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# Shared Information and Argument Omission in Turkish

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## 1. Introduction

Studies of argument realization and omission attempt to lay out various ways of argument realization and ellipsis across languages and aim to uncover how the chosen forms of arguments are determined by language specific constraints. For instance while it is obligatory for English speakers to utter all arguments of a predicate overtly, this obligation does not hold for Turkish speakers, i.e. use of null arguments cannot be deemed as a source of ungrammaticality for Turkish. The English sentence in (1), for instance, can be constructed without a subject in Turkish as in (2). Moreover, Turkish also allows for covert realization of direct objects and oblique objects.<sup>1</sup>

(1) *I went to school.*

(2) *Okul-a git-ti-m.*  
school-DAT go-PAST-1sg.

The cross-linguistic variation in realization of arguments presents different regularities for children who are exposed to English-like and Turkish-like languages, hence, for language acquisition it raises the question of how different forms of argument realization are learned given that children acquiring different languages encounter different regularities for omitted arguments. Past research has revealed two crucial findings about argument omission in child language. First, all children, regardless of their target language, elide arguments strikingly more than adults do (See Valian (1991) for Italian; Valian & Eisenberg (1996) for Brazilian Portuguese; Kim (2000) for Korean; Bloom (1990), Hyams & Wexler (1993) for English; Uziel-Karl & Berman (2000) for Hebrew, Allen (2000) for Inuktitut, among many others). Second, children display different omission rates for arguments having different syntactic

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<sup>1</sup> Turkish, a Subject Object Verb language is generally defined as a pro-drop language. In (2), ellipsis of the subject pronoun is assumed to be possible because the agreement morpheme on the verb helps one recover person and number information about the subject. Öztürk (2002), however, offers a non-pro-drop analysis of Turkish and argues that in Turkish in contrastive contexts, for example, subject omission is not optional, but rather, overt realization of subjects is obligatory. As for object omission, unlike subject omission, object drop is only possible when the object is mentioned in the previous discourse because there is no agreement marker that will license the null object.

functions. The rate of subject omission, for instance, is remarkably higher than that of objects in child language. This general tendency is referred to as subject-object asymmetry (e.g. Allen 2003, Uziel-Karl & Berman 2000, Valian 1991).

Children's tendency to elide arguments irrespective of the argument omission nature of the languages being acquired has led to formulation of various models to account for the differences between adult and child language. Accordingly, three accounts prevail in the argument omission literature. The *grammatical account* (e.g. Hyams 1986, Hyams & Wexler 1993, Rizzi 2002) explains the high frequency of omission in child language in terms of the immaturity of children's grammar arguing that initially all children suffer from syntactic incompetence. According to one recent hypothesis tested in this account, Complementizer Phrase (CP), a crucial node for licensing of subjects in adult grammatical representation, is assumed not to fully operate, i.e., truncated in young children, preempting the licensing of overt subjects (Rizzi 2002).<sup>2</sup> An alternative explanation to argument omission tendencies of children comes from *performance limitation account*. In contrast to the grammatical account, the performance limitation account assumes that children do not suffer from a syntactic incompetence, rather children's early grammatical representations are argued to be structurally complete (e.g. Bloom 1990, Valian 1991, 1996, Kim 2000). In this account, children's more frequent omission of arguments is asserted to be correlated with performance limitations and processing constraints and this is evidenced by the fact that children tend to omit arguments more frequently in longer sentences compared to shorter ones. Moreover, the fact that even children speaking pro-drop languages substitute their null subjects with overt ones through development has convinced the advocates of this account that these children have something in common with children who speak non-pro-drop languages (Valian 1991). Therefore, the high frequency of null arguments in earlier ages and disappearance of null arguments with age regardless of linguistic typology has been deemed to indicate that all children suffer from performance constraints in early ages. A further account offered to explain argument omission facts is *discourse-pragmatic account*, which assumes that differences between children and adults are due to children's sensitivity to discourse pragmatic factors (e.g. Allen 1997, Kim 2000, Clancy 1997, Du Bois 2003). In the present study, we seek to evaluate whether this account can provide an explanation for omission of arguments in Turkish child language.

Under discourse-pragmatic account, argument omission is elucidated by the association between information structure and argument realization and the distribution of null arguments is explained with regard to their saliency in discourse in line with the Preferred Argument Structure (PAS) explanation of Du Bois (1987, 2003). Du Bois argues that the realization of the argument structure is influenced by the discourse status of the arguments. Hence, whether the arguments of a predicate are null or lexical, is determined by the information carried by the arguments in relation to the other components of the sentence or discourse. Du Bois observes that, cross-linguistically, the subject of a transitive verb (A) is associated with *given information*

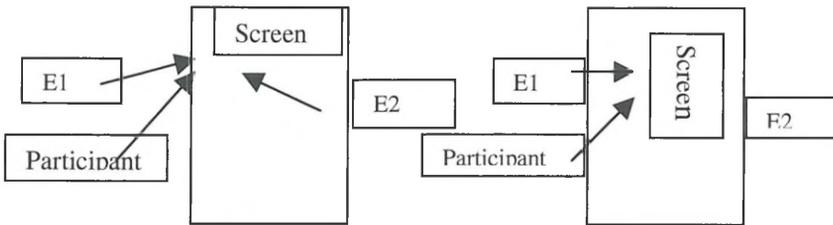
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<sup>2</sup> Some other proposals made under the grammatical account are pro-drop hypothesis, topic-drop hypothesis and optional infinitive stage hypothesis.

## 2.3 Procedure

Each participant was tested individually in a quiet room. As illustrated in Figure 1, there were two experimenters present in each test session and they sat at the opposite sides of the table where testing is carried out. The participant sat next to Experimenter 1 (E1). The computer was placed between the experimenters. In the SIC, E1, Experimenter 2 (E2) and the participant watched the vignettes together one by one. After each vignette, E1 asked the participant to tell what happened in the vignette to E2. In the UIC E2 did not watch the vignettes. As in the SIC, the participant was expected to tell the event to Experimenter 2. All the data was videotaped for later coding.

Shared Information Condition (SIC)      Unshared Information Condition (UIC)



**Figure 1: Experimental Design**

## 2.4 Coding

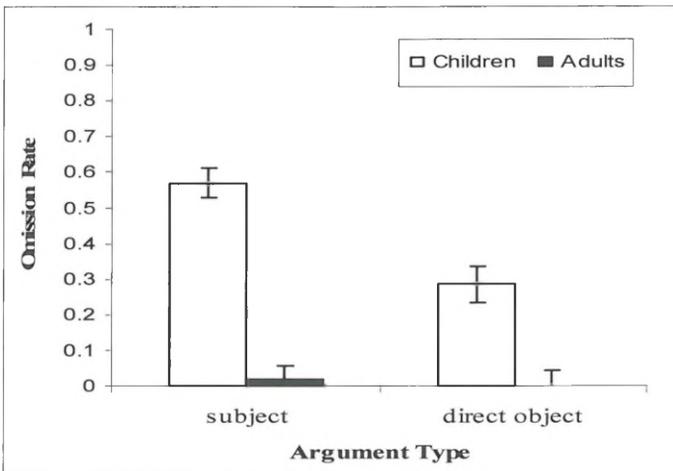
We analyzed the argument omission rates in our data by calculating the proportion of total number of omitted arguments within total number of sentences. Among the utterances of the participants, only the first relevant sentence where the main verb denotes the expected relation was taken into account. The reason for this restriction is in Turkish, in an ongoing discourse, for all sentences other than the first ones, unless there is a contrastive environment, the use of null arguments, especially null subjects is mandatory rather than optional (Öztürk 2002). As study of argument omission tendencies of children in a context which would force the mandatory use of null arguments would confound the hypotheses of this study, we eliminated the possible effects of previous discourse or contrastive contexts by simply considering the first sentences of all participants which can potentially display optional use of null arguments.

## 3. Results

### 3.1 Comparison of Children and Adults

First we compared the frequency of subject and object omission for children and adult groups regardless of experimental manipulation. A repeated measures ANOVA

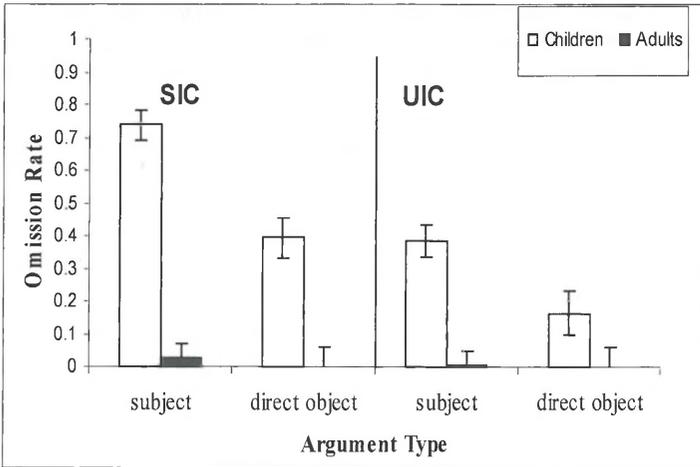
with argument type (subject versus object) as the within subject variable and age (children versus adults) as the between subject variable was conducted. As illustrated in Figure 2, the age variable was significant ( $F(1, 43) = 57.257, p = .000$ ) showing that children elided both subject and object arguments more than adults did. (Subjects, adults,  $mean = .0152, SD = .027$ , children  $mean = .5687, SD = .285$ ; objects, adults,  $mean = .0, SD = .0$ , children  $mean = .2836, SD = .324$ ). Argument type was also significant ( $F(1, 43) = 26.997, p = .000$ ). There was also interaction between age and argument type ( $F(1, 43) = 21.779, p = .000$ ). This is probably due to the fact that subject-object asymmetry is bigger for children than adults. This will be further explored in Section 3.2.



**Figure 2: Comparison of adults and children in terms of subject and direct object omission rates**

Secondly, in order to see whether the difference between children and adults is retained in different experimental conditions a further analysis is conducted. For both shared and unshared groups two repeated measures of ANOVA with argument type (subject versus object) as the within subject variable and age (children versus adults) as the between subject variable was conducted. Again, age variable yielded significant results within each experimental manipulation. As illustrated in Figure 3, children in shared information group omitted arguments more than adults ( $F(1, 20) = 84.553, p = .000$ , subjects: adults,  $mean = .025, SD = .032$ , children  $mean = .738, SD = .17$ ; objects: adults,  $mean = .0, SD = .0$ , children  $mean = .392, SD = .315$ ). Within subject variable was again significant ( $F(1, 22) = 24.444, p = .000$ ). There was also interaction effect ( $F(1, 22) = 17.943, p = .000$ ). Children in unshared information context also elided arguments more than adults ( $F(1, 20) = 14.699, p = .001$ , subjects: adults,  $mean = .005, SD = .017$ , children  $mean = .381, SD = .283$ ; objects: adults,  $mean = .0, SD = .0$ , children  $mean = .164, SD = .306$ ). Moreover, just like share information group, within subject variable and

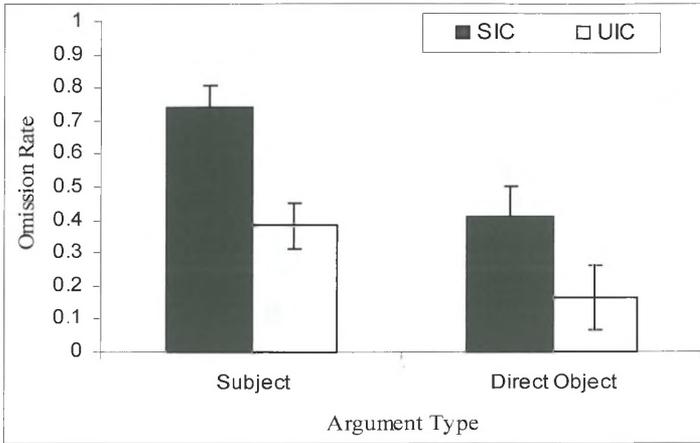
interaction were also significant ( $F(1, 20) = 6.236, p < .05$  and  $F(1, 20) = 5.698, p < .05$ ). These will be further discussed in the following section.



**Figure 3: Comparison of adults and children in terms subject and direct object omission rates with respect to experimental manipulation**

### 3.2. Subject-Object Asymmetry and Different Information Structural Contexts

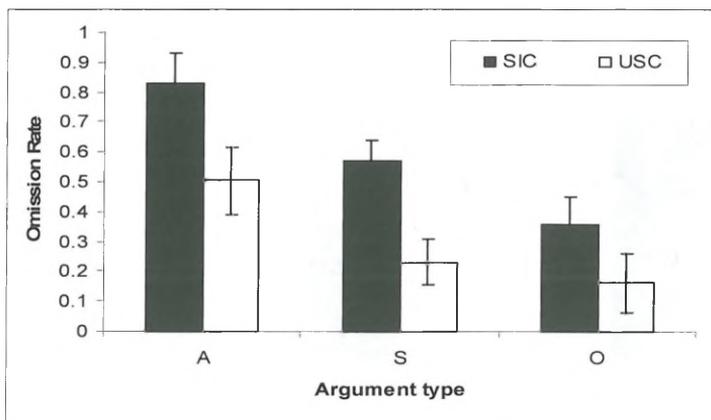
In the next analysis we compared shared and unshared information groups in terms of subject and object omission for both children and adults. Two repeated measures ANOVA with argument type (subject versus object) as the within subject variable and group type (shared versus unshared) as the between subject variable was conducted for children and adult groups separately. As illustrated in Figure 4, between group type was significant for children ( $F(1, 20) = 9.636, p = .006$ ) showing that children in shared information group omitted arguments more frequently compared to their counterparts in unshared information group (shared information mean = .575,  $SD = .256$ , unshared information mean = .273,  $SD = .268$ ). Moreover, argument type was also significant ( $F(1, 20) = 21.361, p = .000$ ) and there was no interaction between argument type and group type ( $F(1, 20) = .923, p = .348$ ). That is, children elided subject arguments more than object arguments regardless of shared versus unshared status of the information (Subjects: shared information mean = .74,  $SD = .163$ , unshared information mean = .382,  $SD = .273$ ; Objects: shared information mean = .409,  $SD = .305$ , unshared information mean = .164,  $SD = .306$ ).



**Figure 4: Children: Subject and Object Omission Rates for Different Experimental Groups**

When the same analysis was conducted for adults, between subject variable did not reach significance ( $F(1, 22) p=.060$ ) showing that experimental manipulation did not have a role in the omission tendencies for adults. One plausible reason for this insignificant result may be correlated with the fact that omission rates of adults were too low (See Figure 3). Argument type, however, was significant ( $F(1, 22) = 8.581, p=.008$ ). Subjects were omitted more frequently than objects. There was no interaction between argument type and group type ( $F(1, 22) = 3.946, p=.060$ ) indicating that although adults omitted arguments very infrequently, when they omitted arguments, they preferred to omit subject arguments over object arguments.

Final analysis is conducted in order to investigate the preference of children for realization of different argument types. A repeated measures ANOVA with differentiated argument type ((A) subject, (S) subject and (O) direct object) as the within subject variable and group type (shared versus unshared) as the between subject variable was conducted. As Figure 5 shows, there was a main effect of argument type ( $F(2, 40) = 15.235, p=.000$ ) suggesting that children entertained different preferences for the realizations of different arguments. Post-hoc tests (Bonferonni) revealed that there was a difference between the frequency of null arguments for (A) subjects and (S) subjects as well as (A) subjects and direct objects (O). (A) subjects were omitted more frequently compared to both (S) subjects and direct objects (O) (both differences  $p < .05$ ). However, there was no difference between the omission rates of (S) subjects and direct objects (O). Experimental manipulation was also significant ( $F(1, 20) = 3.514, p=.009$ ) There was no interaction between argument type and experimental group ( $F(1, 20) = 1.642, p=.215$ ) showing that children exhibited the same tendency for omission of arguments regardless of experimental manipulation.



**Figure 5: Children: Comparison of omission rates of (A), (S) and (O) with respect to experimental manipulation**

#### 4. Discussion and Conclusion

This study investigated how null arguments are distributed in Turkish child and adult language. Based on the findings of the previous literature, we sought to find out whether Turkish children omit arguments more than adults do and whether they elide subjects more frequently compared to objects showing subject-object asymmetry. We further explored whether the Preferred Argument Structure proposal of Du Bois (1987, 2003) is able to account for the Turkish omission facts. Furthermore, we focused on the specific question of whether controlling different information structural contexts such as shared and unshared information results in different distribution of null arguments.

Remember that we only analyzed the first sentences of participants where use of null arguments is optional. When we compared adults and children, we have seen that the frequency of argument omission was very low for adults. One of the reasons for such low rates of argument omission for adults may be experimental design. Since it was a very easy task for adults, they might have misconceptualized the task and thought that they were expected to give detailed descriptions of events. On the other hand, we have seen that children omitted arguments considerably more compared to adults confirming the cross-linguistic tendency of children for argument omission.

In order to explain what factors play a role in the frequent ellipsis of arguments of children, we explored whether children are sensitive to discourse pragmatic information. Our results have revealed that unlike adults, different information structural contexts have been influential in argument omission for children groups. As mentioned above, adult participants did not prefer to use null arguments in our study,, however, when they did, their omission rates did not differ as a function of different experimental conditions. Hence, when the role of experimental manipulation was taken into consideration no difference between adult groups in terms of the distribution

of null arguments was observed. The omission rates between children groups in shared and unshared information conditions, however, were strikingly different. Unlike adults, the manipulation of shared information resulted in considerably different omission rates. Children in unshared information group produced more null arguments for each argument category i.e., for (S), (A) and (O), compared to children in shared information group as illustrated in Figure 5. These results suggest that children are aware of the requirements of pragmatic context. Hence, when information is unshared, they produce more overt arguments in order to be informative for the addressee. Nevertheless, we have to bear in mind that children in unshared information group still have very high rates of omission compared to adults. Therefore, we can argue that these children are aware of the pragmatic cues only to a certain extent and do not consistently make use of linguistic means to adjust their utterances according to the information structure of the sentence. This tendency of children is consistent with the findings in the literature according to which three and four year old children are able to take listener's perspective to a certain extent while they do not have a consistent control over relevant linguistic tools until some years later.<sup>4</sup> In conclusion, the less frequent use of overt arguments by children compared to adults, combined with the limited distinction they display for the use of other information bearing linguistic tools in the literature such as definite vs. indefinite markers, pronouns indicate a general tendency. Even though children show traces of appropriate use of these tools in early ages, as it is the case in our study; they do not have absolute control of the forms until some years later. In our study, based on the different omission rates between two groups of children, we can conclude that children do not randomly omit arguments; rather they show traces of a systematic choice between overt and null arguments consistent with the requirements of discourse structure. However, the fact that the rate of overt arguments in unshared information group is still far from adult level serve as further evidence for the generalization that children do not have full control over the use of appropriate linguistic tools with respect to information structure until some years later.

In line with much current work on argument omission in child language, our results also show a clear asymmetry between subjects and objects with respect to their omission rates. To bear on the question of what is the possible source of this asymmetry we follow the claims laid out in the Discourse Pragmatic Account. Recall that according to this account, in spontaneous speech, subjects are associated with the givenness feature while this feature is not compatible with the objects. Under this account, the subject/object asymmetry is tightly correlated with the information status of the arguments. Different subject types (S) and (A) are found to be coupled with different informative features; (A) subjects mostly carry given information while (S)

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<sup>4</sup> Studies on the choice between definite and indefinite articles also shed light on whether children can produce their utterances with respect to the un/shared status of information. For the first mention of a referent, if the information is unshared, the referent is marked by an indefinite article in most languages. Although preschool children are reported to use these articles correctly to a certain extent, they are unable to distinguish the appropriate articles with respect to the required context until around seven years of age (See Hickmann et. al 1996 for the comparison of German, English, French and Chinese.; Küntay 2002 for Turkish).

subjects carry new information just as direct objects (O). Therefore, (S) and (O) arguments have similar frequency of null arguments and exhibit more frequent overt realization compared to (A) arguments.

Our findings corroborated the PAS account of Du Bois. In our study, (A) arguments are more frequently omitted compared to (S) and (O) arguments while no difference was encountered between (S) and (O) arguments. Our reading of the Turkish evidence, however, suggests that the asymmetry observed cannot be solely due to pragmatic factors such as givenness. Recall that in our experiments i) we elicited responses via non-linguistic stimuli and ii) considering only the first relevant sentences we eliminated any previous linguistic discourse. Therefore, argument realization in our data is not dependent on previous discourse and arguments do not carry informativeness features assigned by ongoing discourse. Moreover, the asymmetry between (A) versus (S) and (O) is retained for both shared and unshared information groups where givenness/newness status of all (A), (S) and (O) arguments are different across groups but same within them. Hence, givenness/newness status of arguments, which is assigned by the flow of conversation, cannot be the only source of the asymmetry for omissions of different arguments. This finding is also in line with another study by Goldin-Meadow and Mylander (1984) who have found similar asymmetry in (A) (S) and (O) omission rates in gestures of deaf homesigner children but no correlation between these patterns and the given/new status of the arguments in their discourse.

Then how can we explain the finding that (A), (S) and (O) follow the same pattern of omission regardless of different information structural contexts in our study? We think that there might be sources, other than pragmatic information in the context which are responsible for the saliency of arguments. One such factor may be semantics of the verbs which assigns different levels of saliency to the arguments and in turn determines the different forms of argument realizations of subjects and objects. Further research is necessary to explore the relation between verbal semantics and argument omission.

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