A Usage-based Approach into the Acquisition of Relative Clauses in Turkish[*]

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ABSTRACT: Previous research has shown that cross-linguistically relative clauses are acquired late and are considered as a signal of linguistic complexity. This study adapts a usage-based account of relative clause acquisition in Turkish. A corpus based on three databases including 170 recordings of naturalistic mother-child interaction was analysed. The age of children in these three databases are 02;00-03;06, 01;00-02;04 and 00;09-02;09, respectively. The analyses revealed that the use of relative clauses in both the children's productions and in child-directed speech were extremely scarce. Though previous research underlined the linguistic complexity of relative clauses as a reason for late acquisition, the results of this study point out that scarcity of input should also be regarded as a powerful predictor. The study underlines the availability of other constructions that are functionally parallel to relative clauses. The findings suggest that such structures which are syntactically and morphologically less complex than relative clauses are common in both child directed speech and in children's productions.

Keywords: relative clauses, acquisition of Turkish, child directed speech, corpus analysis, input

Türkçede İlgi Tümceciklerinin Edinimine Kullanım Temelli bir Yaklaşım

ÖZ: Daha önce birçok farklı dilde yapılan çalışmalar ilgi tümceciklerinin ediniminin geç olduğunu ve bunun dilbilimsel karmaşıklığın bir göstergesi olduğunu ortaya koymuştur. Bu çalışma, Türkçedeki ilgi tümceciklerinin edinimi konusuna kullanım temelli bir çerçevede yaklaşmaktadır. Bu bağlamda, anne ve çocuk arasındaki doğal konuşma verilerinden oluşan üç farklı veritabanı (170 kayıt) incelenmiştir. Bu veritabanında yer alan çocukların yaş aralıkları 02;00-03;06, 01;00-02;04 ve 00;09-02;09'dır. Analizler hem çocukların konuşmalarında hem de annelerin çocuğa yönelik konuşmalarında ilgi tümcecikleri kullanımının oldukça nadir olduğunun altını

çizmektedir. Daha önceki çalışmalarda ilgi tümceciklerinin dilbilimsel karmaşıklığı çocuklar tarafından geç edinimlerinin sebebi olarak belirtilmişken, bu çalışmanın sonuçları çocuğa yönelik girdilerde bu yapıların azlığının da bu yapıların geç ediniminin ve çocuklar tarafından az kullanımının bir öngörücüsü olduğunu ortaya koymaktadır. Bulgular, kullanım olarak benzer olan ve biçimbilimsel ve sözdizimsel olarak daha basit olan başka yapıların dilde varolmasının da gözönüne alınması gereken önemli bir husus olduğu vurgulamaktadır.

Anahtar Sözcükler: ilgi tümcecikleri, Türkçenin edinimi, çocuğa yönelik konuşma, bütünce incelemesi, girdi

1 Introduction

Relative clauses (RCs[1], hereafter) have been regarded as an important source of data in order to explain the acquisition of complex syntax and morphology in language acquisition. Most of the previous studies on the development of RCs have mainly concentrated on European languages such as English, German and French through experimental studies (Diessel & Tomasello, 2005; Hamburger & Crain, 1982; Brandt, Kidd, Lieven & Tomasello 2009) and through naturalistic observational studies (Diessel & Tomasello, 2000; Fox & Thompson, 2007; Jisa & Kern, 1998). Turkish, as a prenominal relative clause language, receives much attention with the late acquisition of relative clauses.

The aim of this study is to analyze the acquisition of relative clauses in Turkish by adapting a usage based account and taking account of the input the children receive as well as the children's production of relative clauses.

1.1 Overview of RCs in Turkish

As stated by Kornfilt (2000: 123), the head final property of Turkish is also observed in relative clauses where the predicate is clause final and the inflection follows the predicate. The modifier clause of RCs is nominalized. There is no overt complementizer nor an overt wh-element, only a gap in the position of the head (Aydın, 2007).

In Turkish, there are two types of relative clauses, depending on whether

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[1]   The list of abbreviations used in this study is as follows: 1SG: first person singular, *-Im*; 2PL: second person plural *-sInIz*; 2SG: second person singular, *-sIn*; ABIL: ability, *-(y)Abil*, *-(y)Ebil*; ABL: ablative suffix, *-(y)DAn*; ACC: accusative suffix, *-(y)I*; CAUS: causative, *-T- DIr*; COM: commitative suffix, *-(y)lA*; DAT: dative suffix, *-(y)A*; DER: Derivational suffix; GEN: genitive suffix, *-In*; LOC: locative suffix, *-da*; PASS: passive formation suffix, *-Il*; PL: plural suffix, *-lAr*; POSS: possessive suffix, *-(s)I*; PROG: progressive tense suffix, *-Iyor*; REL: relative clause forming suffix; SREL: subject relative clause forming suffix; OREL: object relative clause forming suffix

the relativized noun is the object or the subject of the relativizing verb (for more details see: Kornfilt, 2000; Haig, 1997; Hankamer & Knecht, 1976; Slobin, 1986). As can be clearly observed from the following examples, the choice of the RC suffix, either the object (-*DIK*[2], -*(y)AcAK*) or the subject particle (-*(y)An*, -*(y)AcAk*[3], -*Ir/-Ar/mAz*[4], -*mIş*[5]) suffixes, is determined by whether the clause internal gap site (the extraction site where the NP is generated) is the syntactic subject of the relative verb, as in (1), or a non-subject as in (2). The two relativizing strategies also differ from each other with respect to their internal morphology (Özsoy, 1994:363); this can be observed from the following examples. The –*(y)An* verbal form (subject relative, SR) is much simpler as it bears no agreement morphology. However, the -*DIK* construction (object relative, OR) is followed by possessive morphology in agreement with the subject, which (when overt) bears genitive case morphology (Çağrı, 2005).

(1) t_i adam-ı   <u>sev-en</u>   kız$_i$
     man-ACC love- SREL girl
   'The girl that loves the man'
(2) adam-ın t_i <u>sev-diğ-i</u>   kız$_i$
    man-GEN   love- SREL -3SG.POSS girl
    'The girl that the man loves'

Schroeder (2000) worked on the morpheme –*ki,* which combines with the locative marked noun phrases and with postpositional phrases expressing locative or temporal relation and with adverbs of time and place. In this paper, the –*ki* suffix, which combines with the locative suffix and functions as relative

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[2]   The capital letters in the suffixes indicate that the vowels/consonants that are in capitals undergo changes according to vowel/consonant harmony rules in Turkish, -*DIK* stands for all the variations of the vowel and consonants of the suffix: -*dık, -dik, -duk,-dük; -tık, tik-, -tuk, -tük; -tığ, -tiğ, -tuğ, -tüğ or –dığ, -diğ, -duğ, -düğ.*

[3]   In those cases where the event expressed by the verb of the relative clause follows that of the main verb –*(y)AcAK* suffix can replace the –*(y)An* suffix as pointed out by Özsoy (1999: 185): *konuş-acak (ol-an) adam* 'the man who will speak. In these structures the auxiliary *ol-an* is optional.

[4]   The aorist suffix –*Ar* and its negative form –*mAz* occurs in some lexicalized relative clauses: *dişe dokun-ur bir şey, elle tut-ul-ur bir kanıt* 'a viable proof', *görün-mez kaza* 'an unexpected accident'.

[5]   As has been noted in Özsoy (1999), the -*mIş* suffix can also be used in subject relative clauses, to emphasize that the action of the relative clause is completed: *buruş-muş (ol-an) kağıt* 'crumbled paper', *çok otur-ul-muş (ol-an) iskemle* 'the chair that has been sat in'. In these structures the auxiliary *ol-an* is optional.

clauses is of interest (as can be observed from example (3) below). Erguvanlı (1980, cited in Schroeder, 2000) argues that –*ki* constructions correspond to reduced relative clauses in English, 'the house at the corner' being derived from 'the house which is at the corner'. Schroeder (2000) notes that –*ki* constructions cannot be expanded to participal constructions by the copula (*ol-an* 'be-participle'). In Turkish, *ol-an* 'be-participle' is the optional copula form that takes the relativizing suffixes if the predicate of the relative clause is a noun or an adjective. But the copula can be replaced by –*ki*, as can be observed from the following examples:

(3) cam-ın   kenar-ın-daki   çiçek
    glass-GEN side- POSS-LOC-ki flower
    'the flower that is at the side of the window'
(4) cam-ın   kenar-ın-da   ol-an   çiçek
    glass-GEN side- POSS-LOC be-SREL flower
    'the flower that is at the side of the window'

Schroeder classifies –*ki* constructions as attributive non-verbal clauses. These attributes can either be locative, temporal or genitive. However, -*ki* is only related to RC studies when it is used in the form of –*DAki* [locative+ki]. Dasinger & Toupin (1994) have considered this construction and included it in their RC coding. Similar to this, Ekmekçi (1998) and Altınkamış et al. (2013) have also reported the frequent use of –*DAki* construction in their Turkish early language acquisition data, replacing relative clauses. Following the framework in Schroeder (2000), we will also refer to –*DAki* constructions as attributive non-verbal clauses and parallel to the arguments by Erguvanlı (1980) we will consider them as reduced relatives.

1.2   *Previous Research on Relative Clauses in Turkish*

The first study on the acquisition of relative clauses in Turkish was by Slobin (1986) who analyzed the speech of 3-4 year old children in a Turkish and American language corpus. Slobin found that 88% of RCs used by Turkish speakers were subject RCs and 12% was object RCs. He concluded that acquisition of relative clauses is much slower for Turkish children compared to English speaking children. Ekmekçi (1990) investigated the acquisition of RCs by 3 to 6-year-old Turkish children and observed that object RCs were imitated more correctly by younger children. However, a production task revealed an opposite pattern, where children were better at producing subject RCs. Ekmekçi argued that better performance in object RCs in the imitation task could be due to the similarity in articulation between the object relativizing particle and the past tense morpheme.

Özcan (1997) analyzed the effect of RC type in combination with the grammatical role of the relativized noun in the main clause, that is subject RCs with subject (SS) and object role (OS) and object RCs with subject (SO) and object role (OO) in the main clause. Her comparison of the comprehension patterns of RCs in younger children (mean age: 3;06 and 5;06) with older children (mean age: 7;06) showed a significant effect of age on comprehension. The children's performance increased with age, but there was no significant effect of RC type or RC role. The hierarchy the older children followed was SS>SO>OS>OO, whereas for younger children it was OO>SO>SS>OS. Özcan concluded that the awareness of RC structure appears as early as 3 and the parallelism in the grammatical roles do not facilitate comprehension.

Özge, Marinis & Zeyrek (2010) demonstrated that Turkish children show higher accuracy in the comprehension of subject RCs than object RCs. Both children and adults used more subject than object RCs and children were less accurate in the production of object compared to subject RCs. Children used more avoidance strategies in object RCs compared to subject RCs, children prefer structurally less complex constructions to replace the object RCs. Lower accuracy in object RCs may be attributed to difficulties with the genitive-possessive agreement morphology (Kükürt, 2004). In a recent study, Özge, Marinis and Zeyrek (2015) worked on the online comprehension of RCs in Turkish speaking children and adults in a self-paced listening experiment. Their study revealed that even 5-year-old children depend on morphosyntactic cues for parsing, similar to the adults in their study.

Multiple facts have been suggested to account for this acquisition pattern and have been addressed in a great number of studies (Özge et al. 2009; Kornfilt et al. 2012; Sarılar et al. 2013; Altınkamış et al. 2013). These studies identified four processes to explain the late emergence of RCs:

a) Morphosyntactic processes that consider lack of wh-pronouns and overt complementizers in Turkish RCs, evidenced by the complexity of nominalization and agreement morphology, and the divergence of canonical word order (SOV) in Turkish RCs (Slobin 1986; Kornfilt et al. 2012)

b) Semantic processes that arise froom the necessity of semantic expansion of the simple noun phrase (Sarılar et al. 2013).

c) Pragmatic processes that take into account the availability of simpler equivalent RC-related structures such as coordinated clauses (Slobin 1986) and the *–ki* structure (Dasinger & Toupin 1994; Ekmekçi 1998; Altınkamış et al. 2013; Schroeder 2000).

    d)   Input-related processes which account for the scarcity of RCs in Turkish child-directed speech (Slobin 1986; Altınkamış et al. 2013) and lack of practice of RCs in real life situations (Sarılar et al. 2013).

Given these perspectives, this study employs a usage-based approach into the acquisition of RCs in Turkish. However, in our view there now exists a substantial body of research from a variety of approaches suggesting RCs in Turkish are not late acquired constructions. Kornfilt et al. (2012) and Sarılar et al. (2013) mention that Turkish speaking children are able to produce RCs in an early period both in naturalistic and experimental studies. Moreover, Kornfilt et al. (2012) claim that Slobin's (1986) and Aksu-Koç & Slobin's earlier findings (1985) should be revisited and analysed by means of more detailed analyses of naturalistic data, which is the crucial starting point of this study.

This study suggests that relative clause acquisition is a process which is strongly linked to language experience/linguistic exposure and that input is the main factor that shapes language development. Previous research has already pointed out that the processor is sensitive to frequency and input is crucial in language acquisition (Paradis et al, 2010; Lieven &Tomasello, 2008; Tomasello, 2003). As was highlighted by Hoff & Core (2013) all input is not equal; some input is more supportive of language development than other input. Studies of input and monolingual development have identified several properties of child-directed speech that are positive predictors of children's language development, including the use of a diverse vocabulary, diverse syntactic structures, and de-contextualized language use.

In line with this, the aim of this study is two-fold: to investigate what kind of linguistic experience is available to Turkish children (primarily as a function and form) and to exemplify the properties of RC constructions in child-directed speech in natural linguistic contexts.

1.3   The Usage-based Perspective and Its Implications for RC Acquisition

The usage-based theory belongs to a family of emergentist approaches to language acquisition assuming that children use a variety of domain- general perceptual, social and cognitive mechanisms with the guidance of innate knowledge and mechanisms specific only to language (O'Grady, 2008). Usage-based theory assumes that these domain-general mechanisms of learning are highly sensitive to input properties such as the type-token frequency and semantic and phonological consistency. Hence, the properties of the input drive the morphological acquisition process forward (Lieven & Tomasello, 2008; Tomasello, 2003). Usage-based accounts consider the early acquisition of verbs and their morphology to be concrete and item-based. Accordingly, the correct use of morphology at the early stages of language acquisition is argued not to

be productive, and morphological rules are believed to emerge gradually morpheme by morpheme (Gathercole, Sebastian &Soto, 1999; Pizzuto & Caselli, 1994; Tomasello, 2003). The frequency and consistency of stem+morpheme constructions influence the productive schemas (Lieven & Tomasello, 2008; Theakston, Lieven & Tomasello, 2003). These are acquired through a process of generalization across numerous stored items in the lexicon. Both abstract schemas and language-specific morphophonological forms are interconnected in the lexicon of individuals (Paradis et al., 2010; Lieven & Tomasello, 2008; Bybee, 2008).

According to usage-based accounts, frequency and consistency of morphosyntactic structures in the input the children receive are the key factors predicting acquisition sequences and rates (Paradis et al, 2010; Lieven &Tomasello, 2008; Tomasello, 2003). The different distributional properties of various morphosyntactic structures available in the language influence children's rate of acquisition of those structures. In other words, children's accumulation of language enables them to encounter various language experiences in line with different communicative intentions. Another prominent contribution of usage-based perspectives is the focus on form-function mapping. According to Ninio & Snow (1988), children are exposed to language which is surrounded by morphemes and rules. That is; children acquire item-based and fixed linguistic expressions in discreet subsystems in relation to their functions through their formal features. These lexical, morphological and syntactic characteristics of utterances (form) in the language directed to children is an explicit way of showing the communicative intention (function) of utterances.

Aksu-Koç & Erguvanlı-Taylan (1998) worked on Turkish adult narrative discourse with the aim of analyzing and identifying the functions of RCs. Their analysis revealed that the head of the relative clause has the introduction and re-introducing functions, while the modifying clause has the identification, re-identification and characterization functions (1998: 283).

Kidd (2011) highlights the importance of function and discourse context in the domain of RC acquisition and links the research findings showing children's high sensivitiy to form-function correspondences to usage-based accounts. At the heart of usage-based approach lies the utterance. Tomasello (2000) defines the communicative intention of an utterance as an interaction between two parties focusing on a shared attention through reference to a third party. Then, the next question to ask is what the communicative intentions of RCs in an interaction are. In general, the grammatical function of a relative clause is to modify the noun or the noun phrase that it refers to. In addition to their grammatical role, relative clauses play an important role in discourse. Sentences containing relative clauses in discourse help information to flow in discourse, providing cohesion. They make an introduction to a new topic or set the background for the development of a topic through

elaboration. These properties make RC construction an inevitable part of spoken and written discourse. O'Grady argues for two factors accounting for RC complexity: 1. Prominence, which he defines as the ease with which the processor establishes an aboutness relationship with a nominal, is proportional to the prominence of that nominal's referent with the relative clause (O'Grady, 2011:21) 2. Distance between filler and gap which he describes (2011:22) as 'the difficulty of processing a relative clause increases with the length of the filler-gap dependency (calculated in terms of intervening new discourse referents).

Researchers such as Lewis et al. (2006:452) suggest that the difficulty of RCs is also related to memory in that the distance between the filler and gap places extra burden on working memory. In previous literature on child language acquisition many researchers demonstrated that children master the less difficult patterns before the more difficult ones (O'Grady, 2011:31).

Previous studies on RC acquisition reported that children were struggling in experimental settings where RC acquisition is tested. Kidd (2011) explains that the poor comprehension scores of children reported in previous experimental studies (Arnon, 2011; Brandt et al, 2009; Diessel &Tomasello, 2005) are due to the nature of the tests. He argues that these studies employed act-out tests where the children were asked to comprehend the RC constructions without appropriate discourse context and the test sentences were unnatural both in form and function.

2   The Data: Corpus sets analyzed

In this study, we analyze naturalistic data in order to focus on the usage of RCs in child-directed speech and in children's utterances. All extracts from the data were considered in terms of context and the usage discussed in detail.

RCs in both the children's and the mothers' utterances were hand-counted and extracted from three types of databases. These databases included both longitudinal and cross-sectional data. Data Set 1 and 2 (Sofu, 1995; Türkay, 2005; Altınkamış, et al. 2013) included longitudinal data. Cross-sectional data was obtained from Uçar's PhD dissertation (Uçar, in progress) and was analysed. The first longitudinal database (Data Set 1, Table 1) was based on the transcriptions of 75 recordings (Türkay, 2005). There were five children in this data set, who were between 01;00 and 02;04 and whose parents came from mid-socio economic class.

Table 1. Characteristics of the children and the mothers in the Data Set 1

Child	Age period	Total video-recording sessions	Total video-recordings (min.)	Number of total utterances of the mothers
C1	01;04-02;04	15	675	3673
C2	01;04-02;05	14	630	6183
C3	01;04-02;03	14	630	6047
C4	01;03- 02;03	15	675	6494
C5	01;00- 02;03	17	748	4588

In Data Set 2, there were four children, who were between 02;00 and 03;06. Two of these families were from low-socio economic class and two were from mid-socio economic class. Data Set 2 was based on the transcriptions of 74 recordings (Table 2).

Table 2. Characteristics of the children and the mothers in Data Set 2

Child	Age period	Total video-recording sessions	Total video-recordings (min.)	Number of total utterances of the mothers
C6	02;00- 03;06	19	1140	4130
C7	02;00- 03;06	19	1140	1198
C8	02;00- 03;06	18	1080	1426
C9	02;00- 03;06	18	1080	1241

Data Set 3 (Uçar, in progress) has cross-sectional data. It consists of 21 children, aged between 00;09 and 02;09 and who also came from mid-socio economic class. The children and their mothers were video-recorded in three different contexts; free-play, book-reading and toy-play. It was considered important that different contexts were established since different contexts require different vocabulary and structures. All recordings were already transcribed.

Table 3. Characteristics of the children and the mothers in Data Set 3

Child	Age	Number of total utterances of the mothers
C10	00;09	492
C11	00;10	404
C12	00;11	616
C13	00;11	583
C14	01;00	250
C15	01;00	605
C16	01;01	456
C17	01;02	442
C18	01;03	657
C19	01;04	449
C20	01;08	378
C21	01;10	666
C22	01;11	501
C23	01;11	502
C24	02;00	432
C25	02;03	882
C26	02;05	551
C27	02;07	539
C28	02;08	446
C29	02;09	649
C30	03;00	582

The recordings in the data sets 1 and 2 are of free-play sessions; whereas, in the data set 3, the video-recordings come from three different contexts: free-play, book-reading and toy-play. In the book-reading session, the mothers read the wordless picture book 'Frog, where are you?' by Mercel Mayer. In the toy-play context, the children played with a miniature house, the animals, the kitchen and some construction toys in interaction with their mothers.

3   Analysis

This study adopts an approach used in recent studies with respect to RC acquisition in different languages (Brandt, 2011; Arnon, 2011; Brandt et al. 2009). This approach involves usage-based/functional analyses of the acquisition of Turkish RCs through child-directed speech. The reason for adopting this approach to language acquisition is that it expands the horizon of structural perspectives and provides evidence on the functions of any structure. Across a wide range of studies investigating RC acquisition in Turkish; it is clear that RCs are acquired and produced late in Turkish (for further discussion,

see Kornfilt et al. 2012). Nevertheless; a usage-based point of view into RC acquisition is relevant since it focuses on the functions and communicative patterns of RCs in early language development (Brandt, 2011; Brandt et al., 2009).

3.1 Children's Data

Previous studies report only a very limited number of RCs in the Turkish children's data. At first glance, the data sets used in this study also indicate a scarcity of RCs in the speech of Turkish children. Some examples encountered are provided and analyzed below.

Example and (5) and (6) are from child 7's (C7) recordings from Data Set 1, when she was 02;04 years old. When the variety of the corpus that this paper was based on is recalled, it seems really significant to see very limited number of RCs produced by Turkish children in these data sets.

(5) C7: Yaramaz-lık   yap-*an*-lar-ı   yat-ır-ıyor-lar.
        naughty-DER do-SREL-plural-ACC go to bed-CAUS-PROG-PL
        'They make the naughty ones go to bed.'
(6) EXP: Oyuncak mı kale?
        'Is it a toy castle?'
  C7:   Hayır.
        'No.'
  EXP: Sahici öyle mi?
        'Real, is it?'
  C7:   Yani yık-ıl-an   kale.
           demolish-PASS-AN castle
        'The castle that was demolished'
  EXP: Yıkılan kale.
        'A castle that was demolished'
  C7:   Oyuncak yani.
        'A toy, I mean.'
  C7:   Yıkılan kale olunca da böyle çıt kırılıyor çıt bozuluyor.
        'when it is a castle that can be demolished, it can be collapsed or broken down.'

In example 1, the child uses a headless RC. In headless RCs, the head noun can be recovered from the context or is a general noun (like insan-lar 'people') that can be deleted in the sentence (Özsoy, 1999; Göksel & Kerslake 2005). In headless relative clauses, the verb of the embedded sentence is obligatorily marked with the plural marker in those cases where the deleted referent is a plural noun (Özsoy, 1999). It should be noted here that both relative clause

structures used by children are subject relative clauses which are morphologically simpler than object relative clauses.

Example 2 features the use of another subject RC, with the head noun after. This example shows the use of the passive suffix in combination with the relative clause suffix *–(y)An*, it should be noted here that the child correctly used the subject relativizing suffix when the argument structure is modified by the passive suffix. We provided the context so that it can be clearly observed that this was a productive use by the child, not a mere repetition.

3.2 Turkish Child-directed Speech

Table 4 shows the number of RCs in the Turkish child-directed speech encountered in the three data sets that this study is based on.

Table 4. The mothers' RC and RC-related construction uses in the data sets

	Subject RCs			Object RCs	
Suffixes	-ki	-An	-mIş	-DIK	-AcAk
Data Set 1	60	9 (4)*	0	32 (4)*	3
Data Set 2	332	53 (16)*	3	79 (19)*	13
Data Set 3	7	6	0	18	6 (1)*
Total	399	68 (20)*	3	129(23)*	22 (1)*

*headless RC
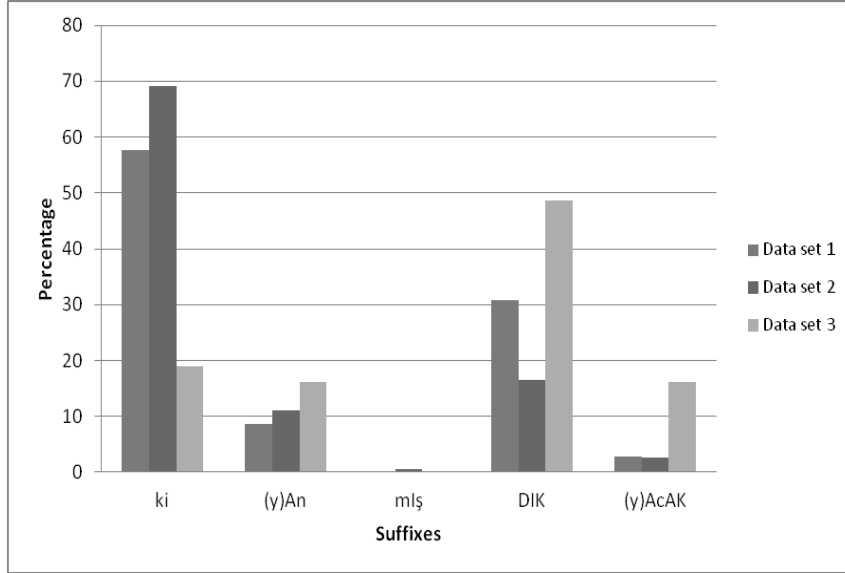
Graph 1- Distribution of the mothers' RC and RC-related construction uses in the data sets

As seen in Table 4, in all data sets, the mothers use object RCs more often than subject RCs when talking with their children. The RC suffix, *–DIK*, was the most frequent one in terms of object RC constructions. As can be clearly observed from Graph 1, the subject RC suffix *–mIş*, is the least frequent structure in all the data sets. The use of *–ki* suffix in all data sets is consistent, especially highly dominant in the second data set.

3.2.1 Examples from the data

In the next part of the analysis we selected extracts from data set 3 to show the different uses of RC and RC-related constructions. We do not provide extracts from the data set 1 and 2 as they were already analyzed in Altınkamış et al. (2013).

The first finding based on Data Set 3 supports the pattern observed by Altınkamış et al. (2013) that in Turkish child-directed speech, *–DAki* structures are frequently used. Extracts 7-10 exemplify the uses of *–DAki* in the Turkish motherese corpus we analyzed. Only those suffixes in constructions that were syntactically and morphologically of interest to this study are given, the rest were translated and are shown in italics.

(7) C10 (00;10) (free-play)
　　MOT: Keşke içer-deki oyuncağ-ın-ı getirseydik anneciğim.
　　　　　　　　in-DAki toy-POSS3S-ACC
　　　　'We wish we could take your toy which was inside.'
(8) C30 (03;00) (book reading)
　　MOT: Bu masal-*daki* çocuğ-un adı neydi?
　　　　　　　　story-DAki child-GEN
　　　　'What was the name of the child who was in this story?'
　　CHI: Bebek.
　　　　'Baby.'
(9) C30 (03;00) (book reading)
　　CHI: Kurbağa da ama gerçe:k.
　　　　'Frog but real.'
　　MOT: Sonra kavanoz-*daki* kurbağa kavanozdan çıkmaya çalışmı:ş.
　　　　　　　　jar-DAki frog
　　　　'Then, the frog which was in the jar tried to come out of the jar.'
(10) C18 (01;03) (free-play)
　　MOT: Hadi sen de pembe kuleyi buraya koy.
　　　　'You also put the pink tower here.'
　　MOT: El-in-*deki* kuleyi buraya koy.
　　　　hand-POSS-DAki
　　　　'Put the tower which is in your hand here.'

Four extracts were selected to illustrate constructions related to the *–DAki* structure, two of which relate to the book reading context and two to the free play context. As was mentioned in the introduction section, the syntactic structure and the morphological formation are much simpler in a *–DAki* construction, compared to RCs. It is also used as a construction, which is a grammatical short-cut of RCs, particularly when the concept of location is required to be emphasized. Note that all instances of *–DAki* contructions function as the object of the main verb, either the direct or the oblique object.

　　According to Goldberg's point of view (1995; 2005), a construction, a complex linguistic sign, is important as it combines a grammatical pattern to a particular meaning/function. In these examples, mothers use *–DAki* construction to provide a referential selection to their children, especially focusing on the place/position of the referent. By doing so, they try to establish joint attention with their children on the object/character they are referring to. It is also economical in terms of language use as *–DAki* is a reduced relative (as discussed in the introduction of this study). To illustrate, if *–DAki* construction is replaced by a complete RC, extract (7) would appear as follows:

MOT: Keşke içer-*de olan/bulunan* oyuncağ-ın-ı getirseydik anneciğim.
        'We wish we could take your toy which was inside mommy.'

Such a replacement is neither cognitively nor lexically advantageous. Frequent use of –*DAki* in child-directed speech can be regarded as a Turkish-specific lexical and grammatical fine-tuning by mothers. In extract (10) above, it can clearly be observed that the mother is using –*DAki* structure to provide her child a context in which she guides referential selection. The mother and child are talking about towers of different colours. Firstly, the mother refers to the tower, focusing on the colour and uses an adjective-noun combination. Then, she talks to her child, using –*DAki* construction when she mentions the location of the object, which hightlights the function of –*DAki* structure in establishing referential selection.

The next part of the analysis focus on 5 extracts of Turkish child-directed speech. Examples (13) and (15) below, were uttered in the book-reading context; whereas, (11), (12) and (14) were from free-play contexts. At first glance, the context-dependency of RCs uses is observed. In the toy-play context, no RCs were observed in the input. Therefore; it is reasonable to infer that RC use/production is a context-dependent. In extracts (11), (12) and (13), the head nouns of RCs are generic nouns such as şey 'thing' and yer 'place'. This is in line with Ozeki's findings in Japanese RC acquisition related study (2011). Ozeki also refers to Dasinger and Toupin's results (1994), claiming that RCs have the function of naming referents. From the functional point of view, this usage of RCs is involved in constituting a name, a category or a generic term as a head noun. Ozeki (2011) found this pattern in Japanese speaking children's early RCs. Though not attested in the Turkish speaking children's RCs productions, the naming referent function of RCs is observed in the Turkish input. Using a RC before a generic head noun, the mother gives a language cue to her child to find the referent.

(11) C16 (01;01) (free-play)
      MOT: Hıh kaşık.
             'Spoon'
      MOT: En *sev-diğ-i*   *şey-ler-den* biri de bu.
             love-OREL-2POSS thing-PL-ABL
             'One of the things that she loves the most is that.'
(12) C13 (00;11) (free play)
      MOT: *Diş-le-yecek*   *birşey* bulmayalım.
             bite-DER-OREL something
             'Let's not find something to bite.'

(13) C26 (02;05) (book reading)

MOT: *Gör-me-diğ-imiz   yer-ler* vardır belki.
see-NEG-OREL-1POSSPL place-PL
'Maybe there are places that we have not seen.'

(14) C20 (01;08) (free-play)

MOT: Başka da *ilgi   çek-ecek   oyuncak* yok ki.
attention get-SREL toy
'There is no other toy that will get (your) attention.'

(15) C14 (01;00) (book reading)

MOT: Gitmiş, köpeğini almış *kır-ıl-an kavanoz-dan* uzaklaştırmış.
break-PASS-SREL jar-ABL
'He went and took his dog away from the jar that was broken.'

Object relative clauses are much more common in child directed speech. Only examples (14) and (15) are subject relative clauses. The RCs in examples (13) and (14) are used in the sentences in the form of existential structure. This pattern shows similarity to what Diessel & Tomasello (2000) refer as presentational relatives, exemplifying that presentational constructions seem to be made up of two clauses but they involve one single proposition (Ozeki, 2011). Therefore; these presentational relatives are morphologically complex in the input but in fact they only transmit one proposition.

Again, the importance of context can be observed from the extracts below, which are only a few of the relative clause structures uttered by mothers mostly in the book-reading context.

(16) C14 (01;00) (book-reading)

MOT: Or(a)da *yık-ıl-mış bi(r) ağaç kovuğ-un-un* yanına gitmiş.
pull down-PASS-SREL one tree hollow-ACC-GEN
'He went next to a tree hollow which was pulled down.'

(17) C14 (01;00) (book-reading)

MOT: Küçük oğlan da artık kurbağ(a)sına *hisset-tiğ-i özlem-den*
feel-OREL-ACC miss- ABL

kurtulmu:ş.
'Then, the little boy is free of the longing that he has felt for his frog.'

(18) C13 (00;11) (free play)

MOT: Değiştirebilirsin annecim [: anneciğim].
'You can change it, mommy.'

MOT: *İste-diğ-in   zaman* değiştirebilirsin kızım.
want-OREL-2POSS time
'You can change it whenever you want.'

(19) C13 (00;11) (free play)
     MOT: bunlar mama.
            'This is baby food.'
     MOT: Senin *yi-yeceğ-in*   *yemek-ler* değil.
                  eat-OREL-2POSS food-PL
            'This is not the food that you will eat.'
     MOT: Bunların *yi-yecek-ler-i*   *yemek-ler* var.
                  eat-OREL-PL-POSS food-PL
            'There is food that these will eat.'

In extracts (16)-(19), it can be observed that the mothers very frequently prefer RCs in a book-reading context. Again, it should be noted that almost all examples are object relative clauses, where the noun following the relativized verb is the object of that verb and formed with *–DIK* or *–(y)AcAK* object relative clause markers. The frequency of RCs in book-reading can be attributed to Givon's view (2009), proposing that RCs appear more when there is more referential demand in the context. Referring to video-recordings of book reading context, it looks plausible to infer that during shared book reading activities, negotiation of reference between the child and the mother is strong. The mother tries to form bridges in her child's mind, helping him/her identifying the referent. Therefore; context dependency of RCs may crucially be affecting their development and emergence pattern in children's early language development.

    Late emergence of RCs in Turkish children's early language development can be attributed to not only the language-specific difficulties of RCs (especially non-subject RCs which are morphologically and syntactically more complex) but also the rarity of RCs in the Turkish input. Since children do not hear RCs frequently in the input they receive, they do not receive enough information on the distributional patterns of RCs. Previous studies have also demonstrated that the RCs types in Turkish motherese are incompatible with the children's RCs productions (Altınkamış et al. 2013). Ozeki (2011) found a common developmental process of RCs between Japanese input and Japanese children's early language development in terms of RC structures. At this point, with the available data that this study is based on, it cannot be concluded that there is a parallelism between Turkish children's RCs development and Turkish input as no systematic RCs productions are observed in the children till 03;06.

4 Discussion

The aim of this study was to test predictions of usage-based accounts in the acquisition of relative clauses in Turkish. The corpus data above highlight some

important considerations. Firstly, the results of this study strengthen the previous findings in the field that RC constructions are scarce in both Turkish children's early language trajectory and in Turkish child-directed speech. Secondly, following the RCs observations above, scarcity of RCs in Turkish speaking children's speech cannot be attributed simply to morphosyntactic difficulty of RCs, as has strongly been claimed in some previous research. Thirdly, usage-based factors within the framework of cognitive and linguistic characteristics of child-mother interaction and language-specific characteristics of Turkish RCs should be considered to address RCs acquisition. The findings of this study support the input-based view put forward by Hoff & Core (2013). As these structures are not common in the speech that the children hear, the production of these structures by children is also infrequent.

The results of this study indicate that the acquisition rate of relative clauses in Turkish is linked to the quantity of input and the frequency of these structures in the input the children receive. There are some forms in Turkish which can assume some of the functions and use of RCs. One of the acquisition-related RC construction that replaces RCs in Turkish is the *–ki* construction, which is syntactically and morphologically much simpler than RC constructions. According to the findings, the -ki construction is a structure that should not be neglected while focusing on the RC acquisition (Ekmekçi 1998; Kornfilt et al. 2012). This study also confirms this claim, as *–ki* structures were commonly used in child directed speech. As can be recalled, Schroeder (2000) claims that *–ki* functions like a copula participle, similar to olan, but *–ki* is only used to form attributive nonverbal clauses in locative, temporal, and genitive predications. Schroeder (2000:206) underlines Erguvanlı's (Erguvanlı, 1980) point of view, stating that "... constructions with the suffix *–ki* may appear to correspond to reduced relative clauses in English''. This study also confirms these theoretical findings in child-directed speech data, since mothers prefer to use *–DAki* constructions frequently while talking to their children. Also, according to the findings by Altınkamış et al. (2013), *-DAki* structure is more frequently used by the Turkish mothers than the other RC types in their child-directed speech.

Kerslake (2007) underlines the robust co-existence of finite and non-finite subordination strategies in Turkish. She regards the fact that finite structures are encoutered mainly in spoken data as an indication of the psycholinguistic difficulty of non-finite structures in Turkish. This study also supports this view in that *–DAki* clauses that we commonly encountered in the child directed speech can be seen as one of them. From a functional perspective, *-DAki* form refers to locative function, which is one of the early developed cognitive notions by children as well as early acquired language item (Aksu-Koç & Slobin 1985). Therefore; its frequent use in the child-directed speech also reinforces children's early exposure to this relative-related construction.

In Ekmekçi's (1998) experimental/imitation study with 3-4-5-6 year old Turkish children,–*DAki* is a construction that the Turkish children use, particularly when they intend to differentiate two things with respect to their places and to avoid giving extra information about the quality of the modified noun. Moreover, in view of the fact that mothers mostly talk to their children in the manner of 'here and now' and referring to things that the child can see, it is understandable that –*DAki* constructions are widely used in child-directed speech. In sum, both from cognitive and linguistic perspectives, –*DAki* constructions can be regarded as a precursor of RC use as a parallel structure to copular form/reduced RC in English, which is also in line with children's cognitively-based developmental sequence. Therefore; functionally equivalent forms of RCs in Turkish may have guided mothers to avoid using frequent RCs, which hinders Turkish children's exposure to different forms of RC constructions. Using Bybee's terms (1985, 1995), Turkish-child directed speech in terms of RCs does not provide children with linguistic environments suitable for entrenchment and abstraction processes. These findings support the fundamental assumptions of usage-based approached that input influences acquisition and are consistent with previous research (Paradis et al, 2010; Gathercole & Hoff 2007; Gathercole & Thomas, 2005).

It can also be observed that object relative clauses are more common in child directed speech than subject relative clauses. This finding is parallel to the discourse functions of objects RCs in child-directed speech, in that object RCs refer to elements previously mentioned in the discourse.

5   Conclusion

This study is a re-attempt to focus on Turkish RC acquisition from a functional perspective through data-based contribution. The data showed that morphosyntactic acquisition of relative clauses in Turkish is sensitive to input factors. Turkish allows simple constructions such as –*DAki*, coordinated clauses and simple sentences to compensate for the functions of RCs in language interactions, so this does not encourage vigorous motivation to use RCs. Based on the corpus analyzed, it can be emphasized that Turkish child-directed speech in naturalistic data does not surround children with various uses of RCs, which causes lack of linguistic experience for Turkish children. Overall, the results of this study are consistent with the usage-based theory, underlining the importance of input. It is quite plausible to accept that RCs are scarcely used in Turkish as there are functionally facilitative constructions available. In this paper, it is also argued that the discourse behaviour of RCs may be a key factor in explaining the scarcity of RCs in speech directed to children. The communicative requirements of the interaction between mother and child is directlt related to its context. RCs are observed to be produced in contexts

which require referential demand, which is the book reading context in this study, so it is plausible to infer that any context reinforcing the involved parties to focus on cognitively referential selection may result in more RCs in language productions. Future studies should consider these patterns observed in relation to the acquisition of RCs and child-directed speech. These results also add to the prior literature strenghtening that findings based on data-based naturalistic corpora should always be handled with the results of experimental research.

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