muyat uyandı**m**
Mehmet, **Murat** wake-PAST-**1SG**
'Mehmet, Murat I woke up'

b. F: doydun mu oglum?
Full-PAST-1SG, son
'Are you full?'
C: baba # doy-du-**m** (S 8, 1;10.13)
dad full-PAST-1SG
C: Muyat doy-du-m
Muyat full-PAST-**1SG**

Examples (16a and b) show that the 1sg agreement marker has been used with a 3 person subject, where the child refers to himself. These results are consistent with the Aksu-Koc and Ketrez (2003) longitudinal study, where they analyze earlier data between the ages of 1;3.3 and 1;9.19, suggesting that even at earlier

ages Turkish-speaking children do not have problems in the productive use of subject agreement morphology.

Overall, the findings presented in this section suggest that knowledge of spec-head agreement is in place rather early and agreement is consistenly correct. These results are also consistent with data from other child grammars. When we examine the frequencies of agreement errors in various early child grammars, we find that the number of such errors is rather limited. Guasti (1994), for example, reports that in the speech of three monolingual Italian-speaking children, Martina (age range: 1;8-2;7), Guglielmo (age range: 2;2-2;7) and Diana (1;10-2;6), the percentage of subject-verb agreement errors is less than 4%,1.6%; 3;3% and 1;5%, respectively. Similarly, Clashen and Penke (1992) find that the German child learner, Simone has only 1% of subject-verb agreement errors. Similar findings have also been reported in the Poeppel and Wexler (1993) study. On the basis of data from a German-speaking child, Andreas, Poeppel and Wexler (1993) also observe that subject-verb agreement morphology was used correctly and that only a few errors (7/231, 3%) occur with plural subjects. Finally, Harris and Wexler (1996) show that English-speaking children do not make agreement errors. Of the 1352 utterances with the first person subject *I*, only 0.02% occur with a verb inflected with 3sg *–s* in sentences such as *I goes*.

5.2. Tense-aspect Marking (TAM)

The analysis of the data reveals that four types of tense marking are productively used during the period under discussion: Simple past – ***dI,*** present progressive ***-Iyor*** and future ***–(y)AcAk.***

Table 3. Tense-aspect Marking

Samples	Past *-dI*	Present Prog *-Iyor*	Future *-(y)AcAk*	Past *-mIS*	Aorist *-Ir*	Total
1;7	14/16	5/5	-		-	21
Nov 2001	(87.5%)	(100%)				
1;8	21/21	12/12	-		-	33
Dec 2001	(100%)	(100%)				
1;9	91/95	23/23	-		1	119
Jan 2002	(95.8%)	(100%)				
1;10	196/198	62/62	6/6	3/3	-	269
Feb 2002	(99%)	(100%)	(100%)	(100%)		
1;11	243/243	79/79	14/14	30/30	5/5	371
Mar 2002	(100%)	(100%)	(100%)	(100%)	(100%)	
1;12	320/321	272/272	61/61	48/48	29/29	731
Apr 2002	(99.7%)	(100%)	(100%)	(100%)	(100%)	
Total	894	453	81	81	35	1544
	(57.90%)	(29.33%)	(5.25%)	(5.25%)	(2.27%)	

Four types of tense marking are productively used during the period under discussion: Simple past – ***dI,*** present progressive ***-Iyor*** and future ***–(y)AcAk.***

(17) a. anne # nene dit-ti (S 2, 1;8.3)
mum, grandma go-PAST
'Mum, grandma has gone'

b. abi did-iyo (S 2, 1;8.3)
brother go-PROG
'Brother is going'

c. baba # acı-dı (S 10, 1;10.29)
dad, hurt-PAST
'Dad, it hurt'

d. laama yan-ıyoy (S 8, 1;10.13)
light burn-PROG
'The light is on'

e. Ay çık-ıcak (S 8, 1;10.13)
moon appear-FUT
'The moon will appear'

As can be seen in Table 3, *-dI* (58%) and *-Iyor* (29%) are the most frequently used tense markers. Similar to the findings for subject-verb agreement paradigm, very few utterances occur with incorrect or missing TAM marking.

(18) a. I: ne-yi kapat-tı-n, annecigim? (S 6, 1;9.29)
what-acc close-PAST-2SG, mummy?
'What did you close, my dear?'
C: *o-nu tapat
that-acc close-missing

b. I: bugün Leyla öğretmen yok muy-du?
today Leyla teacher absent- question marker past
'wasn't teacher Leyla at school today?
C: *Leya yog (S 14, 1;11.28)
Leyla no

The correct use of inflectional morphology in regard to subject-verb agreement and TAM is very high, always over 95%. In sum, the analysis of the data in terms of subject-verb agreement and tense marking shows that the learner productively inflects verbs in past contexts with*–dI*, in progressive contexts with *Iyor*, as well as with the relevant subject-agreement markers, such as *1SG*, *2SG* and *1PL*. As we have seen, the rate of error is very low. Now we move onto case marking and its relation to word order phenomenon in early child

Turkish, whose emergence appears to be different from the verbal inflectional morphology presented up to this point.

5.3. Case Marking

First instances of case marked nominals appear around age 1;3, mainly in the form of one word showing location, with locative marker on the noun 'oo-da' = *there*. Around age 1;7 we find instances of other case markers in the child's speech.

(19) a. Context: The child is playing with the ball with his mother
C: Anne top-**u** al (S 1, 1;7.9)
mum ball-ACC get
'Mum # get the ball'

b. Context: The family comes back from shopping, before getting out of the car
I: nere-ye gel-di-k?
where-DAT come-PAST-1PL
'Where did we come?'
C: ev-**e** (S 2, 1;8.3)
house-DAT

c. Context: talking about a glass of water on the dinner table
C: Anne-**nin** fuy-**u** (S 11, 1;11.6)
mum-GEN water-3sg-poss
'Mum's water'

We identify two types of errors in the child's speech: (i) Omission errors, and (ii) Substitution errors.

(20) a. Context: The child wants to go to the dining room. (S 11, 1;11.6)
C: anne sayon-Ø di-del-im
Mum, dining hall-**missing DAT** go-OPT-1PL
Explanation: He wants to say 'let's go to the dining room'

b. Context: Pointing at the mother's jacket
C: anne-**Ø** çeçet-**Ø** (S 3, 1;8.12)
mum-**missing GEN** jacket-**missing 3sg-poss**
Explanation: He wants to say 'mum's jacket'

c. Context: Just before leaving for the nursery
I: Biz birazdan nere-**ye** gid-eceğ-iz?
we soon where-**DAT** go-future-1PL
'Where are we going soon?'
C: Yuba-**da** gidicez. (S 4, 1;9.1)
kindergarden-**LOC** (**faulty case marker**) go-future-1PL

Table 4 presents the total number of obligatory contexts for accusative, dative, genitive, locative and ablative case morphemes versus the learner's suppliance rate of these morphemes.

Table 4. Suppliance and Errors in Accusative, Dative, Genitive and Locative

	Obligatory context	Suppliance (%)	Substitution (%)	Missing inflection (%)	Total errors
Accusative	417	315 (75.5%)	5 (0.01%)	97 (23.3%)	102 (24.5%)
Dative	433	321 (74.1%)	3 (0.006%)	109 (25.1%)	112 (25.8%)
Genitive	417	243 (58.27%)	2 (0.004%)	172 (41.24%)	174 (41.72%)
Locative	341	331 (97.06%)	5 (1.47%)	5 (1.47%)	10 (2.93%)
Ablative	27	19 (70.4%)	0 (0%)	8 (29.6%)	8 (29.6%)

Locative contexts are those where very few errors occur. Errors are largely found in ACC, DAT, ABL and GEN contexts, the latter being the main category where most of the errors are found.

Overall, we find the following error rates for each case marker under discussion: (24.5%) for accusative, (25.8%) for dative, (41.24%) for genitive, (29.6%) for ablative.

As can be seen in Table 4, similar to previous work on L1 research (e.g. Phillips, 1995), omission errors exceed substitution errors by far. Overall, while omission errors are found to range from 25% for ACC, DAT and ABL, substitution erros are very low. It should be noted, however, that providing an overall sum is somewhat misleading here. In fact, a closer examination of the data on case marking reveals that developmentally the suppliance rates of ACC, DAT, GEN and ABL are in fact much lower than the overall figures. Table (5) presents the distribution of case errors by each month whose data were analyzed in this study.

Table 5. Case Errors by Months
(Nov-Dec, 2001, Jan, Feb, Mar, Apr 2002)

Samples			**ACC/ Missing ACC**	**DAT/ Missing DAT**	**GEN/ missing GEN**
S 2-3	1;8.3-12	6-15 Dec 2001	6/3 (33.3%)	11/14 (56%)	0/8 (100%)
S 4-5	1;9.1-20	4-23 Jan 2002	11/3 (21.42%)	4/3 (42.86%)	1/4 (80%)
S 6	1;9.29	2 Feb 2002	7/7 (50%)	9/3 (25%)	1/7 (87.5%)
S 7	1;10.5	8 Feb 2002	4/6 (60%)	14/6 (30%)	0/18 (100%)
S 8	1;10.13	16 Feb 2002	9/5 (36%)	11/13 (51.17%)	2/36 (95%)
S 9	1;10.22	25 Feb 2002	7/9 (56%)	12/11 (47.83%)	0/14 (100%)
S 10	1;10.29	2 Mar 2002	22/15 (40%)	21/15 (41.67%)	1/31 (97%)
S 11	1;11.6	9 Mar 2002	6/10 (62.5%)	21/20 (48.78%)	29/39 (57.4%)
S 12	1;11.15	18 Mar 2002	25/16 (39%)	49/10 (16.95%)	50/9 (15.3%)
S 13	1;11.22	25 Mar 2002	37/3 (7.5%)	45/4 (8.16%)	51/2 (3.77%)
S 14	1;11.28	1 Apr 2002	48/11 (18.64%)	39/6 (13.33%)	39/6 (13.3%)
S 15	2;0.7	10 Apr 2002	51/3 (5.56%)	37/0 -	28/0 (0)
S 16	2;0.14	17 Apr 2002	53/1 (1.85%)	33/2 (5.71%)	33/0 (0)
S 17	2;0.23	26 Apr 2002	37/4 (9.75%)	16/0 -	8/1 (11.11%)

5.3.1. Accusative Case *–(y)I*

As can be seen in Table (5), the suppliance of the accusative marker is not systematic in earlier samples. Specifically, from Sample 6 on, accusative case morphology is not supplied in almost half of the utterances. It is only after Sample 12 that the child makes use of accusative marker in more consistent terms. (21) presents instances of omitted *–(y)I*.

(21) Context: Murat closes the door

a. C: o tapı-**Ø** tapat-tı-m (S 5, 1;9.20)
that door-**missing ACC** close-PAST-1SG
'I closed that door'

b. Context: he wants to watch TV

C:	Anne,	tejom-**Ø**	aç	(S 10, 1;10.29)
	mum,	television-**missing ACC**	turn on	
	'Mum, turn on the television'			

5.3.2. Dative Case –*E*

Similar to the development of accusative marker, the dative marker is also missing over 40% of the time in obligatory contexts, until Sample 11. In Samples 8 and 9, for examples, almost half of the utterances occur in contexts where dative marker is not supplied. Some examples are given in (22).

(22) a. Context: He wants to slide.

C:	anne, kaydiyak-**Ø**	dideyim	(S 10, 1;10.29)
	mum, slide-**missing DAT**	go-OPT-1PL	
	'Mum, shall we go to the slides		

M:	Murat	bugün	nere-ye	gid-ecek?
	Murat	today	where-DAT	go-FUT
C:	Yuva-**Ø**	did-ecek	(S 11, 1;11.6)	
	kindergarten- **missing DAT**	go-FUT		
	'(He) will go to the kindergarden'			

5.3.3. Genitive Case –*(n)In*

The suppliance of genitive case morphology is the lowest of all case markers. Table 4 shows that its overall omission is over 40%. The findings are more dramatic, when the data are examined on a weekly basis. In Sample 2-3, of the 8 obligatory contexts, the genitive is missing in all. Similarly, while Sample 7 has 18 cases where genitive case marking is obligatory, it is not supplied at all. Unlike other case markers, its omission rate is very high, ranging between 80-100%.

(23) a. Context: He holds the mother's notebook and then gets her glasses

C:	Anne-**Ø**	titap-**Ø,** anne-**Ø** dözük-**Ø**	(S 8, 1;10.13)
	mum-**missing GEN**	book-**missing 3SG-POSS**	
	'Mum's book, mum's spectacles'		

b. Context: talking about his friend's mother

C:	Assı	anne-si	otu-du	(S 7, 1;10.5)
	Aslı- **missing GEN**	mum-3sg-poss	sit-PAST	
	'Aslı's mother sat down'			

To sum up so far, a closer examination of the data reveals that Samples 1-12 are the samples where we find morphological variability in the suppliance of case marking. These findings are compatible with longitudinal studies on the

acquisition of case markers in early Japanese. Clancy (1985), for instance, reports that case particles emerge approximately between 1;8-2;6. Miyamoto, Wexler, Aikawa and Miyagawa (1999) also report that case omission is rather pervasive during the acquisition of Japanese, where Japanese-speaking children omit case markers on overt NPs with high frequency.

Overall, in this study we find that case morphology is not supplied productively, at a time subject-verb agreement and TAM are fully productive and abundantly used, in over 90% of the contexts. These results are compatible with Gürel (2000), where the variable use of case morphology appears both in the form of omission and substitution in the acquisition of Turkish as a second language. In an experimental study, Gürel (2000) presents evidence showing that case marking is, in particular, difficult to acquire by adult L2 learners of Turkish.

Immediate questions arise as to potential explanations for the divergence in the acquisition of verbal vs. nominal morphology. How can we account for such a discrepancy between the suppliance of nominal vs. verbal domain. Two related questions are as follows: (i) Despite consistent omission errors in early use of case marking, does the child observe the word order restrictions that characterize the adult grammar? (ii) Is there an interaction between case marking and word order phenomenon in Murat's L1 Turkish? In what follows, we explore Murat's Turkish data in terms of these two questions. First, we focus on earlier studies in the literature and then move onto the distribution of canonical vs. scrambled utterances and the restrictions observed in scrambled utterances in the data.

5.4. Scrambling: SOV Utterances vs. Scrambled Utterances

Despite being limited, literature on knowledge of grammatical principles like Case marking in L1 Turkish provided evidence for the interaction of case marking with word order restrictions discussed in Section 3.2. (e.g. Slobin and Bever, 1982; Aksu-Koç and Slobin, 1985). In one of the early studies, Slobin and Bever (1982) reported that normally developing Turkish children successfully produce both canonical and scrambled orders[12].

[12] Slobin and Bever (1982) is an experimental study which was carried out within the framework of Bever's theory of various perceptual strategies used by learners during comprehension. One of these perceptual strategies is the so-called word order strategy, according to which learners assign thematic roles based on word order. In the case of English, for example, when the learner hears a sequence of N-V-N, s/he assigns the first N the role of the agent, and the second N the role of the patient. This view was applied to the acquisition of Turkish in order to test whether Turkish children are reliant on the N-N-V strategy, which is the Turkish equivalent to the N-V-N strategy. Slobin and Bever (1982) maintain that Turkish-speaking children correctly interpret the first N as the object in scrambled sentences such as OSV, OVS

In another important study regarding this issue, Ekmekçi (1986) analyzed longitudinal data from a Turkish-speaking child and reported that two year-old children produce scrambled utterances. Ekmekçi reports that while the child varies the order of definite DP, she consistently places the non-specific DP directly to the left of the verb and never in a post-verbal position, suggesting that the learner observes word-order restrictions discussed in Section 4.2. Ekmekçi reports that while the child varies the order of definite DP (24a-b), she places the non-specific DP directly to the left of the verb and never in a post-verbal position (24c).

(24) a. Kaem-i geti (Ekmekçi, 1986, 269)
pencil ACC bring
'Bring (me) the pencil'

b. Geti kaem-i (Ekmekçi, 1986, 269)
bring pencil ACC
'Bring (me) the pencil'

c. Cu ver (1;9) (Ekmekçi, 1986, 268)
water give
'Give (me) water'

Due to lack of quantification in the Ekmekçi study, it is not clear how consistent the pattern is in the data. Importantly, however, Ekmekçi shows that the restrictions on word order are recognized by the learner.

Following Kornfilt (1994), we predict that if Murat does not produce ungrammatical sentences as in (9a-d), and at the same time he produces scrambled sentences as in (10b-d), one can assume that he has acquired the case system in Turkish. Next, we first present the overall distribution of scrambled sentences in comparison to canonical utterances in the corpus, and then move onto the interaction of case marking with scrambling. Table 6 shows the distribution of scrambled versus canonical utterances in Murat's early Turkish.

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and VOS, an interpretation which requires knowledge of Case marking, as Turkish marks objects in scrambled sentences.

Table 6. Scrambled vs. Canonical Utterances in Samples 1-17

	Samples	**Age**	**SXV**	**Scrambled**	**Total**
S 1	12 Nov 2001	1;7.9	3 (75%)	1 (25%)	1
S 2	6 Dec 2001	1;8.3	8 (89%)	1 (11%)	1
S 3	15 Dec 2001	1;8.12	4 (80%)	1 (20%)	1
S 4	4 Jan 2002	1;9.1	20 (95%)	1 (5%)	1
S 5	23 Jan 2002	1;9.20	56 (97%)	2 (3%)	2
S 6	2 Feb 2002	1;9.29	57 (100%)	-	57
S 7	8 Feb 2002	1;10.5	55 (87%)	8 (13%)	63
S 8	16 Feb 2002	1;10.13	90 (87%)	14 (13%)	104
S 9	25 Feb 2002	1;10.22	96 (87%)	14 (13%)	110
S 10	2 Mar 2002	1;10.29	154 (80%)	38 (20%)	192
S 11	9 Mar 2002	1;11.6	155 (80%)	39 (20%)	193
S 12	18 Mar 2002	1;11.15	154 (79%)	42 (21%)	196
S 13	25 Mar 2002	1;11.22	124 (74%)	43 (26%)	167
S 14	1 Apr 2002	1;11.28	170 (76%)	53 (24%)	223
S 15	10 Apr 2002	2;0.7	136 (72%)	53 (28%)	189
S 16	17 Apr 2002	2;0.14	91 (60%)	61 (40%)	152
S 17	26 Apr 2002	2;0.23	85 (70%)	36 (30%)	121
Total			1458 (78.18%)	407 (21.82%)	1865

While the overall figures show that nearly 20% of utterances are scrambled, we find few instances of scrambling in Samples 1-7 (ages 1;7-1;10). It is only after Sample 7 that we find relatively more instances of scrambled utterances.

5.5. The Interaction of Case Marking with Scrambling

One striking finding in scrambled utterances is that they consistently bear case marking. Table (7) presents the percentage of scrambled and case-marked utterances versus scrambled but not case-marked utterances.

Table 7. Scrambled and Case-marked Utterances

Samples	Scrambled +Case	Scrambled+ Non-Case-marked
S 6-17, Feb-Apr, 2002	264/289 (91.35%)	25/289 (8.65%)

As can been in Table (7), of the 289 cases of scrambled utterances found in the data, 264 of them have the appropriate case marker on the DP.

(25) a. Context: Murat is colouring.
C: Boya-dı-m bu-nu (S 14, 1;11.28)
paint-PAST-1SG this-ACC
'(I) painted this'

b. C: Sil-ice-m el-im-i (S 14, 1;11.28)
wipe-FUT-1SG hand-1SG-POSS-ACC
'(I) will wipe my hand

c. C: Cıka-dı-m aaz-ım-dan (S 13, 1;11.22)
take out-PAST-1SG mouth-1SG-POSS-ABL
'(I) took (it) out of my mouth'

d. C: Bee-di-m baba-ya (S 15, 2;0.7)
give-PAST-1SG dad-DAT
'(I) gave (it) to daddy'

e. C: Neniz-in bu (S 15, 2;0.7)
Deniz-GEN this
'This is Deniz's'

f. C: Aayı-ma-dı anne-nin baş-ı (S 15, 2;0.7)
hurt-NEG-PAST mum-GEN head-3SG-POSS
'Mum didn't have a headache'

As we have seen in the previous section, overall, Murat's early data provide evidence for variability with respect to case marking, the genitive case marker being omitted the most, followed by the accusative, dative and ablative. While omitting case morphology in production, Murat nevertheless shows a certain sensitivity to related syntactic properties: when the verb is scrambled either preverbally or postverbally, the case markers are realized overtly. That is, DPs are inflected for case correctly around 90% of the scrambled contexts. Given a high proportion of accuracy in the verbal domain, the failure to supply surface morphology of case marking is not likely to reflect a deficit in the underlying syntactic competence; on the contrary, these results suggest that the relevant underlying categories and features are represented in the learner's Turkish, as

the child shows evidence of systematic Case marking in scrambled sentences, suggesting that the knowledge of case marking is available to him.

A closer examination of a number of L1 acquisition studies reveals a similar interaction between scrambling and various other phenomena. In their analysis of child Dutch, Hoekstra and Jordens (1994) relate the acquisition of scrambling to the acquisition of the determiner system, arguing that when determiners are produced, NP objects appear in target-like position with respect to scrambling[13]. In his earlier work, Clahsen (1988) ties the acquisition of scrambling to the acquisition of verb movement[14]. For him, once children (age range: 1;7-3;5) realize that finite verbs move from verb-final to verb-second position, they reanalyze the V+fin plus negation sequences as derived structures, with the consequence that other elements can intervene between the object NP and the negation element, which was argued not be possible before.

On the basis of experimental data from L1 Dutch (age range: 2;4-6;10) and Italian children (2;1-5;11), Schaeffer (2000) examines the acquisition of direct object scrambling in Dutch and Italian. The crucial finding in her study is that Dutch and Italian 2-year old children optionally scramble direct objects in obligatory contexts. In more specific terms, Dutch 2-year olds optionally scramble overt direct objects and Italian 2-year olds optionally scramble *pro* direct objects, which results in the optional realization of object clitics. For Schaeffer (2000), the optionality of direct object scrambling is due to the optional marking of referentiality[15] in the grammar of 2-year olds, which in turn is related to the child's immature pragmatic system.

Finally, Lakshmanan and Özeki (1996) examine the acquisition of case markers and scrambling in the speech of a Japanese child, (age range: 2;2-2;6). They present evidence that suggests that there is an asymmetry between the case marking of NP objects of stative verbs and subject NPs, which is marked with

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[13] The line of argumentation in Hoekstra and Jordens (1994) is as follows: (i) scrambling is Case-driven movement to an A-position, and (ii) DPs are subject to the Case requirement. What they argue is that initially only NPs, which are not subject to a Case requirement, are available in early Dutch. They further postulate that the reason for the delay in the acquisition of scrambling is associated with the delay in the acquisition of the determiner system (Hoekstra and Jordens, 1994, p. 138). Note that a number of other studies have also reported delays in the acquisition of scrambling in early child grammars (e.g. see Clahsen (1988) for German, Lakshmanan and Özeki (1996) for Japanese).

[14] In more recent work, Clahsen, Eisenbeiss and Vainikka (1994) argue that the acquisiiton of case morphology contributes to the development of phrase structure.

[15] Following Fodor and Sag (1982), Schaeffer assumes that a nominal expression is referential if it has a 'fixed referent', suggesting that it is known to the speaker and/or to someone whose propositional attitudes are being reported (Schaeffer, 2000, p. 24).

the nominative-case marker *–ga*, and NP objects of non-stative predicates, which take the accusative case marker, -o. While the child is found to have no difficulty with supplying the nominative case marker, she consistently omitted the accusative marker. Lakshmanan and Özeki (1996) argue that at the time the accusative marker is omitted, scrambling is not operative in the child's grammar, suggesting an interaction between the two phenomena.

The findings reported in this study are also consistent with recent work carried out by Bernreuter (2004). While not specifically focusing on the interaction of case marking and word order, Bernreuter (2004) reports on case-related inflectional errors in the speech of four Turkish-German bilingual children. The data used in this study come from two normally developing children and two specific language impairment (SLI) children. What is striking in the study is that despite intact knowledge of tense marking and subject verb agreement, the nominal domain is argued to be vulnerable (Bernreuter, 2004, p. 112). Similar to previous studies, the learners' errors mainly occur in the form of omission rather than substitution.

The findings reported in this study are also compatible with recent work reported in Haznedar (2006). Haznedar (2006) reports on L2 acquisition of Turkish by an English-speaking adult, John. Similar to the findings reported in the present study, while she finds variability in suppliance of nominal morphology, specifically in the suppliance of case marking, no variability in verbal inflection is attested in the L2 Turkish data. John's data on the use of subject-verb agreement reveal that at a time when agreement morphology is consistently accurate and used productively, Case morphology is either not present or used incorrectly. More specifically, when the learner provides evidence for native-like mastery of tense morphology, the suppliance rate of Case marking is very low. While the suppliance rate for past tense in Sample 1 is 98% (88/90), only 10 out of 62 (16%) utterances show accusative case marking. Similarly, of the 238 occurrences of past forms in Sample 3, the accuracy rate is 95% (227/238), whereas the percentage of accusative case marking is only 3.5%. Crucially, however, while the learner frequently omits case inflection in his language production, he supplies case markers in over 90% of scrambled sentences, suggesting that case-checking mechanism as a syntactic operation is in place in his L2 grammar.

In another recent work, Babur (2006) analyzes Turkish data from two specific language impaired Turkish-German bilingual children, Fatih and Emirhan, and two normally developing children, Gizem and Furkan, with special focus on the suppliance of tense-aspect morphology and case morphology in their bilingual Turkish. Babur reports that while Emirhan's case omissions persist at age 5;6, normally developing Turkish-German bilingual children have no difficulties in the use of case markers in their Turkish. On similar grounds, Fatih faces

noticeable difficulties in the acquisition of case markers at age 6;5. A closer examination of figures in Babur (2006) shows that case markers are omitted 100% of the time in possessive and ablative contexts. This is followed by 40% omission in the suppliance of the accusative marker in the child's speech. Babur notes that in Fatih's case not only the suppliance of case morphology but also tense-aspect morphology is severely impaired. At age 6;5, the child is able to use only past tense *–dI* and the future marker. It should be noted that even the supplied forms appear to be rather limited, *-dI* being supplied in 5/44 of the contexts. While the future *–(y) AcAk* appears 100% correctly, the percentage is misleading as there are only two contexts of the future out of 168 utterances.

As we have seen in this section, these recent studies all point to morphological variability in the suppliance of case markers in Turkish, no matter whether it is acquired as an L1 or L2 or even in a bilingual context with normal and specific language impaired children, as in the case of Bernreuter's (2004) and Babur's (2006) studies. I believe that the study of morphological variability which has not been discussed in a language like Turkish may shed light on the acquisition and interaction of morphosyntactic properties. One should also note that despite morphological variability found in relation to case marking, these findings rule out any suggestions for an OI/RI stage proposed for non-null subject languages reviewed at the beginning of the paper. As we have seen, we do not find any evidence for finite versus nonfinite alternations in finite contexts in early Turkish. Rather, the learner has no difficulty in the suppliance of verbal inflection prior to age 2. Overall, our results are compatible with other studies reported in Romance pro-drop languages such as Italian (e.g. Guasti, 1994), Spanish (Grinstead, 1994) and Catalan (Torrens, 1995).

Conclusion

The acquisitional pattern explored in the speech of a two-year old Turkish child in this study has shown that while the acquisition of verbal morphology is flawless, that of nominal morphology exerts difficulties. In keeping with other studies, we found early acquisition of tense-aspect marking and subject-verb agreement. Incidence of case-marked DPs is, however, low around the same time, in particular with accusative, dative and genitive markers. The use of genitive marker is particularly impoverished, often totally absent in the early samples. Nevertheless, around the same time Murat has a full command of a number of morphosyntactic phenomena which clearly indicate the projection of tense and agreement in his grammar.

What is striking in the data is that at a time when the learner has almost completely mastered the correct use of tense and agreement marking, case marking is problematic, with the learner producing mainly omission errors. This contrasts with earlier studies reported in child L1 Turkish. Overall, data from

very early stages of L1 acquisition of Turkish reported in this study show morphological variability in terms of the suppliance of case morphology. That is, despite evidence for the non-violation of word order restrictions in early L1 Turkish, there is evidence for morphological variability in the acquisition of case marking. We argue that while morphological variability is observed in child Turkish in terms of the suppliance of case marking, its disappearance is associated with the emergence of scrambling.

We hope that this study will stimulate further exploration of these issues in other domains such as specific language impairment, where the possible similarities or differences can be addressed. Such comparative studies are critical for furthering our understanding of morphosyntactic development in child grammars.

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