Hacettepe University Graduate School of Social Sciences
Department of English Linguistics

THE ROLE OF CONTEXT ON PROCESSING OF TURKISH SUBJECT AND OBJECT RELATIVE CLAUSES

Burcu BORAN

Master's Thesis

Ankara, 2018

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KABUL VE ONAY

Burcu BORAN tarafından hazırlanan "The role of discourse context on processing of Turkish subject and object relative clauses: a psycholinguistic study" başlıklı bu çalışma, 4 Haziran 2018 tarihinde yapılan savunma sınavı sonucunda başarılı bulunarak jürimiz tarafından Yüksek Lisans Tezi olarak kabul edilmiştir.

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Doç. Dr. Çiğdem SAĞIN ŞİMŞEK (Üye)

Doç. Dr. Emine YARAR (Danışman)

Dr. Öğr. Üyesi Zeynep DOYURAN (Üye)

Dr. Öğr. Üyesi Taylan AKAL (Üye)

Yukarıdaki imzaların adı geçen öğretim üyelerine ait olduğunu onaylarım.

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Enstitü Müdürü

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02 /07/2018

Burcu BORAN

ETİK BEYAN

Bu çalışmadaki bütün bilgi ve belgeleri akademik kurallar çerçevesinde elde ettiğimi, görsel, işitsel ve yazılı tüm bilgi ve sonuçları bilimsel ahlak kurallarına uygun olarak sunduğumu, kullandığım verilerde herhangi bir tahrifat yapmadığımı, yararlandığım kaynaklara bilimsel normlara uygun olarak atıfta bulunduğumu, tezimin kaynak gösterilen durumlar dışında özgün olduğunu, Doç. Dr. Emine YARAR danışmanlığında tarafımdan üretildiğini ve Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü Tez Yazım Yönergesine göre yazıldığını beyan ederim.

Burcu BORAN

ÖZET

BORAN, Burcu. Türkçe Özne ve Nesne Ortaçlarının İşlenmesinde Bağlamın Etkisi, Yüksek Lisans Tezi, Ankara, 2018

Yapısal olarak karmaşık tümcelerin işlenmesinin nasıl gerçekleştiğinin anlaşılması psikodilbilim alanının temel hedeflerinden biridir. Bu alanda sıklıkla araştırılan konulardan biri karmaşık yapılarından olan özne ve nesne ortaçlarının işlenmesidir. (Traxler, Morris ve Seely, 2002; Chien-Jer ve Bever, 2006). Sözkonusu çalışmalarda çoğunlukla ortaçlar bağlam içinde incelenmektedir ve araştırmalarda ulaşılan genel sonuca göre pek çok dilde özne ortaçları nesne ortaçlarından daha kolay işlenmektedir (i.e., Chinese: Lin and Bever, 2006; Dutch: Frazier, 1987; German: Holmes and O'Regan, 1981; Hebrew: Arnon, 2005).

Öte yandan son zamanlarda, Crain ve Steedmann tarafından geliştirilen Göndergesel Kuram (1985) temel alınarak bazı çalışmalarda ortaç içeren tümceler bağlamda verilmekte ve tümcelerin bağlamdan uzakta verildiği çalışmalarda ulaşılan sonuçlardan farklı sonuçlara varılmaktadır (Yang, Mo ve Louwerse, 2012). Bu çalışmanın amacı, Türkçe özne ve nesne ortaçları içeren tümceleri hem bağlam olmaksızın hem de bağlamında deneklere sunarak ortaçların işlenmesinde bağlamın bir farklılığa neden olup olmadığını sınamak ve özne ve nesne ortaçlarına ilişkin olarak elde edilen sonuçların incelenmesidir.

Çalışmaya ana dili Türkçe olan ve herhangi bir görme bozukluğu bulunmayan 53 denek katılmıştır. Katılımcılar elverişli örnekleme tekniği ile seçilmiştir. Çalışmanın verileri Tobii teknolojili bir göz izlemcisi kullanılarak toplanmıştır. Katılımcılara 16 adet bağlam içinde ve 16 adet de bağlam dışında olmak üzere toplam 32 adet deney tümcesi sunulmuştur. Ayrıca, ortaç içermeyen toplam 32 adet doldurma tümcesi de deneyde kullanılmıştır. Katılımcılardan deneyde bağlam olmaksızın ve bağlam içinde verilen tümceleri okumaları istenmiştir. Katılımcıların göz hareketleri, gözlerini tümceye ve tümcelere ne kadar odakladıkları ve tümceyi ve tümceleri daha iyi anlamak için birden fazla okuma yapıp yapmadıkları göz izlemcisi tarafından kaydedilmiştir. Katılımcılara ayrıca her bir tümcenin ve tümcelerin ardından kavrama soruları sorulmuştur.

Çalışmada elde veriler Friedman Testi uygulanarak çözümlenmiştir. Ulaşılan bulgular bağlamdan uzak verilen tümcelerde her iki ortaç türünün de bağlam içinde verilen ortaç türlerine oranla daha kolay işlendiğini göstermektedir. Bu durum bağlamın deneklerin bilişsel iş yükünü artırdığını göstermektedir. Bulgular aynı zamanda bağlamın özne ortaçlarıyla nesne ortaçlarının bağlamdan uzak koşulda ortaya koydukları işleme farkını ortadan kaldırdığına da işaret etmektedir. Diğer bir deyişle, nesne ortaçlarının özne ortaçlarından daha güç işlenmesi tümceler bağlam içinde verildiğinde ortadan kalkmaktadır. Her iki tür de bağlam içinde verildiğinde kavrama soruları benzer oranlarda yanlış cevaplanmaktadır. Ancak bu durum nesne ortaçlarının kavranmasında kolaylık olarak değil, özne ortaçlarının kavranmasında zorluk şeklinde gerçekleşmektedir. Bu sonuçlara dayalı olarak Türkçede ortaç türlerinin işlenmesinde bağlama ilişkin bilgilerin etkisi olmadığı ileri sürülebilir.

Anahtar Sözcükler

Ruhbilim, Ortaçlar, Nesne ve Özne Ortaçları, Bağlam, Göz izlemcisi, Bağlam İçinde Verilen ve Bağlam İçinde Verilmeyen Ortaçlar

ABSTRACT

BORAN, Burcu. The role of context on processing of Turkish subject and object relative clauses, A Master's Thesis, Ankara, 2018.

Sentence processing is one of the major topics that is studied in psycholinguistics. Relative clauses due to their complex structures have offered a rich test bed to researchers studying in the psycholinguistics (Traxler, Morris and Seely, 2002; Chien-Jer and Bever, 2006). The findings obtained from psycholinguistic studies indicate that the processing of SRCs is much easier than the processing of the object relative clauses in some languages (i.e., Chinese: Lin and Bever, 2006; Dutch: Frazier, 1987; German: Holmes and O'Regan, 1981; Hebrew: Arnon, 2005). In other words, there is an asymmetry between the relative clause types in terms of processing.

However, it is thought that when relative clauses are given in context, the relevant asymmetry may be eliminated (Yang, Mo ve Louwerse, 2012). This idea is based on Carl and Steedman's Referential Support Theory (1985). This study is an attempt to illustrate whether discourse has an effect on the processing of Turkish relative clauses, and whether the processing asymmetry between Turkish subject and object relative clauses disappears when the context is added.

In order to test the effects of the context, the study employed an eye-tracking method. Participants were chosen with convenience sampling. During the eye-tracking experiment, sixty-four (64) sentences were presented to the fifty-three (53) native Turkish speakers who are undergraduate. Of these sentences sixteen (16) were isolated sentences while the remaining sixteen (16) were given in context. Meanwhile, thirty-two (32) filler sentences including 16 isolated sentences and 16 sentences in context were added to the materials. During the experiment the participants read all the sentences, and where and how long they fixate were recorded. In addition, following each item, a comprehension question was asked to the participants. The resulting accuracy of the questions was thought to display the discourse effect on the processing of Turkish subject and object relative clauses.

The data obtained were analysed by using Friedman Test. The findings of the study indicate that discourse had an effect on the processing of Turkish subject and object relative clauses in a negative way. To clarify, the results of the total fixation time, the regressive eye movements and the comprehension questions showed that the asymmetry between the isolated relative clauses had been eradicated because SRCs became more difficult to process within context. Thus, based on these findings, it can be stated that on the processing of Turkish relative clauses the presence of discourse does not have an effective role.

Keywords

Psycholinguistics, Relative Clauses, Subject and Object Relative Clauses, Eye-Tracker, Context, Isolated Relative Clause vs Relative Clause in context

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LIST OF ABBREVIATIONS

1PL	First Person Plural
1SG	First Person Singular
3SG	Third Person Singular
ABL	Ablative Case
ACC	Accusative Case
AOI	Area of Interest
DAT	Dative Case
DLT	Dependency Locality Theory
FUTURE	Future Tense
GEB	Genitive Case
LAN	Left Anterior Negativity
LDH	Linear Distance Hypothesis
LOC	Locative Case
NEG	Negative
NOM	Nominative Case
NP	Noun Phrase
ORC	Object Relative Clause
OB.REL	Object Relative Clause Marker
PAST	Past Tense
PL	Plural
POSS	Possessive
PROG	Progressive Tense
RC	Relative Clause
SD	Standard Deviation
SOV	Subject-Object-Verb
SRC	Subject Relative Clause
SUB.REL	Subject Relative Clause Marker
SVO	Subject-Verb-Object

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

While a healthy person is capable of understanding and producing any syntactic structure s/he hears or listens to, how that person does that task is a question which has been debated hotly by linguists, psychologists and educators. In other words, the questions on "the relationship between messages and the characteristics of human individuals who select and interpret them" (Sebeok and Osgood, 1954: 4) can be said to lead to the emergence of a field named as psycholinguistics. As a new discipline, psycholinguistics aims at focusing on the relation between language and its users. More clearly, the questions like how language is understood and processed, and how this process is transformed into production have created the main study domains within psycholinguistics. To put it another way, encoding and decoding processes of human have been analysed thoroughly to enlighten language processing.

Therefore, within this field, the main aim is to analyse cognitive processes which lie behind the language production and comprehension (Hatzidaki, 2007), and to gain insights into mechanisms of these cognitive processes. That is to say, the general nature of language processing in terms of cognitive aspects has been brightened via the studies conducted on sentence processing (Pickering, Clifton and Crocker, 2000).

Even though psycholinguists have produced various theories about sentence processing, the point they all agree is that there are three significant aspects which are needed to be mentioned while talking about sentence processing; namely the parser, the grammar and the processor (Domenico and Matteo, 2009). These aspects are not only attributed to have different roles on processing, but also stated to be correlated with each other as shown in figure below (Lin and Bever, 2006):

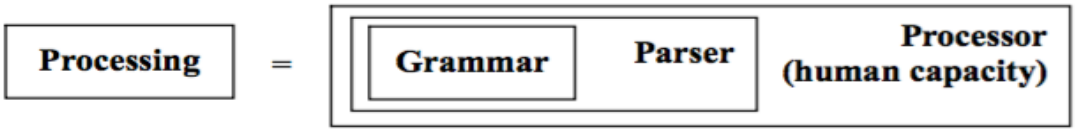


Figure 1. Three major aspects of sentence processing

As can be seen from Figure 1, the processor refers to the human capacity which encloses the parser and the grammar. Within this framework, grammar means syntactic knowledge covered by the parser that is responsible for analysing linguistic inputs and forming a syntactic structure for them (Lin and Bever, 2006). However, even though the roles of those aspects are settled, the topics about how and when the parsing occurs have not been fully established. To clarify, how the parser assigns roles in the sentence structure is a topic which has been discussed. There are two major assumptions about this process (Darnell, Shulman and Boland, 1998). One assumption states that the syntactic knowledge is enough for parsing. Thus, as long as there is not any problem in terms of processing, the parsing occurs based on only the syntactic knowledge. If there occurs any problem although this knowledge is used, then the semantic knowledge is also required and employed. On the other hand, the opposite view states that semantic knowledge leads the parser before constructing the sentence structure by offering more linguistic input to be analysed. Thereby, only the usage of syntactic knowledge is not sufficient for the formulation of grammar structure and processing (Domenico and Matteo, 2009).

Therefore, to uncover the nature of sentence processing, analysing and understanding syntactically complex sentences including relative clauses (RCs) have always been a central goal of psycholinguistics. The processing asymmetry between subject relative clauses and object relative clauses (SRCs and ORCs, respectively) has offered a prosperous test domain in order to achieve this goal. Through the studies on this topic (e.g., Caplan et al., 2001; Gibson, Hickok and Schutze, 1994; Gordon, Hendrick and Johnson, 2001; King and Kutas, 1995; Traxler, Morris and Seely, 2002), psycholinguists have proposed lots of different theories and approaches to describe and account for the relevant processing asymmetry between SRCs and ORCs. While general outcome of these studies is that ORCs, such as in (1), lead to more processing problems than SRCs

such as in (2) in English and in other languages (i.e., Chinese: Lin and Bever, 2006; Dutch: Frazier, 1987; German: Holmes and O'Regan, 1981; Hebrew: Arnon, 2005).

(1) The dog that the cat chased. (ORC)
(2) The dog that chased the cat. (SRC) (Brandt, Kidd, Lieven and Tomasello, 2009: 540)

As stated earlier, various reasons and factors for clarifying the processing difference between SRCs and ORCs have been proposed. One of the most attributed factors about this asymmetry is the distance between fillers, namely head noun phrases (NPs) in RCs. By calling it as Dependency Locality Theory, Gibson (1998: 8) argues "syntactic predictions held in memory over longer distances are more expensive and longer distance head-dependent integrations are more expensive". To put it differently, the difficulty which is encountered in the processing of ORCs stemmed from the movement with a greater distance. It leads human parser to bear that filler in mind for a longer period of time in order to process the sentence. However, as the gap to filler in SRCs is much closer, it can be immediately filled as is shown with examples below:

SRC with filler-gap ordering

The post-officer$_i$ [$_{RC}$ who ___$_i$ brought the letter] came.

FILLER ⟷ GAP

ORC with filler gap ordering

His girlfriend$_i$ [who the boy gave the flowers to ___$_i$] was surprised a lot.

FILLER ⟷ GAP

Figure 2. Filler-gap ordering in English SRCs vs ORCs (Adapted from Ueno and Garnsey, 2008: 647)

As is seen in Figure 2, the distance which is encountered in ORCs is longer than the one that is faced in SRCs. Therefore, this leads to more processing time for human parser as the filler needs to be held in mind for a longer period.

Another factor that was proposed to have an influence on the processing asymmetry between SRCs and ORCs is word order canonicity. Many researchers have stated that the processing of SRCs is much easier than that of ORCs due to the fact that SRCs have a canonical word order (e.g., MacDonald and Christiansen, 2002; Bever, 1970; Diessel and Tomasello, 2005). More specifically, in head-initial languages like English, Italian or French with Subject-Verb-Object word order, the processing of SRCs occurs correctly when human parsers assign the agent theta role to the first NP in the RCs and the theme theta role to the second NP without any problem. However, when the order changes in a reversal way as in ORCs or when it turns into a non-canonical word order, the task of assigning theta roles to the correct NPs gets harder for the people by causing difficulty in processing of the sentence.

Apart from the Dependency Locality theory and word order canonicity, psycholinguists also offered other accounts like accessibility hierarchy (Keenan and Comrie, 1977), perspective shifting (MacWhinney and Pleh, 1988) and memory based accounts (Frazier and Fodor, 1978). All these assumptions and accounts have been tested in numerous studies and experiments using data from different languages. However, even though these studies have accounted for the asymmetry between SRCs and ORCs and with their divergent methodologies they commonly assume that ORCs yield to more difficulty in processing than SRCs, only a small number of these studies has been conducted in order to test the influence of the context on the processing asymmetry of RCs (Spivey-Knowlton, Trueswell and Tanenhaus, 1993; Yang, Mo and Louwerse, 2012; Ferstl, 1993; Grodner, Gibson and Watson, 2003). In other words, the majority of the studies have focused on the processing of RCs in isolation and to what extent discourse plays a significant role on the processing has remained unclear (Yang, Mo and Louwerse, 2012). The role of the context on the processing of syntactically complex sentences or more clearly on the processing of SRCs and ORCs in context has been an area that needs to be further examined.

1.2 STATEMENT OF THE PROBLEM

The RC processing has been examined in the numerous languages with distinct structural properties (e.g., Caplan et al., 2001; Gibson, Hickok, and Schutze, 1994; Gordon, Hendrick, and Johnson, 2001; King and Kutas, 1995; Traxler, Morris, and Seely, 2002). As stated above, the most frequent finding of these studies is that the processing of ORCs leads to more difficulty to the reader or listener than the processing of SRCs in many languages, including Turkish (Bulut, 2012).

However, in many of those studies, RCs are analysed in isolation. Therefore, the cognitive underpinnings of the processing asymmetry between SRCs and ORCs have often been investigated by using the sentences in isolation (Grodner, Gibson and Watson, 2005). On the other hand, as it is a known fact that people rarely produce sentences in isolation and in order to understand a sentence. Therefore, they are thought to need to posit its meaning in an appropriate context, attributing the result that the processing of SRCs circumvents the ORCs, to a natural language processing effect is not sensible (Holmes and O'Regan 1981). As the majority of the studies on Turkish RC processing have also neglected the role of discourse, the questions about the reasons for the RC asymmetry in processing and the discourse effects on this asymmetry have not been fully answered yet. Even though a few studies employed this framework, an appropriate context favouring the target RC has not been used as a method.

Therefore, the current study fills this gap in Turkish with respect to processing of syntactically complex sentences and sheds light on the processing of SRCs and ORCs by taking the discourse influence into consideration. Moreover, through the eye-tracking method employed, it aims to provide much more detailed information on the RC processing asymmetry.

1.3 AIM OF THE STUDY

In this study, the aims are to analyse the processing of RCs in terms of the asymmetry between SRCs and ORCs and to reveal whether context plays a role on the processing of

Turkish SRCs and ORCs or not. In detail, the study deals with how syntactically complex Turkish RCs are processed in isolation and context.

1.4 RESEARCH QUESTIONS

In parallel to the aims given above, the study tries to answer the following research questions:

1. Is there any processing difference between SRCs and ORCs in Turkish in two different experimental conditions, namely in isolation and in context?
2. What is the role of context on the processing of Turkish SRCs and ORCs? More specifically, do SRCs and ORCs in isolation and in context significantly differ from each other in terms of processing based on the eye tracker data?

1.5 OVERVIEW OF THE CHAPTERS

This thesis is organized as five chapters and the chapters are outlined below:

The first chapter offers an introduction to the topic of the relevant research by tendering the statement of the problem and the significance of the study. The theoretical perspectives on the asymmetry between SRCs and ORCs are also given briefly. The chapter also includes the aim of the study and the research questions.

The second chapter sets the stage for supplying what the previous studies say about the topic of the research. Namely, it offers a description about the RCs. The chapter also provides a cross-linguistic approach to the RCs. To put it another way, the studies from typologically divergent languages are covered to see how the processing of SRCs and ORCs occur. Apart from these, the chapter also includes the previous findings about the discourse effects on the processing of syntactically complex sentences by taking into consideration the theories, namely the Garden Path Hypothesis and the Referential Support Theory.

The third chapter first presents the pilot study which was carried out before the study. It also provides detailed information about the methodology employed in the study. More specifically, it covers the details on the participants, data collection tool, data analysis, procedure of the experimental process and theoretical framework.

The fourth chapter provides the discussion of the findings. It presents the statistical findings on the total fixation time, regressive eye movement and the comprehension questions. In addition, these findings are discussed in relation to the aims of the study and the research questions. The chapter also presents a discussion about which theories or approaches account for the findings of the study.

The fifth chapter presents the conclusions of the study answering to the research questions. The chapter also gives the limitations of this thesis which should be taken into consideration in interpreting the findings of the study. Further suggestions are also given in this chapter to suggest a path for future studies on the topic.

CHAPTER 2

REVIEW OF LITERATURE

This sections presents the theoretical framework concerning the processing of relative clauses (RCs) as well as the studies carried out about this topic. More specifically, it includes the typology of RCs in Turkish, with a comparison to other languages, some major accounts on the RC processing. It also covers the findings of the studies on the processing of RCs in regard to different languages.

2.1 TYPOLOGY OF RELATIVE CLAUSES IN TURKISH

RCs are one of the complex sentences that include subordinate structures modifying a noun phrase (NP) in the main clause (Sarılar and Küntay, 2011). As in the other languages, there are two different types of the RC construction in Turkish; namely subject and object relative clauses (SRCs and ORCs, respectively). The construction of SRC type is exemplified in (3):

(3) Mektub-u getir-en postacı

letter$_{ACC}$ bring-An$_{SUB.REL.}$ postman$_{NOM}$

The post-man who brought the letter

In (3) the head noun phrase (NP) “postacı” is modified by a RC using the suffix –An, which is the major marker of the SRCs in Turkish (Underhill, 1972), and it is derived from the following sentence which is given below:

(4) Postacı mektub-u getir-di.

Postman$_{NOM}$ letter$_{ACC}$ bring$_{PAST.3SG}$

The post-man brought the letter.

Here, it appears that the SRC suffix –An replaces the tense suffix –DI in (4). In addition, the head noun, namely the noun phrase (NP) "postacı", is derived from the subject of the underlying sentence by moving to the right of the RC.

The second type of RC construction is ORC which is shown in (5):

(5) Çocuğ-un çiçekler-i ver-diğ-i kız arkadaş-ı

$child_{GEN}$ $flowers_{ACC}$ $give\text{-}DIK_{OB\text{-}REL.\text{-}3SG}$ $girlfriend_{3SGPOSS}$

His girlfriend who the child gave the flowers to

In (5), the head noun "kız arkadaşı" is modified by a RC using the suffix –DIK which is the major marker of Turkish ORCs (Underhill, 1972), and it is derived the following sentence:

(6) Çocuk çiçekler-i kız arkadaş-ı-na ver-di.

$child_{NOM}$ $flowers_{ACC.}$ $girlfriend_{3SGPOSS\text{-}DAT}$ $give_{PAST.3SG}$

The child gave the flowers to his girlfriend.

As is seen in (6), the tense suffix –DI is replaced by the ORC suffix –DIK. Besides, the object of the underlying sentence, namely "kız arkadaşı" is derived as the head NP of the ORC (5), and it is moved to the right of the RC again.

Therefore, it turns out that during the construction of the SRCs and ORCs in Turkish, the subject or the object of the underlying sentence is derived, and it is modified as the head noun of the RCs by moving to the right of them. Meanwhile, the RC suffixes replace the tense suffixes, as well (Underhill, 1972: 87-89).

As stated above -An and –DIK are the major markers for RCs in Turkish. Their structural patterns are given as follows:

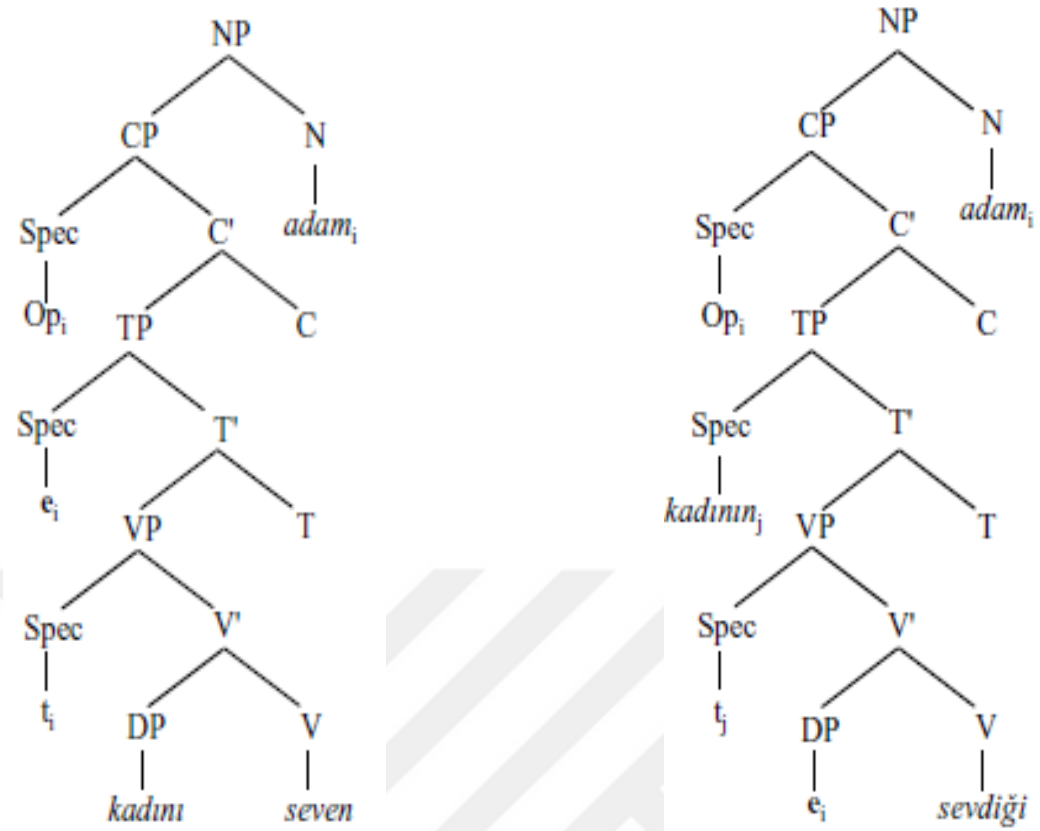


Figure 3. Turkish SRC and ORC trees with structural patterns (Adapted from Aydın, 2007: 299)

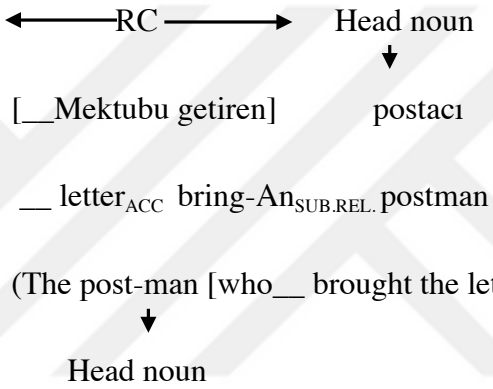
Figure 3 indicates that while the head NP "adam" is moved from its underlying position, ORCs have a deeper structure than the SRCs. To clarify, while the NP "adam" is moved from the specifier position of the VP in SRCs, the same NP is moved from a deeper position in ORCs. The position where the head NP is displaced is further down in ORCs. That is, while the SRC involves two phrasal boundaries, the ORC includes three phrasal boundaries.

The major RC suffixes in Turkish are -An and –DIK. However, there are ALSO other suffixes used in RC construction in Turkish. In the following sections, the typological characteristics of Turkish RCS and all these markers used in Turkish RCs are given.

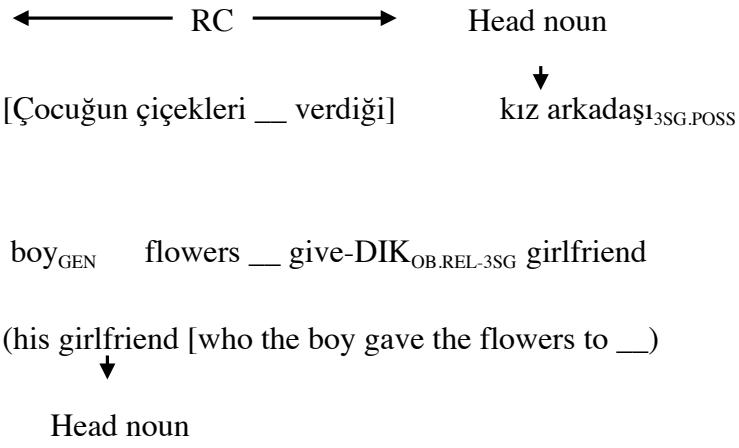
2.1.1 Word Order and Branching

Languages differ in terms of their word order features, and Turkish is one of the languages that has subject-object-verb (SOV) word order. In other words, verbs appear at the end of the sentences while subjects occur in sentence-initial position. The default position for objects, on the other hand, is between subjects and verbs. Concerning RCs, it is stated that in Turkish these constructions are pre-nominal (Özge, Marinis and Zeyrek, 2015). Namely, in Turkish RCs, the head follows the RC part as illustrated below:

(7) a. SRC construction in Turkish



b. ORC construction in Turkish



As seen in (7a) and (7b), the head nouns “postacı” and “kız arkadaşı” come after the verb to with the RC markers, namely –An and –DIK, are attached. In addition, they appear by following the gap they are moved. Therefore, Turkish RCs have a left-branching structure

which is resulted from the fact that Turkish is a head-final language. However, this case is different for some typologically different languages like English or French which have a right-branching structure.

2.1.2 Presence of Overt Complementizer

Another major characteristic of Turkish RCs is the absence of an overt RC marker or complementizer. As it is known in languages like German English or Spanish, RCs are formed with the use of an overt element that is normally a relative pronoun. On the other hand, there is no overt RC marker in Turkish. Instead, relativization in Turkish occurs with the use of various suffixes. The sentences below further exemplify this process:

(8) a. Anne-si-ni özle-yen kız

Mother$_{3SGPOSS-ACC}$ miss-(y)An$_{SUB.REL}$ daughter

The daughter who misses her mother

b. Anne-si-nin özle-diğ-i kız

Mother$_{3SGPOSS-GEN}$ miss-DIK$_{OB.REL.-3SGPOSS}$ daughter

The daughter who her mother misses

In (8a), the suffix –(y)An is added to the verb to relativize the clause indicating that there is no overt complementizer in Turkish SRCs. A similar morphological process is seen in (8b) in which the suffix –DIK is used to produce Turkish ORCs. Thus, rather than having an overt separate complementizer, Turkish has various suffixes which are added to the verb of the subordinate clause.

2.1.2.1 Relativizing Morphology of Turkish

Even though both –(y)An and –DIK suffixes are used as relativizers in Turkish, they differ from each other in terms of morphological features (Özsoy, 1998:362-365). The following examples are given to explain this difference.

(9) a. Anne-si-ni özle-yen kız

Mother$_{3SGPOSS-ACC}$ miss-(y)An$_{SUB.REL}$ daughter

The daughter who misses her mother

b. Anne-si-nin özle-diğ-i kız

Mother$_{3SGPOSS-GEN}$ miss-DIK$_{OB.REL.-3SGPOSS}$ daughter

The daughter who her mother misses

In (9a), it appears that the verb which is attached the SRC suffix –An does not agree with the subject NP of the SRC. As is seen in the sentence, the subject NP 'kız' which is also the head of the clause is not followed by any suffix. In addition, the verb is not attached any agreement marker either. Henceforth, in constructing the SRCs there is no agreement relationship between the head NP and the verb.

On the other hand, concerning Turkish ORCs, the suffix –DIK is not the only thing which is attached to the main verb which can be seen in (9b). Apart from it, the agent of the clause is marked with genitive case, and the verb is added to possessive marker to agree with the subject NP of the clause (Underhill, 1972: 87-99). In other words, in Turkish ORCs, the subject-verb agreement with an overt suffix is an essential part of this process. In (9b), the subject NP 'anne' is marked with genitive suffix –(n)In, and the verb which is attached with the suffix –DIK agrees with this subject NP via the following possessive marker.

As stated before, the relativizing suffixes or participles –AN and –DIK are not the only ones used in Turkish RCs. In addition to these major markers, –AcAK participle is another suffix added to the verb to produce RCs in Turkish. It is stated that the suffix -AcAK has an identical role to –DIK and that both are used to form ORC in Turkish, but have different tense indications (Göksel and Kerslake, 2005: 383). While –DIK participle refers to past or ongoing situations, -AcAK is used to refer to future tense. The following examples indicate this difference:

(10) a. Başkan-ın toplantı-da bahset-tiğ-i konu

Dean$_{GEN}$ meeting$_{LOC}$ mention-DIK$_{OB.REL.-3SG.POSS}$ issue

The issue that the dean mentioned at the meeting

b. Başkan-ın toplantı-da bahsed-eceğ-i konu

Dean$_{GEN}$ meeting$_{LOC}$ mention-AcAK$_{OB.REL.-3SG.POSS}$ issue

The issue that the dean will mention at the meeting

As can be seen in (10a) and (10b), the subject NP "başkan" is marked with genitive case marker and the verbs are attached with the 3rd singular possessive marker. In other words, the fact that the verbs agree with the number and personal features of the subject NP of the clause is observed for both suffixes –DIK and –AcAK (Kornfilt, 2000). Therefore, both have identical morphological properties. However, the example in (10a) refers to a past or an ongoing situation while there is a future tense reference in (10b). To clarify, while there might be a partial ambiguity with –DIK participle in tense as there are two possible tense references, regarding –AcAK participle, it is certain that there is a future meaning.

Göksel and Kerslake (2005: 387) describes the use of the major RC markers in Turkish as follows:

(i)	Relativizing subjects	*-(y)An*
(ii)	Relativizing direct objects	*-DIK/-(y)AcAK*
(iii)	Relativizing oblique objects	*-DIK/-(y)AcAK*
(iv)	Relativizing adverbials	*-(y)An*
		-DIK/-(y)AcAK
(v)	Relativizing possessors	
(a)	which are part of subjects	*-(y) An*
(b)	which are not part of subjects	*-(y) An*
	or	*-DIK/-(y) AcAK*
(vi)	Relativizing possessed constituents	
(a)	which are part of subjects	*-(y) An*
(b)	which are not part of subjects	*-DIK/-(y) AcAK*

Figure 4. Major RC markers of Turkish and their uses (Göksel and Kerslake, 2005: 387)

As seen in Figure 4, the SRC suffix –An is used to relativize subjects, adverbials, possessors or possessed constituents which function as part of the subjects of the RCs. In the following sentence, it is exemplified (Göksel and Kerslake, 2005: 381-387).

(11) The clause where the subject of the verb is relativized:

Burada çalışan işçiler

Here work-An$_{SUB.REL}$ employee$_{PL.NOM}$

The employees who work here

As can be seen in (11), the suffix –An is used to relativize the subject of the underlying sentence, "İşçiler burada çalışıyor (The employees work here)". In addition, as stated earlier when -An is attached to the verb, it does not require any agreement marker either. The following example shows another use of the suffix –An:

(12) The clause where the possessor which is part of the subject is relativized:

Evi	soyulan	komşumuz
House$_{3SG.POSS}$	rob-An$_{SUB.REL}$	neighbour$_{1PL.POSS)}$

Our neighbour whose house was robbed

In (12), the suffix –An is used to relativize the possessor "evi" which is part of the subject in the underlying sentence "Komşumuzun evi soyuldu (Our neighbour's house was robbed.)" As in the previous use, the verb is not attached any agreement marker.

On the other hand, Figure 4 also shows that the ORC suffixes –DIK and –AcAK are used to relative direct and obliques objects, adverbials and possessor or possessed constituents which are part of the subject again. Some of their uses are illustrated with the examples below (Göksel and Kerslake, 2005: 381-387):

(13) The clause where the direct object of the verb is relativized:

Sev-diğ-im	bir	restoran
Like-DIK$_{OB.REL1SG.POSS}$	a	restaurant

A restaurant that I like.

As is understood from (13), the ORC suffix –DIK is put into use to relativize the object of the sentence "Bir restoran seviyorum. (I like a restaurant)". However, as is evident, the verb requires a possessive marker to indicate an agreement with the subject of the underlying sentence. The use of –AcAK is given in example (14) below:

(14) The clause where the oblique object or the adverbial modifier is relativized:

Ali-nin	ateş-i	yak-acağ-ı	çakmak
Ali$_{GEN}$	fire$_{ACC}$	burn-AcAK$_{OB.REL.3SG.POSS}$	match

The match with which Ali will burn the fire

As is evident in (14), the suffix –AcAK is used to relativize the oblique object of the underlying sentence “Ali ateşi çakmakla yakacak.” (Ali is going to burn the fire with match.) In addition, as in the previous example, the verb is attached with a possessive marker again to meet the agreement-related requirement.

Thus, as mentioned before, regarding the ORC suffixes, it can be said that they always require a genitive-possessive marking relationship while such kind of agreement is not needed for the SRC suffixes.

Turkish RCs are also constructed with the suffix -mIş. In terms of morphological properties, when it is used to produce SRCs, -mIş does not require subject-verb agreement. However, there is a difference between –An and –mIş. More specifically, while the former is ambiguous in tense, the latter is not (Bulut, 2012) as can be seen in the following examples:

(15) a. Ders çalışan öğrenci

Study-$An_{SUB.REL.}$ student

The student who studies / is studying / was studying /studied / has studied

b. Ders çalışmış öğrenci

Study-$mIş_{SUB.REL.}$ student

The student who studied / has studied

In (15a), various tense options are available leading to an ambiguity in terms of tense reference. However, in (15b) tense reference is more limited. More clearly, the tense reference consists of either a past situation or a recent situation meaning. However, regarding the relativizing structures, it can be seen that both suffixes follow the same morphological rules.

In addition to these suffixes, in Turkish relativization the auxiliary ol- is also used. In other words, as the mentioned relativizing suffixes can be used on their own, they can

also have a form of compound verb with the ol- auxiliary by adding some tense and aspect markers to the sentences as illustrated below (Yarar, 2005: 132):

(16) SRCs

a. Evlen-miş ol-an/ evlen-ecek ol-an/ evlen-mekte ol-an

marry$_{PAST}$ ol-An$_{SUB.REL.}$/ marry$_{FUTURE}$ ol-An$_{SUB.REL.}$/ marry$_{PRESENT}$ ol-An$_{SUB.REL.}$

kadın

woman

The woman who has got married-got married/ will get married/ is getting married

b. ORCs

Al-acak ol-duğ-u/ al-mış ol-duğ-u/

buy$_{FUTURE}$ol-DIK$_{OBJ.REL.-3SG.POSS.}$/ buy$_{PAST}$ ol-DIK$_{OBJ.REL.-3SG.POSS.}$/

al-makta ol-duğ-u hediye

buy$_{FUTURE}$ ol-DIK$_{OBJ.REL.-3SG.POSS.}$ gift

The present that s/he will buy/ has bought-bought/ is buying

As is seen in (16a) and (16b), the auxiliary verb ol- eliminates the tense and aspect ambiguity by making tense references clear in both SRCs and ORCs. Both (16a) and (16b) indicate that the auxiliary ol- adds tense and aspect references. However, Yarar (2005) states that the ambiguity between the main verb and RC readings are avoided with such constructions.

All in all, regarding the Turkish RCs, the presence of any overt complementizer cannot be mentioned as instead of it, the typology of Turkish involves various relativizing suffixes with different roles. The tense and aspect are added to the meaning with those suffixes. The following table summarizes the use of the suffixes in Turkish RCs (Bican, 1999: 2):

Table 1. Major markers of Turkish SRCs and ORCs

Subject Relatives	Object Relatives
-(y)AN	-DIK
-mIş / -mIş olan	-mIş olduğu
-ecek /ecek olan	-AcAğI / -AcAk olduğu
-Da olan	-Da olduğu

As mentioned above, the basic relativizing suffix for SRCs is -An while for ORCs it is –DIK. However, both to avoid tense ambiguity and ambiguity between the main verb and RC reading, the auxiliary verb ol- is used with those suffixes. Apart from –An and –DIK suffixes, -mIş and –AcAK are also utilized by decreasing the tense ambiguity in sentences.

2.1.2.2 Restrictive vs. non-restrictive RCs in Turkish

In addition to the types of SRCs and ORCS, RCs are also categorızed as follows: restrictive and non-restrictive clauses. While restrictive RCs put a limitation to the NP which is defined by making it identifiable, non-restrictive RCs give just extra information about the NP. The examples of these two types of Turkish RCs below are given as follows (Görsel and Kerslake, 2005: 388):

(17) a. Restrictive

Yapraklar-ı dökülen ağaçlar

Leaves$_{3SG.POSS.}$ lose-An$_{SUB.REL.}$ trees

Trees that lose their leaves

b. Non-restrictive

Damad-I-yla hiçbir zaman iyi geçin-me-miş ol-an Hayriye Hanım

Groom$_{3SG.POSS}$-with never well get-$_{NEG-PAST}$ on ol-An$_{SUB.REL.}$ Hayriye Hanım

Hayriye Hanim, who has never got on well with her son-in-law

In (17a) the modified NP 'trees' is made restrictive through the information packaged in the RC construction. This information makes the head NP "trees" to "the trees that lose their leaves" by making it different from other NP, namely 'trees'. However, in (17b) the case is different. The modified NP 'Hayriye Hanım' is a proper noun, and thereby, it is already identifiable from other NPs. However, the RC gives an extra information about it which is normally non-essential to catch the point about the head NP "Hayriye Hanım". By taking (17a) and (17b) into consideration, it can be stated that restrictive and non-restrictive RCs are quite common in Turkish.

2.1.2.3 An Exception with '*ki*' and '*hani'*

There occur differences in terms of the presence of an overt complementizer between Turkish RCs and the RCs of typologically different languages. As stated earlier, while in some languages like German, English or French, overt relative pronouns are employed, in Turkish relativization is made through the use of the bound suffixes explained in detailed in previous sections. However, this rule is violated by the use of 'ki' in Turkish. The exception with 'ki' also adds a new perspective to restrictive and non-restrictive clauses which are explained below briefly.

As stated earlier, there are restrictive and non-restrictive types of Turkish RCs. In the non-restrictive RCs a subordinator, namely 'ki', is employed, which has a different use from other relativizing suffixes of Turkish. Because it is an overt subordinator or a relative pronoun and gives extra information about the defined NP in non-restrictive clauses as illustrated below:

(18) Selim, ki her zaman çok konuşur, öğretmenin

Selim, REL always a lot speak$_{PRESENT}$, teacher$_{GEN}$

dikkatini dağıttı.

attention$_{3RD.SG.POSS}$ distract$_{PAST.3SG}$

Selim, who always speaks a lot, distracted teacher's attention.

In (18), 'Selim' is a proper noun which can already be identified. However, by giving extra information about him, 'ki' produces a non-restrictive RC. In addition, even though the major RC suffixes like –An, -DIK and –AcAK need to be attached to the embedded verb, 'ki' is a RC suffix which functions on its own, and it is not attached to any verb (Görsel and Kerslake, 2005: 388-9).

Another exception in RCs of Turkish is created by 'hani'. To avoid the usage of RCs, as an equivalent, '*hani*' is preferred to identify the common referent (Slobin and Zimmer, 1986: 279-280). Meaning something like 'you know', the relevant word '*hani'* is used to clarify the referent without forming a RC as is shown in the following example:

(19) Hani siz-in ev-de büyük bir yatağı-n-ız var ya, o-nun gibi.

HANİ, your house$_{LOC}$ big a bed$_{1ST.PL.POSS}$ there is YA, it$_{GEN}$ like

"HANİ there is a big bed in your house YA, it's like that."

RC Equivalent:

sizin evde ol-an büyük yatak gibi

your house$_{LOC}$ ol-An$_{SUB.REL}$ big bed like

"like the big bed that is in your house." (Slobin and Zimmer, 1986: 279)

As is seen in (19), the head noun of RC, namely 'the big bed' is clarified without forming a RC. The word '*hani'* functions as a discourse marker which serves the necessary information to identify the referent. Thus, as can be understood from its RC equivalent, it serves like a restrictive RC which describes the head noun. However, as it is like a paraphrase of RCs, it does not have the structure of RC, and is not attached with any verb.

2.2 ACCOUNTS ON RELATIVE CLAUSE PROCESSING

As is stated earlier, the processing of RCs is analysed using distinct approaches and theories. Although it is mostly concluded that the processing of SRCs circumvent the processing of ORCs, this asymmetry has been tried to be teased apart with divergent accounts and theories (Fox, 1987; Gennari, and MacDonald, 2008; Gordon, and Randall, 2005; Gibson, 1988; Keenan and Comrie, 1977; MacDonald and Christiansen, 2002; MacDonald et al., 1994; Mak, Vonk and Schriefers, 2002; Mak, Vonk and Schriefers, 2008; McRae, Spivey-Knowlton, and Tanenhaus, 1998; Roland, Dick and Elman, 2007). On the other hand, these accounts are also divided into two groups based on what extent they attach significance to syntax and discourse. While syntax-based accounts assert that sentence processing is modular, the discourse-based ones claim that it is interactive. The syntax-based accounts and the discourse-based accounts are described briefly below.

2.2.1 Syntax-Based Accounts of Relative Clause Processing

This section covers the accounts and theories that explain the processing of RCs based on the priority of the syntactic knowledge. In other words, syntax is stated to be the main factor influencing the RC processing in these approaches.

2.2.1.1 Dependency Locality Theory

The Dependency Locality Theory (DLT) was proposed by Gibson (1998). The theory assumes that the processing of SRCs are much easier than that of ORCs in that the relevant asymmetry is stemming from the distance between the head of RC and its referent. In other words, the theory bases this asymmetry on the integration between the head NP and its referent by asserting that if the accessibility of the referent is easy, then the processing of the head NP is also easy. Hence, as the movement of the head NP in ORCs is further than the one in SRCs, it costs as more difficulty of integration between the relevant items. The DLT suggests that the integration cost increases based on the distance between the head and its referent. To clarify, the more intervening material between the head and its referent means the more difficulty and cost on the RC

processing.

In addition, the DLT also assigns the difficulty of the head NP of ORCs to the longer storage period. To put it another way, the fact that the distance between the head and its referent is further in ORCs, and it leads to keeping the head element in mind for a longer period by ending with a higher integration cost for the processing of the head NP.

2.2.1.2 Word-Order Canonicity

Another account dealing with the asymmetry on the processing of SRCs and ORCs is the word-order canonicity. As a classic account which has been followed in numerous studies (e.g., MacDonald and Christiansen, 2002; Bever, 1970; Diessel and Tomasello, 2005), it proposes that the processing of ORCs is troublesome since they have a non-canonical word-order. That is to say, when the canonical word order of the sentence, as an example 'subject-verb-object (SVO)' order in English, is reversed in the structure like in ORCs, it leads to a processing difficulty. The following examples show that SRCs have a canonical word order, namely SVO, in English, but ORCs have non-default word order:

(20) a. the postman who brought the letter

b. the letter which the postman brought

In (20a), the head noun 'postman' is assigned the agent theta role by being co-indexed with 'who' and the theme theta role is assigned to the object of the sentence which is'letter'. However, in (20b) which is an ORC with a non-canonical word, namely OSV, the complementizer 'which' is co-indexed with 'the letter' which is normally the object of the sentence. As a result, the task of assigning theta role occurs in a reversal pattern by leading to processing difficulty in ORCs.

2.2.1.3. Accessibility Hierarchy

By conducting a cross-linguistic study on fifty (50) languages, Keenan and Comrie

(1977) stated that there are variations among languages in regard to the position of NPs which are relativized. However, all those variations occur in a hierarchy. In other words, it is asserted that there is a grammatical hierarchy on the formation of grammatical structures, and in RCs, this structure takes a form within a pattern like subject > object > oblique. More clearly, '>' shows an easiness level for the relativization of the elements, and the subject positions are found as the easiest position in term of the relativization as it is the highest level in this structure. Henceforth, the theory clarifies the asymmetry between the SRCs and ORCs by associating it with the depth of the head NP in this hierarchy. The condition of being much further down of the head NPs in ORCs ends with more difficulty in processing of them.

2.2.1.4. Memory-Based Account

Another account dealing with the processing asymmetry observed in the RC types is the memory-based account (Chomsky, and Miller, 1963; Gibson, 1988). This account assumes that the processing of ORCs needs more memory load as there are more intervening items that need to be stored till the head NP is linked to the main verb. To put it another way, in an ORC as in (20b) the head NP 'letter' must be maintained in memory with the following elements 'which the postman' to link with the main verb 'brought'. However, in (20a) which is a SRC, the head NP 'post-man' may link to the main verb 'brought' by just keeping the complementizer 'who' in mind. Thereby, while in SRCs a coherent linking can be made right after the relative pronoun, in ORCs this linking requires more overload for the memory. Gibson (1988) also associates this overload with the 'retrieval' of the elements. By leading to more cost for retaining the head NP with connected items, ORCs result in more difficulty in processing.

The following table provides a brief information about the mentioned accounts with some others, and their proposals concerning the processing of the RC types:

Table 2. Accounts proposed for the RC processing (Adapted from Yun, Chen, Hunter, Whitman and Hale, 2015: 117)

Broad Categories		General Proposals
Word Order	Bever (1970); MacDonald and Christiansen (2002)	The sequence of words in SRCs is closer to the canonical word order than that in ORCs.
Parallel Function	Sheldon (1974)	SRCs are easier to process than ORCs because their head nouns play the same role in both the main clause and the subordinate clauses.
Perspective Maintenance	MacWhinney (1977, 1982)	SRC structures maintain the human perspective and should be easier to process than those that shift it, e.g. ORCs.
Accessibility Hierarchy	Keenan and Comrie (1977)	Universal markedness hierarchy of grammatical relations ranks the relativization from subject higher.
Memory Burden	Linear Distance: Wanner and Maratsos (1978); Gibson (2000); Lewis and Vasishth (2005)	ORCs are harder because they impose a greater memory burden.
	Structural Distance: O'Grady (1997); Hawkins (2004)	
Structural Frequency	Tuning Hypothesis: Mitchell, Cuetos, Corley, and Brysbaert (1995); Jurafsky (1996)	SRCs occur more frequently than ORCs and therefore are more expected and easier to process.
	Surprisal: Hale (2001); Levy (2008)	ORCs are more difficult because they require a low-probability rule.
	Entropy Reduction: Hale (2006)	ORCs are harder because they force the comprehender through more confusing intermediate states.

As can be seen in Table 2, although these accounts have a common assumption that during the processing of RCs the syntactic knowledge is the only needed piece of information, each proposes a different explanation about the topic.

2.2.2 Discourse-Based Accounts of Relative Clause Processing

In this section, the interactive theories which claim the discourse effect is more significant on the processing of sentences are covered. In other words, these theories support the idea that syntax cannot explain the relevant processing on its own by eliminating the discourse

effect.

2.2.2.1 Constraint-Based Approach

As an account on the RC processing, the constraint-based approach advocates that the semantic and the syntactic factors of a sentence are activated in parallel during processing (MacDonald et al., 1994; McRae, Spivey-Knowlton, and Tanenhaus, 1998). It assumes that during the processing there is a competition between the activated structures for comprehending, and which item is going to be activated is determined by the frequency of the constraints. As a result, the constraint which is more frequent is activated much faster than the ones which are encountered less. Thus, according to the constraint-based approach, ORCs are harder to process as they fall behind of the SRCs in the competition of activating. In other words, as the frequency of ORCs is lower, they lead to processing trouble for activation as they compete with more available structures in SRCs. A sub-topic of constraint-based approach is explained in detail below.

2.2.2.1.1 Frequency-Based Account

By having a constraint-based approach towards the asymmetry between the processing of SRCs and ORCs, the frequency-based account (Gordon and Randall, 2005) bases this asymmetry on the experience of the person who processes the relevant clauses. To clarify, according to this account, as SRCs are encountered more often than ORCs in daily life communication, they are easier to process. However, there have been some studies (e.g., Fox, 1987; Roland, Dick and Elman, 2007) which do not confirm this assumption claiming that SRCs are encountered in spoken language more, but in written language they fall behind of ORCs. Nevertheless, though the issue is a controversial issue in the field, in frequency-based approach it is considered that there is a significant role of experience on the processing of RCs.

2.2.2.1.2 Plausibility Effect - Animacy Account

The plausibility of constraint has offered a test domain to establish whether the processing

is modular or interactive. (Traxler and Gernsbacher, 2006: 466). As a strong plausibility is offered by it, the animacy of the subject has been manipulated in numerous studies to see its effect on processing (e.g. Ferreira and Clifton, 1986; Trueswell et al., 1994; Mak, Vonk and Schriefers, 2002). It is thought that the preference of SRCs over ORCs stems from the animacy effect. To clarify, the condition of having an animate NP results in assigning the agent or experiencer theta role to the relevant NP in SRCs while it is more complicated in ORCs with inanimate NPs. The studies which have been conducted on the RC processing have generally adopted a method with inanimate head NPs in ORCs by leading to an expected difficulty on processing of ORCs. However, in the study by Mak, Vonk and Schriefers (2002), it was found out that there is a significant role of animacy on the RC processing by eliminating or decreasing the asymmetry between SRCs and ORCs. That is to say, the difficulty which was detected for the ORC processing was affected by the animacy of the head NP.

2.2.2.2 Topichood Hypothesis

The other account on the asymmetry of the processing of SRCs and ORCs, the Topichood Hypothesis relates the topic of the sentence with the subject of the clause. It attributes the easiness of the processing of SRCs to the relation between head NP and the topic of the clause (Mak, Vonk and Schriefers, 2008). It also states that the entity with the highest topic-worthiness is processed as the subject of the clause, and the referent of the antecedent of the RC is always the topic in clause. Thereby, the head NP of the SRCs is seen as more topic-worth than the one of ORCs as the topic of the clause gives cues about its being subject. On the other hand, it also postulates that the topic-worthiness of the head NP of the ORCs can be increased by mentioning it in preceding context. By raising awareness on the head NP, it can be related with topic of clause with more easiness.

2.3 STUDIES ON PROCESSING OF RELATIVE CLAUSES

One of the significant ways to analyse RCs in terms of processing and comprehension has always been to analyse and compare different languages which have different word orders. The theories and accounts which have been stated about the relevant asymmetry

between SRCs and ORCs have been based on various head-initial languages and head-final languages. The fact that whether there is any discrepancy in terms of the word order or not has been tested by conducting numerous experiments on those languages (i.e., Head-Initial Languages: English: Kashiwagi, 2011; Yang, Mo and Louwerse, 2012; Dutch: Mak, Vonk and Schriefers, 2008; French: Pozniak and Hemforth, 2015; Fraunfelder, Segui and Mehler, 1980; Spanish: Betancort, Carreiras and Sturt, 2009; Head-Final Languages: Korean: Lee and Stromwold, 2007; Japanese: Ueno and Garnsey, 2008; Mandarin Chinese: Sung, Tu, Cha and Wu, 2016; Turkish: Özge, Marinis and Zeyrek, 2009; Bulut, 2012; Kahraman, 2015). In other words, in the psycholinguistic studies thanks to the cross-linguistic predictions which have been specified about the asymmetry between the RCs, various outcomes have been asserted for languages with different word orders, and the debate between the discourse-based theories and syntax-based theories has been tried to settle by the researchers.

On the following sections, some studies which were conducted on some head-initial and head-final languages are introduced. To clarify, how RC processing is handled in typologically different languages with their divergent methodologies are exhibited. Moreover, a table which also shows the RC preference of those languages is given below:

Table 3. Preferences of RC Processing in Various Studies of Different Languages (Adapted from Lin and Bever, 2006: 258)

Language	RC position	Preference	Task	References
Brazilian Portuguese	Postnominal	SRC	RSVP	Gouvea (2003)
Dutch	Postnominal	SRC	Self-paced reading	Frazier (1987)
		SRC	Self-paced reading Eye-movement monitoring	Mak, Vonk, & Schriefers (2002)
English	Postnominal	SRC	Continuous Lexical Decision Task	Ford (1983)
		SRC	Self-paced reading	King and Just (1991), Gibson, Desmet, Grodner, Watson, & Ko (2005)
		SRC	Eye-movement monitoring	Traxler, Morris, & Seely (2002)
			ERP	King & Kutas, 1995
French	Postnominal	SRC	phoneme-monitoring task	Frauenfelder, Segui, & Mehler (1980)
		SRC	click-monitoring	Cohen & Mehler (1996)
		SRC	Eye-movement monitoring	Holmes and O'Regan (1981)
German	Postnominal	SRC	Self-paced reading	Schriefers, Friederici, and Kuhn (1995)
		SRC	ERP	Mecklinger, Schriefers, Steinhauer, & Friederici's (1995)
Mandarin	Prenominal	ORC	Self-paced reading	Hsiao & Gibson (2003)
		SRC	Self-paced reading	Experiment 1 (Lin, 2006)
Japanese	Prenominal	SRC	Self-paced reading	Miyamoto & Nakamura (2003)
Korean	Prenominal	SRC	Self-paced reading	Kwon, Polinsky, & Kluender (2004)

As is seen in Table 3, the studies based on the asymmetry between SRCs and ORCs have generally resulted in the preference of SRCs over ORCs. In other words, ORCs are found to be processed more difficultly in typologically different languages. More clearly, the fact that the language has a prenominal or pronominal RC structure did not affect the processing RCs. Only the study conducted by Hsiao and Gibson (2003) on Mandarin Chinese resulted in the preference of ORCs.

2.3.1 Relative Clause Processing in Head-Initial Languages

In this part, the studies which were carried on the RC processing in head-initial languages are given with their major findings.

2.3.1.1 English

As a head-initial language, English has been one of the most analysed languages in linguistics, and there have been many studies about the RCs of this language in terms of their comprehension and processing (e.g., Brandt, Kidd, Lieven, and Tomasello, 2009; Diessel and Tomasello, 2005; Yang, Mo and Louwerse, 2012). Kashiwagi's study (2011) on the processing of RCs in first and second language is one of the significant examples in this field. While in this study the main aim was to compare comprehension and processing of RCs in L1 and L2, the asymmetry between SRCs and ORCs in English was also examined. The study employed several methods, but for the processing of English as L1, Kashiwagi (2011) used sentence reading experiment based on Cohen, MacWhinney, Flatt, and Provost (1993). During the experiment, participants were asked to read sentences consisting of two parts as quickly as possible, and after they read both parts subsequently, they pressed the button to see the yes/no question testing the comprehension of them. As participants read the sentences, their reading time span was also recorded by the computer. The study concluded that there was a significant difference between SRCs and ORCs in terms of time spent for processing and the yes/no questions for comprehension. SRCs resulted in much easier to comprehend and process (Kashiwagi, 2011).

By taking a different stand on the processing of SRCs and ORCs, Yang, Mo and Louwerse (2012) performed an experiment on English RCs. However, in their study, the aim was to find out the effect of context on the asymmetry between English SRCs and ORCs. The participants were to read SRCs and ORCs in context and in isolation (Yang, Mo and Louwerse, 2012: 5). The conditions tested in the study are given as follows:

(21) a. Isolated SRC:

The child that chased the babysitter squealed with delight at the game.

b. Subject Favoured Context with SRC:

The child with a pony tail was playing on the playground with the babysitter. She looked pretty good in the pink sweater, and her white sport shoes were very cute. When the child laughed, her voice sounded sweet. On this sunny spring day, the breeze gently blew her brown hair. The child was busy picking up wildflowers, chasing the birds, and playing a game of tag. The child that chased the babysitter squealed with delight at the game. Their laughter could be heard a few miles away

c. Isolated ORC:

The child that the babysitter chased squealed with delight at the game.

d. Object Favoured Context with ORC:

The babysitter with a pony tail was playing on the playground with the child. She looked pretty good in the pink sweater, and her white sport shoes were very cute. When the babysitter laughed, her voice sounded sweet. On this sunny spring day, the breeze gently blew the brown hair. The babysitter was busy picking up wildflowers, chasing the birds, and playing a game of tag. The child that the babysitter chased squealed with delight at the game. Their laughter could be heard a few miles away.

The study employed the eye-tracking method to collect the data, and the fixation time of the participants was recorded to see the difference between SRCs and ORCs in terms of processing. In addition, to check the comprehension of the RCs given in two different conditions, comprehension questions were asked to the participants. Figure 5 presents their results concerning the total fixation time for isolated condition:

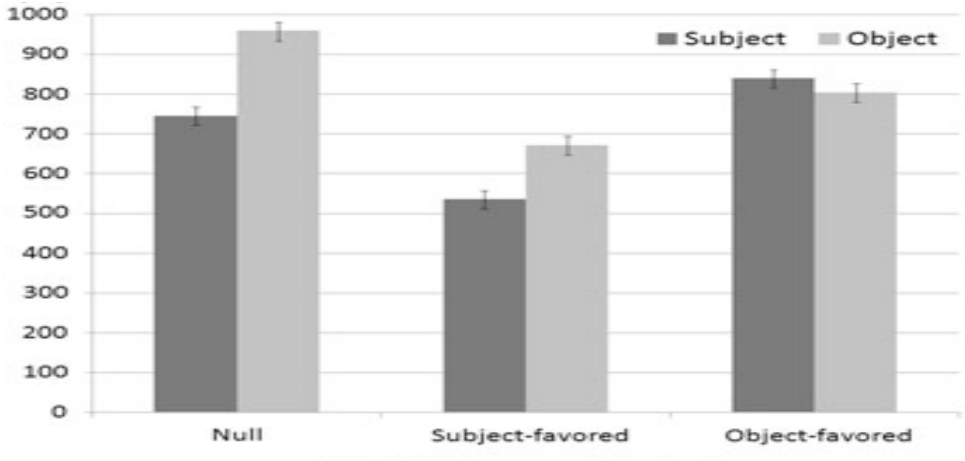


Figure 5. Total Fixation Time for isolated sentences, subject favoured contexts and object favoured contexts (Adapted from Yang, Mo and Louwerse, 2012: 8)

As it is shown above, the SRCs in context do not circumvent the ORCs in context. In other words, context or discourse has a significant role on the processing of ORCs by easing them for the participants. More clearly, the asymmetry between SRCs and ORCs in the isolated condition disappeared when they were given in context.

2.3.1.2 Dutch

The processing of Dutch RCs is one of the most analysed topics in psycholinguistics (e.g.; Van Dijk, 2014; Kaan, 1997). The RCs have been studied both as isolated sentences and clauses in context. The study by Mak, Vonk and Schriefers (2008) has a significant role on the theories about the processing asymmetry. In their study, two different experiments were conducted to determine the influence of context on the RC processing. In the first experiment, the subjects read SRCs and ORCs in isolation. There were three groups of experimental sentences: case-ambiguous full NP in RCs, case-ambiguous pronouns in RCs and case-marked pronouns in RCs. The participants read these three group of sentences and made decisions over whether the statement was true or false. It was concluded that SRCs were preferred to ORCs, specifically with much clearer difference in the case-ambiguous full NP in RCs. Both their time span to process SRCs and their comprehension of statements following SRCs circumvented ORCs. In their second experiment, Mak, Vonk and Schriefers (2008) employed two groups of RCs: RCs in

Neutral-Context and RCs in Topic-Context. In other words, while in one of the groups, namely neutral-context group, RCs were not mentioned at the previous context. In the other group, there was a focus to the either subject or object of the RCs. To clarify, the aim was to detect the influence of the clues that were given about SRCs or ORCs in the previous context. At the end of the analysis of both group, ORCs were proved to lead to less difficulty when they were presented in a topic-context. To put it differently, the context preceding the ORCs had an influencing role on the processing of the relevant clauses if it had some clues on them. With this finding, Mak, Vonk and Schriefers (2008) brought a new perspective to the asymmetry between SRCs and ORCs, and indicated that using a syntactical aspect is not enough to account for the asymmetry between SRCs and ORCs.

2.3.1.3 French

French grammatical constructions were also studied in psycholinguistics (e.g., Delle Luche, Hoen, Gayraud, and Meunier, 2005; Fraunfelder, Segui and Mehler, 1980). French RCs were examined by Pozniak and Hemforth (2015). In their study, Pozniak and Hemforth (2015) analysed both French and Mandarin Chinese. There were 41 bilingual participants who can speak French and Mandarin Chinese as well as 27 native French speakers. The eye-tracking experiment was employed in the study to collect the data. The participants listened to 5 conditions which were SRCs and ORCs in French and Mandarin Chinese with ORCs with subject inversions in French. They were asked to choose the correct picture which were offered to them while listening to the RC sentences. The analysis of the data indicated that there was a subject relative preference in French while no significant difference was found between SRCs and ORCs in Mandarin Chinese. To clarify, it was concluded that the participants had difficulty in processing of ORCs in French L1 and L2 while managing the SRCs and ORCs in Mandarin Chinese equally.

Fraunfelder, Segui and Mehler (1980) employed a phoneme-detection experiment in French SRCs and ORCS. There were 15 participants for L1 and 15 participants for L2. The participants were given 8 reversible pairs of SRCs and ORCs which are preceded by a target phoneme (e.g. /t/ or /d/) and 30 filler sentences. An example set of materials is

given below for the target phoneme /t/:

(22) a. SRC: Le savant qui connait le docteur *travaille* dans une universite modern

The scientist who knows the doctor works in modern university.

b. ORC: Le savant que connait le docteur *travaille* dans une universite modern

The scientist who the doctor knows works in a modern university.

(Fraunfelder, Segui and Mehler, 1980: 330)

The participants were asked to detect the phoneme as soon as possible they heard it, but at the same time they were also expected to keep the relevant RC sentence in mind in order to answer the following comprehension question about it. At the end of the analysis of the data, it was established that both participants in L1 and L2 tests had a preference for SRCs while detecting the target phonemes. In other words, detection of the phonemes during the processing of ORCs was more time-consuming for the participants. Fraunfelder, Segui and Mehler (1980) also conducted a second experiment to see whether this case is valid when the phoneme is inside of the embedded clause rather than preceding or following the RC, and the result did not change in this experiment, as well. The processing of SRCs circumvented the processing of ORCs while determining the target phoneme.

2.3.1.4 Spanish

The psycholinguistic studies on Spanish have also contributed to the theories on the processing asymmetry between SRCs and ORCs. The findings indicated in Spanish the processing of the SRCs is much easier than that of the ORCs (e.g., David, Ramón, and María Teresa, 2012; Reali, 2014). The study by Betancort, Carreiras and Sturt (2009) analysed Spanish RCs both in terms of the asymmetry between SRCs and ORCs, and the animacy effect on this processing. The study employed an eye-tracking method to collect the data, and 28 undergraduate students participated in the experiment. They were presented 36 sets of experiment sentences in different conditions such as animate SRCs and ORCs as well as inanimate SRCs and ORCs (Betancort, Carreiras and Sturt, 2009). The following examples indicate the conditions tested in the study (Betancort, Carreiras

and Sturt, 2009: 1918).

(23) Animate SRC:

a. Conocían al atleta que venció finalmente al corredor el año pasado.

They knew the athlete that beat the runner finally last year.

Inanimate SRC:

b. Conocían la enfermedad que venció finalmente al corredor el año pasado.

They knew the illness that beat the runner finally last year.

(24) Animate ORC:

a. Conocían al atleta que venció finalmente el corredor el año pasado.

They knew the athlete that the runner beat finally last year.

Inanimate ORC:

b. Conocían la enfermedad que venció finalmente el corredor el año pasado.

They knew the illness that the runner beat finally last year.

During the data collection process, the eye-movements of the participants were recorded focusing on the fixation point, fixation time and regression count. The data analysis showed a subject preference in RCs including both the animate NPs and inanimate NPs. While the ORCs analyzed were found to lead to difficulty in both conditions, the processing of ORCs with inanimate NPs was easier than the processing of ORCs with animate NPs.

More recently, Reali (2014) conducted a corpus analysis on Spanish SRCs and ORCs to see the effect of frequency on the processing of ORCs. The corpus employed in the study was The Corpus de Referencia de la Lengua Espanóla Contemporánea: Corpus Oral Peninsular developed by Marin (1991). It was found that there was a statistically

meaningful difference between the use of SRCs and ORCs as shown below:

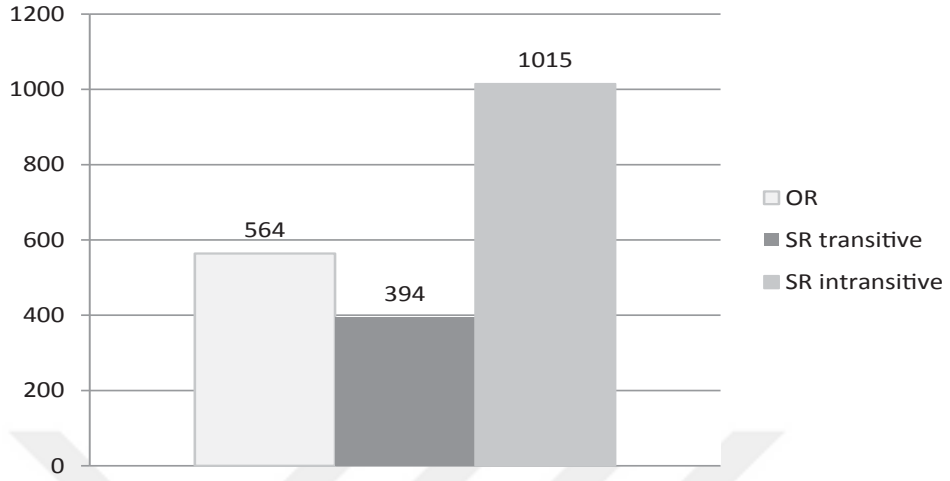


Figure 6. The number of SRCs and ORCs which occur in Spanish spoken corpus (Reali, 2014: 693)

As can be seen in Figure 6, SRCs occur more than ORCs in spoken language. It was also found that the word order of ORCs was more flexible than SRCs, as speakers' preference to drop pronouns in ORCs was higher than in SRCs. To clarify, the comparison between the occurrence of full NPs in SRCs and ORCs revealed a meaningful difference with a more frequency in SRCs. Thus, the study reached the conclusion that while ORCs in Spanish are more difficult to process, they are also more flexible than SRCs in terms of the word order (Reali, 2014).

2.3.2 Relative Clause Processing in Head-Final Languages

This section covers the findings of the studies conducted on the RC processing in head-final languages.

2.3.2.1 Korean

Having a different word order from the previously mentioned languages, Korean has been a language that was analysed in psycholinguistic studies as well (e.g.; Kwon, Kluender, Kutas and Polinsky, 2013; O'Grady, Lee and Choo, 2003). Korean RCs have also offered

a prosperous test bed for the processing. In this regard, Lee and Stromwold (2007) conducted a study on Korean RCs to observe the processing asymmetry between SRCs and ORCs. The participants were 15 adult native speakers of Korean. The experiment materials included 160 sentences containing RCs and comprehension questions. However, the method of the research was different from that of the previous mentioned studies. In the study the materials were divided into two groups, and the experiment was carried out in two consecutive steps. Korean RCs were analyzed as left branching RCs and right branching RCs as shown below (Lee and Stromwold, 2007: 5):

(25) SRC with subject head noun – SS

yang-ul cidoha-n yemso-ga tweyci-rul kyekryehaytta
The goat that taught the sheep encouraged the pig.

(26) SRC with object head noun – OS

may-ga toksuri-rul haychi-n solgay-rul pwucabatta
The hawk caught the kite that hurt the eagle.

(27) ORC with subject head noun – SO

mogi-ga annayha-n phari-ga nabang-ul chiryohaytta
The fly that the mosquito ushered treated the moth.

(28) ORC with object head noun – OO

kalmaygi-ga payco-ga chodayha-n kiregi-rul tolboatta
The sea gull looked after the wild goose that the swan invited.

The participants listened to the experiment sentences using a head-mounted microphone. While they were listening to them, there was just a white cross on the screen of the computer, and as soon as they heard the whole sentence, a question was asked. However, during the query part, on the left and right of the screen they were shown two animals as answer options. The participants were supposed to click on the right animal as the answer of the question while their response time was being recorded. The researchers not only looked at the effects of constituent order, but also analysed the effects of prosody. In detail, while some materials were offered to the participants with high prosody or level of voice, the others were given with low prosody or a low tone. The aim was to see the effects of the prosody on processing of RCs. The major results of the study are given in

Figure 7:

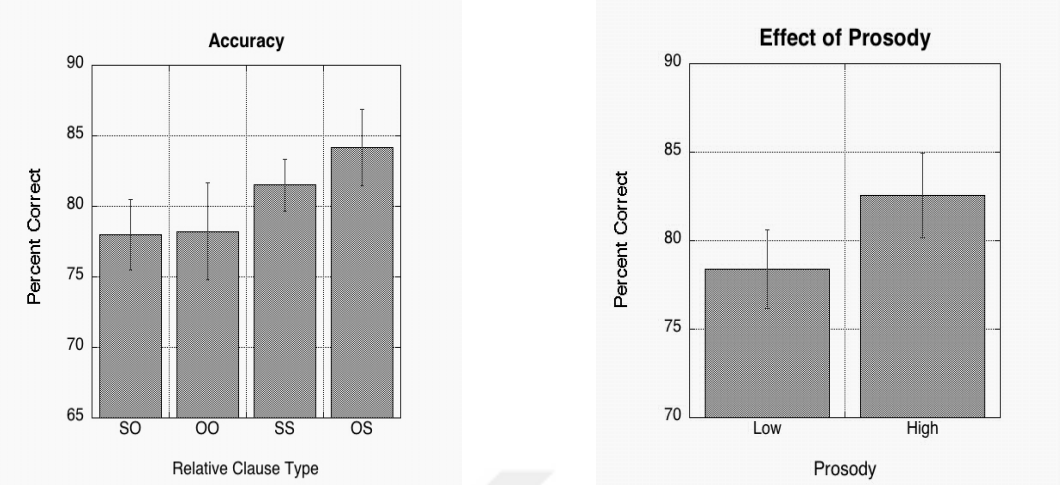


Figure 7. Results of the data analysis (Adapted from Lee and Stromwold, 2007: 15)

As indicated in Figure 7 above, the accuracy level reached at the end of analysing SRCs (SS and OS) circumvented over the accuracy level of ORCs (SO and OO). The participants had difficulty during the processing of ORCs. The results also shed light on the effects of the constituent order in that there was a high preference of the left branching RCs (SS and OS) rather than the right branching ones (SO and OO). In detail, the constituent order had a statistically meaningful effect on the processing of the RCs in terms of accuracy. It was concluded that there is an effect of prosody on the RC processing by making it easier. However, there is not any relation between the prosody and the RC type. More clearly, high prosody had a positive effect on the processing of all types of RCs.

2.3.2.2 Japanese

Being one of the head-final languages, Japanese has also been analyzed in the psycholinguistic studies in terms of the processing of the syntactically complex structures like RCs (e.g., Miyamoto, and Nakamura, 2013; Ishizuka, (2005). Ueno and Garnsey (2008) adopted an experimental approach in analysing complex sentences. More specifically, the data of the study were gathered using ERP (event-related potentials). In

the study, the focus was on the relation between brain activities and sentence processing measuring and recording the voltages occurring in brain during the processing. The study was carried out through two different experiment. During the first experiment, 40 native speakers of Japanese were given 80 experiment sentences and 80 filler sentences. The stimulus was given word by word on the screen of a computer, and at the end of the sentence they were expected to answer a yes/no question by pressing the relevant button on the keyboard. The results revealed that there was no significant difference between the SRCs and ORCs in the accuracy of yes/no questions while a statistically meaningful difference occurred between SRCs and ORCs in the reading times as is shown below:

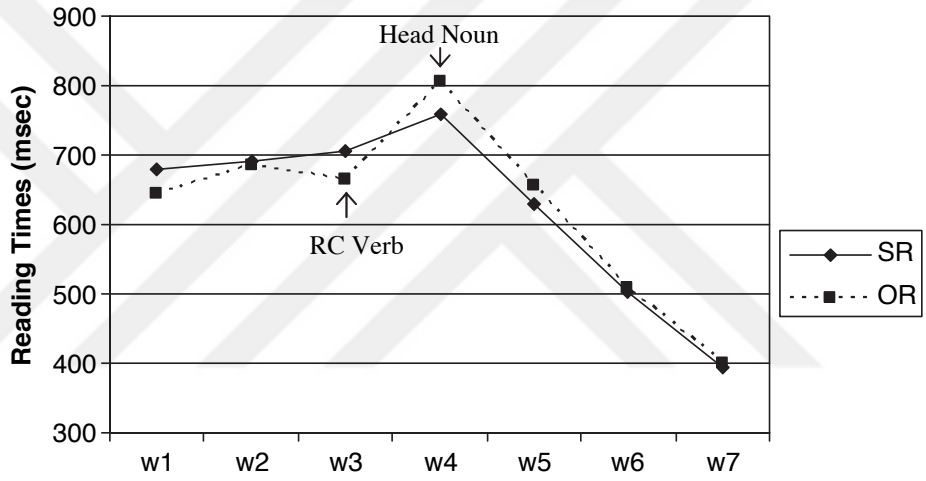


Figure 8. Reading times recorded per each word in SRCs and ORCs (Ueno and Garnsey, 2008: 664)

As can be seen in Figure 8, with the beginning of the RCs by the head noun, there occurred a difference between the reading times of the sentences. Although there was a difference at the first and third word, namely the RC verb, this difference was not statistically significant. However, for the remaining part of the sentence, SRCs were shown to be less difficult in terms of comprehension. In the second part of the experiment, Ueno and Garnsey (2008) analyzed the LAN (left anterior negativity) which is a negative voltage faced at the front left side of the brain. The materials of the second experiment was the same with the those used in the first experiment. However, the procedure was different

as participants were made to wear an elastic cap which measures the voltages of brain occurring the experiment. In other words, the materials were again given on the screen of a computer, but this time, their reactions were recorded. At the end of the study, it was found that the processing asymmetry between SRCs and ORCs was evidenced in terms of the negative voltages faced in brain. In detail, there occurred more negative voltages during the processing of the ORCs than the processing of SRCs. Thus, the relevant study related RC processing to the brain voltages, and provided confirmatory evidence for the processing ease of SRCs.

2.3.2.3 Mandarin Chinese

Mandarin Chinese has also been studied in terms of RC processing in psycholinguistic research (e.g., Pozniak, and Hemforth, 2015; Xiaomei, Liyao, and Kenneth, 2012). To analyse the sentence processing in this language, RCs have been researched, and found that there is an ORCs preference over SRCs. To clarify, while in numerous studies of the head-initial and head-final languages concluded that SRCs are easier to process than ORCs, some of the studies in Mandarin Chinese claimed an advantage for ORCs. To put it another way, whereas there were some results reporting an advantage for SRCs, there were also other results showing the preference of SRCs over ORCs. Sung, Tu, Cha and Wu (2016) conducted an eye-tracking study on the processing asymmetry between SRCs and ORCs. The study sampled native speakers of Mandarin Chinese and Japanese L2 learners of Mandarin Chinese. More specifically, 36 Japanese speakers of Mandarin Chinese and 38 native speakers of Mandarin Chinese were the participants. There were 120 experiment sentences including 60 filler sentences. The RCs in the stimulus were manipulated as long and short RCs to reveal the effect of distance on the processing. The materials were presented on the screen of a computer, and while the participants read them, their eye-movements were recorded. To check the comprehension, a yes-no question was asked following each sentence. The following Tables show the results of the data analysis:

Table 5. Mean and Standard Deviation for accuracy of yes/no questions (Adapted from Sung, Tu, Cha and Wu 2016: 7)

Type	Chinese				Japanese			
	Long		Short		Long		Short	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
ORC	0.970	0.057	0.968	0.055	0.889	0.093	0.884	0.153
SRC	0.977	0.053	0.982	0.056	0.865	0.169	0.925	0.087

Table 6. Mean and Standard Deviation for Reading Times (Adapted from Sung, Tu, Cha and Wu 2016: 7)

Type	Chinese				Japanese			
	Long		Short		Long		Short	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
ORC	4.37	1.30	3.10	0.90	8.13	1.41	5.59	1.03
SRC	4.98	1.24	3.13	0.68	9.14	1.81	6.13	1.15

The findings of the study indicated that both L1 and L2 speakers of Mandarin Chinese displayed a preference for ORCs over SRCs. In other words, SRCs caused more difficulty during the processing. However, Sung, Tu, Cha and Wu (2016) also stated that this contradiction with the other languages might be stemming from the structure of Mandarin Chinese showing both head-initial and head-final features at the same time. Moreover, they also claimed that as ORCs have a shorter distance between the gap and its filler than SRCs, they may be resulted in a higher preference. Thus, the study supported the

predictions of the Linear Distance Hypothesis (LDH) which attributes the processing asymmetry between SRCs and ORCs to the distance between gap and filler.

2.3.2.4 Turkish

Turkish RCs have been analyzed in terms of the processing, production and acquisition. Özge, Marinis and Zeyrek (2009) conducted an experiment on the comprehension of RCs on a sample of the monolingual Turkish children. More specifically, 37 monolingual children aged 5-7 participated in the experiment. There were also 21 control subjects. In the experiment the children were shown some images and were asked to show the answer of the question. The material included sentences and images that have been presented below:

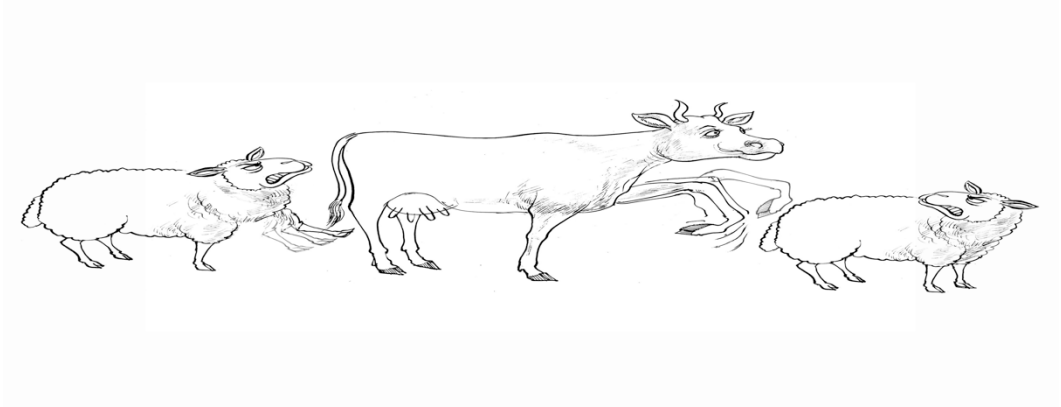


Figure 9: Test sentence is "İneğin vurduğu koyunu bana göster – Show me the sheep that the cow is kicking" (Adapted from Özge, Marinis and Zeyrek, 2009: 5)

At the end of the analysis, it was concluded that the children performed more correctly in SRCs (96.45%) than ORCs (66.72%). Moreover, the study also demonstrated that older participants were more successful at the comprehension of the RCs than the younger ones. Therefore, it was assumed that SRCs are acquired at an earlier age than ORCs as they caused less difficulty in the performance of the young children.

Özge, Marinis and Zeyrek (2010) conducted a similar study on the production of Turkish RCs. Both primary school students and adults were the participants of the study. The data of the study were collected through the image descriptions. To clarify, the children were given some images that included four different events occurring between two animals,

and in just one of them there was an animal wearing some accessories like hat or tie. Thus, they were asked to describe which animal wearing the accessories. The participants were asked questions like "Hangi deve şapka takmış? – Which camel is wearing the hat?", and children gave responses using the RCs like "İneği tekmeleyen deve. – The camel which is kicking the cow". The data analysis showed that children used less ORCs than adults and that their production of ORCs was less accurate than that of SRCs. Hence, there was an asymmetry between SRCs and ORCs in terms of production.

Another study was carried out by Bulut (2012) using an eye-tracking method. During the experiment, the participants were given Turkish SRCs and ORCs, and after reading these sentences, they were supposed to answer yes/no questions for each sentence. The analysis was based on the eye fixation records of participants which were collected during the experiment and on the comprehension accuracy of participants. The results of the study indicated that SRCs circumvent over ORCs in terms of both comprehension and processing. A fixation example of SRCs and ORCs is presented below:

Figure 10: Fixation pattern in an example sentence of SRC and ORC consecutively (Adapted from Bulut, 2012: 66)

As can be seen from Figure 10 above, the participants spent much more time during the processing of ORCs. In detail, they devoted more time to process the verb of ORCs. However, the results showed a statistically significant difference only in terms of the spill-over part rather than the RC regions or the matrix verb. More specifically, ORCs were established to be difficult in the spill-over region in which intervening words were seen between the head-noun and the matrix verb.

Moreover, in this study, the participants displayed a higher difficulty in comprehending

of the ORCs as well. In other words, the true-false questions following SRCs were answered more correctly than the ones coming after ORCs. His results were in the same line with those of Özge, Marinis and Zeyrek (2009).

More recently, Kahraman (2015) analyzed Turkish RCs. More clearly, Turkish RCs in context were examined to see the effects of context on the RC processing. There were two different contexts. The RCs were investigated in a neutral context that did not give any key about the NP used in the following RC and a topic context that introduced the NP of the following RC in advance. The context types are exemplified below (Kahraman, 2015):

(29) Neutral Context:

a. Üniversite yolsuzluk yüzünden incelemeye alındı, dekanı suçlayan rektör okulu düşünüyordu.

The university was investigated due to corruption, the rector who blamed the dean was thinking of school.

Topic Context:

b. Dekan üniversitedeki işlerine fazla önem vermezdi, dekanı suçlayan rektör okulu düşünüyordu.

The dean did not care much about his work at the faculty, the rector who blamed the dean was thinking of school.

The study employed a self-reading method to collect data. Twenty-four sets of RCs were presented to thirty-five participants, and all RCs were offered with a preceding neutral or topic context. In the study, it was also aimed to examine the validity of Discourse Function Hypothesis. Kahraman (2015) concluded that the difference between the processing of SRCs and ORCs changes based on the context type. Topic context was found to help the processing of RCs more than the neutral context. Nevertheless, the context was found to have a role the processing of RCs. Thus, both neutral and topic context made the task of processing RCs easier.

However, the results also indicated that context did not have a significant role on the

processing asymmetry between the SRCs and ORCs. ORCs were harder to process than SRCs when they were presented in neutral or topic context again. Even though there was an effect of context on the RC processing, it did not eliminate the processing asymmetry between SRCs and ORCs. Thus, Kahraman found that the Discourse Function Hypotesis did not explain the asymmetry between the SRCs and ORCs in context, and he claimed this could have been stemming from two reasons; the usage of third person pronouns in the preceding context and the typology of the language. In other words, in this study, Kahraman (2015) used third person pronouns to avoid the unnaturalness even though in similar studies proper nouns or NPs were repeated to create an emphasis on them. Thus, the study puts forward that this case might have led to such a result. Secondly, Kahraman (2015) asserts that even though the Discourse Function hypothesis is thought to be universal, there might be some language specific functions of RCs. Thus, these functions might be the reason of the asymmetry between the SRCs and ORCs in Turkish.

CHAPTER 3

METHODOLOGY

Chapter 3 presents the method of the study. More specifically, it covers information on the participants, data collection tool, materials or the set of sentences, data collection process, data collection procedure and data analysis.

Chapter 3 also contains information concerning pilot study, including the information on the participants, data collection, materials, data analysis as well as major findings obtained. It presents the modifications made on the methodology based on the findings of the pilot study.

3.1 PILOT STUDY

The pilot study aimed to analyse the processing of the relative clauses (RCs) in terms of the processing asymmetry between subject relative clauses and object relative clauses (SRCs and ORCs, respectively) and to see the influence of context on this asymmetry. It was conducted to establish the reliability of the experimental process Based on the findings of the pilot study necessary improvements were made. The methodology of the pilot study is given as follows with regard to the participants, materials and data collection.

3.1.1 Participants

In the pilot study, fifty-two (52) undergraduate students participated in the experiment. They were chosen based on two criteria. The criteria that were used in the sampling process were as follows: being a native speaker of Turkish and having no vision problems. Moreover, via the conducted calibration test, two participants were excluded from the study due to the fact that their scores were lower than 70% at fixation.

3.1.2 Data Collection and Procedure

The data of the pilot study were collected through eye-tracking experiments (see "3.2.3 Data Collection Tool-Eye Tracking"). During the experiment, participants were asked not to move as much as possible to have reliable fixation results. They were presented the sentences containing isolated RCs and contextualized RCs. They were also presented comprehension questions following each sentence to check their understanding of the materials. Those who scored below 70% in comprehension questions were aimed to be excluded from the study.

3.1.2.1 Materials

The participants were presented twenty (20) RCs in isolation and twenty (20) RCs in context. The RCs in each group were composed of ten (10) SRCs and ten (10) ORCs. To prevent participants from understanding the aim of the study ten (10) filler sentences were also included (See Appendix I for the whole set of materials). Therefore, participants were expected to read fifty (50) experiment items and to answer fifty (50) true-false questions following each of them. The RC quadruplets were adapted from Traxler et al.'s study (2002), and they were translated. Moreover, materials were also read by a native speaker to avoid unnaturalness. Some of the experiment sentences are given as follows:

(30) Isolated SRCs

a. Bakıcı-sı-nı kovala-yan çocuk büyük bir zevkle kahkaha at-tı.

Babysitter$_{3SG.POSS.ACC}$ chase-An$_{SUB.REL.}$ child with delight squeal$_{PAST.3SG}$

The child that chased the babysitter squealed with delight.

SRCs in Context

b. Bu güneşli bahar sabahında o kır çiçekleri topluyor, kuşları kovalıyor ve kovalamaca oynuyordu. Bakıcısını kovalayan çocuk büyük bir zevkle kahkaha attı**.** Sesi uzaklardan bile duyulabiliyordu.

On this sunny spring day, the child was busy picking up wildflowers, chasing the birds, and playing a game of tag. The child that chased the babysitter squealed with delight at the game. Their laugh could be heard a few miles away.

(31) Isolated ORCs

a. Bakıcının kovaladığı çocuk büyük bir zevkle kahkaha attı.

Babysitter$_{GEN}$ chase-DIK$_{OB.REL.3SG\ POSS.}$ child with delight squeal$_{PAST.sSG}$

The child that the babysitter chased squealed with delight.

ORCs in Context

b. Bu güneşli bahar sabahında o kır çiçekleri topluyor, kuşları kovalıyor ve kovalamaca oynuyordu. Bakıcının kovaladığı çocuk büyük bir zevkle kahkaha attı**.** Sesi uzaklardan bile duyulabiliyordu.

On this sunny spring day, the babysitter was busy picking up wildflowers, chasing the birds, and playing a game of tag. The child that the babysitter chased squealed with delight at the game. Their laugh could be heard a few miles away.

Some examples of the filler sentences that did not include any RCs are also given as follows:

(32) Kendine olan fazla güveni yüzünden de ara ara insanlarla tartışma içine giriyordu.

Because of his over self-confidence, he used to discuss with other people as well.

(33) Profesör kendi bölümündeki seminerlere düzenli bir şekilde katılıyordu. Pratik bir zekaya sahipti ve alanında çok aktifti. Daima öğrencilerinin ya da meslektaşlarının yaptığı sunumlara karşı sorular sorardı. Karakterinin bir gereği olduğu için de sunumlar esnasında sürekli bir tartışmaya sebep olurdu ve bu durum zaman zaman öğrencileri tarafından alaya alınmasına sebep oluyordu.

Professor used to participate to the conferences in his department steadily. He used to have a quick-wit and used to be too active in his field. All the time, he used to

ask questions to his colleagues and students while they were presenting. Because of his character, he used to lead to a discussing during presentations as well, and this used to lead him to be ridiculed by his students.

3.1.3 Data Analysis

The Friedman Test was used to make a comparison between the SRCs and ORCs. The data collected were examined within isolated groups and context groups. The results of the collected data were analyzed in terms of three aspects; total fixation time, regressive eye movements and comprehension questions.

3.1.4 Major Findings

When the findings of the pilot study were analyzed, it was found that there was an asymmetry between isolated SRCs and ORCs in terms of comprehension. It was also found that discourse had a complicating effect on the processing of them. In other words, the presence of a discourse made the processing burden more difficult for the participants. The findings with regard to each aspect have been tendered in the following parts in depth.

3.1.4.1 Total Fixation Time

When the recorded eye movements of the participants were analyzed in terms of the duration they fixated at a certain point, it was seen that there was not a statistically significant difference between the SRCs and ORCs as shown in the following table:

Table 7. Total Fixation Time Scores

Comparison Groups		**Total Fixation Time (In seconds)**	
		Mean	**SD**
1)	**SRCs in isolation**	4,30	1,829
	ORCs in isolation	4,66	1,901

2)	**SRCs in isolation**	4,30	1,691
	SRCs in discourse	5,20	1,829
3)	**ORCs in isolation**	4,66	1,901
	ORCs in discourse	5,23	2,130
4)	**SRCs in discourse**	5,20	1,829
	ORCs in discourse	5,23	2,130

As is understood from Table 7 above, the SRCs and ORCs in isolation and in context were not found to have any asymmetry in terms of total fixation time ($p>.05$). Instead, both isolated SRCs (Mean: 4,30; SD: 1,691) and ORCs (Mean: 4,66; SD: 1,901) had similar fixation durations. However, as can be seen in Table 7, there is a statistically significant difference between the isolated SRCs (Mean: 4,30; SD: 1,691) and SRCs in context (Mean: 5,20; SD: 1,829). In detail, the existence of SRCs in a context produces a difficulty in terms of processing rather than an easing influence. It is also seen that there is no asymmetry between the SRCs (Mean: 5,20; SD: 1,829) and ORCs in discourse (Mean: 5,22; SD: 2,130). To clarify, although the difficulty level of processing is increased when the sentences are given in a context, there is no asymmetry between isolated SRCs and ORCs as well.

3.1.4.2 Regressive Eye Movement

When the data are analyzed in terms of the regressive eye movements, the findings showed that there was not any statistically significant difference between the isolated SRCs (Mean: 1,42; SD: 0,472) and ORCs (Mean: 1,25; SD: 0,347). Similar results had been attained for both kind of isolated sentences by having a different result from the studies which state the presence of an asymmetry between the isolated SRCs and ORCs.

However, the findings also revealed that the results are consistent with the results of the total fixation time. To put it differently, the results gathered for the target sentences given

in a context showed similar outcomes to the results of total fixation time. The related results are shown in the following table:

Table 8. Regressive Eye Movement Scores

Comparison Groups		Regressive Eye Movement	
		Mean	**SD**
1)	**SRCs in isolation**	1,42	0,472
	ORCs in isolation	1,25	0,347
2)	**SRCs in isolation**	1,42	0,472
	SRCs in discourse	3,27	1,155
3)	**ORCs in isolation**	1,25	0,347
	ORCs in discourse	3,32	1,123
4)	**SRCs in discourse**	3,27	1,155
	ORCs in discourse	3,32	1,123

As seen in Table 8, there was not any asymmetry between the isolated SRCs (Mean: 1,42; SD: 0,472) and ORCs (Mean: 1,25; SD: 0,347) in terms of the number of regressive eye movement. Meanwhile, this asymmetry was not found between the SRCs within discourse (Mean: 3,27; SD: 1,155) and ORCs within discourse (Mean: 3,32; SD: 1,123) either. In other words, the processing level for both kind of target sentences was the same in both conditions.

However, when the results of the isolated target sentences were compared with the sentences in context, it is seen that there is a statistically significant difference between them. While isolated SRCs (Mean: 1,42; SD: 0,472) had a lower number of regressive eye movements than the SRCs in discourse (Mean: 3,27; SD: 1,155), isolated ORCs (Mean: 1,25; SD: 0,347) had also a lower score than their contextualized counterparts

(Mean: 3,32; SD: 1,123). Therefore, it may be argued that the presence of context produces a processing difficulty.

3.1.4.3 Comprehension Questions

When the participants' answers given to the comprehension questions are examined, a statistically significant difference occurs. The results of the data generated by them are reported in Table 9:

Table 9. Comprehension Scores for the True/False Questions

Comparison Groups		**Incorrect Answers**	
		Mean	**SD**
1)	**SRCs in isolation**	1,64	1,05
	ORCs in isolation	2,66	1,479
2)	**SRCs in isolation**	1,64	1,05
	SRCs in discourse	2,24	1,393
3)	**ORCs in isolation**	2,66	1,479
	ORCs in discourse	2,12	1,624
4)	**SRCs in discourse**	2,24	1,393
	ORCs in discourse	2,12	1,624

As it can be seen in Table 9 above, while the participants were answering the true/false questions following each isolated sentence and contextualized sentence, they had difficulty in answering the comprehension questions following the isolated ORCs. In detail, it was detected that isolated SRCs (Mean: 1,64; SD: 1,05) are found to be comprehended better than the isolated ORCs (Mean: 2,66; SD: 1,479) in terms of the

correct answers. The participants answered the questions following the isolated ORCs more incorrectly than the ones following the isolated SRCs. Thus, the results of the pilot study show that there is an asymmetry which is consistent with the previous findings (i.e., Chinese: Lin and Bever, 2006; Dutch: Frazier, 1987; German: Holmes and O'Regan, 1981; Hebrew: Arnon, 2005).

However, this asymmetry was only found regarding the answers to the comprehension questions rather than the other two aspects. Therefore, it was thought that the relevant asymmetry between isolated SRCs and ORCs stemmed from comprehension rather than processing, and context had a complicating effect on the processing.

3.1.5 Contributions of the Pilot Study to the Study

Based on the findings of the pilot study above both the materials and the experimental procedure were modified. Because the materials used in the pilot study are found not to provide a context which focuses on the heads of RCs. In other words, the preceding context is reformulated as Subject-Favored Context or Object-Favored Context. By doing this, it is aimed to see the effect of the context on the processing of RCs. More specifically, as there were generally third-person pronouns in the preceding context, they were changed with Noun Phrases (NPs) or proper nouns to create more emphasis on the head nouns. Moreover, to avoid the unnaturalness, the preceding contexts were eased after they had been translated. In addition, based on the findings of the pilot study, the number of the filler sentences was increased. In short, the number of both experimental and filler sentences became the same.

In the experimental procedure followed in the pilot study, there was not any fixation point to change the fixation of the participants before each experiment item. Therefore, a new fixation point was added to the main experimental procedure. Thus, participants were planned to be asked to fixate at a point for two seconds to change their gaze patterns and fixation. The fixation duration was settled by the eye-tracker as two seconds directly. With the help of this, more reliable fixation results are taken.

In addition, in the pilot study, the materials were offered to the all participants in the same order. Following the pilot study, it was thought that the fixed order of the materials might affect the performance of the participants in reading the sentences on a computer screen. Thus, by using Latin Square, five different patterns were planned to be given to the participants during the main experiment.

3.2 THE STUDY

This section covers the methodology of the main experiment. In detail, it offers the information about the participants, materials, data collection procedure and data collection tool. This part also provides information concerning the theoretical framework which is employed in the study to discuss and interpret the findings.

3.2.1 Participants

The participants of the study are fifty-three (53) undergraduate students attending two public universities during the academic year of 2015-2016. They were selected following the convenience sampling technique which is a non-probability sampling. In this technique, participants are chosen due to the fact that they have convenient accessibility and proximity to the researcher (Saunders, Lewis and Thornhill, 2012). All of them participated in the study voluntarily. However, the number of the participants was determined following the principle that in experimental studies of language, it should be at least 30, and it might get up to larger pools by basing on to what extent the sampling group is controlled (Mackey and Gass, 2005). On the other hand, the participants of the study were controlled by the prerequisites for inclusion, namely having normal or corrected vision as well as hearing and being native speakers of Turkish. In addition, the participants who had a level below 70% in terms of fixation values were not included into the data analysis. The relevant percentage was chosen as it is an established way in such studies. (e.g. Bulut, 2012). Therefore, three participants were excluded from the study. In short, the data gathered from fifty (50) participants were included to the data analysis.

3.2.2 Data Collection

The data of the study were collected by conducting eye tracking experiments. During the experiments, subjects read sentences with RCs in isolation and RCs in a context. During this process, their eye movements were recorded in terms of where and how long they fixate. In addition, in order to compare the comprehension of the participants in isolated sentences and in contexts, a comprehension question was asked following each sentence. Given that there was no participant who scored less than %70 in the comprehension test, the data collected from fifty participants were included in the statistical analysis.

3.2.2.1 Data Collection Tool – Eye Tracking

The eye-tracking method was employed to collect the data of the study. This method has been one of the frequently used methods in the field (Holmes and O'Regan, 1981; Kahraman, 2015; Pozniak and Hemforth, 2015; Staub, 2010; Sung, Tu, Cha and Wu, 2016; Yang, Mo and Louwerse, 2012). The eye-tracking method offers accurate and robust results and provides an opportunity to focus on different dimensions like first or second fixation time, total fixation duration and regressive eye movements (Rayner and Pollatsek, 2006).

The experiments in the study were carried out at the Human – Computer Interaction Lab of Middle East Technical University, and as stated earlier, a Tobii Technology Eye Tracker was used which is shown in Figure 11:

Figure 11. An Eye Tracker with Tobii Technology

As is seen from Figure 11, to conduct the experiments with this eye-tracker, participants were not supposed to wear any headset or chin-rest. The only prerequisite was to have a normal eye vision. The eye-tracker established the fixation duration between the items as two seconds automatically.

3.2.3 Materials

In the experiments eight quadruplets of sentences were used (see Appendix I for the experimental items and comprehension questions). These sentences were adapted from Traxler et al.'s study (2002). The length and frequencies of the sample sentences were equally matched.

The number of the sentences used in the experiments is thirty-two (32). Of them, sixteen (16) sentences were given in contexts, the remaining ones were given in isolation. Each group of sentences involved the equal number of the SRC and ORC constructions. Thus, each set was consisted of eight (8) SRC and eight (8) ORC sentences. In addition, there were also twenty-two (32) filler sentences.

The experiment items were designed in a way that there were no any consecutive items More specifically, as the items were formed by reversing the roles in RCs, they were counterbalanced in order to avoid the participants to recall the other version. Thus, each participant saw sixteen (16) different experimental sentences with RCs in isolation, and sixteen different sentences (16) with RCs in contexts as well as thirty-two filler (32) sentences (See Appendix II for the filler sentences and comprehension questions). Each sentence was followed by a comprehension item, in the form of True/False questions. The gaze patterns of the subjects on the experiment items were recorded in order to check whether the subject realized the role reversion between the RC sentences and whether they were influenced by the discourse. Table 10 below shows some examples of the experimental sentences tested in the study:

Table 10. Some examples of the experimental sentences and True/False questions

Context	Definition	Example	Translation
Null-Context	Subject Relative Clause in isolation without prior information being given	Bakıcısını kovalayan çocuk büyük bir zevkle kahkaha attı.	The child that chased the babysitter squealed with delight.
True-False Question	Question to check the comprehension of the participants	Bakıcısından kaçarken çocuk zevkle gülüyordu. D/Y	The child was squealing while she was chasing from the babysitter. T/F
Null-Context	Object Relative Clause in isolation without prior information being given	Bakıcının kovaladığı çocuk büyük bir zevkle kahkaha attı.	The child that the babysitter chased squealed with delight.
True-False Question	Question to check the comprehension of the participants	Çocuk bakıcısını zevkle kovalıyordu. D/Y	The child chased her babysitter delightfully. T/F
Subject-Favored Context	A paragraph in which there is an emphasis to the subject of the subject relative clause	Çocuk parkta bakıcısıyla oyun oynuyordu. Pembe elbisesiyle çok güzeldi ve beyaz spor ayakkabıları ona çok yakışmıştı. Bu güzel bahar sabahında çocuk çiçekler topluyor, kuşları kovalıyor ve kovalamaca oynuyordu. **Bakıcısını kovalayan çocuk büyük bir zevkle kahkaha atıyordu**.	The child was playing on the playground with the babysitter. She looked pretty good in her pink dress and her white sport shoes suited her very much. On this sunny spring day, she was busy picking up wildflowers, chasing the birds, and playing a game of tag. The child

		Sesleri parkın dışından bile duyulabiliyordu.	that chased the babysitter squealed with delight at the game. Their laugh could be heard a few miles away.
True-False Question	Question to check the comprehension of the participants	Bakıcının eğlendiği kahkahasından belliydi. D/Y	Her squeal made it obvious that the babysitter had fun. T/F
Object-Favored Context	A paragraph in which there is an emphasis to the object of the object relative clause	Bakıcı parkta çocukla oyun oynuyordu. Pembe elbisesiyle çok güzeldi ve beyaz spor ayakkabıları ona çok yakışmıştı. Bu güzel bahar sabahında bakıcı çiçekler topluyor, kuşları kovalıyor ve kovalamaca oynuyordu. **Bakıcının kovaladığı çocuk büyük bir zevkle kahkaha attı.** Sesleri bir parkın dışından bile duyulabiliyordu.	The babysitter was playing on the playground with the child. She looked pretty good in her pink dress and her white sport shoes suited her very much. On this sunny spring day, she was busy picking up wildflowers, chasing the birds, and playing a game of tag. The child that the babysitter chased the squealed with delight at the game. Their laugh could be heard a few miles away.
True-False Question	Question to check the comprehension of the participants	Bakıcı çocuğu kovalıyordu. D/Y	The babysitter was chasing the child. T/F

The examples of the filler sentences are also given below:

(34) a. Tam bir mükemmeliyetçiydi ve rollerin canlandırılmasına çok özen gösteriyordu.

"He was an exact perfectionist, and was caring a lot to the enacting of the roles."

True-False Question: Roldeki ufak ayrıntılar aslında ihmal edilebilirdi.

"In fact, the minor details of the role could have been ignored."

b. Yönetmen bir sahneyi prova etmek için saatlerini harcamıştı. Tam bir mükemmelliyetçiydi ve rollerin canlandırılmasına çok özen gösteriyordu. Öte yandan, ekibiyle gurur duyuyor ve diğer şirketlerin tekliflerini ısrarla reddediyordu. Özellikle ekibindeki takım ruhuna hayrandı ve onlarla aralarında var olan uyumu başarısının nedeni olarak görürdü.

"The director spent hours to rehearse a scene. He was an exact perfectionist, and was caring a lot to the enacting of the roles. On the other hand, he was proud of his team, and was refusing the offers of the other companies earnestly. Especially, he used to admire the team spirit of them, and he used to think the present rapport among the members of this team was the reason of their success."

True/False Question: Yönetmen çekimde hata istemediği için saatlerdir prova yapıyorlardı.

"As the director didn't want any mistake at shooting, they were rehearsing for hours."

3.2.4 Procedure

To conduct a reliable study using the data from human subjects through the eye-tracker experiments with participants, an official ethical permission was taken from the Ethics Committee of Hacettepe University (dated 23 November 2015: See Appendix III)

The participants were called before the experiment and a timeline was created for them. They were seated in front of the eye-tracker and did not need to wear any headphone or any glasses for the experiment. Before the experiment started, each participant was instructed what they would do during the experiment. The participants were also reminded of not moving their head as much as possible as their gaze patterns were going to be recorded. They were also informed that as the aim of this experiment was not to measure the level of their grammatical knowledge, they did not need to be nervous while giving answers to the questions and that they could ask to the researcher at any point that they had difficulty during the process. Moreover, as there was not any time limit, the participants were also requested to read the items at their own pace.

Following these explanations and instructions, each participant was asked to read sixty-four (64) experiment items including SRCs and ORCs in isolation and in a context. While they were reading the sentences, their gaze patterns were recorded by the eye-tracker to see where and how long they focused on the target item and whether they had regressed to read the relevant target item.

The Area of Interest (AOI) for the data analysis was established as the whole RC rather than all the sentences in context. In other words, given that there were not any intervening words between the head noun and matrix verb as spill-over, the AOI was selected as the whole RC instead of the parts of RC like spill-over or embedded verb. The sentences which preceded or followed the RCs were not also included into the AOI.

Apart from these aspects, to compare the processing difference of the participants between RCs in isolation and RCs in a discourse, a true/false question was also asked to them after each experiment item. In total, sixty-four (64) true/false questions were asked to the subjects and while half of the questions was true, the other half was false. After the participants read each sentence, they were expected to press a key in order to move to the next one and to give an answer to the true/false questions. During the latter process, they pressed one of the two keys which were indicated by different-colored stickers on the keyboard as ‘True’ and ‘False’. Furthermore, in order to change the fixation point of the participant, a fixation point which was designated earlier was offered to the subjects on the screen, and they were asked to fixate their gazes to the relevant point for two

seconds before each sentence. Furthermore, by using Latin Square, the materials were given in five different orders so that all participants did not see all materials in the same order. By doing this, reliability of the data was established.

3.2.5 Data Analysis

The data collected and the answers given to the comprehension questions were analyzed with statistical tests. The independent variable was the RCs in isolation and in a context. The dependent variable was the fixation time and regressive eye-movements. In the analysis of the true/false questions, the independent variable was again the RCs in isolation and in a context, and the dependent variable was the number of the correct answers.

The analysis of the data was carried out in three steps. First, the fixation time of each participant was taken into consideration, and how long they spent on each sentence was analyzed. Secondly, the regressive eye movements of each participant were analyzed. How many times the participant moved backward and forward during the reading process was evaluated. Thirdly, the number of wrong answers of each participant given to the comprehension questions was calculated.

For the statistical analysis of the fixation time, regressive eye movement and comprehension questions, the Friedman Test, which is a non-parametric statistical test used for detecting differences between multiple test items, was employed. This test, as an alternative to ANOVA is used when the data has no marked deviations from normality, and when the dependent variable is ordinal. As the dependent variable of this study was ordinal, the relevant test was chosen (Statistical Solutions, 2013). Concerning the comparison of the results, the Multiple Comparison of the Friedman Test was used. In these statistical analyses the following experiment conditions were taken into consideration:

- ✓ SRCs in isolation vs. ORCs in isolation
- ✓ SRCs in isolation vs. SRCs in a context
- ✓ ORCs in isolation vs. ORCs in a context

- ✓ SRCs in context vs. ORCs in a context

Table 11 below shows the dependent and independent variable for each of three analysis components:

Table 11. Dependent and Independent Variables of Each Analysis Component

	Dependent Variable	Independent Variable
Total Fixation Time	Fixation time	RC condition (in isolation/context)
Regressive Eye Movement	Number of regression	RC condition (in isolation/context)
Comprehension (True/False) Questions	Correct answers	RC condition (in isolation/context)

Table 11 indicates that the independent variable for all analyses was the RC condition as isolated or contextualized while the dependent variables were different for each condition. Concerning the total fixation time, it was fixation time, and for the regressive eye movement, the number of regression was the dependent variable. Finally, the correct answers given to the comprehension questions were the dependent variable. In addition, for all analyses explained above, the significance level was set at $p<.05$.

3.2.5.1 Theoretical Framework

The study bases the discussion of its findings on two major accounts on the RC processing; namely The Garden Path Hypothesis (Frazier, 1987) and the Referential Support Theory (Crain and Steedman, 1985). These prominent accounts are selected not only to have a comparison between the isolated and contextualized RCs, but also to see the validity of them on Turkish RCs. Each of these accounts is described briefly as follows.

3.2.5.1.1 The Garden Path Hypothesis – Syntax-Based Account

Frazier (1987) developed the Garden Path Model, which states that the processing of a sentence occurs in two steps with processors related to syntax and theta role assignment. It further argues that the discourse and lexical items can have an effect on the processing of sentences. However, such an effect does not occur at the initial structure building stage (Spivey-Knowlton, Trueswell and Tanenhaus, 1993). In detail, the structural properties of a linguistic input are regarded as the essential items for the initial analysis of sentence processing. For instance, Bever (1970) states that during the processing of a sentence like *The horse raced past the barn fell*, the parser assumes the verb *raced* as the main verb at the initial structuring stage. However, when the verb *fell* is seen, an ambiguity that leads to 'garden path' occurs. Thus, as the initial structural properties of the linguistic item becomes incompatible with the sentence, the thematic processor looks for alternative thematic interpretations of the sentence in the second stage. To clarify, the reanalysis of the initial processing is made only on the basis of an incompatibility with the structure (Altmann, Garnham and Dennis, 1992). The possible discourse and semantic effects on the processing are delayed and the syntactic factors alone are employed.

3.2.5.1.2 The Referential Support Theory – Discourse-Based Account

The Referential Support Theory was developed by Crain and Steedman (1985, see also Altman, 1988). The theory assumes that structural analysis is resolved in parallel to the analysis of discourse based features. The model bases its analysis on the principle of parsimony which states that each person has only one model of universe of discourse. It is further argued that if the analysis of discourse model does not offer adequate information, the one which has the fewest alternations is chosen. However, it also postulates that there is a consistency between these alternations, the presuppositions and entailments (Ni, Crain and Shankweiler, 1996). To illustrate this idea, if we turn to the example above, *The horse raced past the barn fell*., the reader perceives the verb *raced* as the main verb. On the other hand, when the verb *fell* is recognized, a reanalysis is used for the garden path effect. The referential theory states that whether there is going to be a garden path effect or not is actually dependent on the preceding context of the sentence.

In other words, if the preceding context offers reasonable referents to the subject *the horse*, the reader will not have any difficulty in preferring the main verb by restricting the other possible referents (Versteeg, 1979). However, if the preceding context does not offer any plausible referent for the subject *the horse* or even more if there is not any preceding context and the sentence is being offered in isolation, the reader will definitely develop an ambiguity resulting in a garden path effect. Thus, as it was stated by Spivey-Knowlton, Trueswell and Tanenhaus (1993: 280) "the referential theory predicts that appropriate context can reverse the syntactic preferences" in the resolving of the ambiguity or garden path effect.

CHAPTER 4

DISCUSSION OF THE FINDINGS

As mentioned earlier, in this study it is aimed to see whether there is an asymmetry between the processing of subject relative clauses and object relative clauses (SRCs and ORCs, respectively) and to what extent context has a role on this asymmetry. The study also attempts to clarify Turkish relative clause (RC) processing by taking into account two different approaches: namely, the Garden Path Hypothesis and the Referential Support Hypothesis which are a syntax-based account and a discourse-based account, respectively.

4.1 DISCUSSION OF THE FINDINGS

This section covers a discussion of the findings for isolated and contextualized RCs and offers a comparison of the findings taking into account these conditions. This section also aims to discuss the findings based on the research questions which are given below:

1. Is there any processing difference between SRCs and ORCs in Turkish in two different experimental conditions, namely in isolation and in context?
2. What is the role of discourse on the processing of Turkish SRCs and ORCs? More specifically, do SRCs and ORCs in isolation and in context significantly differ from each other in terms of total fixation time, regressive eye movements and comprehension?

4.1.1 Analysis of the Findings on the RCs in Isolation

In this section, the results concerning the RCs in isolation are given to answer the first research question which deals with the presence of any asymmetry between isolated SRCs and ORCs and between SRC in context and ORCs in context.

4.1.1.1 Total Fixation Time

The data collected were first analyzed in terms of total fixation times. In the analysis, the focus was on the RC types, namely SRCs and ORCs, in isolation.

As stated earlier, for the analysis the Multiple Comparison of the Friedman Test was employed, and Table 12 shows the results of the analysis regarding the total fixation times.

Table 12. Total Fixation Time Scores for RCs in Isolation

RC types in Isolation	**Total Fixation Time (In seconds)**	
	Mean	**SD**
SRCs in isolation	3,62	1,343
ORCs in isolation	3,77	1,708

As can be seen in Table 12, both isolated SRCs (Mean:3,62; SD:1, 343) and ORCs (Mean: 3,77; SD: 1,708) resulted in similar fixation durations. Therefore, it can be stated that there is no statistically significant difference between them in terms of total fixation times ($p>.05$). In other words, there is no significant distinction between the SRCs and ORCs in isolation.

These results contradict with those of the previous studies asserting a preference for the SRC processing in Turkish (Bulut, 2012). In his study, Bulut (2012) found that SRCs are processed faster than ORCs. However, the relevant asymmetry was found only in terms of the spill-over part rather than the RC region or matrix verb. Thus, this result could be the reason for this inconsistency between the studies. Moreover, it may also stem from the differences concerning the sentence sets and the participant groups of the studies.

The findings are not in the same line with the study of Kahraman (2010) as well. He

applied a series of sentence completion and self-paced reading experiments, and at the end of his study, it was established that while SRC and ORCs were produced accurately without any difference, the SRC verbs were read faster than the ORC verbs. To clarify the difference between his experiments, Kahraman (2010) suggests that the structural ambiguity is resolved at the RC verb part at the sentence completion experiment, thus any difficulty is not faced while completing the RC with a head noun. However, this study thinks that it is different from Kahraman's study as the area of interest in both studies were different. In short, the difference between the SRCs and ORCs could have been found because only the RC verbs were targeted in Kahraman's study while in this study the whole sentence was included into data analysis.

This finding also indicates that the similar parts in both RC types in isolation were focused by the participants. The following figures exemplify this finding:

(35) Isolated SRC:

Avukat-ı-na kız-an bankacı her cumartesi tenis oynu-yordu.
Lawyer$_{3SG.POSS-DAT}$ get$_{PAST}$-An$_{SUB.REL}$ angry banker every Saturday tennis play$_{PROG.PAST.3SG}$
The banker who got angry at his lawyer plays tennis every Saturday.

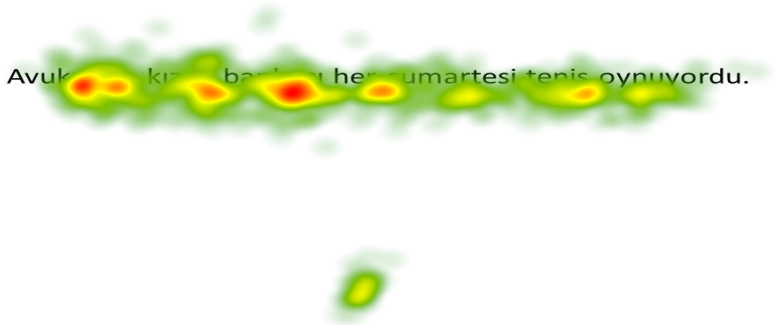


Figure 12. Fixation points in an example SRC sentence in isolation

In Figure 12, the red points denote the fixation duration in a SRC in isolation. To clarify, the participants fixated at those points more than the other yellow or green points. The

fixation points in an isolated ORC are given as follows:

(36) Isolated ORC:

Avukat-ın kız-dığ-ı bankacı her cumartesi tenis oynu-yordu.

Lawyer$_{GEN}$ get$_{PAST}$ –DIK$_{OB.REL.-3SG\ POSS.}$ Banker every Saturday tennis play$_{PROG.PAST.3SG}$

The banker who the lawyer got angry at plays tennis every Saturday.

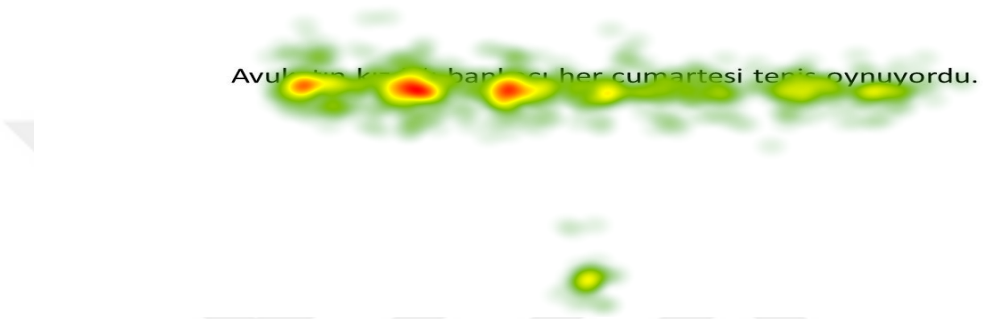


Figure 13. Fixation points in an example ORC sentence in isolation

Figure 13 indicates that the participants spent more time while fixating at the RC part which is similar to the SRCs. Therefore, it can be stated that participants fixated at similar points in both SRC and ORC when both types of the RCs are given in isolation. In short, the participants mostly focused on the RC part of the sentence, and the type of RC does not lead to any difference when they are presented in isolation.

4.1.1.2 Regressive Eye Movements

The regressive eye movements of the participants were analysed, and how many times the sentences in isolation was read by the participants was counted to see the potential difficulty they had during the processing of SRCs and ORCs. The count numbers were compared within isolated groups by using the Multiple Friedman Test. As mentioned before the significance level was set at $p<.05$ again.

The results of the regressive eye movements are in parallel to the results on the total

fixation time given above. To put it another way, there is not any statistically significant difference between the processing of the isolated SRCs and ORCs in terms of the regressive eye movements.

The results of the descriptive statistics used to analyse the regressive eye movements are given below:

Table 13. Regressive Eye Movement Scores for RCs in Isolation

RC Types in Isolation	**Regressive Eye Movement**	
	Mean	**SD**
SRCs in isolation	1,49	,682
ORCs in isolation	1,50	,671

As can be seen in Table 13, the regressive eye movements for the isolated SRCs (Mean: 1,49; SD: ,682) and ORCs (Mean:1,50; SD: ,671) do not indicate any statistically significant difference. In other words, when the isolated SRCs and ORCs were compared, it was found out that there was not a statistically significant difference between them concerning the regressive eye movements ($p>.05$). Therefore, it can be argued that the participants' eye movements are similar while they are reading the sentences containing both types of the RCs in isolation.

4.1.1.3 Comprehension Analysis

The accuracy on the answers given to comprehension questions asked in the form of true/false questions following the sentences covering SRCs and ORCs in isolation and the filler sentences were also analysed using the Multiple Comparison of Friedman Test. The findings of the analysis reveal that there is an asymmetry between the isolated SRCs and ORCs with respect to the answers given to the comprehension questions. To clarify, it is seen that the isolated ORCs are more difficult to comprehend than the isolated SRCs.

The following Figure presents the incorrect answer percentages considering the answers to the comprehension items for the isolated SRCs and ORCs:

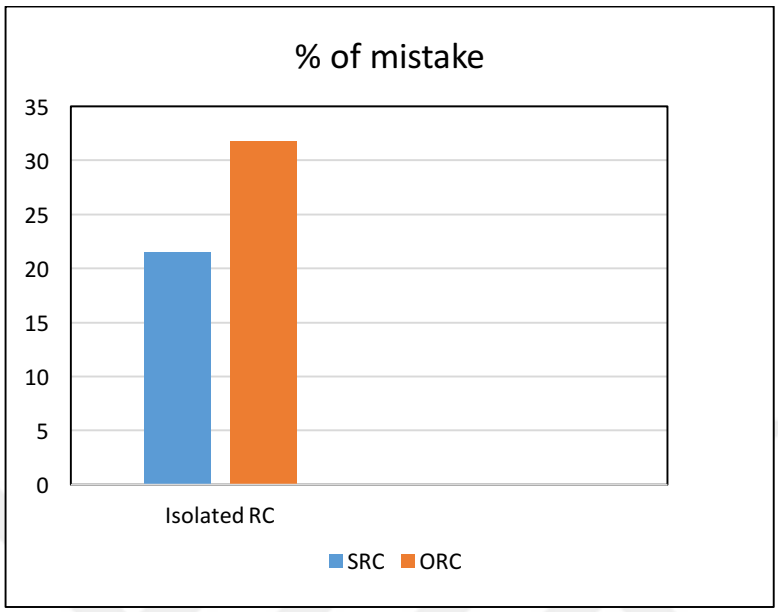


Figure 14. The percentage of incorrect answers for the isolated SRCs and ORCs

As can be observed in Figure 14 the comprehension questions for the isolated ORCs were answered more incorrectly. More specifically, while the questions for the isolated SRCs were answered 86 times incorrectly, the ones for the isolated ORCs were 127 incorrect answers.

In order to test whether or not this difference is statistically significant the multiple comparison test was employed. Table 14 below presents the results of the multiple comparison test as follows:

Table 14. Comprehension Question Scores for RCs in Isolation

RC Types in Isolation	True/False Questions	
	Mean	**SD**
SRCs in isolation	1,72	1,294
ORCs in isolation	2,54	1,034

As seen in Table 14, the comprehension questions concerning the SRCs in isolation were answered by the participants more correctly than those on the ORCs in isolation. It is also found that this difference is statistically significant ($p<.05$). Table 14 further shows that accuracy result on the SRCs in isolation (Mean: 1,72; SD: 1,294) was statistically higher than that on the ORCs in isolation (Mean: 2,54; SD: 1,034). These findings clearly suggest that the isolated ORCs produce a difficulty in the comprehension.

These findings were in the same pattern with the previously done studies in Turkish and in other languages as well (e.g. Dutch: Mak, Vonk and Schriefers, 2008; English: Kashiwagi, 2011; Japanese: Ueno and Garnsey, 2008; Turkish: Bulut, 2012; Kahraman, 2010; Özge, Marinis and Zeyrek, 2009). In short, SRCs were preference of the participants in comprehension questions as they were answered more accurately.

The fact that SRCs circumvent ORCs in comprehension may stem from the typological differences of sentences as well. To clarify, while there is not any agreement between the verb and the head NP in SRCs, it occurs between the head noun of ORCs and embedded verb. Thus, this agreement duty may create a difficulty for the processor, and it may lead to a comprehension difficulty for the ORCs in Turkish.

4.1.2 Analysis of the findings on the RCs in context

This section covers the analysis of the RCs in context, and again, provides a discussion concerning the first research question which deals with the presence of any asymmetry between SRC and ORCs.

4. 1. 2. 1 Total Fixation Time

The data collected were also analyzed in terms of total fixation time concerning the SRCs and ORCs in context. As stated earlier, for the analysis the Multiple Comparison of the Friedman Test was employed, and Table 15 shows the results of the analysis regarding the total fixation times.

Table 15. Total Fixation Time Scores for RCs in Discourse

RC Types in discourse	Total Fixation Time	
	Mean	**SD**
SRCs in discourse	3,92	1,569
ORCs in discourse	3,75	1,760

As Table 15 shows, there is no asymmetry between the contextualized SRCs (Mean: 3,92; SD: 1,569) and contextualized ORCs (Mean: 3,75; SD: 1,760). Therefore, it is safe to state that there is no statistically significant difference in terms of fixation duration between the SRCs and ORCs when they are presented in context. In detail, the context did not have a significant effect on the processing of the contextualized SRCs and ORCs in terms of the fixation time.

The data generated by total fixation time analysis in discourse lend support to the study conducted in English. In their study, Yang, Mo and Louwerse (2012) apply an experiment on RC processing to verify the effect of context. The findings of both studies show that there is not any asymmetry between the SRCs and ORCs in discourse in terms of total fixation time. However, the fact that total fixation time included both first-pass reading and backward reading could be the reason for the extinction of the relevant asymmetry. In short, an analysis on parts of RC as first-pass or regression could have established a difference between the RC types.

On the other hand, the findings are not in the same line with the study of Kahraman (2015) as well. After his first study on isolated RCs in 2010, he conducted some new series of self-paced reading experiments to verify the effect of context on RC processing. At the end of his study, he found an asymmetry between SRCs and ORCs in discourse. It was concluded that ORCs lead to more reading time than SRCs regardless of the context type. However, the difference between Kahraman's study and this study could stem from the materials he used. In his study, materials included only the items which were in context rather than consisting of both isolated and contextualized ones. However, to verify the effect of context, the relevant contextualized items could have been analyzed and compared with the isolated ones. Moreover, in Kahraman's study, the data were collected via self-paced reading experiments. Thus, it is also thought to be another reason for having a difference from our study. As the data collection tool of this study was an eye-tracker which can give more accurate results, a difference between the findings of both studies might have occurred.

It is also found that the similar parts in both RC types which are in context are focused by the participants. This finding and the fixation points in SRCs are exemplified by the following figure:

(37) SRC in discourse:

Bankacı güne gazeteleri okuyarak başladı. Hem cep telefonu hem de ofis telefonu sürekli çalıyordu. Avukatından telefon bekliyordu. Bir saatten daha fazla konuşmalarına rağmen bankacı hala sorununa çözüm bulamamıştı. **Avukatına kızan bankacı her cumartesi tenis oynardı.** O cumartesi de avukatıyla yeniden görüşmek istiyordu. – The banker started the day by reading the newspapers. Both his mobile and office phone were ringing at the same time. He was waiting for a call from his lawyer. Although they had spoken for a while more than an hour, the banker could not find a solution to his problem. **The banker who is angry at his lawyer plays tennis every Saturday,** and he was planning to see his lawyer on the following Saturday, too.

Figure 15. Fixation points in a SRC sentence within context

In Figure 15, it is seen that the participants fixated much more at the red points than the yellow or green points. It should be noted that these red points are the SRC part rather than the other parts of the sentences given in the context.

Similarly, the fixation points in the ORCs in context are exemplified as follows:

(38)ORC in discourse:

Avukat güne gazeteleri okuyarak başladı. Hem cep telefonu hem de ofis telefonu sürekli çalıyordu. Bankacısından telefon bekliyordu. Bir saatten daha fazla konuşmalarına rağmen avukat hala sorununa çözüm bulamamıştı. **Avukatın kızdığı bankacı her cumartesi tenis oynardı.** O cumartesi de bankacısıyla yeniden görüşmek istiyordu. – The lawyer started the day by reading the newspapers. Both his mobile and office phone were ringing at the same time. He was waiting for a call from his banker. Although they had spoken for a while more than an hour, the lawyer could not find a solution to his problem. **The banker who the lawyer is angry at plays tennis every Saturday,** and he was planning to see his lawyer on the following Saturday, too.

Figure 16. Fixation points in an ORC sentence within the context

As observed in Figure 16, the fixation point for the contextualized ORCs occurs mostly at the ORC part again. In other words, the participants focus on the ORC part more than the other parts of the sentences. This finding shows that both the SRCs or ORCs in context do not significantly vary in this regard.

4. 1. 2. 2 Regressive Eye Movements

The regressive eye movements of the participants are also analysed for the contextualized SRCs and ORCs. The number of participants' eye movements were compared using the Multiple Friedman Test. As mentioned before the significance level was set at $p<.05$ again.

The results are not different from those for the isolated sentences. To clarify, there is no statistically significant difference between the processing of the SRCs in context and ORCs in context with regard to the regressive eye movements. The results of the descriptive statistics used to analyse the regressive eye movements for the SRCs and ORCs in context are given in the following table below:

Table 16. Regressive Eye Movement Scores for RCs in Discourse

RC Types in Discourse	Regressive Eye Movement	
	Mean	**SD**
SRCs in discourse	2,74	1,031
ORCs in discourse	1,50	,671

Table 16 indicates that the contextualized SRCs (Mean:2,74; SD:1,031) and ORCs (Mean:1,50; SD: ,671) have similar eye movement scores. It means that the participants similarly move their eyes to read the sentences in context for both kinds of the RCs.

The fact that there was not any statistically significant difference between the SRCs and ORCs in both conditions, namely as isolated and as contextualized, suggests that there is no facilitator effect of the context on the processing of SRCs and ORCs in terms of regressive eye movements. Thus, the results of the regressive eye movements support the data generated by total fixation time.

4. 1. 2. 3 Comprehension Questions

As in the isolated RC types, the contextualized RCs types were also analysed in terms of the correct answers given to the comprehension questions. Therefore, the comprehension of the participants for both kinds of the contextualized RCs were evaluated to see the effect of discourse on this process. Out of 400 contextualized SRCs (8 RCs x 50 participants), there are 114 incorrect answers for the SRCs while it is 125 for the ORCs. In order to see this difference, the Multiple Comparison of Friedman Test was employed. The results of the analysis on the answers to the comprehension questions are given in the following table:

Table 17. Comprehension Question Scores for RCs in Discourse

RC Types in Discourse	True/False Questions	
	Mean	**SD**
SRCs in discourse	2,28	1,294
ORCs in discourse	2,50	1,329

Table 17 shows that there is not any statistically significant difference between the SRCs (Mean: 2,28; SD: 1,294) and ORCs (Mean:2,50; SD: 1,329) in terms of the answers to the comprehension questions ($p>.05$). These findings suggest that the asymmetry between the RC types disappear when they are given the context.

However, even though the results of contextualized items for all aspects; namely total fixation time, regressive eye movements and comprehension question offer that there is not any difference between the RC types, still it is not certain whether context affects them positively or not. To clarify this question, the comparison of all groups is presented in the following section.

4.1.3 Comparison of the RC types in Three Conditions

As mentioned above, the data collected were analysed in terms of three aspects: namely, total fixation time, regressive eye movements and comprehension analysis. These three aspects are analyzed in the following three conditions:

- ✓ SRCs in isolation vs. ORCs in isolation
- ✓ SRCs in isolation vs. SRCs in a context
- ✓ ORCs in isolation vs. ORCs in a context
- ✓ SRCs in context vs. ORCs in a context

The results for the isolated or contextualized conditions are described and discussed in the preceding parts, but the comparison between those conditions is given here. That is

to say, the SRCs and ORCs are compared with each other as isolated and contextualized conditions. The results of the comparison are discussed with a reference to the Garden Path Hypothesis and Referential Support Theory. In addition, the second research question of the study which deals with the role of the context on the processing of Turkish SRCs and ORCs is, or whether the SRCs and ORCs is isolation and in context differ from each other in terms of total fixation times, regressive eye movements and comprehension is attempted to answered in this section.

4.1.3.1 Comparison of the Total Fixation Time Scores

In order to make a comparison, the scores on total fixation time are analyzed. The results of the analysis show that the conditions of being isolated or being contextualized do not lead to any statistically meaningful difference between the SRCs and ORCs ($p>.05$). The results of the descriptive statistics regarding the total fixation are given in the following table:

Table 18. Total Fixation Time Scores

Comparison Groups		**Total Fixation Time (In seconds)**	
		Mean	**SD**
1)	**SRCs in isolation**	3,62	1,343
	ORCs in isolation	3,77	1,708
2)	**SRCs in isolation**	3,62	1,343
	SRCs in discourse	3,92	1,569
3)	**ORCs in isolation**	3,77	1,708
	ORCs in discourse	3,75	1,760
	SRCs in discourse	3,92	1,569

4)	**ORCs in discourse**	3,75	1,760

As Table 18 shows, the scores for both the isolated groups, namely isolated SRCs (Mean: 3,62; SD: 1,343) and ORCs (Mean: 3,77; SD: 1,708) do not differ significantly ($p>.05$). Contextualized SRCs (Mean: 3,92; SD: 1,569) and ORC (Mean: 3,75; SD: 1,760) do not show any significant difference either ($p>.05$). As mentioned in the previous sections, there are no any asymmetry between the isolated RC types and their contextualized counterparts. Therefore, it is safe to argue that the context does not have a facilitator role in the processing of the RCs in terms of total fixation time.

The findings are not in the same parallel with the previous study conducted by Bulut, (2012). As stated in advance, Bulut found an asymmetry between the isolated SRCs and ORCs in terms of total fixation time. However, as is seen in Table 18, this asymmetry is not seen between the isolated items of this study. Nevertheless, it is thought that as the established asymmetry between SRCs and ORCs is found only in the spill-over part of the RCs in Bulut's study, a difference between the studies might have occurred. Even though it is not safe enough to state that there is an asymmetry between the RCs based on only spill-over part, if there had been any spill-over part in the items of this study, the data might have offered some different results as well.

The results of total fixation time do not support the study of Kahraman (2015) either. As stated in advance, to verify the effect of context Kahraman conducted an experiment on RC types and established an asymmetry between them in terms of the reading time. However, the difference between Kahraman's study and this thesis is attributed to the fact that Kahraman analyzed only the contextualized items rather than both isolated and contextualized ones. Moreover, as the data collection ways of both studies were different, it may have led to a difference between the findings as well.

When these findings are interpreted in accordance with the principles of the Garden Path Hypothesis (Frazier, 1987) and the Referential Support Theory (Crain and Steedman, 1985), it is seen that neither of these approaches can account for them. Given that there is no difference in terms of total fixation time when the sentences are given either in

isolation or in a context there appears no difference between these conditions. Because the Garden Path Hypothesis supports the priority of structural building and the Referential Support Theory claims the significance of the context.

However, if the results concerning the total fixation time are analysed in terms of other accounts, they are consistent with the animacy account in that the asymmetry between SRCs and ORCs generally stems from the use of the inanimate subjects in the studies (Gennari, and MacDonald, 2008; Mak, Vonk and Schriefers, 2002). In this study, the subjects which are assigned the agent or the experiencer theta role are all animate. In short, given that all subjects in the sentences are animate, the asymmetry between the SRCs and ORCs might have disappeared. However, to test this theory in a more reliable way, materials could be included some inanimate subjects for comparison in a further study.

4.1.3.2 Comparison of the Regressive Eye Movement Scores

The analysis of eye movements through the Multiple Comparison of Friedman Test shows that the participants regressed to read the target sentences in similar rates for the SRCs and ORCs regardless of the condition of being isolated and being contextualized. Both the SRCs and ORCs are read with the similar frequency when they are presented as isolated sentences and as contextualized sentences ($p>.05$). In detail, the SRCs and ORCs regardless of the condition of being isolated and being contextualized do not significantly differ in terms of the regressive eye movements. The results of descriptive statistics concerning the regressive eye movements are given as follows:

Table 19. Regressive Eye Movement Scores

Comparison Groups		**Regressive Eye Movement**	
		Mean	**SD**
1)	**SRCs in isolation**	1,49	,682
	ORCs in isolation	1,50	,671

2)	**SRCs in isolation**	1,49	,682
	SRCs in discourse	2,74	1,031
3)	**ORCs in isolation**	1,50	,671
	ORCs in discourse	2,82	1,016
4)	**SRCs in discourse**	2,74	1,031
	ORCs in discourse	2,82	1,016

As can be seen in the Table 19 above, there is no statistically significant difference between isolated SRCs (Mean: 1,49; SD: ,682) and ORCs (Mean: 1,50 and SD: ,671). Moreover, the presence of the relevant asymmetry is not observed between contextualized SRCs (Mean: 2,74; SD: 1,031) and ORCs (Mean: 2,82; SD: 1,016) either. Thus, RC types do not change when they are offered in isolation or in context.

The reason for not having a significant difference for the RC types in both conditions may be the similarity of the area of interest used in the study. In other words, in previous studies the target RCs have generally been analysed in terms of some specific parts like spill-over, the subject pronoun of the target RC or the matrix verb of the main clause (Bulut, 2012; Kahraman, 2015; Staub, 2010). Nevertheless, the target area in this study was established as the whole RC rather than the parts of it since the aim of this study was to see the influence of context on the processing of the RCs. Such a technique was also employed in the study by Yang, Mo and Louwerse (2012) in which they focused on the role of context on the RC processing.

However, as mentioned earlier, when the shaded parts of Table 19 are taken into consideration, it can be noted that there is a statistically significant difference between the isolated RCs and RCs in context (p=,000). In Table 19, when the isolated and contextualized SRCs are compared (Mean: 1,49; SD: ,682 and Mean: 2,74; SD: 1,031, respectively), isolated ones lead to less regressive eye movements. Accordingly, isolated ORCs (Mean: 1,50 and SD: ,671) are found to have led more regression then

contextualized ORCs (Mean: 2,82; SD: 1,016). Thus, it is established that context has a role on the processing of SRCs and ORCs by leading to more difficulty rather than easing them.

This result contradicts with the results of Kahraman (2015) which states that processing is easier when the target RC is preceded by a topic context even though it does not eliminate the asymmetry between the RC types. The reason for this contradiction is thought to be the usage of third person pronouns in Kahraman's study. In short, in his study to avoid the penalty of repeated names, the context is simplified with the usage of pronouns rather than names. However, as in this study materials were created based on the repetition of the head nouns to have subject or object favoured context, it is thought to have led to a difference between the studies.

The overall analysis of the isolated SRCs and contextualized SRCs also establishes that the structural building or syntax is more privileged at processing rather than the other concepts like context. Moreover, as is evident from the Table 19, this case is observed in the analysis of isolated ORCs and contextualized ORCs as well. Accordingly, isolated SRCs and ORCs lead to less number of regression than contextualized SRCs and ORCs. To clarify, findings seem to offer a new study in psycholinguistics to support the Garden Path Hypothesis (Frazier, 1987) claiming the sufficiency of the structural building during processing provided that there is not any observed garden path effect at first step. More clearly, the findings are sighted not to support the discourse-based the Referential Support Theory (Crain and Steedman, 1985). However, even though context is found to be ineffective on the processing of Turkish RCs, the plausibility of Garden Path Hypothesis cannot be explained fully in this study either. To verify it, a more in-depth analysis of the RC structure could be further done in the following studies by basing on the structure more.

Besides, as stated in advance, the results of the comparison between isolated SRCs and contextualized SRCs, and accordingly isolated ORCs and contextualized ORCs seem to be in the same line with the syntax based accounts which assert the priority in processing belonged to the structure or syntax rather than the context or discourse (e.g., Chomsky, and Miller, 1963; Gibson, 1998; Keenan and Comrie, 1977; MacDonald and Christiansen,

2002). However, to verify the plausibility of each of the following discourse-based accounts, namely the frequency account (Gordon and Randall, 2005), the constraint-based account (MacDonald et al., 1994) or the topichood hypothesis (Mak, Vonk and Schriefers, 2008), the materials of this study should be improved in a further study.

4.1.3.3 Comparison of the Comprehension Question Scores

In previous sections, it is noted that there is an asymmetry between the isolated SRCs and ORCs in terms of the answers to the comprehension questions, but this asymmetry disappears when the RC types are given in a context. However, whether this disappearance stems from the facilitating or contradicting effect of discourse is not touched on. To put it differently, whether context makes the comprehension easier for the participants or makes it more difficult is not explained.

When a comparison is made between the RC types in two conditions, it is seen that the discourse has a significant effect on the comprehension of the RCs. However, rather than having a simplifying role for the comprehension of the RCs, the context makes it much harder for the participants to comprehend the RC types. The comparison of between the isolated RCs and RCs in context in terms of the incorrect answers is given below:

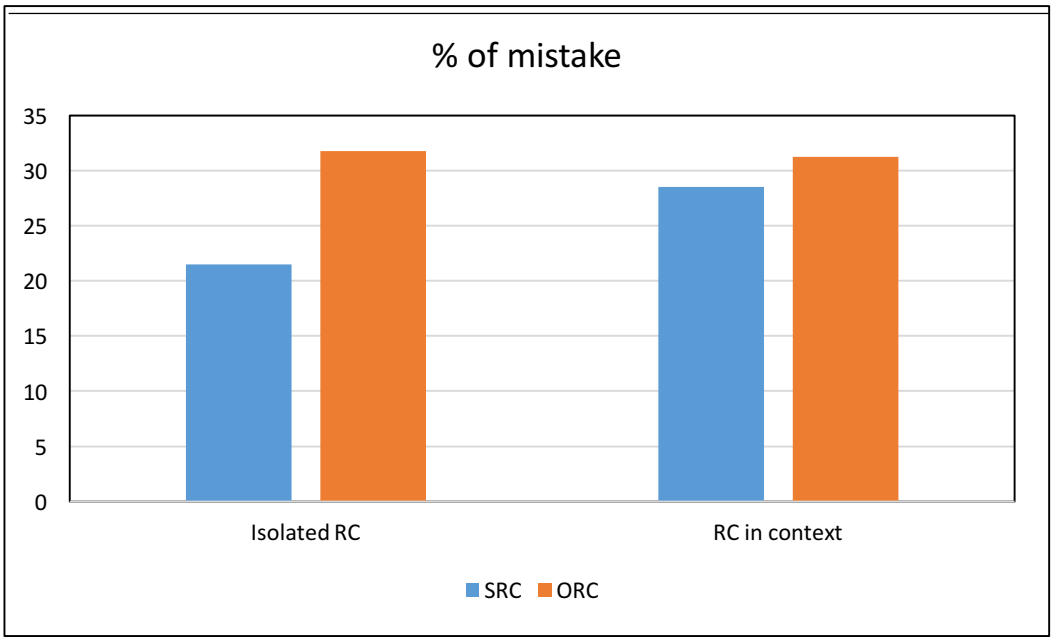


Figure 17. The percentage of incorrect answers in isolated RCs and RCs in context

Figure 17 above indicates that the difference between the isolated SRCs and ORCs is much higher than the difference between the SRCs in context and ORCs in context. In other words, the isolated ORCs are comprehended much harder than the isolated SRCs. However, when the contextualized RC types are taken into consideration, it is seen that the difference that is observed in the isolated RC types disappears.

However, although the difference is eliminated by when the RC types are given in context, this difference is not a positive effect of the context. Instead, the context makes it much more difficult to comprehend the RC types leading to the elimination of asymmetry between SRCs and ORCs. The differences in the scores are analyzed and the results are given in the following table:

Table 20. Incorrect Answer Scores of the Groups

Comparison Groups		**True/False Questions**	
		Mean	**SD**
1)	**SRCs in isolation**	1,72	1,294
	ORCs in isolation	2,54	1,034
2)	**SRCs in isolation**	1,72	1,294
	SRCs in discourse	2,28	1,294
3)	**ORCs in isolation**	2,54	1,034
	ORCs in discourse	2,50	1,329
4)	**SRCs in discourse**	2,28	1,294
	ORCs in discourse	2,50	1,329

Table 20 shows that there is no significant difference between the SRCs in context (Mean: 2,28; SD: 1,294) and ORCs in context (Mean:2,50; SD: 1,329) ($p>.05$). To clarify, the questions following them are answered with similar percentages. However, a statistically

significant difference is observed between the isolated SRCs (Mean: 1,72; SD: 1,294) and ORCs (Mean: 2,54; SD: 1,034) in terms of the comprehension questions. Thus, the established asymmetry between isolated SRCs and ORCs disappears when they are presented with a preceding context.

However, even though the asymmetry between the isolated SRCs and ORCs disappears when they are offered in context, as the difficulty level of both SRCs and ORCs increases, context is found to affect the processing of RCs negatively. In detail, the findings suggest that there is no positive influence of context on comprehension of SRCs and ORCs with regard to the accuracy of comprehension questions. Instead, it is seen that context affects the comprehension of SRCs and ORCs crucially in a wrong path. The results highlight that the SRCs which are offered in context are harder to comprehend than the isolated SRCs.

The data generated by comprehension question analysis lend support to the study conducted in Brazilian Portuguese, as well. In their study, Correa and Forster (2017) apply an experiment on RC processing to verify the effect of context. The findings of both studies show that context does not have a positive effect on the processing of RCs. Moreover, their research is also based on the same study this thesis is grounded on, namely the study conducted by Yang, Mo and Louwerse (2012). As Yang, Mo Louwerse established a positive effect of context on RC processing in their study, the findings of this thesis and the one of Correa and Forster (2017) contradicted with it. Yang et al. (2012) states that the asymmetry between RC types is resolved via context. However, when the findings of their data are analyzed in depth, it can be seen that the asymmetry disappears as the processing of SRCs is made more difficult (See Figure 5 for exemplified detailed data of the relevant study.) Thus, the data generated in the study Yang at al. (2012) seem to lead to a question in mind about the effect of context on RC processing.

Therefore, as the context is not found to be effective on processing of RCs, the Referential Support Theory of Crain and Steedman (1985) is not established to be valid in the processing of Turkish RC types. Thus, it is thought that the structure of Turkish is not affected by the preceding context. However, to say only the syntax-based accounts or

structure based ones are affective in Turkish, a further study should be applied via some reduced and unreduced RC types. That is, the findings of this study cannot fully explain the plausibility of Garden Path Hypothesis (Frazier, 1987) accurately.

CHAPTER 5

CONCLUSION

In this study, the aim is two-folded: to analyse the processing of the relative clause (RCs) in terms of the processing asymmetry and to reveal whether the context plays a role on the processing of Turkish subject and object RCs (SRCs and ORCs respectively). However, the RC types, namely SRCs and ORCs were handled with a different approach from the previous studies in that the RC types are also analyzed in contexts. Overall, not only the previously mentioned asymmetry between SRCs and ORCs was analysed using a different approach, but also its presence or absence was evaluated taking into the effects of the context.

The findings are analysed in terms of three aspects; namely total fixation time, regressive eye movements and comprehension questions. A comparison is made between the RC types in isolation and in context. The findings of the study indicate that in terms of comprehension there is an asymmetry between the isolated SRCs and ORCs. This finding is consistent with the previous findings on Turkish RCs (Bulut, 2012; Özge, Marinis and Zeyrek, 2009). In other words, the ORCs produce more difficulties while the comprehension questions about them are answered. Thus, this finding seems to support the principles of the Garden Path Hypothesis (Frazier, 1987) which states that the processing of RCs occurs in two steps; initial structural building and theta role assignment. When there is a problem with the structural building, the second step takes the stage and the garden path affect is resolved. Hence, for the theory syntactic factors are adequate. Thus, the SRCs are comprehended more easily than ORCs because there is no difficulty at the first step, namely structural building. However, as is stated in discussion part as well, even though the data of the study did not present a support for the influence of context, the effect of Garden Path is not explained with its all details as well. Thus, to verify it validity in Turkish a further study could be applied.

However, the findings also indicate that this asymmetry occurs only in terms of the comprehension rather than the processing of them. In detail, regarding the total fixation

time and regressive eye movement, there is no asymmetry between the RC types in two conditions. However, this result may stem from the distance between the gap and filler in Turkish RCs. While in languages like English, French or Dutch, the filler is closer to its gap in SRCs, in Turkish this case is observed in ORCs. In short, the processing might have been affected by this condition as in the study conducted in Mandarin Chinese. As is explained in second chapter, Sung, Tu, Cha and Wu (2016) found a preference for ORCs rather than SRCs in processing because of the distance difference of ORCs. Hence, the typology of Turkish is thought to be effective on the data generated for total fixation time and regressive eye movement in this study.

Besides, even though an asymmetry is found in terms of total fixation time in previous studies (e.g., Bulut, 2012; Özge, Marinis and Zeyrek, 2008 and 2010, Kahraman, 2015), it may be stemming from methodological differences as well. To illustrate, the fact that the materials used in the study of Özge, Marinis and Zeyrek (2008) are simplified for kids is thought to have affected the results gathered in the adult control group. Moreover, as the data were gathered through self-paced reading experiments in their study and in Kahraman's study, the results of this study might have differed from theirs as well.

Moreover, the comparison between the isolated groups and contextualized groups to see the potential effect of the context on the processing also indicates that the contextualized RC structures produce a disadvantage for the processing. Hence, this finding contradicts with the Referential Support Theory (Crain and Steedman, 1985) which claims the garden path effect can be eliminated with a proper preceding context.

In summary, it is found that there are different points with regard to the processing of both the isolated and contextualized RCs which are explained in the following part with a special reference to the research questions of the study.

5.1 CONCLUSIONS CONCERNING THE RESEARCH QUESTIONS

In this section, the findings of the study are given to answer the first research question which is given as follows:

RQ1. Is there any processing difference between SRCs and ORCs in Turkish in two different experimental conditions, namely in isolation and in context? If there is, which one is advantaged in those conditions?

The findings of the study show that there is no significant processing difference between SRCs and ORCs in Turkish in two different experimental conditions, namely in isolation and in context. Therefore, none of the RC types can be considered to be advantageous in these two conditions.

However, it is found that there is an asymmetry between Turkish SRCs and ORCs in terms of the comprehension questions. The answers given to the comprehension questions following the SRCs are much more correct than those for the comprehension questions following the ORCs. On the other hand, when this asymmetry is compared based on two different experiment conditions, namely in isolation and in context, the difference is also observed in the first condition, but the difference disappears when the sentences are given in context.

The presence of an asymmetry between isolated SRCs and ORCs in terms of the comprehension is in line with the previous findings (i.e.; Arnon, 2005; Bulut, 2012; Frazier, 1987; Holmes and O'Regan, 1981; Lin and Bever, 2006; Özge, Marinis and Zeyrek, 2009). Thus, it is safe to argue that the participants need more time to comprehend the isolated ORCs than the isolated SRCs.

When the findings on this difference concerning the comprehension are taken into consideration concerning the contextualized RC types, it is seen that the difference disappears. More specifically, the context eliminates the comprehension difference by making the SRCs more difficult which becomes closer to the comprehension level of the ORCs. To clarify, the ORCs do not become much easier to comprehend when they are given in a context. Instead, the SRCs become more difficult to be comprehended by the participants. It is clear that these findings do support the Referential Support Theory (Crain and Steedman, 1985) which argues for the positive influence of the context on processing.

RQ2. What is the role of discourse context on the processing of Turkish SRCs and ORCs? More specifically, do SRCs and ORCs in isolation and in context significantly differ in terms of processing based eye-tracking data?

The findings of the study indicate that the SRCs and ORCs in isolation and in context do not significantly differ in terms of total fixation time and regressive eye movements. It is clear that the context does not have any significant influence on the processing in terms of the total fixation time. Both RCs types regardless of being isolated or being contextualized are found to have similar fixation durations. Moreover, the fixation points for both kinds of the RCs are similar in both conditions. More clearly, participants fixate at the RC part in both isolated and contextualized RCs. The condition of being contextualized do not affect how long or where the participants focus on the sentence. Therefore, it can be stated that the findings are not in line with the assumptions of the Referential Support Theory (Crain and Steedman, 1985) and with the previous findings (e.g.: Yang, Mo and Louwerse, 2012).

In addition, the findings on the regressive eye movements are consistent with the findings concerning the total fixation time. It means that there is no significant difference between the RC types regardless of the experimental condition. On the other hand, the in-group analysis of the SRCs and ORCs indicate that there is a negative influence of the context on the regressive eye movements. To put it another way, when the RCs types are contextualized, the participants move their eyes much more frequently. Therefore, the contextualized SRCs and ORCs produce more regression than their isolated counterparts. It can be argued that these findings lend a support to the major assumptions of the Garden Path Hypothesis even though it is not fully explained. Moreover, they also contradict with those of the Referential Support Theory (Crain and Steedman, 1985). In short, the context is not found to have a significant and positive effect on the processing as claimed by the Referential Support Theory.

Only the answers given to the comprehension questions are found to be affected by the experimental conditions. As mentioned in the previous parts, it is found that there is an asymmetry or difference between the isolated SRCs and ORCs in terms of the incorrect answer given to the comprehension questions. ORCs are established to have led to more

incorrect answers than SRCs, and this finding is in line with the previous findings (i.e.; Arnon, 2005; Bulut, 2012; Frazier, 1987; Holmes and O'Regan, 1981; Lin and Bever, 2006; Özge, Marinis and Zeyrek, 2009).

The findings also suggest that the asymmetry between the RC types is not observed when the RCs are given in a context. The comprehension questions for both types of RCs in context are found to be answered at similar rates with no statistically significant difference. It should be noted that it is not a positive effect of the context. Instead, the context is found to make the SRCs more difficult to comprehend rather than simplifying the comprehension of the contextualized ORCs. Based on these findings it can be argued that there is no positive effect of the RCs in context and therefore, and the principles of the Referential Support Theory (Crain and Steedman, 1985) cannot be supported.

5.2 LIMITATIONS OF THE STUDY

The limitations of this study can be summarized in terms of the following points:

As explained in the methodology section, the study employed the materials which are consisted of the isolated and contextualized RCs types. More specifically, there were only two different types of materials: isolated and contextualized RCs in the subject or object favoured context. However, to have a more reliable comparison, the null-discourse context could also have been added. In other words, there could have been some contexts which do not favour or focus on the head NPs of the target RCs.

In addition, the sentences containing only two Turkish RC markers, namely –An and –DIK, were employed in the study. As mentioned earlier, Turkish has numerous RC markers having different functions. These suffixes might also be tested in a further study.

Moreover, to have subject or object favored context, materials were created by ignoring the penalty of the repeated names in the preceding context. However, this might have led to unnaturalness for the participants. That is, they could be revised in a further study to avoid the relevant problem.

Besides, the area of interest (AOI) in this study was the whole RC in isolation and in discourse. That is, had the AOI been changed or divided into parts as matrix verb or head noun, different results could have been obtained at the end as in the study of Bulut (2012). Thus, the material analysis could be improved in a more in-depth way in the following studies.

The other point is that the data of this study were collected through the eye-tracking experiments. During this process, each participant was presented sixty-four (64) different sentences, including filler sentences and test items. However, it was observed that the experiment process was too long for the participants. The experiment lasted for half an hour to an hour. Thus, the experiments might have conducted in two sessions to have more reliable results. In detail, this long process and the burden of the materials might affect the performance of the participants.

Finally, as explained in the previous parts as well, even though the theoretical framework of this study covers the Garden Path Hypothesis (Frazier, 1987) and Referential Support Theory (Crain and Steedman, 1985), Garden Path is not fully explained with the findings of the data generated in this study. To explain it and to verify its plausibility in Turkish, a further study could be applied on reduced and unreduced RC types.

5.3 SUGGESTIONS FOR FURTHER STUDIES AND IMPLICATIONS

The future studies may be carried out by including null-context contexts and may employ an approach to analyse both the comprehension and production of the isolated and contextualized RCs. Thus, a new perspective may be obtained in RC analysis of psycholinguistics by analysing how context influences the RC production. Moreover, as mentioned above as well, this study could be further carried out by getting a more specific area of interest for the target items. To clarify, they are to be analysed in terms of more specific parts like matrix verb, spill-over part or dependent clause part to have more reliable results and to see context effect on them.

Besides, as in this study all materials were discussed by analysing the RC types as a whole, the Garden Path Hypothesis (Frazier, 1987) could not be explained fully. Thus,

materials could be further analyzed in the following studies by including reduced RC types as well. In that way, the effect of structure on the processing of Turkish RCs could be accounted for in a more detailed way.

Furthermore, the following studies could also be carried out by including more RC makers like –AcAK or -mIş rather than only –An and –DIK so that it could be seen whether there is a processing difference between SRCs and ORCs in terms of these RC makers too.

Moreover, the data collection procedure could be divided into two sessions to lessen the burden of the participants and to increase the reliability level of the test items. The study could be further conducted by having a break time or even a day not only to have more reliable results but also to hinder participants from realizing the similarity between reversed SRC and ORC test items. In addition, if possible, various methods to collect the data could also be further used to have a comparison between the results of these methodologically different experiments.

All in all, when the studies conducted on Turkish RC processing are analysed, it could be stated that there are a few of studies which analyse the effect of context on the asymmetry between SRCs and ORCs. Thus, this study is expected to be one of those few studies which enlighten this gap in Turkish psycholinguistics. Moreover, it also hopes to lead the language teaching, more specifically RC teaching to the learners by illuminating the negative influence of context on the processing of learners.

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APPENDICES

APPENDIX I

MATERIALS OF PILOT STUDY

The materials which were taken from Traxler et al's study (2002) and were translated in Turkish are given below. The bold written parts show the selected isolated RCs from the context.

1) a) Saçları atkuyruğu şeklinde toplanan çocuk parkta bakıcısıyla oyun oynuyordu. Pembe elbisesinin içinde oldukça güzel görünüyordu ve beyaz spor ayakkabıları çok şirindi. Güldüğünde, sesi kulağa çok tatlı geliyordu. Bu güneşli bahar sabahında, rüzgâr yavaşça kahverengi saçlarının arasına dokunurken o kır çiçekleri topluyor, kuşları kovalıyor ve kovalamaca oynuyordu. **Bakıcısını kovalayan çocuk büyük bir zevkle kahkaha attı.** Sesleri belki de birkaç mil öteden bile duyulabiliyordu.

"The child with a pony tail was playing on the playground with the babysitter. She looked pretty good in the pink sweater, and her white sport shoes were very cute. When the child laughed, her voice sounded sweet. On this sunny spring day, the breeze gently blew her brown hair. She was busy picking up wildflowers, chasing the birds, and playing a game of tag. **The child that chased the babysitter squealed with delight at the game.** Their laugh could be heard a few miles away."

b) Saçları atkuyruğu şeklinde toplanan bakıcı parkta çocukla oyun oynuyordu. Pembe elbisesinin içinde oldukça güzel görünüyordu ve beyaz spor ayakkabıları çok şirindi. Güldüğünde, sesi kulağa çok tatlı geliyordu. Bu güneşli bahar sabahında, rüzgâr yavaşça kahverengi saçlarının arasına dokunurken o kır çiçekleri topluyor, kuşları kovalıyor ve kovalamaca oynuyordu. **Bakıcının kovaladığı çocuk büyük bir zevkle kahkaha attı.** Sesleri bir belki de birkaç mil öteden bile duyulabiliyordu.

"The babysitter with a pony tail was playing on the playground with the child. She looked pretty good in the pink sweater, and her white sport shoes were very new. When the babysitter laughed, her voice sounded sweet. On this sunny spring day, the breeze gently blew the her brown hair. She was busy picking up wildflowers, chasing

the birds, and playing a game of tag. **The child that the babysitter chased squealed with delight at the game.** Their laugh could be heard a few miles away."

2) a) Bankacının günü dünyada neler olup bittiğine göz atmak için hızlı bir gazete turu ile başladı. Hem cep telefonu hem de ofis telefonu hiç durmadan çalıyordu. Kibarca telefona cevap verdi fakat aslında endişe içinde avukatından telefon bekliyordu ve sonunda beklenen çağrı gelmişti. Bir saatten daha fazla konuşmuşlar; fakat hala sorun için bir çözüm bulamamışlardı. **Avukatını kızdıran bankacı her cumartesi tenis oynuyordu** ve bu tenis sahasında sıklıkla karşılaşıyorlardı. Bu cumartesi de onu yine görebilmeyi umuyordu.

"The banker's day started with a quick scanning of the newspapers to see what was going on in the world. His cell phone kept buzzing and the telephone kept ringing. He answered politely, but was anxiously waiting for a call from the lawyer. It finally came. The banker talked on the phone for over an hour. However, they didn't come up with a solution for their deal. **The banker that irritated the lawyer played tennis every Saturday**. They usually saw each other on the tennis court. The banker hoped to see the lawyer again this Saturday."

b) Avukatın günü dünyada neler olup bittiğine göz atmak için hızlı bir gazete turu ile başladı. Hem cep telefonu hem de ofis telefonu hiç durmadan çalıyordu. Kibarca telefona cevap verdi fakat aslında endişe içinde bankacısından telefon bekliyordu ve sonunda beklenen çağrı gelmişti. Bir saatten daha fazla konuşmuşlar; fakat hala sorun için bir çözüm bulamamışlardı. **Avukatın kızdığı bankacı her cumartesi tenis oynuyordu** ve bu tenis sahasında sıklıkla karşılaşıyorlardı. Bu cumartesi de onu yine görebilmeyi umuyordu.

"The lawyer's day started with a quick scanning of the newspapers to see what was going on in the world. His cell phone kept buzzing and the telephone kept ringing. He answered politely, but was anxiously waiting for a call from the banker. It finally came. The lawyer talked on the phone for over an hour. However, they didn't come up with a solution for their deal. **The banker the lawyer irritated played tennis every Saturday.** They usually saw each other on the tennis court. The lawyer hoped to see the banker again this Saturday."

3) a) Uzunca bir seyahatin ardından pilot çok yorgun hissediyordu. Hostesin yanındaki koltukta yavaş yavaş kestiriyordu. Şöyle bir gerindi, radyonun sesini kısıkça açtı ve usul usul çalan şarkıyı mırıldandı. Amerikan folk müziğinin hastasıydı. Bazen kendi kendine konuşuyor ve öyle yüksek bir sesle kahkaha atıyordu ki sesi kabinin diğer tarafından duyulabilirdi. **Bir süre sonra, hostesten hoşlanan pilot ona çıkma teklifi etti.** İkisinin de yüzü kıpkırmızı olmuştu ve kabin birdenbire bir sessizliğe gömülmüştü.

"The pilot felt very tired after the long-distance journey. He half-lay down on the seat beside the flight attendant. He stretched his body, turned on a small radio, and whispered with the music. He was a fan of country music. Sometimes he talked and laughed loudly, and his voice could be heard at the end of the cabin. **After a while, the pilot that complimented the flight attendant asked for a date.** Both of them blushed, and the cabin became quiet all of a sudden.

b) Uzunca bir seyahatin ardından hostes çok yorgun hissediyordu. Pilotun yanındaki koltukta yavaş yavaş kestiriyordu. Şöyle bir gerindi, radyonun sesini kısıkça açtı ve usul usul çalan şarkıyı mırıldandı. Amerikan folk müziğinin hastasıydı. Bazen kendi kendine konuşuyor ve öyle yüksek bir sesle kahkaha atıyordu ki sesi kabinin diğer tarafından duyulabilirdi. **Bir süre sonra, hostesin hoşlandığı pilot ona çıkma teklifi etti.** İkisinin de yüzü kıpkırmızı olmuştu ve kabin birdenbire bir sessizliğe gömülmüştü.

"The flight attendant felt very tired after the long-distance journey. She half-lay down on the seat beside the pilot. She stretched her body, turned on a small radio, and whispered with the music. She was a fan of country music. Sometimes she talked and laughed loudly, and her voice could be heard at the end of the cabin. **After a while, the pilot that the flight attendant complimented asked for a date.** Both of them blushed, and the cabin became quite all in a sudden."

4) a) İşadamı sekreterine daha onu ilk gördüğü anda âşık olmuştu. Eşinden boşanmadan önce bir süre tereddüt etti. Ancak çok da kendine hâkim olabilen biri değildi ve sonunda ailesini terk etti. Kısa süre içinde yeni evlilik hayatının tadını çıkarmaya başladı. Hatta bir hafta sonu çalışanları ve çocuklarını çağırarak ilk evlilik

dönümlerini bir partiyle kutlamaya karar verdi. **Sekreteriyle evlenen işadamı muhasebeciyi de partiye davet etti.** Sıcak, keyifli ve küçük bir parti olacaktı.

"The businessman fell in love with the secretary the first time he saw her. He hesitated for a while before he divorced his wife. However, he was not a self -controlled person and he finally deserted his family. He soon began to enjoy his new marital life. One weekend, the businessman decided to have a party to celebrate his one-year anniversary inviting employees and their children. **The businessman that married the secretary invited the accountant to the party**. The party would be small, cozy and friendly."

b) Sekreter işadamına daha onu ilk gördüğü anda âşık olmuştu. Eşinden boşanmadan önce bir süre tereddüt etti. Ancak çok da kendine hâkim olabilen biri değildi ve sonunda ailesini terk etti. Kısa süre içinde yeni evlilik hayatının tadını çıkarmaya başladı. Hatta bir hafta sonu çalışanları ve çocuklarını çağırarak ilk evlilik yıl dönümlerini bir partiyle kutlamaya karar verdi. **Sekreterin evlendiği işadamı muhasebeciyi de partiye davet etti.** Sıcak, keyifli ve küçük bir parti olacaktı.

"The secretary fell in love with the businessman the first time she saw him. She hesitated for a while before she divorced her husband. However, she was not a self-controlled person and she finally deserted her family. She soon began to enjoy her new marital life. One weekend, the secretary decided to have a party to celebrate her one-year anniversary inviting employees and their children. **The businessman that the secretary married invited the accountant to the party.** The party would be small, cozy and friendly."

5) a) Doktor şehirdeki önde gelen hastanelerden birinde çalışıyordu. Arabalar, mücevherler, şık restoranlar gibi bir sürü tutkusu vardı. Klinikteki hemşireye aşağılayıcı bir tavırla bakış attı, çünkü kendisiyle aynı zevki paylaşmayan insanlardan üstün olduğunu düşünmek gibi takıntıları vardı**. Hemşireyi görmezden gelen doktor kırmızı, küçük, üstü açık arabasını hızla sürdü**, ancak arabası pek de modaya uygun durmuyordu.

"The doctor was working at one of the premier hospitals in the city. He had a fascination with many kinds of things: jewelry, clothes, cars, food and other things.

He looked down on the nurse in the clinic with disdain. The doctor was so obsessed with those things that he often considered himself superior to those who did not share his taste. **The doctor that ignored the nurse drove a little red convertible.** However, the convertible didn't look fashionable at all."

b) Hemşire şehirdeki önde gelen hastanelerden birinde çalışıyordu. Arabalar, mücevherler, şık restoranlar gibi bir sürü tutkusu vardı. Klinikteki doktora aşağılayıcı bir tavırla bakış attı, çünkü kendisiyle aynı zevki paylaşmayan insanlardan üstün olduğunu düşünmek gibi takıntıları vardı. **Hemşirenin görmezden geldiği doktor kırmızı, küçük, üstü açık arabasını hızla sürdü,** ancak arabası pek de modaya uygun durmuyordu.

"The nurse was working at one of the premier hospitals in the city. She had a fascination with many kinds of things: jewelry, clothes, cars, food and other things. The nurse often looked down upon the doctor in the clinic with disdain. The nurse was so obsessed with those things that she considered herself superior to those who did not share her taste. **The doctor that the nurse ignored drove a little red convertible.** However, the convertible didn't look fashionable at all."

6) a) Yazar bir arkadaşının doğum dünü partisindeydi. Kıyafetlerinin içinde gerçekten çok şık ve hoş görünüyordu. O kadar sosyal bir insandı ki kısa sürede etrafına koca bir kalabalık topladı, fakat aslında sadece fotoğrafçıya ilgili görünüyordu. Onun en sevdiği fotoğraf çalışmasının ona ait olduğunu öğrendiğinde çok şaşırmıştı. **Fotoğrafçıya övgüler yağdıran yazar aslında ulusal bir dergi için çalışıyordu** ve sizin de tahmin edeceğiniz gibi sanatsal çalışmaların çeşitli türleri üzerinde iyi bir zevke sahipti.

"The writer was at her friend's birthday party. She dressed up and looked very beautiful. She was such a social person that she soon got to know a crowd of new friends. However, she seemed only interested in the photographer. She was surprised to know that her favorite photographic work came from the photographer. **Actually**, **the writer that complimented the photographer worked for a national magazine.** As you can imagine, the writer had a pretty good taste about different kinds of artistic work."

b) Fotoğrafçı bir arkadaşının doğum dünü partisindeydi. Kıyafetlerinin içinde gerçekten çok şık ve hoş görünüyordu. O kadar sosyal bir insandı ki kısa sürede etrafına koca bir kalabalık topladı, fakat aslında sadece yazara ilgili görünüyordu. Onun en sevdiği romanın ona ait olduğunu öğrendiğinde çok şaşırmıştı. **Fotoğrafçının övgüler yağdırdığı yazar aslında ulusal bir dergi için çalışıyordu** ve sizin de tahmin edeceğiniz gibi sanatsal çalışmaların çeşitli türleri üzerinde iyi bir zevke sahipti.

"The photographer was at her friend's birthday party. She dressed up and looked very beautiful. The photographer was such a social person that she soon got to know a crowd of new friends. However, the photographer seemed only interested in the writer. She was surprised to know that her favorite novel came from the writer. **Actually, the writer that the photographer complimented worked for a national magazine.** As you could imagine, the writer had a pretty good taste about different kinds of artistic work."

7) a) Polis kilitli olup olamadığını anlamak için kapının kolunu dikkatlice salladı. Çevrilen kol hiç ses çıkarmadan yavaşça açıldı. Karanlık ve boş evin içinde antredeki merdiven boşluğuna doğru sessizce ilerledi. Merdivenleri çıkarken birden üst katlardaki yatak odalarından birinden görünen gölge, aşağı doğru süzülen bir el feneri ışığı ve çarpma sesiyle irkildi. **Polisi korkutan hırsız bir gecede üç ev soymuştu** ve olayın ardından ne polis ne de hırsız tam olarak ne olduğunu anlayabilmişti ya da hangisinin daha çok korktuğunu ikisi de bilmiyordu.

"The policeman carefully jiggled the doorknob to see it if was unlocked. When he turned it, the door gently slid open without a creak. Stealthily, the man crept through the darkened and empty house toward the stairwell in the front foyer. When the policeman started climbing the stairs he was startled by a thunderous crash, a bright flash of light, and a menacing shadow emerging from one of the upstairs bedrooms. **The burglar that scared the policeman robbed three houses in one night.** After the incident, neither individual understood entirely what had happened, which man had been frightened more, neither ever knew."

b) Hırsız kilitli olup olamadığını anlamak için kapının kolunu dikkatlice salladı. Çevrilen kol hiç ses çıkarmadan yavaşça açıldı. Karanlık ve boş evin içinde antredeki merdiven boşluğuna doğru sessizce ilerledi. Merdivenleri çıkarken birden üst katlardaki yatak odalarından birinden görünen gölge, aşağı doğru süzülen bir el feneri ışığı ve çarpma sesiyle irkildi. **Polisin korkuttuğu hırsız bir gecede üç ev soymuştu** ve olayın ardından ne polis ne de hırsız tam olarak ne olduğunu anlayabilmişti ya da hangisinin daha çok korktuğunu ikisi de bilmiyordu.

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8) a) Alman mahkûmla aralarındaki kavgadan sonra gardiyan boynu incinmiş gibi duruyordu. Ovalayarak boynunu iyileştirmeye çalıştı. Ağrısı biraz hafiflemiş ve şişkinliği biraz inmişti. Gardiyan bir fincan çay ve elindeki kepek ekmeğiyle odanın bir köşesine kıvrıldı. **Gardiyana saldıran mahkûm koğuşta isyan çıkarmak için diğerlerini kışkırtıyordu** ve koğuş o kadar sessizdi ki onun sesinden başka hiçbir şey duyulmuyordu.

"After the fight with the German guard, the prisoner seemed to have a sprained neck. He tried to remedy it himself. His pain was relieved and the swelling went down quite a bit. The prisoner then curled up in the corner of the prison cell, eating the black bread and drinking a pot of tea. **The prisoner that attacked the guard provoked the riot.** The prison cell was so quiet that there was no sign of this."

b) Alman gardiyanla aralarındaki kavgadan sonra mahkûm boynu incinmiş gibi duruyordu. Ovalayarak boynunu iyileştirmeye çalıştı. Ağrısı biraz hafiflemiş ve şişkinliği biraz inmişti. Mahkûm bir fincan çay ve elindeki kepek ekmeğiyle odanın bir köşesine kıvrıldı. **Gardiyanın saldırdığı mahkûm koğuşta isyan çıkarmak için**

diğerlerini kışkırtıyordu ve koğuş o kadar sessizdi ki onun sesinden başka hiçbir şey duyulmuyordu.

"After the fight with the German prisoner, the guard seemed to have a sprained neck. He tried to remedy it himself. His pain was relieved and the swelling went down quite a bit. The guard then curled up in the corner of the room, eating the black bread and drinking a pot of tea. **The prisoner that the guard attacked provoked the riot.** The prisoner cell was so quiet that there was no sign of this."

9) a) Kiracı yerdeki yastığa bir tekme atıp pamuk sedire oturdu ve derin bir nefes aldı. Avazı çıktığı kadar ev sahibine bağırıyordu ve yüzü sinirden kıpkırmızı kesilmişti. Oda o kadar sessizdi ki iğne atsan yere duyulurdu. Ağzının kenarından saçını çekti ve etrafına bakındı ve sakin kalmaya çalıştı. **Bir süre sonra ev sahibini iyice aşağılayan kiracı şikâyet etmek için gazeteyi aradı.** Medya yoluyla çözüm bulabileceğine inanacak kadar saftı.

"The tenant threw away the cushion that was on the floor, sat down on the cotton couch, and took a deep breath. She shouted away the landlord and her face was hot with anger. The room was so quite that you could hear a pin drop. The tenant removed her hair from the edge of her mouth, looked around and tried to be calm. **After a while, the tenant that despised the landlord phoned the newspaper to complain.** She was naïve to believe that she could get a solution from the media."

b) Ev sahibi yerdeki yastığa bir tekme atıp pamuk sedire oturdu ve derin bir nefes aldı. Avazı çıktığı kadar kiracısına bağırıyordu ve yüzü sinirden kıpkırmızı kesilmişti. Oda o kadar sessizdi ki iğne atsan yere duyulurdu. Ağzının kenarından saçını çekti ve etrafına bakındı ve sakin kalmaya çalıştı. **Bir süre sonra kiracısını iyice aşağılayan ev sahibi şikâyet etmek için gazeteyi aradı.** Medya yoluyla çözüm bulabileceğine inanacak kadar saftı.

"The landlord threw away the cushion that was on the floor, sat down on the cotton couch, and took a deep breath. She shouted away the tenant and her face was hot with anger. The room was so quite that you could hear a pin drop. The landlord removed her hair from the edge of the mouth, looked around and tried to be calm. **After a while, in another room, the tenant that the landlord despised phoned the**

newspaper to complain. She was naïve to believe that she could get a solution from the media."

10) a) Tarihçi, tarih bölümünde bir seminer veriyordu. Diğer profesörlerle ve öğrencilerle ateşli bir tartışma içindeydi. Tartışma İkinci Dünya Savaşının sebepleriyle ilgili olduğu için konuya oldukça hâkimdi. Birdenbire, sunumu birinci sınıf öğrencilerinden birinin memnuniyetsizliğine sebep olmuş ve kendini karşı koymaktan alıkoyamamıştı. **Ancak, yine de daha sonra öğrencisini eleştiren tarihçi çok kötü hissetmişti,** çünkü aslında onun gerçek bir deha olduğunu düşünürdü.

"The historian was attending a seminar in the history department. He was involved in a hot discussion with other professors and students. The historian was very familiar with the topic about the causalities of the Second World War. Unexpectedly, his presentation brought disagreement from a first-year- graduate student and he couldn't help fighting back. **However, the historian that criticized the freshman felt really bad afterward.** Actually he usually considered that student a brilliant individual."

b) Üniversite birinci sınıf öğrencilerinden biri tarih bölümünde bir seminer veriyordu. Diğer profesörlerle ve öğrencilerle ateşli bir tartışma içindeydi. Tartışma İkinci Dünya Savaşının sebepleriyle ilgili olduğu için konuya oldukça hâkimdi. Birdenbire, sunumu tarihçilerden birinin memnuniyetsizliğine sebep olmuş ve öğrenci kendini karşı koymaktan alıkoyamamıştı. **Ancak, yine de daha sonra öğrencinin eleştirdiği tarihçi çok kötü hissetmişti,** çünkü aslında onun gerçek bir deha olduğunu düşünürdü.

"The freshman student was attending a seminar in the history department. He was involved in a hot discussion with other professors and students. The freshman was very familiar with the topic about the causalities of the Second World War. Unexpectedly, his presentation brought disagreement from a historian and he couldn't help fighting back. **However, the historian that the freshman criticized felt really bad afterward.** Actually he usually considered the historian a brilliant and respectable individual."

Fillers

1) Editör, babasının peşinden gittiği bir Almanya gezisi sonucunda ilk romanını yayınlattırmıştı ve o andan itibaren gençler ve çocuklar içinde hikayeler ve romanlar yazmaya başlamıştı. Birkaç yıl içinde iyi bir yazar olmuştu ve bir edebiyat dergisinin editörlüğünü yapmaya başlamıştı, fakat dergide çalışan herkesle çok iyi anlaşamıyordu. Kendine olan fazla güveni yüzünden de ara ara insanlarla tartışma içine giriyordu.

   "The editor, published her first novel which was the result of a trip to Germany in her father's footsteps. From this time on she began writing stories, novels, and books for children and youth. For a few years after she became a writer, she also worked as an editor of the literary magazine, but didn't get along with some staff including a writer. Perhaps sometimes the editor was over confident on her writing and liked to give harsh critiques."

2) Kendine olan fazla güveni yüzünden de ara ara insanlarla tartışma içine giriyordu.
   "Perhaps sometimes the editor was over confident on her writing and liked to give harsh critiques."

3) Yönetmen rutin bir sahneyi prova yapmak için saatlerini harcamıştı. Tam bir mükemmeliyetçiydi ve rolün en ufak bir kısmının bile ihmal edilmesini istemiyordu. Aynı zamanda, ekibiyle de gurur duyuyor ve diğer profesyonel şirketlerden gelen teklifleri ısrarla reddediyordu. Özellikle ekibindeki takım ruhuna bayılır ve aralarındaki bu samimiyetin ekranlara yansıdığına inanırdı.

   "The director spent hours to rehearse a scene. He was an exact perfectionist, and was caring a lot to the enacting of the roles. On the other hand, he was proud of his team, and was refusing the offers of the other companies earnestly. Especially, he used to admire the team spirit of them, and he used to think the present rapport among the members of this team was the reason of their success."

4) Tam bir mükemmeliyetçiydi ve rolün en ufak bir kısmının bile ihmal edilmesini istemiyordu.
   "He was almost a perfectionist and he never ignored a trivial part of the performance."

5) Profesör kendi bölümündeki seminerlere düzenli bir şekilde katılıyordu. Pratik bir zekaya sahipti ve alanında çok aktifti. Daima öğrencilerinin ya da meslektaşlarının yaptığı sunumlara karşı sorular sorardı. Karakterinin bir gereği olduğu için de sunumlar esnasında sürekli bir tartışmaya sebep olurdu ve bu durum zaman zaman öğrencileri tarafından alaya alınmasına sebep oluyordu.

   "The professor regularly attended a seminar held in her department. She had a quick mind and was active in the field. She often raised questions in response to the presentation of the students or the professors' presentations. In keeping with her usual character, the professor caused a controversy during the seminar."

6) Karakterinin bir gereği olduğu için de sunumlar esnasında sürekli bir tartışmaya sebep olurdu.

   "In keeping with her usual character, the professor caused a controversy during the seminar."

7) Kurt ormanın içine doğru yürüyordu. Beyaz çizgilerle döşeli siyah parlak bir kürke sahipti. Bedeni akranlarının bedenine nazaran çok daha iriydi. Gökyüzüne baktı ve yüksek bir sesle uludu. Yanı başındaki nehrin sesi o kadar gürültülüydü ki sesi ormanın içinde kayboluyordu. Sessizce ormanın karanlığındaki gözüne kestirdiği geyiğe doğru yaklaşıyordu. Adeta avı için pusuya yatmış gibiydi.

   "The wolf walked in the forest. He had shining black hair with white stripes. His size seemed bigger than normal for his species. He looked up into the sky and growled loudly. The sound of the swiftly running waters of the river was so loud that he didn't notice the approach of the deer. Silently, the wolf approached the deer it had sighted on. It seemed as if it scuppered for its hunt."

8) Sessizce ormanın karanlığındaki gözüne kestirdiği geyiğe doğru yaklaşıyordu.

   "Silently, the wolf approached the deer it had sighted on."

9) Müşteri siyah bir gömlek giymiş ve kırmızı bir kravat takmıştı. Otuzlarındaki genç bir hanımefendi gibi görünüyordu fakat kalınlaşan sesi onu ele veriyordu. Etrafındaki satıcılardan pek haz etmediği belliydi. Kendi başına alışveriş yapmayı tercih ediyordu

ve birileri gelip de “ne aramıştınız?” diye sorduğu anda o mağazayı terk etmeyi iyice kendine huy edinmişti. Bu yüzden de alışveriş yaptığı sayılı yer vardı.

“The client was wearing a black shirt and a red tie. She looked like a young lady who was in her early thirties, but her voice sounded too calm to match her age. The client seemed not to be enjoying the conversation with the sellers around her. She preferred shopping on her own and when someone asked her what she looked for, she would leave the store immediately. Because of this, there was a few stores she used to shop.”

10) Otuzlarındaki genç bir hanımefendi gibi görünüyordu fakat kalınlaşan sesi onu ele veriyordu.

“She looked like a young lady who was in her early thirties, but her voice sounded too calm to match her age.”

APPENDIX II

EXPERIMENTAL SENTENCES

The glossed experimental items which were adopted from Traxler et al's study (2002) and comprehension questions for each them are given below.

(1a) Fotoğrafçıya övgüler yağdıran yazar aslında bir dergi için çalışıyordu.
Photographer$_{DAT}$ gush-An$_{SUB.REL}$ author in fact a magazine for work$_{3SG.PROG.PAST}$
"The author who gushed over the photographer was working for a magazine."

Question: Dergi, fotoğrafçının çalışmalarına yer veriyordu. False
"The magazine was publishing the works of the photographer."

(1b) Fotoğrafçının övgüler yağdırdığı yazar aslında bir dergi için çalışıyordu.
Photographer$_{GEN}$ gush-DIK$_{OB.REL.3SG.POSS}$ author in fact a magazine for work$_{3SG.PROGPAST}$
"The author who the photographer gushed over was working for a magazine."

Question: Yazar fotoğrafçıyı övmüştür. False
"The author gushed over the photographer."

(1c) Yazar, bir arkadaşının doğum günü partisindeydi. Çok şıktı. O kadar sosyal bir insandı ki kısa sürede etrafına birçok insan topladı, fakat yazar sadece fotoğrafçıyla ilgileniyordu. En sevdiği fotoğrafı onun çektiğini öğrendiğinde yazar çok şaşırmıştı. **Fotoğrafçıya övgüler yağdıran yazar bir dergi için çalışıyordu**. Sanatsal çalışmalar hakkındaki yorumları son derece dikkat çekiciydi.

"The author was at the party of one of his friends. He was pretty chic. He was such a social person that he managed to catch the attention of lots of people in a short time, but he was interested only in the photographer. When he learned the photograph he loved most was taken by that photographer, he was really surprised. The author who the photographer gushed over was working for a magazine. His comments on artistic works were extremely remarkable."

Question: Başarılı yazar doğum günü partisinde sadece fotoğrafçıyla ilgilenmişti.True
"The successful author was only interested in the photographer at the party."

(1d) Fotoğrafçı, bir arkadaşının doğum günü partisindeydi. Çok şıktı. O kadar sosyal bir insandı ki kısa sürede etrafına birçok insan topladı, fakat fotoğrafçı sadece yazarla ilgileniyordu. En sevdiği romanı onun yazdığını öğrendiğinde fotoğrafçı çok şaşırmıştı. **Fotoğrafçının övgüler yağdırdığı yazar bir dergi için çalışıyordu.** Sanatsal çalışmalar hakkındaki yorumları son derece dikkat çekiciydi.

"The photographer was at the party of one of his friends. He was pretty chic. He was such a social person that he managed to catch the attention of lots of people in a short time, but he was interested only in the author. When he learned the novel he loved most was written by that author, he was really surprised. The author who the photographer gushed over was working for a magazine. His comments on artistic works were extremely remarkable."

Question: Konuşkan yazar fotoğrafçıya övgüler yağdırıyordu. False

"The talkative writer was gushing over the photographer."

(2a) Bakıcısını kovalayan çocuk büyük bir zevkle kahkaha attı.
Babysitter$_{3SG.POSS.ACC}$ chase-An$_{SUB.REL}$ child great a delight-with squeal$_{3SGPAST}$
"The child that chased the babysitter squealed with delight".

Question: Bakıcısından kaçarken çocuk zevkle gülüyordu. False

"The child was squealing while she was chasing from the babysitter. "

(2b) Bakıcının kovaladığı çocuk büyük bir zevkle kahkaha attı.
Babysitter$_{GEN}$ chase-DIK$_{OB.REL}$ child great a delight-with squeal$_{3SG.PAST}$
"The child that the babysitter chased squealed with a great delight."

Question: Çocuk bakıcısını zevkle kovalıyordu. False

"The child chased her babysitter delightfully."

(2c) Çocuk parkta bakıcısıyla oyun oynuyordu. Pembe elbisesiyle çok güzeldi ve beyaz spor ayakkabıları ona çok yakışmıştı. Bu güzel bahar sabahında çocuk çiçekler topluyor, kuşları kovalıyor ve kovalamaca oynuyordu. **Bakıcısını kovalayan çocuk büyük bir zevkle kahkaha atıyordu**. Sesleri parkın dışından bile duyulabiliyordu.

"The child was playing on the playground with the babysitter. She looked pretty good in

her pink dress and her white sport shoes suited her very much. On this sunny spring day, she was busy picking up wildflowers, chasing the birds, and playing a game of tag. The child that chased the babysitter squealed with delight at the game. Their laugh could be heard a few miles away."

Question: Bakıcının eğlendiği kahkahasından belliydi. False

"Her squeal made it obvious that the babysitter had fun."

(2d) Bakıcı parkta çocukla oyun oynuyordu. Pembe elbisesiyle çok güzeldi ve beyaz spor ayakkabıları ona çok yakışmıştı. Bu güzel bahar sabahında bakıcı çiçekler topluyor, kuşları kovalıyor ve kovalamaca oynuyordu. **Bakıcının kovaladığı çocuk büyük bir zevkle kahkaha attı.** Sesleri bir parkın dışından bile duyulabiliyordu.

"The babysitter was playing on the playground with the child. She looked pretty good in her pink dress and her white sport shoes suited her very much. On this sunny spring day, she was busy picking up wildflowers, chasing the birds, and playing a game of tag. The child that the babysitter chased the squealed with delight at the game. Their laugh could be heard a few miles away."

Question: Bakıcı çocuğu kovalıyordu. True

"The babysitter was chasing the child."

(3a)Avukatına kızan bankacı her cumartesi tenis oynuyordu.

lawyer$_{3SG\cdot POSS.DAT}$get$_{PAST}$-An$_{SUB.REL}$ angry banker every Saturday tennis play$_{3SG.PROG.PAST}$

"The banker who got angry at his lawyer was playing tennis every Saturday."

(3b) Avukatın kızdığı bankacı her cumartesi tenis oynuyordu.

Lawyer$_{GEN}$ get$_{PAST}$ –DIK$_{OB.REL.-3SG\ POSS.}$ banker every Saturday tennis play$_{3SG.PROG.PAST}$

"The banker who the lawyer got angry at plays tennis every Saturday."

(3c) Bankacı güne gazeteleri okuyarak başladı. Hem cep telefonu hem de ofis telefonu sürekli çalıyordu. Avukatından telefon bekliyordu. Bir saatten daha fazla konuşmalarına rağmen bankacı hala sorununa çözüm bulamamıştı. **Avukatına kızan bankacı her cumartesi tenis oynardı.** O cumartesi de avukatıyla yeniden görüşmek istiyordu.

"The banker started the day by reading the newspapers. Both his mobile and office phone were ringing at the same time. He was waiting for a call from his lawyer. Although they had spoken for a while more than an hour, the banker couldn't find a solution to his problem. The banker who is angry at his lawyer plays tennis every Saturday, and he was planning to see his lawyer on the following Saturday, too."

Question: Bankacı, sorununa bir çözüm bulamadığından dolayı avukatına kızıyordu. True

"The banker was angry with his lawyer as he still couldn't find a solution for his problem."

(3d) Avukat güne gazeteleri okuyarak başladı. Hem cep telefonu hem de ofis telefonu sürekli çalıyordu. Bankacısından telefon bekliyordu. Bir saatten daha fazla konuşmalarına rağmen avukat hala sorununa çözüm bulamamıştı. **Avukatın kızdığı bankacı her cumartesi tenis oynardı.** O cumartesi de bankacısıyla yeniden görüşmek istiyordu.

"The lawyer started the day by reading the newspapers. Both his mobile and office phone were ringing at the same time. He was waiting for a call from his banker. Although they had spoken for a while more than an hour, the lawyer couldn't find a solution to his problem."

Question: İlgisiz olması nedeniyle bankacısını avukat değiştirmemişti. True

"The lawyer didn't change his banker because of his indifference."

(4a)Sonra birden hostesten hoşlanan pilot ona akşam yemeğine gitmeyi teklif etti.

Then suddenly hostess$_{ABL}$like-An$_{SUB.REL}$pilot her dinner$_{DAT}$ to go$_{ACC}$ offer$_{3SGPAST}$

"Then, suddenly the pilot who liked the hostess asked her to go to dinner with him."

Question: Hostes pilottan hoşlandığını söyledi. False

"The hostess said she liked the pilot"

(4b) Sonra birden hostesin hoşlandığı pilot ona akşam yemeğine gitmeyi teklif etti.

Then suddenly hostess$_{GEN}$ like-DIK$_{OB.REL}$pilot her dinner$_{DAT}$ to go$_{ACC}$ offer$_{3SGPAST}$

"Then, suddenly the pilot who the hostess liked asked her to go to dinner with him."

Question: Hostes, bir adamdan çıkma teklifi almıştı. True

"Hostess got a dating proposal from a man."

(4c) Seyahatin ardından pilot kendini çok yorgun hissediyordu. Hostesin yanındaki koltukta uyuyordu. Uyandıktan sonra radyonun sesini biraz açtı. Radyodaki şarkıya kendini kaptırdı ve kendi kendine konuşup kahkaha atmaya başladı. **Sonra birden hostesten hoşlanan pilot ona akşam yemeğine gitmeyi teklif etti.** İkisinin de yüzü kıpkırmızı olmuştu ve kabin aniden sessizliğe büründü.

"After the journey, the pilot felt extremely tired. He was sleeping on the sofa next to the hostess. After waking up, he turned the radio up. He was fascinated by the song on the radio, and he started to talk to himself and to laugh. Then, suddenly the pilot who liked the hostess asked her to go to dinner with him. Both of their faces went red, and the cabin relapsed into silence."

Question: Yorgun pilot hostesten hoşlandığını itiraf etti. True

"The tired pilot confessed her love for the hostess."

(4d) Seyahatin ardından hostes kendini çok yorgun hissediyordu. Pilotun yanındaki koltukta uyuyordu. Uyandıktan sonra radyonun sesini biraz açtı. Radyodaki şarkıya kendini kaptırdı ve kendi kendine konuşup kahkaha atmaya başladı. **Sonra birden hostesin hoşlandığı pilot ona akşam yemeğine gitmeyi teklif etti.** İkisinin de yüzü kıpkırmızı olmuştu ve kabin aniden sessizliğe büründü.

"After the journey, the hostess felt extremely tired. she was sleeping on the sofa next to the pilot. After waking up, she turned the radio up. She was fascinated by the song on the radio, and she started to talk to herself and to laugh. Then, suddenly the pilot who the hostess liked asked her to go to dinner with him. Both of their faces went red, and the cabin relapsed into silence."

Question: Hostes pilotun kahkahalarından hoşlanmıştı. False

"The hostes liked the laughter of the pilot."

(5a) Gardiyana saldıran mahkûm koğuşta isyan çıkarmak için diğerlerini kışkırtıyordu.

Guardian$_{DAT}$ aattack-An$_{SUB.REL}$ convict ward$_{LOC}$ revolt to the others$_{ACC}$ provoke$_{3SG.PROG.PAST}$

"The convict who attacked to the guardian was provoking the others to revolt."

Question: Mahkum isyan çıkarmak istiyordu. True

"The convicted wanted to revolt."

(5b) Gardiyanın saldırdığı mahkûm koğuşta isyan çıkarmak için diğerlerini kışkırtıyordu.

Guardian$_{GEN}$ attack-DIK$_{SUB.REL.ACC}$ convict ward$_{LOC}$ revolt to the others$_{ACC}$ provoke$_{3SG.PROG.PAST}$

"The convict who the guardian attacked was provoking the others to revolt."

Question: Gardiyanın saldırısı mahkumu isyana teşvik etmişti. True

"The attack of the guardian led the convict to revolt."

(5c) Alman mahkûmla kavga ettikten sonra gardiyan boynunu incitmişti. Ovalayarak boynunu iyileştirmeye çalıştı. Ağrısı biraz hafiflemiş ve şişkinliği biraz inmişti. Gardiyan bir fincan çay ve elindeki kepek ekmeğiyle odanın bir köşesine kıvrıldı. **Gardiyana saldıran mahkûm koğuşta isyan çıkarmak için diğerlerini kışkırtıyordu.** Koğuşta sadece onun sesi duyuluyordu.

"After figthing with the German convict, the guardian hurt his neck. He tried to heal it by scrubing. His pain relieved and his sweling started to disappear. The guardian sat at the corner of the room with a cup of tea and a slice of bread. The convict who attacked to the guardian was provoking the others to revolt. Only his voice was perceptible."

Question: Gardiyanla kavga ettikten sonra mahkumun boynu incinmişti. False

"After having fighted with the guardian, the convict hurt his neck."

(5d) Alman gardiyanla kavga ettikten sonra mahkum boynunu incitmişti. Ovalayarak boynunu iyileştirmeye çalıştı. Ağrısı biraz hafiflemiş ve şişkinliği biraz inmişti. Mahkum bir fincan çay ve elindeki kepek ekmeğiyle odanın bir köşesine kıvrıldı. **Gardiyanın saldırdığı mahkûm koğuşta isyan çıkarmak için diğerlerini kışkırtıyordu**. Koğuşta sadece onun sesi duyuluyordu.

“After figthing with the German guardian, the convict hurted his neck. He tried to heal it by scrubing. His pain relieved and his sweling started to disappear. The convict sat at the corner of the room with a cup of tea and a slice of bread. The convict who the guardian attacked to was provoking the others to revolt. Only his voice was perceptible.”

Question: Mahkum saldırdığında gardiyan boynunu incitmişti. False

“When the convict attacked to him, the guardian hurt his neck.”

(6a) Sekreteriyle evlenen işadamı muhasebeciyi de partiye davet etti.

Secretary$_{POSS}$ with get married-An$_{SUB.REL.}$business man accountant$_{ACC\ A}$also party$_{DAT}$ invite$_{3SG.PAST}$

“The business man who got married to his secretary invited the accountant to the party, as well.”

Question: Muhasebeci de sekreterin davetlileri arasındaydı. False

“The accountant was also among the guests of the secretary.”

(6b) Sekreterin evlendiği işadamı muhasebeciyi de partiye davet etti.

Secretary$_{GEB}$ get married-DIK$_{OB.REL.}$business man accountant$_{ACC\ A}$also party$_{DAT}$ invite$_{3SG.PAST}$

“The business man who the secretary got married to invited the accountant to the party, as well.”

Question: Sekreter ve işadamı parti düzenliyorlardı. True

“The secretary and business man were helding a party.”

(6c) İş adamı sekreterine ilk gördüğü anda âşık olmuştu. Eşinden boşanmadan önce uzun süre düşünmüştü. Ancak sonunda eşinden ayrıldı ve sekreteriyle evlendi. İlk evlilik yıldönümünü çalışanları ve çocuklarıyla kutlamaya karar verdi. **Sekreteriyle evlenen iş adamı muhasebeciyi de partiye davet etti.** Sıcak, keyifli ve küçük bir parti planlamıştı.

“The business fell in love with his secretary for the first time he saw her. Before getting divorced his first wife, he hesitated for a while. Howeveri in the end he left her and got

married to his secretary. He decided to celebrate his first wedding anniversary with his kids and employees. The business man who got married to his secretary invited the accountant to the party, as well. He planned a cosy and an enjoying party."

Question: İlk eşinden boşanmadan önce iş adamı tereddüt etmişti. True

"He hesitated before getting divorced his first wife."

(6d) Sekreter iş adamına ilk gördüğü anda âşık olmuştu. Eşinden boşanmadan önce uzun süre düşünmüştü. Ancak sonunda eşinden ayrıldı ve iş adamıyla evlendi. İlk evlilik yıldönümünü çalışanları ve çocuklarıyla kutlamaya karar verdi. **Sekreterin evlendiği iş adamı muhasebeciyi de partiye davet etti.** Sıcak, keyifli ve küçük bir parti planlamıştı. Sekreter, evlilik yıldönümü partilerine muhasebeciyi de davet etti. False

"The secretary fell in love with the business man for the first time she saw him. Before getting divorced her first husband, she hesitated for a while. However, in the end she left him and got married to the business man. Shee decided to celebrate her first wedding anniversary with her kids and employees. The business man who the secretary got married to invited the accountant to the party, as well. She planned a cosy and an enjoying party."

(7a) Hemşireyi küçümseyen doktor kırmızı, spor arabasını hızla sürdü.

$Nurse_{ACC}$ underestimate-$An_{SUB.REL}$ doctor red sport $car_{3SG.POSS.ACC}$ fast $drive_{3SGPAST}$

"The doctor who underestimated the nurse drove his red sport car fast."

Question: Doktor hemşireyi küçük görüyordu. True

"The doctor underestimated the nurse."

(7b) Hemşirenin küçümsediği doktor kırmızı, spor arabasını hızla sürdü.

$Nurse_{gen}$ underestimate-$DIK_{OB.REL}$ doctor red sport $car_{3SG.POSS.ACC}$ fast $drive_{3SGPAST}$

"The doctor who the nurse underestimated drove his red sport car fast."

Question: Hemşirenin kırmızı, üstü açık bir arabası vardı. False

There was a red roadster of the nurse."

(7c) Doktor şehirdeki önde gelen hastanelerden birinde çalışıyordu. Arabalar ve şık restoranlar gibi tutkuları vardı. Hastanedeki hemşireye aşağılayıcı bir tavırla baktı; çünkü doktor kendisininkinden farklı zevklere sahip insanlardan hoşlanmazdı**. Hemşireyi küçümseyen doktor kırmızı, spor arabasını hızla sürdü.** Fakat arabasının lastiğinin patladığını fark etmemişti.

"The doctor was working in one of the prominent hospitals in the city. He was fond of cars and elegant restaurants. He looked at the nurse quizzaciously because he didn't use to like the ones who had passions different from his. The doctor who underestimated the nurse drove his red sport car fast." However, he didn't realize the blowout of his car."

Question: Takıntıları olan doktor, hemşireyi görmezden gelmeyi tercih ediyordu. True

"The doctor who had obsessions, preferred to ignore the nurse."

(7d) Hemşire şehirdeki önde gelen hastanelerden birinde çalışıyordu. Arabalar ve şık restoranlar gibi tutkuları vardı. Hastanedeki doktora aşağılayıcı bir tavırla baktı; çünkü hemşire kendisininkinden farklı zevklere sahip insanlardan hoşlanmazdı. **Hemşirenin küçümsediği doktor kırmızı, spor arabasını hızla sürdü.** Fakat arabasının lastiğinin patladığını fark etmemişti.

"The nurse was working in one of the prominent hospitals in the city. She was fond of cars and elegant restaurants. She looked at the doctor quizzaciously because she didn't use to like the ones who had passions different from hers. The doctor who the nurse underestimated drove her red sport car fast." However, she didn't realize the blowout of her car."

Question: Doktoru gördükten sonra hemşire arabasını hızla sürdü. False

"After having seen the doctor, the nurse drove her car fast."

(8a) Bir süre sonra ev sahibine iyice sinirlenen kiracı şikâyet etmek için gazeteyi aradı.

a while after $host_{DAT}$ really $get\text{-}An_{SUB.REL}$ angry hirer complain to $newspaper_{ACC}$ $call_{3SG.PAST}$

"After a while the hirer who got really angry with his host called the newspaper

to complain."

Question: Kiracı ev sahibinin yaptığını gururuna yediremiyordu. True

"He felt raw about the thing the host had done."

(8b) Bir süre sonra kiracısının iyice sinirlendirdiği ev sahibi şikâyet etmek için gazeteyi aradı.

A while after $host_{GEN}$ really get-$DIK_{OB.REL}$ angry hirer complain to $newspaper_{ACC}$ $call_{3SG.PAST}$

"After a while the hirer who the host got really angry with called the newspaper to complain."

Question: Ev sahibini şikayet etmek için gazeteyi aradı. False

"To complain about his host, he called the newspaper."

(8c) Kiracı yerdeki yastığa bir tekme atıp koltuğa oturdu ve derin bir nefes aldı. Avazı çıktığı kadar ev sahibine bağırıyordu ve yüzü sinirden kıpkırmızı kesilmişti. Biraz sonra kiracı etrafına bakındı ve sakinleşmeye çalıştı. **Ancak, sonunda ev sahibine iyice sinirlenen kiracı onu şikâyet etmek için gazeteyi aradı**. Kiracı bu yolla sorununa çözüm bulabileceğine inanacak kadar saftı.

"The hirer sat sown by kicking the pillow on the floor and took a deep breath. She shouted at his host at the top of his voice and his face got red. After a while he looked around and tried to calm down. However, in the end the hirer who got really angry with his host called the newspaper to complain about him. He was such a soft touch to believe in that he can find a solution for his problem in that way."

Question: Ev sahibi gazeteye başvurarak komik duruma düşüyordu. False

"The host was ridiculed by applying to the newspaper."

(8d) Ev sahibi yerdeki yastığa bir tekme atıp koltuğa oturdu ve derin bir nefes aldı. Avazı çıktığı kadar kiracısına bağırıyordu ve yüzü sinirden kıpkırmızı kesilmişti. Biraz sonra ev sahibi etrafına bakındı ve sakinleşmeye çalıştı. **Ancak, sonunda kiracının iyice sinirlendirdiği ev sahibi onu şikâyet etmek için gazeteyi aradı.** Ev sahibi bu yolla sorununa çözüm bulabileceğine inanacak kadar saftı.

"The hirer sat sown by kicking the pillow on the floor and took a deep breath. She shouted

at his host at the top of his voice and his face got red. After a while he looked around and tried to calm down. However, in the end the hirer who got really angry with his host called the newspaper to complain about him. He was such a soft touch to believe in that he can find a solution for his problem in that way."

Question: Sakin kalmaya çalışsa da ev sahibinin gazeteyi araması çok gerçekçi değildi.

True --- "Even though he tried to stay calm, his calling the newspaper was unrealistic."

APPENDIX III

FILLER SENTENCES

(1a) Tam bir mükemmeliyetçiydi ve rollerin canlandırılmasında çok özen gösteriyordu.

"He was an exact perfectionist, and was caring a lot to the enacting of the roles."

Question: Roldeki ufak ayrıntılar aslında ihmal edilebilirdi.

"In fact, the minor details of the role could have been ignored."

(1b) Yönetmen bir sahneyi prova etmek için saatlerini harcamıştı. Tam bir mükemmeliyetçiydi ve rollerin canlandırılmasında çok özen gösteriyordu. Öte yandan, ekibiyle gurur duyuyor ve diğer şirketlerin tekliflerini ısrarla reddediyordu. Özellikle ekibindeki takım ruhuna hayrandı ve onlarla aralarında var olan uyumu başarısının nedeni olarak görürdü.

"The director spent hours to rehearse a scene. He was an exact perfectionist, and was caring a lot to the enacting of the roles. On the other hand, he was proud og his team, and was refusing the offers of the other companies earnestly. Especially, he used to admire the team spirit of them, and he used to think the present rapport among the members of this team was the reason of their success."

Question: Yönetmen çekimde hata istemediği için saatlerdir prova yapıyorlardı.

"As the director didn't want any mistake at shooting, they were rehearsing for hours."

(2a) Polis birden üst kattaki yatak odasındaki gölge ve çarpma sesiyle irkildi.

"Suddenly, the police officer shaddered with the slam and shadow in the bedroom upstairs."

Question: Ses nedeniyle hırsız irkilmişti.

"Because of the slam, the thief shaddered."

(2b) Polis kilitli olup olmadığını anlamak için kapının kolunu salladı. Çevirdiği kapı kolu hiç ses çıkarmadan yavaşça açıldı. Karanlık ve boş evde polis birden üst kattaki yatak

odasındaki gölge ve sesle irkildi. Hırsıza belki de çok yaklaşmıştı ancak ne olup bittiğini anlamadan onu yine elinden kaçırdı.

“Police officer shaked the doorhandle to see whether is locked or not. The handle he turned, was opened without any noise. In the dark and emty house, suddenly, the police officer shaddered with the slam and shadow in the bedroom upstairs. Probably, he was too close to the thief, but before he understoon what was happening, he missed him again.”

Question: Polis hırsızı yine yakalayamamıştı.

“The Police officer couldn’t catch the thief again.”

(3a) Çalımları ve hızlı koşuları nedeniyle çok başarılı olduğu için takım kaptanı olmayı hak etmişti.

“He deserved to be the captain of the team as he was too successful thanks to his running and dribbles.”

Question: Takım lideri olmayı en çok o hak etmişti.

“He was the one who deserved to be the captain of the team most.”

(3b) Takım kaptanı sahada takım arkadaşlarıyla ısınma çalışmaları yapıyordu. Çalımları ve hızlı koşuları nedeniyle çok başarılı olduğu için takım kaptanı olmayı hak etmişti. Zaten takım arkadaşları da lider ruhundan ve samimi tavırlarından dolayı onun kaptan olmasından oldukça memnunlardı. Ancak bu maçlarını da kazanmaları gerekiyordu.

“The captain of the team was limbering up with his teammates. He deserved to be the captain of the team as he was too successful thanks to his running and dribbles. His teammates was also happy with his being captain because of his leading ability and sincere manners. However, they were supposed to win this match as well.”

Question: Takım kaptanının tavırları arkadaşları tarafından pek sevilmiyordu.

“The manners of the team captain were not liked by his teammates.”

(4a) Sonuçta kimse parayı kapıda bulmuyordu ve daha fazla garsonun bu sakarlıklarına anlayış gösteremezdi.

“In the end, nobody finds money in the Street, and he could not show any more understanding.”

Question: Garsonun sakarlıkları onu işinden etmişti.

“The clumsy manners of the waiter made her to lose her job.”

(4b) Garson kız sürekli sakarlık yapıyordu; bardakları taşırken tepsiyi devirmiş, müşterinin üzerine içecekleri dökmüş, hesabı alırken eksik para almıştı. Patronu haklıydı onu kovmakta belki de. Sonuçta kimse parayı kapıda bulmuyordu ve daha fazla onun bu sakarlıklarına anlayış gösteremezdi. Ama keşke onu kovmadan bir kere daha düşünseydi; çünkü bu işe gerçekten çok ihtiyacı vardı.

“The waiter was acting in a clumsy way all the time; she upsetted the tray while carrying the glasses, poured the beverages on a customer and charged another customer less. Maybe, the boss was right to sack her. In the end, nobody finds money in the street, and he could not show any more understanding. However, if only, he had thought about it once more as she needed this job a lot.”

Question: Patron garsonu hiçbir neden olmadan kovmuştu.

“The boss sacked her without any reason.”

(5a) Kuşa iyice dikkat kesilmiş onu izlerken elindeki kahve bardağını birden yere düşürdü.

“Suddenly, she dropped the cup of coffee she was holding to the floor while watching the bird with care.”

Question: Dikkati kahve bardağı yere düşünce dağılmıştı.

“She was distracted when her cup fell into place.”

(5b) Pencereden sessizce dışardaki kuşu seyrediyordu. Bir tuhaflık vardı sanki kuşta. Evet çok güzeldi, güneş ışığında tüyleri parlıyordu ve çok özenli bir gagası vardı. Ancak bir eksiklik vardı bu kuşta. İyice kuşa dikkat kesilmiş onu izlerken elindeki kahve bardağını birden yere düşürdü. Kuş uçamamış ve bir arabanın altında kalmıştı.

“She was watching the bird out of the window silently. It seemed as if there was a strangeness with it. In fact, it was perfect, its featheres were shining with the sunlight and

it had a nice beak. However, there was something missing. Suddenly, she dropped the cup of coffee she was holding to the floor while watching the bird with care. The bird couldn't fly and was run over by a car."

Question: Kahve bardağını düşürmesi kuşun kaçmasına sebep olmuştu.

"Her dropping the cup led the bird run away."

(6a) Usta bir tamirciydi ancak uykusunu alamadığı için yorgundu ve işine yoğunlaşamıyordu.

"He was a skillful mechanic, but as he couldn't sleep, he felt tired and couldn't focus on his job."

Question: Tamirci işinin ehli olmadığı için yine bir işi beceremeyişti.

"He couldn't do the job again as he was not adept at his job"

(6b) Oto tamircisi arabanın altında problemin ne olduğunu bulmaya çalışıyordu. Gün boyu çalışmıştı, ancak hala arabayı tamir edememişti. Usta bir tamirciydi ancak uykusunu alamadığı için yorgundu ve işine yoğunlaşamıyordu. Yağlı kıyafetleri içinde saklı akşam dinlenmekteydi.

"He was trying to understand the problem under the car. He had worked all day, but still he couldn't fix the car. He was a skillful mechanic, but as he couldn't sleep, he felt tired and couldn't focus on his job. He was resting with his oily clothes under the car."

Question: Tamirci iste de aklını bir türlü toparlayamıyordu.

"Even though he tries, he couldn't come to his senses."

(7a) Ya onun huysuz bir patron oluşundan ya da iş yükünden dolayı hemen kaçıyorlardı.

"Either because she was a bad-tempered bos sor because of the work load, they were running away immediately."

Question: Yoğun iş temposundan dolayı çıraklar iyi para kazanıyordu.

"Because of the busy schedule, apprentices were earning lots of money."

(7b) Terzi ilçenin en iyisi olduğu için işleri bahar gelip de turistler akın edince iyice artıyordu. Neredeyse iki aydır iyi bir çırak arıyordu ancak çıraklar uzun süre çalışmadan ayrılıyordu. Ya onun huysuz bir patron oluşundan ya da iş yükünden dolayı hemen

kaçıyorlardı. Ancak o müşterilerini ve itibarını kaybetmemek için gecesini gündüzüne katıyordu. Adeta dişini tırnağına takmış gibi hiç vazgeçmiyordu.

“As tailor was the best of the county, her works increased when the tourists came with the arrival of the spring. For almost two months, she was looking for an apprentice, but the apprentices were leaving without working too much. Either because she was a bad-tempered bos sor because of the work load, they were running away immediately. However, not to lose her customers and reputation, she was working night and day. She was giving up as if she worked tooth and nail.”

Question: O tüm huysuzluklarına rağmen işinin ehli bir terziydi.

“In spite of her all moodiness, she was adept at her job.”

(8a) Aynı zamanda güneş sanki evine doğuyor da hiç çıkmıyor gibi tüm gün oldukça ferahtı.

“Meanwhile, it was so spacious that it was as if the sun was rising to her house and not descending all day”.

Question: Evin cepheleri güneş almaya oldukça elverişliydi.

“The facades of the house were pretty convenient.”

(8b) Yeni evi tam hayallerindeki gibiydi. Üst kattaki odalar herkese yeterliydi ve misafirler için de bir oda vardı. Aynı zamanda güneş sanki evine doğuyor da hiç çıkmıyor gibi tüm gün oldukça ferahtı. Fakat en çok kocaman bahçe onu sevindirmişti çünkü orada dinlenebilecekti.

“The new house was just like she had ever wished. The upstairs rooms were sufficient enough for everyone and there was a room for guests as well. Meanwhile, it was so spacious that it was as if the sun was rising to her house and not descending all day. But, the place which made her delighted most was the huge garden as she could rest there.”

Evin misafirlere kadar olmasa da tüm aile fertlerine yetecek odası vardı.

(9a) Tasarımcıysa bunlara çok kulak asmamaya çalışıyordu.

“However, the designer was trying to ignore all these.”

Question: Bir şeylerin eksikliği tasarımcının söylentilere kulak vermesine sebep oluyordu.

"Inadequacy of some thinhs were leading the designer to care on the rumours."

(9b) Tasarımcının yeni tasarısı şirkette oldukça yankı uyandırmıştı. Bu tasarının yarışmayı kesin kazanacağı şimdiden herkesin dilindeydi. Tasarımcıysa bunlara çok kulak asmamaya çalışıyordu. Herkes merakla onun tasarımı hakkında konuşurken o ise hala tasarısının üzerinde çalışıyordu.

"The new project of the designer created reaction in the company a lot. Everybody was sure that that project was going to win the desing competition. However, the designer was trying to ignore all these. While everybody was talking about his design curiously, he was working on his project."

Question: Yeni tasarım şimdiden çok ses getirmişti.

"The new project created reactions a lot."

(10a) Ormanın içinde sessizce avını yakalamak için gizli köşeye doğru ilerliyordu.

"To catch his victim, he was approaching to the hidden corner silently."

Question: Avını yakalamak için bir köşe arıyordu.

"To catch his victim, he was searching for a corner."

(10b) Avcı omzundaki 20 kilo çantayla dağı tırmanmakta zorlanıyordu. Günün ilk ışıklarıyla yola çıkmıştı. Ormanın içinde sessizce avını yakalamak için gizli köşeye doğru ilerliyordu. Avlanmayı hobi olarak yapıyordu aslında, hayvanları da genel de vurmaktansa korkutup kaçırmayı tercih ediyordu.

"He was struggling with climbing because of his 20 kg bag on his back. He set off in the small hours of morning. To catch his victim, he was approaching to the hidden corner silently. He used to hunt as hobby, and rathern killing the animals he used to prefer scare and maket hem run away."

Question: Avcı hayvan öldürmekten zevk almıyordu.

"The hunter didn't use to like killing animals."

(11a) Her ne kadar öğrencisini çok sevse de ona karşı çıkmıştı.

"Even though he liked his friend, he opposed to him."

Question: Öğrencisine onay vermemişti.

"He didn't approbe his student."

(11b) Tarihçi bir seminer veriyordu. Diğer profesörlerle ve öğrencilerle ateşli bir tartışma içindeydi ve sunumu 2.Dünya Savaşının sebepleri ile ilgili olduğu için konuya oldukça hakimdi. Birdenbire, sunumu öğrencilerinden birinin eleştirisine sebep olmuştu ve her ne kadar öğrencisini çok sevse de kendisini karşı koymaktan alamamış ve birden kendisini öğrencisine herkesin içinde bağırırken bulmuştu.

"He was teaching in seminar. He was in a heavy discussion with the other professors and students, and as his peresentation was about second World war, he used to have a good knowledge of subject. Suddenly, he led to a complaint of one of the students, and even though he likes his friend, he opposed to him, and he found himself while shouting at his student."

Question: Öğrenci konuya hakim olduğu için sunumu bölmüştü.

As the student had a good knowledge of the topic, he interrupted the peresentation.

(12a) Aktör yaklaşık bir saattir içerdeydi ve tek derdi rolü için giyeceği kıyafetin rengini beğenmemiş olmasıydı.

"For almost an hour, the actor was inside, and the only problem was he didn't like the color of the clother he was going to wear."

Question: Aktör rolünü beğenmediği için neredeyse bir saattir içerdeydi.

"As he didn't like his role, the actor was inside for almost an hour."

(12b) Sette çekimler başlamak üzereydi ancak yönetmen, kaprisli aktörü ikna edip de odasından çıkaramamıştı. Yaklaşık bir saattir içerdeydi ve tek derdi rolü için giyeceği kıyafetin rengini beğenmemiş olmasıydı. Aslında bu tarz şımarık tavırları tüm sanat camiası tarafından bilinmesine rağmen aktörün pek çok hayranı vardı. Bu yüzden pek çok filmde rol almıştı.

"In set, movie shooting was about to start, but director couldn't convince the whimsical actor to get out of his room. As he didn't like his role, the actor was inside for almost an

hour. Although his this kind of spoilt manners were known by everyone, he used to have lots of fans, and so he had a role in too many movies."

Question: Aktör kaprisleri yüzünden elindeki işi kaybedecekti.

"Because of his caprices, he was going to lose his job."

(13a) Kendine fazla güvenmesi yüzünden bazen insanlarla tartışma içine giriyordu.

Because of his self-confidence, sometimes he used to discuss with people."

Question: Bencil ruhu insanlarla arasını bozuyordu.

His selfish mood used to destroy his relationships with people."

(13b) Editör, babasıyla Almanya gezisine gitmiş ve ilk romanını yayınlattırmıştı. O andan itibaren gençler ve çocuklar içinde hikayeler ve romanlar yazmaya başlamıştı. Birkaç yıl içinde iyi bir yazar olmuştu ve bir edebiyat dergisinin editörlüğünü yapmaya başlamıştı, fakat dergidekilerle çok iyi anlaşamıyordu. Kendine fazla güvenmesi yüzünden de bazen insanlarla tartışıyordu.

"The editör went to his firt journey with his dad, and published his first novel. Since that day, he had written stories and novels for youngs and children. In a few years, he became a pretty successful writer, and started to be editor of a literature magazine. However, he didn't use to like magazines. Because of his self-confidence, sometimes he used to discuss with people.

Question: Yazarın, romanları başarılı olsa da gençlere hitap etmiyordu.

"Even though his novels were successful, they did not address to the young."

(14a) Genç görünmesine rağmen kalınlaşan sesi onu ele veriyordu.

"Even though she seemed young, her voice was revealing everything."

Question: Kadın yaşından küçük görünüyordu.

"The woman used to seem younger."

(14b) Kadın her zaman olduğu gibi tek başına alışverişe çıkmıştı. Genç görünmesine rağmen kalınlaşan sesi onu ele veriyordu. Satıcılardan pek hoşlanmazdı. Kendi başına alışveriş yapmayı tercih ediyordu ve birileri gelip "ne aramıştınız?" diye sorduğu anda

mağazayı terk etmeyi iyice huy edinmişti. Bu yüzden de alışveriş için sadece belli mağazalara gidiyordu.

"As usual, the woman went to shopping on her own. Even though she seemed young, her voice was revealing everything. She didn't use to like the salesman. She used to prefer to shop on her own, and the moment somebody came and asked what she was looking for, she used to leave the shop immedaitely. Thus, she used to go some specific stores for shopping."

Question: Müşteri alışveriş sırasında kendisine karışılmasından hoşlanmazdı.

"She didn't use to like to be disturbed while shopping."

(15a) Diğer kişilerin sunumlarında sıklıkla sorular sorardı ve sürekli bir tartışmalara yol açardı.

"He used to ask questions often while others were presenting, and he used to lead to some arguments.

Question: Muhalif ruhu onu küçük düşürüyordu.

"His rebellious mood used to lead his humiliation."

(15b) Profesör kendi bölümündeki seminerlere düzenli bir şekilde katılıyordu. Pratik bir zekaya sahipti ve alanında söz sahibiydi. Diğer kişilerin sunumlarında sıklıkla sorular sorardı ve sürekli bir tartışmalara yol açardı. Bu nedenle zaman zaman öğrenciler onunla alay ediyorlardı.

"He used to participate all the seminars at her university. He was a quick-wit and used to have a voice in his field. He used to ask questions often while others were presenting, and he used to lead to some arguments. Thus, someitmes students used to humiliate him."

Question: Profesör, zeki bir adam olduğu için seminerlere katılmaya çok ihtiyaç duymuyordu.

He did not use to need to attent to the seminars as he was a clever person.

(16a) Karanlıkta sessizce geyiğe doğru yaklaşıyordu.

"He was approaching to the deer silently."

Question: Avcı, geyiği kaçırmamak için sessiz hareket ediyordu.

"Not to miss the deer, he was moving silently."

(16b) Kurt ormana doğru yürüyordu. Beyaz çizgili siyah parlak bir kürkü vardı. Diğer kurtlardan daha iri bir hayvandı. Gökyüzüne baktı ve uzun uzun uludu. Bir nehrin yanı başındaydı ve hızla akan su onun ulumasını bastırıyordu. Karanlıkta sessizce geyiğe doğru yaklaşıyordu. Avı için pusuya yatmıştı ve en sonunda avıyla karşılaşmıştı.

"The wolf was walking towards the forest. She used to have a striped black fur, and she used to be bigger there." She looked at the sky, and howled for a long time. Shee was near a river, and the voice of the river was suprassing her howl. She was approaching to the deer silently. She was scuppering, and finally she met it."

Question: Kurt diğer kurtlardan daha zayıftı.
"The wolf was younger than the other wolves."

APPENDIX IV

ETHICS COMITTEE APPROVAL

The ethics Committe Approval whic was taken on 23 November 2015 is given below:

T.C.
HACETTEPE ÜNİVERSİTESİ
Rektörlük

Sayı : 35853172/433-3251

23 Kasım 2015

SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜNE

Enstitünüz İngiliz Dilbilimi Bölümü yüksek lisans öğrencilerinden **Burcu KARADUMAN**'ın **Doç. Dr. Emine YARAR** danışmanlığında hazırladığı **"Türkçe'de Özne ve Nesne İlgi Tümceciklerinin İşlenmesinde Söylem Etkisi: Psikolinguistik Bir Çalışma"** başlıklı tez çalışması, Üniversitemiz Senatosu Etik Komisyonunun **17 Kasım 2015** tarihinde yapmış olduğu toplantıda incelenmiş olup, etik açıdan uygun bulunmuştur.

Bilgilerinizi ve gereğini rica ederim.

Prof. Dr. Ömer UĞUR
Rektör a.
Rektör Yardımcısı

Ek: Tutanak

Hacettepe Üniversitesi Rektörlük 06100 Sıhhiye-Ankara
Telefon: 0 (312) 305 3001 - 3002 • Faks: 0 (312) 311 9992
E-posta: yazimd@hacettepe.edu.tr • www.hacettepe.edu.tr

Ayrıntılı Bilgi için:
Yazı İşleri Müdürlüğü
0 (312) 305 1008

APPENDIX V

ORIGINALITY REPORT

HACETTEPE UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
MASTER'S THESIS ORIGINALITY REPORT

HACETTEPE UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
ENGLISH LINGUISTICS DEPARTMENT

Date: 02.07.2018

Thesis Title : The Role Of Context On Processing Of Turkish Subject And Object Relative Clauses

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I declare that I have carefully read Hacettepe University Graduate School of Social Sciences Guidelines for Obtaining and Using Thesis Originality Reports; that according to the maximum similarity index values specified in the Guidelines, my thesis does not include any form of plagiarism; that in any future detection of possible infringement of the regulations I accept all legal responsibility; and that all the information I have provided is correct to the best of my knowledge.

I respectfully submit this for approval.

Date and Signature

Name Surname: Burcu BORAN
Student No: N13228080
Department: English Linguistics
Program: Master of Arts in Linguistics in English-MA

02.07.2018

ADVISOR APPROVAL

APPROVED.

DOÇ. ASSOC. PROF. DR. EMİNE YARAR

(Title, Name Surname, Signature)

APPENDIX VI

ORİJİNALLİK RAPORU

HACETTEPE ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
YÜKSEK LİSANS TEZ ÇALIŞMASI ORİJİNALLİK RAPORU

HACETTEPE ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
İNGİLİZ DİLBİLİM ANABİLİM DALI BAŞKANLIĞI'NA

Tarih 02/07/2018

Tez Başlığı : Türkçede Özne ve Nesne Ortaçlarının İşlenmesinde Bağlamın Etkisi

Yukarıda başlığı gösterilen tez çalışmamın a) Kapak sayfası, b) Giriş, c) Ana bölümler ve d) Sonuç kısımlarından oluşan toplam 108 sayfalık kısmına ilişkin, 02/07/2018 tarihinde şahsım/tez danışmanım tarafından Turnitin adlı intihal tespit programından aşağıda işaretlenmiş filtrelemeler uygulanarak alınmış olan orijinallik raporuna göre, tezimin benzerlik oranı % 6 'tür.

Uygulanan filtrelemeler:

1- ☑ Kabul/Onay ve Bildirim sayfaları hariç
2- ☑ Kaynakça hariç
3- ☑ Alıntılar hariç
4- ☐ Alıntılar dâhil
5- ☑ 5 kelimeden daha az örtüşme içeren metin kısımları hariç

Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü Tez Çalışması Orijinallik Raporu Alınması ve Kullanılması Uygulama Esasları'nı inceledim ve bu Uygulama Esasları'nda belirtilen azami benzerlik oranlarına göre tez çalışmamın herhangi bir intihal içermediğini; aksinin tespit edileceği muhtemel durumda doğabilecek her türlü hukuki sorumluluğu kabul ettiğimi ve yukarıda vermiş olduğum bilgilerin doğru olduğunu beyan ederim.

Gereğini saygılarımla arz ederim.

Tarih ve İmza
02.07.2018

Adı Soyadı: Burcu Boran
Öğrenci No: N13228080
Anabilim Dalı: İngiliz Dilbilimi
Programı: Tezli Yüksek Lisans

DANIŞMAN ONAYI

UYGUNDUR.

DOÇ. DR. EMİNEL YARAR
(Unvan, Ad Soyad, İmza)