MONOLINGUAL TURKISH-SPEAKING CHILDREN'S COMPREHENSION OF RELATIVE CLAUSES

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ABSTRACT
Comprehension and production of relative clauses in L1 Turkish has been the topic of many studies. The aim of the current descriptive study is to investigate whether five and six-year old monolingual Turkish-speaking children comprehend subject relative clauses or object relative clauses more easily. The study also aims to find out if there is a significant difference between the ages of five and six in terms of children's comprehension of subject relative clauses and object relative clauses. The results indicate that children in both groups show higher accuracy in the comprehension of subject relative clauses than object relative clauses in a picture-selection task and that there is a significant development in terms of comprehension of subject relative clauses in L1 Turkish between the ages of five and six.
Key Words: L1 Turkish, subject relative clauses, object relative clauses.

1. INTRODUCTION

Although cross-linguistic study of child language development indicates that languages do not differ greatly in terms of ease of acquisition, for any particular type of language, some systems of the grammar are easier to acquire than others. In comparative psycholinguistics, a similar statement could be made: Languages do not differ greatly in terms of ease of processing, but for any particular type of language, some systems of the grammar are easier to process. These two generalizations have implications for language change: In the course of development, those parts of a language which are more stable over time should be acquired relatively early and should be relatively easy to process. Conversely, the parts of the grammar most susceptible to change should be those parts which are acquired late and relatively difficult to process (Slobin, 1986). According to Izumi (2003), language learners must *process* language forms so as to comprehend and produce them. To do so, they need to overcome various processing difficulties caused by the grammar.

Slobin (1986) compared the acquisition of Turkic and Indo-European languages. Because the only Turkic language for which there were data on acquisition was Turkish (Aksu-Koç & Slobin, 1985), the acquisition of Turkish was compared to the acquisition of all of the major languages of Europe. He concluded that the entire system of agglutinative morphology on nominals has been mastered before the age of 2 by Turkish children. However, the means for subordination and complementation are not easily acquired at all, and 5-year-olds are still sorting out the various participial and nominalized forms for clause and sentence embedding. Slobin explains the early acquisition of case markers in Turkish with the fact that there is no irregularity, and there are no conflations of meaning typical of Indo-European morphemes which combine, for instance, case number, and gender in a single surface form.

However, in clausal embedding, the situation is reversed. If we look at the relative clauses (henceforth RCs), for example, they are clearly separated surface clauses in Indo-European languages whereas in Turkish, they are condensed into deverbal particles of various sorts. Slobin (1986) gives the following examples to explain this difference. In the first example, 'man' serves as subject in the RC (SR), and is marked by a special nominal particle,

-En: *gel* *-en* *adam*

come SR man

'the man who came'

It can be seen that whereas English retains a finite verb (*came*) and a subject pronoun (*who*), Turkish has a non-finite verb and with a nominal particle. Slobin states that this contrast appears in non-subject relatives (NSR), which are marked by a different nominal particle in Turkish, *-dIk*. In such constructions, the subject of the embedded clause appears in the genitive, as the possessor of the nominalized verb:

Ali -nin gör -düğ -ü adam

Ali GEN see NSR POSS:3SG man

'the man whom/that Ali saw'

In the example above, English has a finite verb (*saw*) and a relative pronoun. An object relativizer is not only form of the NSR, because depending on the meaning of the verb, oblique cases can be indicated as well. For example:

Ali -nin otur -duğ -u ev

Ali GEN dwell NSR POSS:3SG house

'the house in which Ali lives'

As can be seen in the examples, Turkish adhere to one-to-one mappings in inflectional morphology but not in clausal embedding, whereas Indo-European languages present the opposite pattern. As a consequence, the full means for expressing case relations are mastered by age 2 in Turkish, which are never mastered in an Indo-European language by this age. On the other hand, acquisition of such particles as subordinating conjunctions, relative pronouns, and the like, which are used to embed clauses within larger constructions is relatively easier for Indo-European speaking children.

2. TURKISH CHILDREN'S ACQUISITION OF RELATIVE CLAUSES

Slobin (1986) compared Turkish children's acquisition of RCs with their European counterparts and he gave evidence from a previous study (Slobin, 1982) in which he recorded and tested children between 2 and 4,5 years of age. He also went through all of the transcripts of a matched group of 57 Turkish and 57 American child speech samples and extracted all of the RCs spoken by the children and by the adult experimenters who interacted with the children. Each sample represented about 45 minutes of interaction in comparable settings. His findings show a striking difference in the utterances of RCs in Turkish and English. Cagri (2005) displays Slobin's findings as can be seen in Table 1.

Table 1. Comparison in Number of Utterances of RCs Between Turkish and English Speakers

	Turkish Speakers	English Speakers
Child utterance of RCs	None before 2;4	None before 2;4
RCs uttered by children (2;4-5) in total 40 hours	42	96
RCs uttered between adults in 2.5 hours	49	118
RCs uttered by adults when speaking to children	22	40

Table 1 shows that there are no utterances of RCs before age 2;4 in either Turkish or English. There are 96 relative clauses in the English texts while there are only 42 in Turkish between the ages of 2;4 and 5. In contrast, in about two and half hours of conversation between adults, there are 49 RCs in Turkish and 118 RCs in English. It can be seen that both in child speech and in adult conversation, English-speakers use RCs more than twice as frequently as Turkish-speakers. This can also be seen in adult speech to children, where there are 40 RCs in English compared to 22 in Turkish. It is clear that these two languages differ in their use of RCs.

If we look at Table 2 and Table 3 below, which show the breakdown of utterances by age, utterance type (subject or non-subject relativisation) and by language group in Slobin's study, we can see that the distribution of RC types of the English-speaking children is close to that of the adults. However, although Turkish adults seem to prefer the subject relative, 68% to 32% directed to children, and 63% to 37% adult to adult, the 4-year-olds are using subject relatives 90% of the time and 3-year-olds even more, 94% (Cagri, 2005).

Table 2. RC Utterances by Turkish Speakers

	Child speech				Adult Speech	
	2-yr.	3-yr.	4.yr.	All children	Adult→ child	Adult→ adult
Subj. Rel.	4 67%	15 94%	19 90%	37 88%	15 68%	31 63%
NSR	2 33%	1 6%	2 10%	5 12%	7 32%	18 37%
TOTAL	6	16	20	42	22	49

Table 3. RC Utterances by English Speakers

	Child speech				Adult Speech	
	2-yr.	3-yr.	4.yr.	All children	Adult→ child	Adult→ adult
Subj. Rel.	5 45%	15 39%	22 47%	42 44%	23 57.5%	49 42%
NSR	6 55%	23 61%	25 53%	54 56%	17 42.5%	69 58%
TOTAL	11	38	47	96	40	118

Slobin (1986) concludes that Turkish children acquire RCs after the age of at least 5. Cagri (2005) also conducted a study of a Turkish child who was 3;3 years old. Using truth-value judgment tasks, he devised scenarios where the child was to identify the agent or theme theta roles of participants in an event. Although his subject had excellent language skills, and a full mastery of Turkish case and inflections, her competency in Turkish RCs was quite poor. The results of the truth-value judgments were 50% accuracy in determining agent and patient theta roles in the various RCs presented. He concluded from this study that this 3-year-old child had not yet acquired relativization.

Özcan (1997) studied the comprehension of RCs in the acquisition of Turkish with 30 monolingual Turkish-speaking children whose ages ranged between 3 and 7. There were four different clause types in the study and 5 sentences from each clause type. The clause types which were included in the data collection were RC as the subject of the sentence and the subject of the RC is relativized (henceforth SS), RC as the subject of the sentence and the object of the RC is relativized (henceforth SO), RC as the object of the sentence and subject of the RC is relativized (henceforth OS), and RC as the object of the sentence and object of the RC is relativized (henceforth OO). The subjects were presented with one group of pictures related to one of the clause type at a time. The experimenter uttered a sentence and the child was asked to point to the picture of the relevant picture. Then, she compared the results in terms of overall comprehension and in terms of the four types of relative clauses. In this study, it was concluded that although there is an increase in the correct responses with the increasing age, the RCs are not fully-comprehended at the age of 7. Özcan found out that Turkish-speaking children are aware of the existence of RCs and can distinguish referents further identified starting from the age of 3. This awareness was the highest when the NP which has a relative and the NP which is relativized are both subjects of their clauses.

Another study conducted by Ekmekçi (1990) tested performance of relativization by Turkish children at the imitation and production levels. Ekmekçi tested a total of 100 children ranging from the ages of 3 to 6. As a first task, the children were asked to repeat 15 statements consisting of five sentences containing an adjectival phrase, five sentences with subject-participle relativization (which she called Rel 1) and five with object-participle relativization (which she called Rel 2). In the second task, she attempted to elicit adjectival and RC constructions from the children. The analysis of the responses indicate that subjects perform much better at imitation level than they do at performance level. At production level, adjectival phrases have proven to be the easiest and the object participle relativization (Rel 1) to be the most difficult type to perform.

Özcan (2000) also studied the production of RCs in the acquisition of Turkish with 42 monolingual Turkish-speaking children whose ages ranged between 5 and 9. In all age groups, she found that the clause type with the highest percentage is SS clause type, in which both the subject of the sentence and the subject of the RC are relativized. This clause type was followed by the OS and SO clause types. The clause type with the lowest percentage was OO clauses except in the 7-year-old group. 7-year-olds used OO RCs 2% more than the SO type. The results of this study show that the acquisition order of Turkish RCs is SS>OS>SO>OO.

Özge, Marinis & Zeyrek (2010), found similar results and concluded that Turkish children show higher accuracy in the comprehension of subject relative clauses than object relative clauses.

Based on the results of the studies mentioned above, this study is motivated by the following research questions:

1. Do five-year-old monolingual Turkish-speaking children (mean age: 4;8) comprehend subject relative clauses (henceforth SRCs) or object relative clauses (henceforth ORCs) more easily?

2. Do six-year-old monolingual Turkish-speaking children (mean age: 5;9) comprehend SRCs or ORCs more easily?

3. Is there a significant difference between five-year-olds and six-year-olds in terms of their comprehension of SRCs and ORCs?

3. THE STUDY

3.1. Participants and Instrumentation

The participants consisted of 40 monolingual Turkish-speaking children whose ages ranged between 4;6 and 5;11. These children were divided into two groups according to their ages. Each group was composed of 20 children. The mean age of the first group was 4;8 and they were regarded as the five-year-olds. The mean age of the second group was 5;9 and they were regarded as the six-year-olds. In the first group, there were 11 girls and 9 boys and in the second group, the number of girls and boys was equal. The researcher tried to include an equal number of girls and boys in each group to eliminate the effect of gender. The participants were children in a day-care centre and they were all from middle socio-economic class.

In order to collect data, the researcher used a 20-page leaflet, which contained a total of 20 pictures and 20 questions comprising SRCs and ORCs (See Appendix for sample pictures and questions). As another set of material, the researcher used 10 pictures where the pictures of the person, animal or object in the questions appeared but no action took place. The purpose of using the second set of material was to make sure the subjects knew vocabulary items before they were asked to show the person, animal or object described in the RCs. The pictures and descriptions were adapted from Ozcelik (2006).

3.2. Design and Procedure

Data were collected in the day-care centre. During data collection, the participants were taken to a silent room one by one in order to avoid distractors. Before starting the picture-selection task with each participant, the researcher used the pictures where no action took place and checked whether each child knew the vocabulary items in the picture. It was seen that all the vocabulary items were familiar to the children and their answers would only show their comprehension of RCs.

In the picture-selection task, the children were shown two pictures on the same page and asked to show the person, animal or object described by the researcher. Two questions were asked about the same pair of pictures, one comprising an SRC and one comprising an ORC. A new page of pictures was used for each question so that the children could not predict that the answer to a question was the picture other than the one they had just shown as the answer to the previous question. Moreover, the ordering of pictures on one page was varied.

The researcher asked 20 questions to each child and marked their responses on a sheet of paper as ‘correct’ or ‘incorrect’. If there was no response, the question was repeated for the second time.

3.3. Data Analysis and Results

The responses of each child was grouped as ‘correct’ or ‘incorrect’ and the results were first described in terms of the frequency (f) and percentage (%) of correct and incorrect responses for each group. All children responded

to all questions by pointing to a picture, so there is not a 'no response' category. The frequency and percentage of correct and incorrect responses of five-year-olds are shown in Table 4.

Table 4. Frequency and Percentage of Responses of Five-year-olds

SUBJECT RCs						OBJECT RCs					
Correct Response		Incorrect Response		Total		Correct Response		Incorrect Response		Total	
F	%	f	%	f	%	f	%	f	%	f	%
156	78	44	22	200	100	147	73.5	53	26.5	200	100

As can be seen in Table 4, comprehension of SRCs was easier than comprehension of ORCs for five-year-olds since the percentage of the correct responses is 78 for SRCs, whereas it is 73.5 for ORCs. We also calculated the mean values and standard deviation values for correct responses to find out whether there is homogeneity in the group. Table 5 below demonstrates the means and standard deviation values of five-year-olds' comprehension of SRCs and ORCs.

Table 5. The Means and sd Values of Five-year-olds' Comprehension of SRCs and ORCs

Type of Relative Clause	Number of Questions	$\bar{x}$	sd
SRC	10	7,80	1,58
ORC	10	7,40	1,63

According to the results in Table 4 and Table 5, we can conclude that five-year-old monolingual Turkish children can comprehend SRCs more easily than ORCs. The sd values in Table 5 prove that there is more homogeneity in this group in the comprehension of SRCs than the comprehension of ORCs. However, we should note that, in this group, there was a boy who could fully comprehend all the RCs and pointed at the correct picture. It may be due to some differences in the frequency of input he was exposed to.

When we look at the comprehension of SRCs and ORCs in the second group, which consists of six-year-of children, we can see an increase in the number of correct responses when compared to the first group. Table 6 displays the frequency and percentages of correct and incorrect responses for the second group.

Table 6. Frequency and Percentage of Responses of Six-year-olds

SUBJECT RCs						OBJECT RCs					
Correct Response		Incorrect Response		Total		Correct Response		Incorrect Response		Total	
f	%	F	%	f	%	f	%	f	%	f	%
180	90	20	10	200	100	171	85.5	29	14.5	200	100

It is apparent from Table 6 that like the children in the first group, six-year-olds comprehended SRCs more easily than ORCs. They responded 90% of the questions comprising SRCs and 85.5% of the questions comprising ORCs correctly. It is evident that there is an increase in the correct responses with the increasing age. Moreover, 9 children in this group responded to all questions correctly. Nevertheless, for the remaining 11 children, we can say that RCs are not fully-comprehended at this age.

In Table 7 below, the means and standard deviation values of six-year-olds' comprehension of SRCs and ORCs are presented.

Table 7. The Means and sd Values of Six-year-olds' Comprehension of SRCs and ORCs

Type of Relative Clause	Number of Questions	x̄	Sd
SRC	10	9,00	1,08
ORC	10	8,60	2,16

As can be clearly seen in Table 7, consistent with the first group, comprehension of SRCs is easier than comprehension of ORCs for the six-year-olds and the sd values show that this group is less homogeneous in the comprehension of ORCs.

To compare the two groups in terms of their comprehension of SRCs, t-test was computed in order to find out if the difference between them is statistically significant. Table 8 shows the t-test result for the comprehension of SRCs.

Table 8. T-Test Result for the Comprehension of SRCs

Age Group	Number of Questions	x̄	sd	df	t	p
5	10	7,80	1,58	38	-2,812	.008
6	10	9,00	1,08			

The results of the t-test proved that the difference between the five-year-olds and six-year-olds' comprehension of SRCs is statistically significant (t_{38}_ -2,812 p.008). The mean values show that six-year-olds can comprehend SRCs more easily than five-year-olds and the standard deviation being low indicates a homogeneity in both groups. We can conclude that between the ages of five and six, there is a significant development in terms of comprehension of SRCs.

Similarly, to compare the children's comprehension of ORCs in two groups, t-test was computed and Table 9 provides the t-test result for the comprehension of ORCs.

Table 9. T-Test Result for The Comprehension of ORCs

Age Group	Number of Questions	x̄	sd	df	t	p
5	10	7,40	1,63	38	-1,98	.055
6	10	8,60	2,16			

As the mean values in Table 9 indicate, the children in the second group can comprehend ORCs more easily than the children in the first group, but this difference is not statistically significant. Moreover, by looking at the sd value, it can be said that the second group shows less homogeneity in the comprehension of ORCs when compared to their comprehension of SRCs, which might imply that individual differences play a more important role in the comprehension of ORCs. Since there is no statistically significant difference between the two groups, it is possible to conclude that no significant change or development takes place in terms of comprehension of ORCs between the ages of five and six.

4. DISCUSSION AND CONCLUSION

The results of this study, conducted with 40 monolingual Turkish-speaking children between the ages of 4;6 and 5;11, indicate that children show higher accuracy in the comprehension of SRCs compared to ORCs and that accuracy in comprehension of SRCs and ORCs increase with age. These findings are in line with most of the research in the acquisition of relative clauses in Turkish (Slobin,1986; Özcan, 1997; Özcan, 2000; Özge, Martini & Zeyrek, 2010). These results might be due to the relativizing particles that appear in SRCs and ORCs. SRCs

involve a subject relativizing particle –EN, which appears only in SRCs, whereas ORCs involve the object relativizing particle –DIK which appears also in other structures. Previous research has shown that structures involving one-to-one mappings of form-function are acquired earlier than structures involving one-to-many mappings between form-function (Özge, Marinis & Zeyrek, 2009). The results might also be due to differences in processing case markers. Since accusative case marker is used in SRCs, and genitive case marker is used in ORCs in Turkish, our results are in line with the results of the studies which report that accusative case morphology is acquired much earlier than genitive case (Aksu-Koç and Slobin, 1985).

Another finding of this study was that there was a significant development in terms of comprehension of SRCs, but not in ORCs, between the ages of five and six. Thus, it seems plausible to conclude that in L1 Turkish, acquisition of ORCs takes longer as compared to the acquisition of SRCs, and a significant development in terms of comprehension of ORCs takes place after the age of six.

The results of the current study also indicated that some children at the age of 5;11 still have problems in comprehending RCs, especially the ones in object position. We saw in Slobin (1986) that Turkish adults seem to use RCs less than half as much as English-speaking adults. Therefore, Turkish children receive less input and this may be a factor of the delay in the acquisition of RCs. The corpus analysis conducted by Bulut, Yarar & Wu (2019) also highlights frequency as a possible factor contributing to the processing difficulty associated with ORCs. However, the effect of input was not found to be an important factor in the acquisition order of RCs in Turkish in the study by Altınkamış, Altan & Sofu (2013). In order to find out whether the nature of child-directed speech might explain the acquisition order or RCs in Turkish, they analysed the frequency and the types of RCs in mothers' speech directed to their children. They used video recordings of nine children ranging from the ages of 01:04 to 03:06, and observed that the mothers used ORCs more frequently than SRCs in Turkish child-directed speech. They concluded that Turkish child-directed speech does not account for the acquisition order of RCs. Thus, further research is required to understand better the reasons behind the delay in the acquisition of RCs in Turkish.

A final finding regards the impact of individual differences on the comprehension of RCs in Turkish. As mentioned earlier, although the standard deviation values indicated homogeneity in both groups, some children could fully comprehend all the RCs in the picture-selection task and pointed at the correct pictures. Further research could also address the impact of individual factors in the acquisition of RCs in Turkish.

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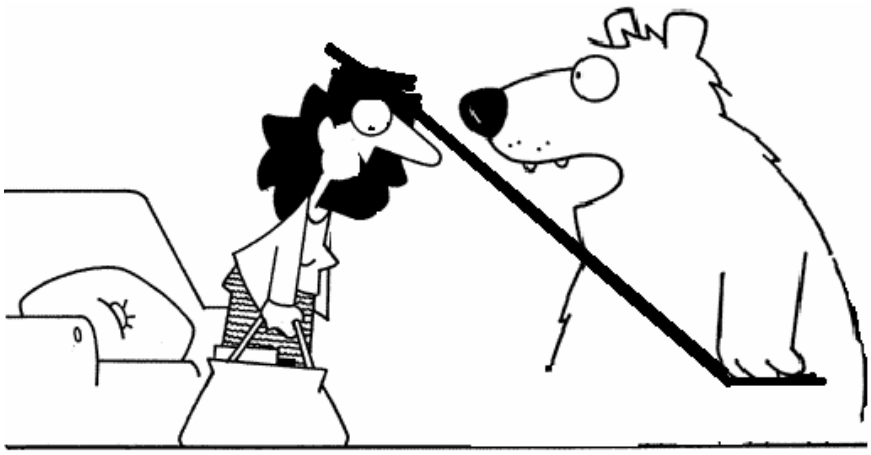
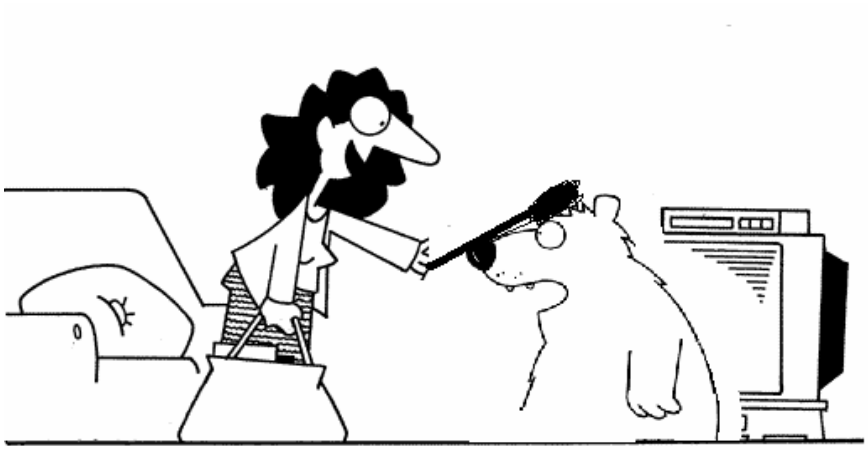
APPENDIX (Sample Pictures and Questions from the Picture-Selection Task)

Ayıyı döven kadın hangisi?

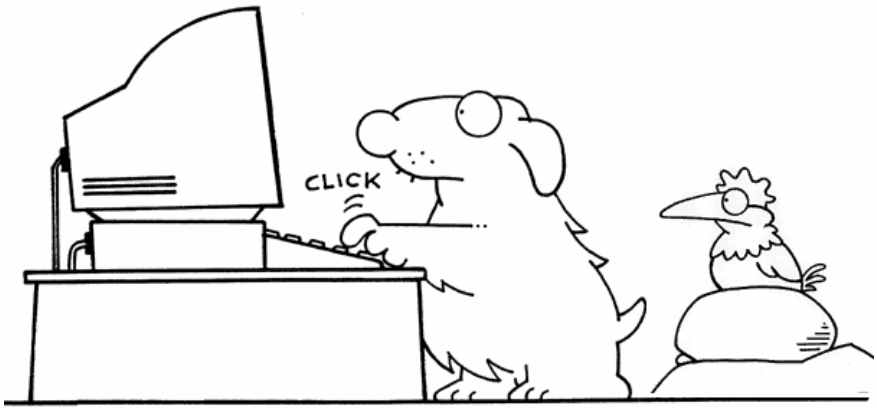
Ayının dövdüğü kadın hangisi?





Köpeği seyreden kuş hangisi?

Köpeğin seyrettiği kuş hangisi?



Aslanı taşıyan inek hangisi?

Aslanın taşıdığı inek hangisi?