Turkish Mothers' Use of Complementation in Storytelling*

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ABSTRACT: This study investigated whether the amount and types of nominalizing complements Turkish speaking mothers use in storytelling vary by their preschool children's age. Eighty-five middle-class mothers narrated a wordless storybook to their children (36 to 72 months). Mothers' story-related talk was coded for complements formed with the nominalizing suffixes *-mA*, *-mAK*, *-DIK*, *-(y)AcAK*. These complement structures were then coded for whether they contained mental state verbs. Contrary to expectation, the results demonstrated no difference in mothers' use of complementation by their children's age. However, there were significant differences in suffix type. *-mAK* constructions were found to be the most frequently used complement type, followed by *-DIK*, *-mA*, and *-(y)AcAK* constructions. In addition, complement structures that contained a mental state verb as the complement verb were found to be the least frequent. The results show remarkable similarities with findings from the acquisition of complementation literature and are discussed in terms of their implications.

Keywords: nominalizing complements, child-directed speech, mother-child storytelling, complements with mental state verbs, preschool children

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Annelerin Hikaye Anlatımı Bağlamında Kullandıkları Yantümce Yapıları

ÖZ: Bu çalışma, annelerin çocuğa yönelik hikaye anlatımı bağlamında kullandıkları yantümce yapılarını incelemekte, bu yapıların çocuğun yaşına göre değişiklik gösterip göstermediğini araştırmaktadır. 85 anne tarafından 36 ila 72 aylık çocuklarına resimlerden oluşan bir hikaye kitabı okunmuş ve toplanan dil verisi *-mA, -mAK, -DIK, -(y)AcAK* yantümce ekleri içeren yapılar açısından kodlanmıştır. Buna ek olarak, bu yapılar arasında zihinsel durum içeren eylemler sınıflandırılmış ve analiz edilmiştir. Beklenenin aksine, sonuçlar anneler tarafından kullanılan yapıların anaokulu çağındaki çocukların yaşlarına göre değişiklik göstermediği yönündedir. Ancak, tercih edilen ek konusunda farklılıklar gözlemlenmiştir. En sık kullanılan yantümce türü, -mAK eki ile oluşturulan yapılar olmuştur. Daha sonra ise kullanım sıklığı sırasıyla, -DIK, -mA ve *-(y)AcAK* yapıları tercih edilmiştir. Zihin durumu içeren eylemin yantümce eylemi olarak kullanıldığı yapılar en seyrek gözlemlenen yapılar olmuştur. Sonuçlar daha önce alanda yapılan çalışmaların sonuçlarını destekler niteliktedir, zihinsel eylemlerin edinimi konusundaki sonuçlar detaylı tartışılmaktadır.

Anahtar sözcükler: tümleç yantümceleri, çocuğa yönlendirilmiş konuşma, anne-çocuk hikaye anlatımı, zihinsel durum içeren eylemler, okul öncesi dil edinimi

1 Introduction

This study focuses on Turkish mothers' use of complementation during storytelling with the aim of investigating whether mothers use syntactically more complex structures as a function of their children's age. From a sociocultural perspective, mothers who are sensitive to their children's language development would appropriate their language to their children's level. Consequently, we predict that mothers of older preschoolers would use more complement clauses as compared to mothers of younger preschool children. Syntactic complexity in child directed speech (CDS) has been found to be related to important child outcomes. Previous research with English speakers has found that the frequency and diversity of syntactic structures in CDS predicts children's vocabulary and syntactic development (e.g., Naigles & Hoff-Ginsberg, 1998; Huttenlocher, Waterfall, Vasilyeva, Vevea & Hedges, 2010). For example, in a longitudinal study with 14 to 46 months olds, Huttenlocher et al. (2010) has shown that caregiver clausal diversity and frequency of complex clauses predicted children's clausal diversity.

Studies that focus on Turkish speaking mother-child dyad's storytelling interaction is limited. This study is a first attempt at providing a detailed understanding of complementation in middle-class Turkish mothers. In order to provide a comprehensive understanding of Turkish mothers' CDS, we adopted a

detailed coding scheme. The scheme included all complementation formed by suffixes (i.e., *-mA, mAK, -DIK, -(y)AcAK*) as well as a detailed coding of whether complementation included mental state words. Complementation that includes mental state verb in the matrix position allows the speaker and the listener to present the contents of a propositions as a function of a mental state, that is, to communicate the content of mental processing (e.g., content of desires, motivations, and cognitions). When mental state verbs are used in the complement position, they present a mental state as the object of another action or process. Languages can also use nuanced lexical and syntatic elements to express certainty and truth value of propositions about cognitions (e.g., Shatz, Diesendruck, Martinez-Beck, & Akar, 2003).

Interestingly, complementation has been studied almost exclusively with children's production and not in CDS (e.g., de Villiers, 2005; Nakipoğlu & Yıldız, 2015). The current study aimed to fill a gap in the literature with a detailed investigation of mothers' use of complementation in the storytelling context.

1.1 Complementation in Turkish

Complementation is defined as the special instance of complex sentences in which one proposition serves as the argument within another proposition (Bloom, Rispoli, Gartner, & Hafitz, 1989). The term complement clause refers to clauses which function as subject or object argument of matrix predicates (Noonan, 1985). There are basically two types of complement clauses in Turkish: i. Finite complement clauses ii. Non-finite complement clauses. Finite complement clauses are embedded with the complementizers *diye* or *ki* or show no complementizer. Finiteness is determined by the ability of a clause to serve as an independent sentence; such clauses are marked for tense and agreement, but do not get case marking (Erguvanlı-Taylan, 1998). Non-finite complement clauses are embedded with the verbal noun suffixes *-mAK/mA* or *-(y)Iş* (not very productive thus excluded in this study) or with the participle suffixes *-DIK* or *-(y)AcAK*. In line with the literature these suffixes will be referred to as nominalizing suffixes in this paper (Erguvanlı-Taylan, 1998).

Recent studies have shown that the choice of the nominalizing suffix is determined to a great extent by the lexical semantics of the matrix predicate, and that these suffixes also have some inherent semantic value (cf. Erguvanlı-Taylan, 1998; Özsoy, 1999; Csató, 2010). Consequently, matrix predicates have been classified according to the suffix they select. For instance, the matrix predicate *inan-* 'believe' has been suggested to occur with complement clauses with the participle *-DIK* and not with the verbal noun suffix *-mA* as in (1b) (Erguvanlı-Taylan, 1998; Csató, 2010).

(1) a. [Bu mektub-u Ali'nin yaz-dığ-ı-na] inan-ıyor-um.
this letter-ACC Ali-GEN write-DIK-3SG-DAT believe-PROG-1SG
'I believe that Ali wrote this letter.' (Erguvanlı-Taylan 1998).
b. *Bu mektub-u Ali'nin yaz-ma-sı-na inan-ıyor-um.
this letter-ACC Ali-GEN write-MA-3SG-DAT believe-PRES-1SG

Erguvanlı-Taylan (1998) argues that several aspects of language play a role in determining the nominalizing suffix the complement verb will take. These include the semantic properties of the matrix predicate, and the semantic properties of the nominalizing suffixes. Erguvanlı- Taylan classifies the complement taking verbs into the following subcategories according to the nominalizing suffix they choose in their complement clause:

(i) Verbs that only allow participles *–DIK/-(y)AcAK* as the nominalizing suffix. They are mostly cognitive verbs and express epistemic modality, i.e., can be used to evaluate the truth value of the embedded proposition. Examples include *emin ol-* 'to be sure', *fark et-* 'to notice', *iddia et-* 'to claim', *inan-* 'to believe', *itiraf et-* 'to confess', *öğren-* 'to learn', *pişman ol-* 'to regret', *reddet-* 'to deny', *san-* 'to suppose'.

(2) Git-tiğ-i-ni itiraf et-ti / iddia et-ti.
go-DIK-3SG-ACC confess-PAST / claim-PAST
'He confessed/claimed that he went.'
(3) *Git-me-si-ni itiraf et-ti / iddia et-ti.
go-MA-3SG-ACC confess-PAST / claim-PAST

(ii) Verbs that take nominalized complement clauses constructed only with the verbal noun suffix –mA. Matrix predicates that only take complement verbs with *-mA* express deontic modality (i.e., the addresser's attitude towards the action described by the complement clause). One subgroup expresses emotional attitudes, e.g., *affet-* 'to forgive', *beğen-, hoşlan-, sev-* 'to like', *kız-* 'to get angry', *kork-* 'to be scared', *nefret et-* 'to hate', *öv-* 'to praise', *şikayet et-* 'to complain', *utan-* 'to be ashamed'.

(4) Git-me-si-nden kork-tu.
go-MA-POSS3SG-ABL afraid-PAST
'He was afraid of him/her leaving'

Another subgroup of verbs expresses command, request, wish, will, hope, and expectation, e.g. *arzu et-*, *dile-* 'to wish', *bekle-* 'to expect', *iste-* 'to want'.

(5) Git-me-si-ni arzu et-ti.
go-MA-POSS3SG-ACC wish-PAST /wait-PAST
'He wished that he/she left.'

A final subgroup of verbs expresses obligation, necessity, permission, or possibility, e.g. *izin ver-*, *müsaade et-* 'to permit', *lazım (ol-)* 'to be necessary', *mecbur ol-* '(to be) obliged', *mümkün (ol-)* '(to be) possible', *emret-* 'to order', *önle-* 'to prevent', *şart (ol)-* '(to be) obligatory', *yasakla-* 'to forbid'.

(6) Git-me-si-ne izin ver-di-m.
go-MA-POSS3SG-ACC give permission-PAST-1SG
'I let him go.'

(iii**)** One group of predicates is said to occur with both complementation types (either with participles *–DIK/-(y)AcAK* or the verbal noun suffix*–mA):* some of these are cognitive predicates, e.g. *anla-* 'to understand', *bil-* 'to know', *hatırla-* 'to remember'; some are emotional predicates, e.g. *bozul-* 'to resent', *içerle-* 'to resent', *sevin-* 'to be pleased', *memnun ol-* 'to be pleased', *kabul et-* 'to accept', *şaş-, şaşır-* 'to be surprised'.

(7) Git-me-si-ni / git-tiğ-i-ni anla-dı-m.
go-MA-POSS3SG-ACC understand-PAST-1SG
'I understood his leaving.'

As Erguvanlı-Taylan (1998) demonstrates, there is an intimate relation between the semantic quality of the matrix verbs and the suffix they choose. It is important to note that these matrix verbs mostly express epistemic, volitional or deontic stances. In cases where the complement verb expresses an internal or mental state, the complementation structure enables speakers to reflect on a mental state. These mental states can include but are not limited to desires, emotions and cognitive states. Cognitive states which express epistemic stances to reality can be further detailed according to certainty, modality and perspective. In this vein, Johanson (2013) further notes that *-DIK* complement clauses express propositions with a possible truth value. The participal suffix *-DIK* is required by matrix predicates capable of assessing the truth value (factivity) of the embedded proposition. However, exceptions exist in the form of non-factive predicates. These include but are not limited to constructions with *san-* 'to falsely think' and *tahmin et-* 'to suppose' that either respectively express false belief (as in *san-*) or uncertainty as in (*tahmin et-*):

(8) Ahmet, [Ali'nin git-tiğ-in-i] san-dı.
Ahmet Ali-GEN go-DIK-POSS3SG-ACC believe-PAST
'Ahmet believed that Ali went / had gone.'

(9) Ahmet, [Ali'nin git-tiğ-in-i] tahmin et-ti.
Ahmet Ali-GEN go-DIK-POSS-ACC suppose-PAST
'Ahmet supposed that Ali had gone.'

The participial suffix in the examples (7) and (8) cannot be replaced by the verbal noun suffix *-mA* e.g. **git-me-si-ni* (go-MA-POSS-ACC).

Non-factive matrix predicates such as *iste-* 'to want' may occur with clauses formed with the verbal noun suffix *-mA*:

(10) Ahmet, [Ali'nin git-me-sin-i] iste-di.
Ahmet, Ali-GEN go-MA-POSS-ACC want-PAST
'Ahmet wanted Ali to go.'

In a similar vein, Göksel & Kerslake (2005) underline the fact that *-DIK/-(y)AcAK* clauses are marked for tense whereas *-mA* clauses are not. As stated in Göksel & Kerslake (2005: 423, 424): '*-DIK/-(y)AcAK* clauses are used almost exclusively in sentences that have to do with the factual status or some aspect of its occurrence (who, what, where etc.). The main or subordinate predicate in such sentences, if nominal, expresses concepts such as truth or falsehood, certainty or uncertainty. If verbal, it is typically a verb expressing some cognitive process (knowledge, understanding, belief, opinion, etc.) or communication (asking, saying etc.)'.

1.2 Children's Acquisition of Complementation

Bloom et al. studied acquisition of complementation between two and three years with longitudinal data from 4 children acquiring English. They argued that complement taking verbs are developmentally interesting for both linguistic and psychological reasons. Linguistically, they are the first form of complex structures to emerge. Psychologically, they refer to mental states, which reflect subjective attitudes of the speaker or the other agents. They proposed that learning the structure of a language is verb-dependent (Bloom, 1991). In line with this argument, their study revealed subcategorization of complement structures by matrix verbs, where children's grammatical knowledge for complementation was specific to matrix verbs rather than learning a general rule for complementation. They concluded that the acquisition of complementation depends on the child's ability to hold two propositions in his mind, where one proposition is a simple sentence and the other one includes a mental attitude

towards that proposition. Similar positions have also been taken by psychologists, most notably J. de Villiers and P. de Villiers (2000), who propose that the syntactic structure of complementation enables speakers to embed belief propositions in hierarchical linguistic structures. According to these psychologists, children learn to reflect on mental states through the acquisition of complementation (de Villiers, 2005).

Aksu-Koç (1994) analyzed the use of complement clauses in the narratives of Turkish preschoolers (age 3 to 5), 9-year-olds and adults elicited by the wordless picture book "Frog, where are you?" (Mayer, 1969). Nominal constructions with *–mAK* were the most frequent in children's discourse and they mostly occurred with modal verbs such as *iste-* 'want' and *çalış-* 'try' at age 3, and with aspectual verbs such as *başla-* 'start' and *devam et-* 'continue' at age 5. The next most frequent suffix used in complementation was found to be *-DIK*. These complement structures used a cognitive/perceptual matrix verb (e.g., *bil-* 'know', *anla-* 'understand', *gör-* 'see', *farkında ol-* 'be aware of'). The least frequent uses occurred with suffixes *-mA* and *-(y)AcAK*. *–mA* complementation was only encountered once in this data and was used with the matrix verb *söyle-* 'tell' at age 9. None of the children used a *-(y)AcAK* construction. These results revealed that complement clauses other than infinitival complements with *–mAK* were late to appear in children's narratives. Aksu-Koç suggested that the difficulty of *–mA* clauses is probably due to conceptual rather than syntactic complexity per se. She attributed the scarcity of *–mA*, *-DIK* and *-(y)AcAK* to the context of storytelling.

Analysis of naturalistic data (Altan, 2005) during storytelling and play showed that *–mAK* nominalizations with the matrix verb *iste-* 'want' were the first to appear in 2- to 3 -year-old children's speech. This data revealed that the second nominalizing suffix acquired by children was the verbal noun suffix *–mA*. The *–mA* suffix was used with the main clause predicates *iste-* 'want', *gerek* 'necessary', *bil-* 'know', *öğren-* 'learn' and *lazım* 'necessary'. This data suggests that children start acquiring *–mA* structures at about 3 years of age. The findings of Altan (2005) paralleled Aksu-Koç (1994) in that the most frequent construction in children's early language was the infinitive *-–mAK* and the least frequent was the participle *-(y)AcAK* nominalizations. In line with these findings, in an experimental study with 2- to 5-year-olds, Altan (2007) found that the complement clauses formed with the infinitive suffix *–mAK* were the first to be acquired and the first to be comprehended. *–DIK* participle was the second nominalizer acquired, followed by the *–mA* verbal noun suffix. Congruent with previous findings, *-(y)AcAK* participle was acquired last. The reasons for the observed acquisition order have to do both with the type of matrix verbs, their semantic complexity and pragmatic function, as well as the syntactic complexity of the structure.

Using a picture prompt-elicited production task with 10 children (mean age 4;5), Nakipoğlu and Yıldız (2015) investigated the acquisition of complementation in Turkish. The results showed that children find it challenging to accurately select complementizers as evidenced by their errors. A developmental difference between 3-year-old and 4-year-old children was observed where the performance of 4-year-olds is almost adult-like. Young children's errors in producing complement structures reveal that the cues children rely on at the outset can potentially be misleading and lead to ungrammatical forms.

These studies show that complement structures in young Turkish children's speech is infrequent. While Aksu-Koç suggests, this is likely caused by the conceptual complexity of complementizing constructions, it is also the case that *-DIK, -(y)AcAK,* and *-mA* are syntactically more complex since they take person/number and case. An alternative reason may also be that children hear *–mA, -DIK* and *-(y)AcAK* constructions less frequently in CDS. It is possible that other types of structures replace nominalizations in everyday CDS. For this reason, the current study will investigate the relative frequency of mothers' use of complement structures.

1.3 Importance of the Syntactic Complexity of Input for Language Outcomes

Huttenlocher et al. (2010) found, in a study of caregiver input and language growth between 14 to 46 months, both caregivers' clausal diversity and the frequency of their use of complex clauses predicted children's clausal diversity. 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.

The frequency of complex structures in input is positively related to children's lexical and grammatical development. Marchman, Martínez, Hurtado, Grüter, & Fernald (2017) worked on caregiver talk to young Spanish-English bilinguals and they reported a critical role of verbal engagement between caregivers and children in shaping children's early language outcomes in both languages they were learning.

Altan and Hoff (2018) compared the number and frequency of complex structures native and non-native English-speaking mothers use while speaking to their 2.5-year-old kids. Syntactically complex structures were found to be more frequent in the speech of native speakers. These findings suggest that input provided by native speakers provides more frequent models of complex structures than nonnative input. Altan, Hoff, and Altınkamış (2018) found a

difference in the number and types of complex structures that children produce depending on whether they are monolingual or bilingual speakers. Their study underlines that input quality is as important as quantity.

Both Altınkamış, Altan, and Sofu (2014) and Altınkamış and Altan (2015) suggest that relative clause acquisition is a process which is strongly linked to language experience/linguistic exposure. They conclude that the late emergence of relative clauses (RCs) in Turkish children's early language development can be attributed to not only the language-specific difficulties of RCs (especially the morpho-syntactically more complex non-subject RCs) but also their scarcity in the Turkish input. Since children do not hear RCs frequently in the input, they do not receive enough information on the distributional patterns of RCs. In line with the usage-based approach (Lieven & Tomasello, 2008; Tomasello, 2003), Altınkamış et al. (2014, 2015) claim that frequency and consistency of morphosyntactic structures in the input the children receive are the key factors predicting acquisition sequences and rates.

Studies that have focused on mother-child interaction in story telling in Turkish, have mostly investigated the effects of the pragmatic aspects of the interaction (i.e., dialogic storytelling) on child outcomes (Metin & Gökçay, 2014). Parallel with the literature that focuses on English-speaking children, myriad benefits including literacy (e.g., reading comprehension, vocabulary) and social outcomes (e.g., mother-child attachment, socio-cognitive reasoning about narratives) of dialogic storytelling has been documented, both when the reader is the mother or the teacher (Çelebi-Öncü, 2016; Ergül, Akoğlu, Sarıca, Tufan & Karaman, 2015). The current study is the first attempt at investigating the syntactic complexity of mothers' language in storybook narrations.

1.4 The Relevance of Complementation for Socio-cognitive Child Outcomes

The effect of children's general language abilities on their socio-cognitive skills, especially for theory of mind (ToM), has been widely and consistently documented for both typically developing (e.g., Milligan, Astington, & Dack, 2007) and atypically developing children such as children with specific language impairment (e.g., Nilsson, & de Lopez, 2016). Researchers who espouse the view that language is critical for ToM development have focused on three different aspects of language competence and input. These are: lexical/semantic aspects in the form of words that mark mental processes and states (Bartsch & Wellman, 1995), sentential complements (de Villiers & de Villiers, 2000), and pragmatics of language especially perspectives as presented in extended conversational exchanges (Harris, 2005). Longitudinal studies have shown relations between early language and later ToM competence with English-speaking children (Astington & Jenkins, 1999; Slade & Ruffman, 2005).

Most studies that have looked at the role of word level factors (i.e., mental state language) have focused on child-directed speech of mothers. Two recent meta-analysis have documented that total mental state language in storytelling is related to children's ToM in English-speaking samples (Devine & Hughes, 2018; Tompkins, Benigno, Lee, & Wright, 2018). The study of the pragmatic aspects of language as they relate to ToM has either focused on the nature of the home literacy environment such as the frequency of storytelling practices or the different pragmatic uses of mental state language. It is important to note that research in this area is very limited, yet there is renewed interest in the best possible ways to investigate the proposed relation (Ilgaz & Allen, 2020; Ruffman, Puri, Galloway, Su, & Taumoepeau, 2018). Nevertheless, some preliminary data can be taken as impetus for further inquiry. For example, it has been found that the frequency of storytelling at home is related to children's ToM competence (e.g., Adrián, Clemente, Villanueva, & Riefe, 2005). Another example that evidences this relation shows that the diversity of mothers' pragmatic use of the word `want` when describing pictures depicting differently valenced contexts (i.e., positive, negative, need-neutral) to their young children predicted their children's ToM gains over a 6-month period (Ruffman, et al., 2018).

In contrast to the lexical and pragmatic aspects of language, syntax (specifically complementation) has been studied in children's language competence, however not as an aspect of CDS that could support ToM development. The reason for this discrepancy can be found in the differences in the theoretical rationale for how language affects ToM development. While research that seeks relations between lexical or pragmatic aspects of language and ToM have mainly been conducted from a socio-cultural perspective, research that focuses on syntactic competence has adopted a stance in which language is conceptualized as an enabler of sophisticated false belief reasoning. In the former view the language children hear in meaningful contexts, supports children's conceptual understanding of epistemological states (e.g., Nelson, 1996, 2005, 2007). In contrast, in the latter perspective the ability to use embedded propositions enables children to engage in hierarchical reasoning about epistemological states (e.g., P. de Villiers, 2005). Evidence for both relations exist in the literature though such evidence has been more consistently documented for lexical aspects (for meta-analytic reviews see: Devine & Hughes, 2018; Tompkins, Benigno, Lee, & Wright, 2018) as compared to complementation (de Villiers & Pyers, 2002).

1.5 Current Study

In the current study, we conducted a detailed investigation of the nature of mothers' use of complementation in storytelling contexts with Turkish-speaking

preschoolers. Given that this is the first study to investigate complementation in Turkish mothers' storytelling, we elected to adopt detailed coding schemes both for non-finite complement clauses and also for mental state verbs. Based on previous literature we coded for complementation structures that were formed by the suffixes: *-mA, mAK, -DIK, (y)-AcAK*. In addition, both the complement and matrix verbs were categorized as mental or non-mental using an adaptation of Bretherton & Beeghly's (1982) coding scheme. From a sociocultural perspective, mothers who are sensitive to their children's language development would appropriate their language to their level. Such appropriation would include adjustments of content but also of syntactic complexity used to communicate epistemic information. Consequently, we predict that mothers of older preschoolers would use more complement clauses as compared to mothers of younger preschool children.

2 Method

2.1 Participants

This study has been conducted with 85 Turkish- speaking mothers and their children between the ages of 3 and 5. The child sample showed near perfect equal distribution of gender (44 girls). The sample included 30 3-year-olds (M = 41.38 months, SD = 2.95, Range = 36 to 47 months), 30 4-year-olds (M = 54.23 months, SD = 3.63, Range = 48 to 59 months), and 25 5-year-olds (M = 63.29 months, SD = 3.67, Range = 60 to 72 months). Preliminary analysis showed that each age group was significantly different than the next in terms of age in months (all ps <.001) (See *Table 1*). In addition, analyses revealed that there was no difference in age in months according to gender (M_{Girls} = 52.19 months; M_{Boys} = 52.54 months).

Table 1. Means and (standard deviations) of age in months by gender and age in years

	3-year-olds		4-year-olds		5-year-olds	
	Girls (n = 20)	Boys (n = 17)	Girls (n = 15)	Boys (n = 18)	Girls (n = 14)	Boys (n = 12)
Age in months	41.85 (*2.85*)	40.29 (*3.16*)	55.13 (*2.50*)	53.56 (*4.09*)	62.79 (*3.02*)	64.33 (*4.66*)
Total	41.14 (*3.05*)		54.27 (*3.50*)		63.50 (*3.86*)	

The age range of the mothers was between 25 and 51 (M = 36.01, SD = 5.31). The education level of the participants was high. Only 3.5% had education level lower than high school whereas 9.4% had a high school, 51.8% had a university, 23.5% had a master and 11.8% had a PhD degree. Based on mothers' report of their perceptions of income, majority of the families reported to be from high SES backgrounds (56.5%), the next most frequent SES evaluation was middle-SES with 31.8%, followed by 10.6% reporting very high level, and only 1.2% reported to be from low level.

The participants were recruited through announcements to a large Holding Group, University's Alumni Association and preschools in Ankara. Before participating in the study, both parents signed the consent form that was approved by Bilkent University Ethics Committee. All participating children received small gifts (e.g., crayons, coloring book) for their participation.

2.2 Materials

2.2.1 Demographic Form

The demographic form consisted of questions related to the parents' age, education, job and child's birth date, number of children in the family, and perception of income.

2.2.2 *Wordless Story Book*

Mothers were asked to narrate the wordless picture book, "Frog, where are you?" (Mayer, 1969). This book contains 24 pictures that tell the story of a boy who loses his frog and embarks on an adventure to find the frog with the help of his dog. The story contains multiple episodes marked by the protagonist's attempts to find the frog at different locations. The story ends with the boy and his dog finding their frog who had escaped to be with his family. At the end of the story the boy and the dog take a frog with them home.

We chose to use this book for several reasons. One important reason was to provide mothers with scaffolding to produce extended narratives that mimic their natural language. This book contains multiple episodes (attempts at finding the frog) which are only meaningful when the protagonists' (the boy and the frog) mental states are considered in relation to their actions. Secondly, we chose this book because it is not commercially available in Turkey, which meant that familiarity would not be a confounding variable. Lastly, this book has been used to collect language data from mothers and children in various language and cultures to investigate both CDS, and also child outcomes (e.g., Berman & Slobin, 1994; Melzi & Caspe 2005; Melzi, Schick & Kennedy 2011; Ögel-Balaban, 2015; Slobin, 2000; Slobin, 2005; Verhoeven & Strömqvist, 2001).

2.3 Procedure

The data were collected at Bilkent University Developmental Psychology Research Center (Bil-Ge: Bilkent Gelişim Psikolojisi Araştırmaları Merkezi). The data was collected as part of a larger study. When mother-child dyads arrived at the lab, the children were invited into a playroom. Each child first completed a warmup session where they played with a research assistant, followed by a standard set of tasks which belong to the larger study and will not be elaborated here. During this period, the mothers filled out the demographic form, and were asked to take a look at the wordless story book. The mothers were told that they would be asked to tell the story in the book to their children like they do at home. They were also told that there was no right or wrong in the telling of the story, and however they made meaning of the pictures would be acceptable. Upon the completion of the child's work in the playroom, the mother was invited in. The mother and the child played for another 10 minutes with toys, in order for the mother to feel comfortable in the room. The storytelling started when the researcher entered the room to give the book to the mother.

2.4 Coding

All storytelling sessions were video recorded. These sessions were later transcribed verbatim for coding. As a first step, we selected all talk that happened in reference to the story. Talk that referenced the logistics of the book reading situation (e.g., where to sit, how to hold the book or turn the pages) and talk to get the child to attend back to the book was not selected for coding. Similarly, extended talk that referenced events outside the story (e.g., a visit to a family member) were not included in coding even when they were inspired by the events in the book (e.g., seeing a pond).

The transcripts of story-related talk were coded in two tiers. In the first tier, we coded for complementation based on Aksu-Koç (1994) and Altan's (2007) work. Accordingly, complementation in mothers' narratives were divided into groups by the nominalizing suffixes used (i.e., *–mAK*, *-mA*, *-DIK*, *-(y)AcAK*). In line with previous work, nominalizing suffixes marking a relative clause or an adverbial clause were not included in the coding scheme.

All coded complements were then categorized according to whether the complement and matrix verb was mental vs. non-mental. The mental state coding was based on Bretherton and Beeghly (1982) and was previously developed by the first author for a different study (Bozbıyık, Ilgaz & Allen, 2017). These subcategories are perception (e.g., *to see, to hear*), physiological (e.g., *to be tired*), desire (e.g., *to want*), motivational (e.g., *to try*), affect (e.g., *to be angry*) and cognitive (e.g., *to know*). Any verbs outside of these categories are taken as non-mental.

All authors coded 10% of the data, and reviewed agreement. This allowed for both training to code with high fidelity. The third author coded all the transcripts. The second author was the golden coder and coded every fifth transcript. If the inter-rater reliability was below 90% on the fifth transcript, the third author was re-trained by the golden coder and 90% inter-rater reliability was obtained. This procedure ensured that the coding was convergent with the initial coding scheme, and consistent throughout the coding of the 85 transcripts.

Each tier of our coding included 4 main categories (4 suffix categories and 4 mental/non-mental combination categories). In what follows, we present examples of each of these categories. We used examples from the data except in two categories that were not observed in our sample (i.e., Non-Mental & Non-Mental with participle *-(y)AcAK*; Mental & Non-Mental with participle *-(y)AcAK*).

(i) Non-mental / Non-mental: Both the complement and the matrix verbs are non-mental state verbs.

(11) (Mother of a 5;0 boy)
-mAK: Kurbağa-yı ara-may-a başla-mış-lar.
frog-ACC search-MA-DAT start-PAST-3PL
'(They) began to look for the frog.'

(12) (Mother of a 4;6 boy)
-mA: Köpeğ-i-ne ses çıkart-ma-ma-sı-nı söyle-miş.
dog-POSS3S-DAT sound make-NEG-MA-POSS3S-ACC tell-PAST
'(He) told his dog not to make a sound.'

(13) (Mother of a 3;6 girl)
-DIK: Oku-yalım mı bu-nun ne ol-duğ-u-nu?
read-OPT1PL QUE this-POSS3S what be-DIK-POSS3S-ACC
'Shall we read what it says?'

(14) *–(y)AcAK*: Ecem tekrar gel-eceğ-i-ni söyle-di.
Ecem again come-ACAK-POSS3S-ACC say-PAST
'Ecem said that she would be coming again.'

(ii) Non-mental / Mental: The complement verb is a non-mental state verb, but the matrix verb is a mental state verb.

(15) (Mother of 4;8 girl)
-*mAK*: Ufacık bir kavanoz-un içinde yaşa-ma-ya
tiny a jar-GEN inside-POSS3S-DAT live-MA-DAT
çalış-ıyor-muş.
try-PROG-PAST
'He was trying to live inside a tiny jar.'

(16) (Mother of a 5;0 boy)
-*mA*: Kurbağayı koru-ma-n-ı ist-iyor-um.
Frog-ACC protect-MA-POSS2S-ACC want-PRES-1SG
'I want you to protect the frog.'

(17) (Mother of a 3;7 girl)
-*DIK*: Ben o-nun bir hayvan ol-duğ-u-nu düşün-dü-m.
I it-GEN an animal be-DIK-POSS3S-ACC think-PAST-1SG
'I thought that it was an animal'

(18) (Mother of a 3;7 girl)
-*(y)AcAK*: Mete o deliğ-in altına gir-miş
Mete that hole-GEN under-POSS3S-DAT
ol-abil-eceğ-i-ni düşün-müş.
be-ABIL-ACAK-POSS3S-ACC think-PAST
'Mete thought that (it) might have snuck into that hole'

(iii) Mental / Non-mental: the complement verb is a mental state verb whereas the matrix verb is a non-mental state verb.

(19) (Mother of a 3;5 boy)
-*mAK*: Anne-si-ni, gör-me-ye gel-miş bura-ya.
mother-POSS3S-ACC see-MA-DAT come-PAST here-DAT
'(He) came here to see (his) mother'

(20) (Mother of a 4;5 girl)
-*mA*: Uyu-ma-mız lazım de-di-m.
sleep-MA-POSS1PL have to say-PAST-1SG
'I said that we had to sleep'

(21) (Mother of a 5;1 girl)
-*DIK*: Çok sevin-dik-leri-ni söyle-miş-ler.
very be happy-DIK-POSS3PL-ACC say-PAST-3PL
'(They) said that (they) were very happy.

(22) *-(y)AcAK*: Bahar uyu-ycağ-ı-nı söyle-di.
Bahar sleep-ACAK-POSS3S-ACC say-PAST
'Bahar said that she was going to sleep.'

iv) Mental / Mental: Both verbs are mental state verbs

(23) (Mother of a 3;5 girl)
-mAK: Deliği gör-mek isti-yor musun?
hole-ACC see-MAK want-PRES QUE-2SG
'Do you want to see the hole?'

(24) (Mother of a 4;11 boy)
-mA: Sen-in ban-a yardımcı ol-ma-n-ı isti-yor-um.
you-GEN I-DAT to be of help-MA-POSS2S-ACC want-PRES-1SG
'I want you to be of help to me.'

(25) (Mother of a 4;8 girl)
-DIK: Ponpon-la Ateş sevinmişler onu
Ponpon-COM Ateş be glad-PAST-3PL he-ACC
bul-duk-ları-na
find-DIK-POSS3PL-DAT
'Ponpon and Ateş were glad that they found him'

(26) (Mother of a 3;5 girl)
-(y)AcAK: Sen bu kurbağa-yı bulup
you this frog-ACC find
bul-a-ma-yacağ-ı-nı merak ediyor mu-sun
find-NEG.ABIL-ACAK-POSS3SG-ACC curious-PROG QUE-2SG
çocuğ-un peki?
child-GEN so
'So, are you curious about whether the child will find this frog or not?'

(v) Double Complementation: There was only one mother who used double complement in her narrative.

(27) (Mother of a 5;11 girl)
-DIK+-maK: Ne ol-duğ-u-nu anla-ma-ya
what be-DIK-POSS3S-ACC understand-MAK-DAT
çalış-ıyor-du.
try-PROG-PAST
'(He) was trying to understand what had happened'

In order to account for the possible effects of length on complementation use, we coded mothers' talk for length by identifying communication units (C-units). C-units consist of independent clauses which may or may not include dependent clauses (Palmer, 2006). Incomplete sentences that were responses to children's questions were also counted as C-units. Certain conjunctions such as `and`, `but`, etc... could form independent clauses. Hence sentences containing these conjunctions were considered as having separate C-units (ENNI; Schneider et al, 2009) (See *Table 2*). We also administered a one-way ANOVA on mothers' use of C-units as the dependent variable, and children's age and gender as the independent variable. This analysis did not show a significant effect of age (F (2, 79) = 0.93, p = .40) or gender (F (1, 79) = 1.49, p = .23). The interaction of age and gender was also not significant (F (2, 79) =0.46, p = .63). Even though there were no systematic differences by age or gender, individual differences within age groups were quite substantial as indicated by the magnitude of the standard deviations. For this reason, the proportion of nominalizing complements to C-units were calculated and the syntactic complexity analyses were carried out with these proportions.

Table 2. Means and (standard deviations) of mothers use of C-Units by children's gender and age

	3-year-olds		4-year-olds		5-year-olds	
	Girls	Boys	Girls	Boys	Girls	Boys
	160.88	130.77	127.43	126.50	136.23	120.50
	(*82.08*)	(*55.97*)	(*42.95*)	(*32.57*)	(*76.13*)	(*37.71*)
Total	147.83 (*72.41*)		126.93 (*37.09*)		128.68 (*60.12*)	

3 Results

In what follows we first present univariate analyses that compares mothers' use of complementation by children's age and gender. Next, we present whether mothers' use of different suffixes in their complementation constructions (*-mAK, -mA, -DIK, -(y)AcAK*) differ by children's age. We follow these analyses with an investigation of whether mothers' use of complementation that include mental state words vary by children's age. Finally, we present some exploratory information on the use of kinds of mental state words by the different suffixes used in complementation constructions. Although we had no a priori hypothesis regarding which mental state words would take which suffixes, there is extensive conceptual work in the field explained in the introduction of this paper. Given that use of suffixes is guided by the semantics of mental state verbs, we believed this exploratory analysis would be informative. In all these analyses, mothers' talk was taken as proportion scores rather than frequencies in order to control for individual differences in length.

Before conducting our analysis, we first explored whether there were any outliers using total complementation scores. There were no outliers. In other words, none of the mothers' total complementation score was 3 standard deviations away from the mean. Hence, we included all 85 mothers in the following analysis.

3.1 Does the Total Use of Complementation Vary by Children's Age and Gender?

We conducted a one-way ANOVA to investigate the effects of children's age (3-, 4-, & 5-years) and gender on mothers' total use of complementation (See *Table 3* for means and standard deviations). Contrary to our expectation that mothers of older children would use more complement structures, the analysis did not yield a main effect of age, F (2, 79) = 1.79, p = .17. Similarly, there was no main effect of children's gender F (1, 79) = 1.51, p = .22. There was also no interaction of age and gender on mothers' total use of complementation, F (2, 79) =.34, p = .71. Given that we had no specific predictions regarding gender, and it was found not to be a significant factor that influenced mothers' talk, this variable was not included in any of the further analyses.

Table 3. Means and (standard deviations) of mothers' total complementation proportion scores by gender and age

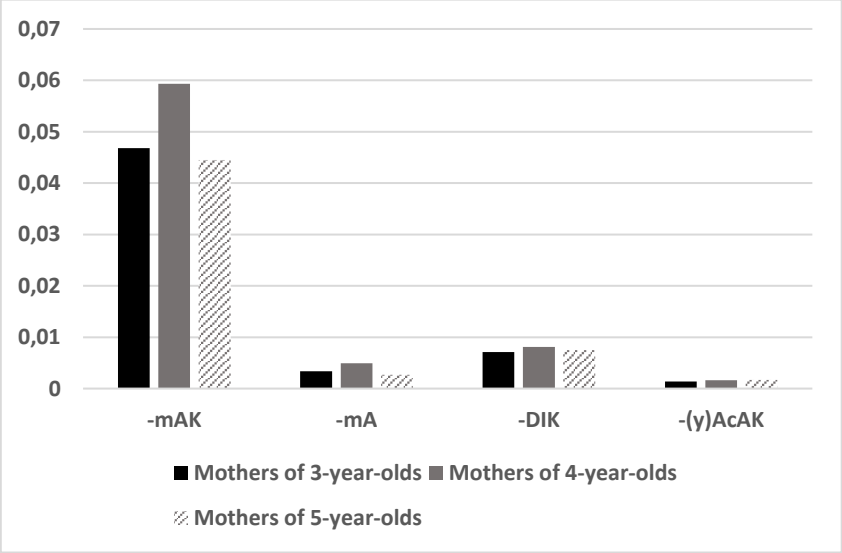
	3-year-olds		4-year-olds		5-year-olds	
	Girls (n = 20)	Boys (n = 17)	Girls (n = 15)	Boys (n = 18)	Girls (n = 14)	Boys (n = 12)
Mothers' Total Comple-mentation	.07 (*.04*)	.05 (*.04*)	.08 (*.04*)	.07 (*.04*)	.06 (*.03*)	.05 (*.03*)
Total	.07 (*.04*)		.06 (*.04*)		.06 (*.04*)	

3.2 Does Mothers' Use of Different Suffixes in Their Complementation Structures Vary by Children's Age?

We conducted a mixed repeated measures ANOVA here age was taken as the between- subjects variable age (3-, 4-, & 5-years), and type of suffix (*-mAK, -mA, -DIK, -(y)AcAK*) as the within- subjects variable. There was a main effect of suffix type, F (3, 246) = 134.15, $p < .001$, η^2 =.69 (See Figure 1). Post hoc

comparisons revealed that infinitive *-mAK* constructions were the most frequent (*M* = .050; *SD* = .004), and was used significantly more than, the verbal noun suffix *-mA*, participle *-DIK*, participle *-(y)AcAK* constructions (all *p*s=.004). Next most frequently used type of construction was with the participle *-DIK* (*M* = .008; *SD* = .001). *-DIK* constructions were used significantly more than both *-mA* constructions (*p* =.01), and *-(y)AcAK* constructions (*p* < .001). The third most frequent construction were the verbal noun *-mA* constructions (*M* = .004; *SD* = .001) and were used significantly more than *-(y)AcAK* constructions (*p* = .01). The least frequently used complementation construction was formed with the participle *-(y)AcAK* (*M* = .004; *SD* = .001). The analysis did not reveal a main effect of age *F* (2, 82) = 1.62, *p* = .20, or an interaction of age and suffix type, *F* (6, 246) = 1.19, *p* = .31.

Figure 1. Distribution of use of complementation by suffix type and age



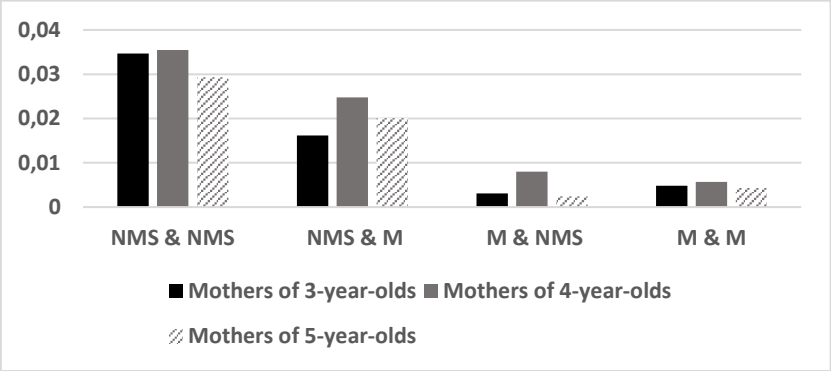
3.3 Does Mothers' Use of Different Combinations of Mental and Non-mental State Verbs in Their Complementation Structures Vary by Children's Age?

Mothers' complement structure use was also analyzed according to the mental state content of the complement and matrix verbs. Mothers' complements were divided into four categories. Complement structures with: (i) non-mental-state verbs only (NMS & NMS), (ii) non-mental-state verb as the complement and mental-state verb as the matrix verb (NMS & MS), (iii) mental-state verb as the

complement and non-mental-state verb as the matrix verb (MS & NMS), (iv) mental-state verbs only (MS & MS).

We conducted a mixed repeated measures ANOVA where age was taken as the between-subjects variable (3-, 4-, & 5-years), and type of verb pairing (NMS & NMS, NMS & MS, MS & NMS, MS & MS) as the within-subject variable. There was a main effect of verb combination, F (3, 246) = 42.03, $p < .001$, η^2 =.61. Post hoc comparisons revealed that non-mental-state combinations (i.e., NMS & NMS) were the most frequent (M = .033; SD = .003) and were used significantly more than NMS & MS combinations (p = .002), MS & NMS combinations ($p < .001$). Next most frequently used verb combinations were those that had the non-mental-state verb as the complement verb and mental state verb as the matrix verb (M = .020; SD = .002). These constructions were more frequent than both the MS & NMS and MS & MS constructions (ps < .001). Finally, there was no difference between MS & NMS (M = .005; SD = .001) and MS & MS (M = .005; SD = .001) constructions. Both of these constructions (i.e., constructions in which a mental state was used as the complement of a matrix verb) were used equally infrequently and less often than the other two constructions. The analysis did not reveal a main effect of age F (2, 82) = 1.64, p = .20, or an interaction of age and verb combination type, F (6, 246) = .56, p = .76 (See Figure 2).

Figure 2. Distribution of use of complementation by types of mental and non-mental state verb combinations by age



3.4 An Exploration of Suffix Used by Mental State Categories

To explore which suffixes were used more frequently with complement structures that included mental state verbs (MSV), we looked at constructions that used: MSVs as the matrix verb and MSVs as the complement verb (See *Table 4*).

The frequencies of use confirm the past literature. Specifically, in line with Erguvanlı-Taylan (1998) our data showed almost without exception that verbs encoding epistemological states (i.e., perception, cognition) were used as matrix verbs in complement constructions with the participles *-DIK* and *–(y)AcAK*. This finding is also in line with Aksu-Koç's (1994) observations of *-DIK* constructions including cognitive and perceptual verbs in children's narrative productions. In addition, in line with Erguvanlı-Taylan (1998) desire and emotion verbs were observed to appear in the verbal noun *-mA* constructions as well. Although, it should be noted here that the infinitive *-mAK* constructions were the most generative and formed most of the constructions with desire, motivation and affect verbs.

Table 4. The frequencies of mental state categories as matrix or complement verb by suffix type

	MSV as Matrix				MSV as Complement			
	mAK	*mA*	*DIK*	(y)AcAK	*mAK*	*mA*	*DIK*	(y)AcAK
Percep.	0	1	14	0	20	3	0	0
Phys.	1	0	0	0	8	3	0	0
Desire	56	4	0	0	0	0	0	0
Mot.	46	0	0	0	0	0	0	0
Affect	10	5	1	0	6	0	1	0
Cog.	26	2	45	20	2	6	0	0
TOTAL	139	12	60	20	36	12	1	0

The generativity of the infinitive *-mAK* suffix was also evident in constructions that used mental state words in both the complement and matrix positions (i.e., M & M). Of these constructions (Total Frequency = 50), 30 were constructions with the infinitive suffix *-mAK*, 14 with the participle *-DIK*, 2 with the verbal noun suffix *-mA*, and 4 with the participle *–(y)AcAK*. Given that we coded for 6 categories of mental state verbs, there were 30 possible pairing permutations (e.g., cog. & percep., percep. & cog. etc.) possible for each suffix. In line with raw frequencies, the most variety in mental state word pairings were observed

with the infinitive suffix *-mAK* (13 different mental state constructions), 4 were observed with the participle *-DIK*, 2 were observed with the verbal noun suffix *-mA* and only one with the participle *–(y)AcAK*.

4 Discussion

This study was the first to investigate Turkish-speaking mothers' use of complementation in storytelling with a relatively large sample of 85 mother-child dyads. In addition, we used a detailed coding of complementation both with regard to suffix types and also according to the mental state content of verbs. Contrary to our expectations we did not observe differences in mothers' complementation use by their children's age. Since complementation in Turkish is syntactically a rather complex grammatical structure, we had expected mothers of older preschoolers to use more complementation as compared to mothers of younger preschoolers.

The lack of significant differences by children's age may have been due to several factors. It is possible that change in complementation use parallels major developmental stages (i.e., infancy/toddlerhood vs. preschool vs. grade school). In other words, mothers' talk may vary by developmental periods but does not show sensitivity to age differences within the narrow window of preschool years (i.e., 3- to 5-years). Another reason for the null findings by age may be due to the fact that our coding did not include uses of complementation (i.e., expressing embeddedness of propositions) without complementation syntax. While coding mothers' talk, we noticed that mothers made extensive use of simplifications and omissions of complement structures. These included omitting the complementation suffix and using a finite verb (as in examples 28, 29 and 30).

(28) (Mother of a 4;8 girl)

Bak-sa-na	Ateş'in	baş-ı-na ne	gel-miş.
look-CON-DAT	Ateş-GEN	head-POSS3SG	what come-PAST

'Look at what has happened to Ateş?'
*instead of 'Baksana Ateş'in başına ne geldiğine?'

(29) (Mother of a 4;2 boy)

Kurbağa-yla	bak-ış-ıyor-lar	gör-dü-n mü?
frog-COM	look-RECIP-PROG-3PL	see-PAST-2SG QUE

'Did you see that (he) and the frog were looking at each other?'
*'instead of 'Kurbağayla bakıştıklarını gördün mü?'

(30) (Mother of 3;6 girl)

Köpeğ-e	n'ol-du	çok	merak et-ti-m
dog-DAT	what happen-PAST	very	be curious-PAST-1SG

'I am very curious about what has happened to the dog'

*instead of 'Köpeğe ne olduğunu çok merak ettim'

These structures are used with frequency in daily language and are not grammatical errors. However, syntactically they constitute simpler alternatives to the expression of embedded propositions. In this study, we decided to focus exclusively on syntactically more complex complementation structures, hence did not code for such simpler alternatives. Previous work investigating the use of relative clauses in Turkish CDS has also shown similar results. In that, mothers avoided more complex structures and substituted them with simpler alternatives available in the language (Altınkamış, Altan & Sofu, 2014).

The analysis of the proportion of suffixes used in forming complement structures showed that constructions formed with the infinitive sufix *-mAK* were used significantly more frequently than constructions formed with the participle *-DIK* which were used significantly more frequently than constructions formed with the verbal noun suffix *-mA*. The least frequent complementation constructions were the ones formed with the participle *-(y)AcAK*. The order of frequency parallel findings in the literature that detail the order with which children acquire suffixes used in complementation (e.g., Aksu-Koç, 1994). From a syntactic standpoint, the relative simplicity of the infinitive *-mAK* constructions (e.g., Kural, 1994) may be the reason for the frequency with which it appears in mothers' language. The difference in the use of *-mA* and *-mAK* is due the relative syntactic complexity of *-mA* clauses which have to include the possessive suffix as the subjects of the complement and matrix verbs are not co-referential. In contrast, the infinitive *-mAK* suffix is used in same subject constructions. The remaining participle suffixes (*-DIK*, *-(y)AcAK*) inherently possess tense and aspectuality. While *-DIK* clauses refer most commonly to events that either have already taken place or is taking place at the moment of speech, *-(y)AcAK* is used exclusively to refer to events that will take place in the future. This feature of *-(y)AcAK* participle, may have made these constructions appear less frequently in the book reading context where mothers focused on the here-and-now of the story more than the past and the future. As noted previously, the choice of complementizers is not only dictated by syntactic complexity, but also by the semantic properties of the verbs used in complementation structures. The fact that desire and motivation verbs take the *-mAK* complementizer is one of the main reasons for the prevalence of the use of this type of suffix. These verbs were frequent in mothers' storytelling discourse (See *Table 4*). Cognitive verbs which are another frequently used category utilized the complementizers *-DIK* and *-mA*. It is evident that the prevalence of these categories should be considered

not only according to their syntactic simplicity versus complexity but also according to the content of the talk (i.e., type of mental state) that occurs more or less frequently in mothers' discourse during storytelling.

The current study also investigated the mental state composition of mothers' complementation use in storytelling. Complementation structures do not vary in syntactic complexity according to whether the complement includes mental state content. However, complementation that include mental state verbs (either as complement, or both as complement and matrix verb) allows speakers to express embedded mental state propositions. Complementation syntax where mental state verbs are in the complement position allow for reflection on these mental states. In the current study, we did not observe differences in mothers' verb-type combinations by their children's age. However, we found interesting frequency differences in the types of combinations mothers used. As expected, the complement structures that included non-mental state verbs in both complement and matrix positions were the most frequent followed by constructions where a non-mental state verb was the complement and the mental state verb was in the matrix position. Interestingly, the two constructions that required speakers to embed mental states (M & NM; M & M) in complement constructions, effectively making the mental state the object of a matrix verb, were used least frequently. The current study constituted a first step in understanding the nature of mental state talk in complex syntactic structures. Whether there are concurrent, and longitudinal relations between children's ToM abilities and mothers' use of the mental state compositions of complementation structures is an important question that remains for future studies.

The current study constitutes a first attempt at investigating Turkish-speaking mothers' use of complementation. Exploring the use of complement constructions in storytelling via a widely utilized wordless picture-book was one of the strengths of the current study. This storytelling context enabled mothers to use extended language to describe psychologically coherent narrative events. However, we would have ideally liked to simultaneously investigate children's use of complementation in naturalistic talk in order to investigate the possible relations. However, preschoolers talk very little in mother-child bookreading contexts where they assume the role of the audience (e.g., Melzi et al, 2011). Future studies that collect mother and child talk in different contexts (e.g., play, reminiscing) where both mothers and children participate extensively would contribute to our understanding of the relation between the complexity of mothers' complementation use and their children's.

A related concern that applies to both the interpretation of suffix type and verb type results is the limitations inherent in our knowledge of the characteristics of CDS and ADS (adult-directed speech) in everyday contexts. We assume that mothers use a different language when talking to their children. This finding is well-supported by the literature which shows that mothers who

are effective communicators adjust the semantic and syntactic properties of their language to their children (e.g., Hayes & Ahrens,1988; Ochs, 1983). In this study we did not have an ADS baseline which prevented us from comparing and understanding whether and how mothers' CDS deviates from their ADS talk.

A final point of concern is the profile of participants in the current study. As is the case with most lab-based studies (Nielsen, Haun, Kärtner, & Legare, 2017), parents who are willing to bring their children and spend a few hours of their time at a university laboratory usually have higher than average education levels. The unusual profile of the sample prevents us from generalizing our findings to Turkish mothers of preschool children. However, this study constituted a first attempt at understanding the nature of complementation in mother-child talk and hopefully provides impetus for work that includes multiple language contexts, analysis of child as well as adult speech, and a wider range of representation.

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