

A PSYCHOLINGUISTIC APPROACH
TO WH-CONSTRUCTIONS IN TURKISH

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KABUL VE ONAY

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ÖZET

AKAL, Taylan. *Türkçe'deki Ne-Yapılarına Ruhdilbilimsel Bir Yaklaşım*. Yüksek Lisans Tezi, Ankara, 2006.

Çeşitli dillerdeki ne-yapıları dönüşümsel-üretici dilbilgisi kuramı çerçevesinde pek çok dilde uzun zamandır incelenmektedir. Söz konusu kuramda, ne-öbeklerinin sözdizimsel özellikleri üzerine Sesçil Yapıda yer değiştirme ve Mantıksal Yapıda yer değiştirme olmak üzere iki yaklaşım geliştirilmiştir. Bu teorik kavramların çizdiği sınırlar içerisinde diller ne-taşıma özelliğine sahip olan diller ve ne-yapılarının yer değiştirmedikleri diller olarak sınıflandırılmıştır. Son yıllarda, ne-soru sözcükleri dil yapılarının incelenmesinde konuşucuların algılarının dikkate alınmasını sağlayan ruhdilbilimsel çerçevede de çalışılmaya başlanmıştır.

Bu çalışmada, Türkçe'deki karmaşık tümcelerde ne-soru sözcükleri, bu konuda yeni sayılabilecek bir yöntem olan ruhdilbilimsel bakış açısıyla incelenmiştir. Farklı ne-soru sözcüklerinin çalkalama özellikleri, tümleç yan tümcesi ekleri ve bunların farklı ne-soru sözcükleriyle olan etkileşimlerinin incelenmesi için kırk-iki tümceden oluşan bir anket altmış-dokuz deneğe uygulanmıştır. Her denekten tümceleri (1) soru, (2) ifade, (3) hem soru hem ifade, (4) hiçbiri şeklinde işaretlemeleri istenmiştir.

Çalışma sonunda, Türkçe karmaşık tümcelerde ne-sözcüklerinin farklı sözdizimsel konumda bulunabileceği ve ne-soruları oluşturabileceği, tümleç yantümcesi eklerinin ve farklı ne-sözcüklerinin de karmaşık tümcelerin algılanmasında kimi zaman farklılıklara yol açtığı bulunmuştur.

Anahtar Sözcükler:

Sesçil ve Mantıksal Yapı, ne-taşıma, ne-yer koruma, tümleç yantümcesi ekleri

ABSTRACT

AKAL, Taylan. *A Psycholinguistic Approach to Wh-Constructions in Turkish*. Master's Thesis, Ankara, 2006.

Wh-constructions in various languages have long been studied in generative grammar. Within this framework, two approaches have been developed on the syntactic properties of wh-constructions as the movement of wh-phrases at Phonetic Form (PF) and at Logical Form (LF). In the limitations of these theoretical notions, languages have been classified as wh-movement and wh-in-situ languages. In recent years, also the study of wh-constructions through a psycholinguistic framework has emerged which allows to take into consideration the perceptions of speakers.

In this study, wh-constructions in Turkish complex sentences are analyzed through a psycholinguistic perspective which may be considered to be a novel approach to the study of wh-constructions in Turkish. In order to identify the scrambling properties of different wh-words, and the effects of complement clause markers (–mA and –DIk), a questionnaire including forty-two items was administered to sixty-nine subjects. Each subject is asked to mark each sentence using one of the following options: (1) “question”, (2) “statement”, (3) “both a question and statement” and (4) “neither question nor statement”.

At the end of the study it is found that wh-words may occur in various positions and form direct wh-questions. It is also identified that complement clause markers and different wh-words lead to differentiation in perceptions of Turkish complex sentences.

Key Words

Phonetic and Logical Form, wh-movement, wh-in-situ, complement clause markers

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CHAPTER 1

INTRODUCTION

1.1. OVERVIEW

Humans experience some psychological processes while they acquire and establish the rules of language they speak; therefore, psycholinguistics may be defined as the experimental study of these processes (Caron, 1992:1). In other words, psycholinguistics is the study of the mental processes and skills underlying the production and comprehension of language and of the acquisition of these skills. The fundamental aim of psycholinguistic study is to identify how language comprehension and use occur and how infants acquire the ability of comprehending and using language so rapidly. The reason lying beneath this aim is, of course, the importance of human language as being one of the mankind's most complex systems of behavior (Gleason and Ratner 1998:4).

Psycholinguistics, which may be called the psychology of language, tries to identify the psychological processes through the help of which humans acquire and use language (Harley, 2001:12). Similarly, Garnham (1985:1) defines psycholinguistics as a scientific discipline studying the mental mechanism which provides people to use language and the goal of which is to put forward a logically ordered or integrated theory of how language is produced and comprehended. Another definition of psycholinguistics is from Carroll (1994:6-7) as a part of cognitive science for the psychological study of language.

Harley (2001:11-12) states that psycholinguistic topics were first discussed in a conference gathered in Cornell, USA, in 1951. The term "psycholinguistics" was introduced through an influential interdisciplinary seminar by Osgood and Sebok in 1953, and later through the inspiring cooperation between George Miller and Noam Chomsky. However, the history of psycholinguistic studies goes back to the 19th

century. For instance, word associations and slips of the tongue were studied through a modern perspective in the late 19th century (Harley, 2001:11-12).

Wilhelm Wundt was an important figure in early scientific psychology. He was regarded by Blumenthal (1970 in Carroll, 1994:13) as the master psycholinguist since Wundt studied about many different aspects of language. Wundt believed that the studies carried on revealing the nature of the mind may well be assisted by the study of language. Taking these as the ground, his main concerns included grammar, phonology, language comprehension, child language acquisition, and sign language reading. He regarded production of speech as the transformation of a complete thought process into ordered speech segments and he considered the sentence as the primary unit of language (Carroll, 1994:13).

By the beginning of 1920s behaviorism became a dominant trend of thought in psychological endeavor (Carroll, 1994:13). Behaviorism is generally associated with the school in psychology which was founded by J.B. Watson in 1913 with a highly significant article "Psychology as the behaviorist views it" (Carroll, 1994:13). This was a serious anti-mentalistic approach, and it was so persuading that it developed into the major movement within American psychology, for the first half of the century and even into 1950s (Mey, 1995:85). The scientists who had a behavioristic point of view favoured the study of objective behavior and not the study of mental processes. As a result of this trend, psychologists' interest in human language between 1920s and 1950s was mainly formed around verbal behavior. Behaviorists believed in the role of experience in shaping behaviour and their major possibilities on the nature of experience were reinforcement and punishment. One of the most important figures of psycholinguistics having a behavioristic approach was B.F. Skinner (Garnham, 1985:21). Skinner dealt with the effects of parents' language on children's utterances. His framework could be drawn as encapsulating two related assumptions: first, behavior should be explained in terms of input and output laws, and second, an organism's mental state is not relevant to understanding what it does, no intervening variables enter into the explanation of behavior (Garnham, 1985:21). Following this study, behavioristic research was on the way of providing evidence for its basic claim that the

verbal behavior could be conditioned by reinforcement. Carroll (1994:12-13) states that in 1950s some evidence on the role of reinforcement in emphasizing the usage of some word classes in conversation were brought. Carroll (1994:12-13) further indicates that another subject matter was meaning, and the number of associations produced by a person in a limited time in order to constitute an index of the meaningfulness of individual words was among the study areas of psycholinguistics in the same decade.

As a whole, this behavioristic trend of the related period affected not only the psychological but also the linguistic studies. Linguists of the mentioned era avoided referring to mental processes and adopted a behavioristic framework. For instance, even Bloomfield, the student of Wundt who thought that the production of speech was the transformation of a complete thought process into ordered speech, tried to remove himself from his previous point of view and adopted a behavioristic one (Carroll, 1994: 12-13).

The emergence of modern psycholinguistic study can be stated to have started after Noam Chomsky's review of Skinner's *Verbal Behavior* (Harley, 2001:11-12). It can be regarded as the beginning period of the close relationship between Chomskyan approach to language and psycholinguistics. The development of the modern psycholinguistic endeavor may be regarded as corresponding to the period in the early and mid-1960s when psycholinguists tried to relate language processing to transformational grammar.

The emergence of transformational generative (TG) grammatical framework changed the study of language structure and its mental representation (Gleason and Ratner, 1998). The term psycholinguistics began to be used in scientific writing in the 1950s and by the assistance of the approach of Chomsky's *Syntactic Structures* (1957), it had general acceptance (Prideaux, 1995:435). Chomsky had a very effective role in the way of psychologists' perceiving language since he proposed basically that the accounts of behaviorists about language were inadequate. Actually, Chomsky accepted much of Skinner's thoughts as superficially plausible. But instead, Chomsky proposed that there was no direct and satisfactory explanation on terms such as "stimulus", "response", and

“reinforcement”. Thus, the plausibility came from an equivocation on the meaning of these terms. He believed that linguistic behavior could not be resolved just by environmental characteristics and so the programme of Skinner could fail. It is the internal processing of the living organism that contributes to the determination of the behavior (Garnham, 1985:22). Chomsky argued that the study of language could well be a helpful instrument for revealing the working system of human mental processes (1957, 1959, 1968 in Carroll, 1994:15). The program of Chomsky was linguistically aimed at providing a theory of grammar and describing the competence of the native speaker. Besides this, it is argued that psychologists’ task was to examine how that theory was incorporated into a theory of language performance. This collaboration then led to the “derivational theory of complexity” (Prideaux, 1995:435). The theory stated that a sentence has a procedure of formal derivations within a generative grammar, and these derivations are mirrored within the mind of the speaker producing, or hearer comprehending that sentence (Prideaux, 1995:435).

It is possible to see the effect of TG on psycholinguistics on the studies of George Miller. As a bridge between psychology and linguistics, Miller had a significant role. He was effective in integrating psychological theories and their implications into Chomsky’s transformational generative grammar. He based his early psycholinguistic experiments on the theory proposed in Chomsky’s *Syntactic Structures* (Garnham, 1985:31). Miller was an important figure of research to determine the psychological reality of linguistic rules (Carroll 1994: 16). He provided the theoretical concept “chunks” which refers to any kind of information such as digits, words, or people’s faces that short-term memory could hold.

The TG model was thought to have a psychological reality and to support finding a description of how language producers and hearers actually produce and understand sentences (Miller and Chomsky, 1963 in Gleason and Ratner 1998: 23).

As Field (2003:123) states, in the 1970s the popular topic in psycholinguistics was the derivational theory of complexity. This theory tried to prove that the linguistic structure constituted the linguistic material which people handled linguistically and this was the

way described in a transformational generative model proposed by Chomsky in 1965. (Gleason and Ratner, 1998:20). Chomsky makes a distinction between competence and performance, and described the former one as the abstract system of rules and principles that is part of the speaker's grammatical knowledge, and the latter one as the actual use of language in concrete situations (Gleason and Ratner 1998: 20).

The role of innate factors was emphasized with the development of theoretical analysis, and Chomsky was not only influential figure in this regard. Lenneberg (1967, in Carroll, 1994:16-17) provided an important data for the role of innate factors in language development by examining aphasia, delayed language development, e.g. mental retardation, and available neurophysiological information. Thus, it is possible to state that 1960s and 1970s emphasized the importance of linguistic theory in psycholinguistic research and the role of innate mechanisms in language acquisition (Carroll 1994: 16 - 17).

Government and Binding Theory (GB), which was first introduced by Chomsky in 1981, modernized phrase structure rules and reduced the number of transformational rules as one rule named as movement of "heads" or "phrases". In relation to the notion of movement, the "trace" concept was brought into usage. In psycholinguistics, the trace theory was also supported by many current psycholinguistic research based on event-related potentials (ERPs) which measures the brain activity during sentence processing. (Gleason and Ratner, 1998: 25). ERPs shed light on the brain's behavior during language comprehension tasks (Garnsey, 1993). According to the related studies, readers seem to reactivate the trace in its original place, i.e. the place where it moves from during the reading process.

Carroll (1994:18) indicates that psycholinguistic research has become more interdisciplinary and has begun to be considered as a portion of the interdisciplinary field of cognitive science. Also, after the Chomskyan revolution, the interest in syntax has had an important impact on psycholinguistic research.

Through a general look at the developmental process of psycholinguistic endeavor, it is possible to observe that 1960s and 1970s emphasized the role of linguistic theory in psycholinguistic research and the role of innate mechanisms in language. However, over time this interest began to wane. The late 1960s witnessed a growth in the number of references to Chomsky, 1970s was the most striking period, and in the 1980s the interest began falling down (Reber, 1987, in Carroll, 1994: 17).

Gleason and Ratner, (1998:38) states that in recent years the principles of transformational grammars such as government and binding theory have been tried to be related with sentence processing, child language acquisition and language disorder which are among the study areas of modern psycholinguistics in 1990s and 2000s.

Regarding topics studied in psycholinguistics, it can be stated that three topics are much more dominant: (1) comprehension, i.e. how people understand spoken and written language; (2) speech production, i.e. how humans produce language, and (3) acquisition, i.e. how people acquire language, shortly saying understanding, articulating, and remembering the language humans use are the topics of psycholinguistics in general (Gleason and Ratner, 1998:2-4).

The area of language comprehension includes the analysis of following topics: comprehension process at many layers such as the interpretation of speech signals by listeners, the processing of words, the way of analyzing the grammatical structures of sentences in order to capture larger units of meaning and how the longer conversations, or written texts are formulated. These issues are investigated under the general title of comprehension of spoken and written language (Gleason and Ratner, 1998:3-4).

As a matter of language comprehension, psycholinguistics tries to find out the recognition of words, the determination of a sentence, the computation of its meaning, the integration of that meaning with the prior information and the way of articulating the intended message (Garnham, 1985:4).

The process of putting concepts into linguistic forms is not observable. Thus, it is very difficult to shed light on this complex process. As a result, speech errors and breaks in the ongoing rhythm of connected speech constitute the major data source of the speech production studies in psycholinguistic endeavor. The acquisition of language, which is mentioned as the third major subject of psycholinguistics, makes use of analyzing the process of children's acquiring language (Gleason and Ratner, 1998:34).

The current study fields of psycholinguistics may be stated under five major topics as modularity and interactivity, comprehension, production, language acquisition, and lexical processing (Prideaux, 1995:436).

Modularity deals with the autonomy of syntactic, semantic, discorsal and pragmatic components in processing. An opposite view to this is "the interactive model of processing". According to this point of view, semantic and syntactic processing operate at the same time (Prideaux, 1995:436). The interactive model of processing provides an explanation on the subject matter by the help of two kinds of processes as bottom-up processing and top-down processing. Bottom-up processing defines the listener's way of analyzing speech as an activity beginning first with the recognition of speech signals at the level of acoustic waveform to the level of recognizing the phonemes, words, sentence structure and at last the semantic relations between the elements and the meaning given by the whole phrase. The top-down process may be regarded as the opposite of the former. The listener uses the information acquired by the preceding conversation and this helps the reader to develop expectations about what they have yet to hear. Top-down processing is the usage of this knowledge in order to make clear, accelerate, or facilitate the processing of emerging information from bottom-up sources (Gleason and Ratner, 1998: 247).

The striking effect of developing theories which try to emphasize the collaborative work of contextual, semantic, pragmatic, and syntactic aspects in developing meaning representation of a sentence is its uniting psychological principles such as memory constraints, attention effects, and information processing considerations with the

recognition of a language user to have access to a knowledge of his/her own linguistic structures.

Contrary to interactivists who state that comprehension involves a knowledge of syntactic structure, parsing theorists focus their attention on how the hearer constructs syntactic representations. In the beginnings of 1980s, it is accepted by the parsing research programmers that the syntactic constructions constructed by listeners are of the form which would be assigned to the sentences by a generative grammar (Prideaux, 1995:438). Clifton and Frazier (1989: 273) argue that in the process of comprehending a sentence, a reader or listener comprehends its grammatical constituents and their relationships.

Along with the problems of comprehension, production of human speech has also been a major topic for psycholinguistic study. One of the ways of providing indirect evidence for the units, stages, and cognitive processes involved in speech production is analyzing the slips of the tongue (Gleason and Ratner 1998: 312).

Besides the studies of slips of the tongue, with the help of the developing technology, fMRI (functional magnetic resonance imaging system) has begun to be used in psycholinguistic studies in order to find out which parts of the brain are activated by different types of physical activities.

Aphasia, a loss or impairment of the ability to produce or comprehend language due to brain damage, is a widely investigated topic under psycholinguistic studies. This impairment called aphasia is considered by Bates and Wulfeck (1991) as a source for analyzing the way of the organization for processing language of the brain.

In psycholinguistics, several data collection tools are used. One of them is the administration of questionnaires. In many psycholinguistic studies, questionnaires have commonly been employed to collect data. For instance, Vincenzi and Job (1993) use two questionnaires and a reading time experiment in order to investigate the application

of late-closure principle in the interpretation preferences in sentences containing a complex noun phrase followed by a relative clause in Italian.

Cenoz (1997) studies the oral production of students in a Basque school where English is taught as a third language to native speakers of Basque and Spanish. In this study, a wordless picture story and a questionnaire to assess the knowledge and usage of Basque in their social networks are administered to ninety elementary and secondary students.

The study of Popiel and McRae (1988) is another example of a psycholinguistic study which have made use of questionnaires as a data collection tool. They use a questionnaire with thirty different idiomatic expressions, and administer it to sixty-nine college students. The aim of the study is to get the interpretations of the subjects about the idiomatic expressions as literal or figurative.

Yarar (2005) examines the interaction of Turkish suffix –Ebil with the verb stem Ol- in Turkish subordinate clauses by administering a two-stage questionnaire for a group of subjects to determine under which conditions these two constructions lead to grammatical patterns.

Emeksiz (2006) also uses questionnaires. In her study, she examines the definiteness status of bare subject noun phrases in Turkish. She uses two different perception tests in order to shed light to how actual receivers interpret bare subjects in the preverbal position in Turkish.

Thus, it is possible to argue that questionnaires are one of the well-established ways of gathering data in psycholinguistic study of language.

1.2. STATEMENT OF THE PROBLEM

In Turkish, whereas the positions of the wh-word in a sentence are studied from a purely syntactic point of view, it has never been analyzed in the framework of psycholinguistic perspective.

Besides the lack of a psycholinguistic study on the positions of wh-words in sentences in Turkish, the existing studies on the subject-matter have been carried out only by considering mostly simple sentence structure. The positions of wh-words in Turkish complex sentence structure have not been studied in detail.

Another missing point is the perception of wh-words in complex sentences due to different landing sites out of scrambling. In other words, the effects of the scrambled wh-words on the perception of complex sentences have not been analyzed employing an experimental perspective.

Furthermore, the interaction of wh-words with subjunctive complement clause suffix –mA and indicative complement clause suffix –DIk has not been studied adopting an experimental perspective.

Therefore, the current study attempts to identify the effects of three variables (word order, two complement clause markers and different wh-words) on the perception of complex sentences as direct or embedded wh-questions.

1.3. AIMS OF THE STUDY

Taking into consideration the facts stated above, the aims of the study are as follows: (1) to determine the interaction of wh-words with subjunctive (-mA) and indicative (-DIk) complement clause markers on the perception of sentences as interrogatives or statements, (2) to examine if there is any difference in the perception of sentences as direct or embedded wh-questions, resulting from the use of distinct wh-words (wh-

adjuncts and wh-arguments), and (3) to examine the effect of the scrambled wh-words on the interpretation of sentences as interrogatives or statements.

1.4. RESEARCH QUESTIONS

This study tries to answer the following research questions which are in parallel to the aims of the study mentioned above.

1. Do the complement clause markers –mA, and –DIk lead to any difference in the perception of sentences? In other words, do these two complement clause markers differ in terms of their interaction with different wh-words?
2. Do the different wh-words (wh-adjuncts “*ne zaman*”, “*neden*”, “*kiminle*”, and wh-argument “*neyi*”) have distinct effects on the perception of complex sentences as interrogative or statement?
3. What are the effects of scrambling of wh-words on the perception of complex sentences as interrogatives or embedded wh-questions?

1.5. METHOD

1.5.1. Subjects

The sample of the study includes sixty-nine subjects who are all undergraduate students in three different departments of Hacettepe University. Twenty-eight of the subjects are sophomores in the Department of Information Management. Fifteen are juniors in the Department of Philosophy, and twenty-six are seniors in the Department of Sociology. The gender, age, and socioeconomical status of the subjects were not taken into

consideration. The only criterion crucial for the study was the subjects' being native speakers of Turkish.

1.5.2. Data Collection Tool

As mentioned earlier, questionnaires are widely accepted and commonly used means of data collection in psycholinguistic research in recent years. Questionnaires are stated as being the most often employed data collection devices in statistical work (Dörnyei, 2003:3). In questionnaires, the items are given as questions or as statements to the subjects. The answers written or chosen by the subjects are received in order to be used for statistical estimations (Brown, 2001:6 in Dörnyei, 2003:6).

Questionnaire items may be categorized as close- and open-ended items. The subject chooses the possible answer given by the researcher in a closed-item questionnaire, whereas the respondents reply the questions in any manner they see suitable in an open-ended questionnaire (Mackey and Gass, 2005: 93). It is also stated by Mackey and Gass (2005) that closed-item questionnaires have a greater reliability since they involve a better uniformity of measurement, and the answers received by close-ended questions can be easily quantified and analyzed.

Konieczny (2000) states that when a questionnaire is administered to the subjects, they respond to what they read in a questionnaire. Therefore, questionnaire acceptability judgements are usually considered to reflect the preferences of the subjects in language perception. Thus, in this study, the off-line data on the perceptions of complex sentences with wh-words were gathered through the questionnaire which includes close-ended items developed by the author.

The questionnaire used in the study consists of forty-two items (Appendix). Thirty-two of these items include sentences with wh-complement clauses. The remaining ten items are filter sentences which do not include any wh-complement clause.

Each item in the questionnaire includes one of the four wh-words (wh-adjuncts: *ne zaman* “when”, *neden* “why”, *kiminle* “with whom” and wh-argument *neyi* “what-Acc”) and one of the complement clause markers (subjunctive –mA and indicative –DIk). Four different word order variations are tested in the study. Therefore, items in the questionnaire are developed to test the effects of three variables of the study: word order, complement clause markers and wh-words. Word order variations tested in the study are as follows:

Word Order 1

Wh-Adjunct – Subject1 – Subject2 – Verb1 – Verb2¹

Neden/Ne Zaman/Kiminle Ayşe Ali'nin gel-me-si-ni / gel-diğ-i-ni söyle-di
 Why/When/With Whom Ayşe-Nom Ali-Gen come-SC-3rd-Sg-Acc / come-IC-3rd-Sg-Acc say-Past-3rd -Sg
 Why/When/With Whom did Ayşe say that Ali should come/came?

Wh-Argument – Subject1 – Subject2 – Verb1 – Verb2

Ney-i Ayşe Ali'nin yap-ma-sı-nı/ yap-tığ-ı-nı söyle-di
 What-Acc Ayşe-Nom Ali-GEN do-SC-3rd-Sg-Acc / do- IC-3rd-Sg-Acc say-Past-3rd -Sg
 What did Ayşe say that Ali should do/did?

Word Order 2

Subject1 – Wh-Adjunct – Subject2 – Verb2 – Verb1

Ayşe Neden/Ne Zaman/Kiminle Ali'nin gel-me-si-ni / gel-diğ-i-ni söyle-di
 Ayşe-Nom Why/When/With Whom Ali-Gen come-SC-3rd-Sg-Acc / come-IC-3rd-Sg-Acc say-Past-3rd -Sg
 Why/When/With Whom did Ayşe say that Ali should come/came?

Subject1 – Wh-Argument – Subject2 – Verb2 – Verb1

Ayşe Ney-i Ali'nin yap-ma-sı-nı/ yap-tığ-ı-nı söyle-di
 Ayşe-Nom What-Acc Ali-GEN do-SC-3rd-Sg-Acc / do- IC-3rd-Sg-Acc say-Past-3rd -Sg
 What did Ayşe say that Ali should do/did?

¹ Subject1: Subject of the main clause
 Subject2: Subject of the embedded clause
 Verb1: Verb of the main clause / the matrix verb
 Verb2: Verb of the embedded clause / the embedded verb

Word Order 3

Subject1 – Subject2 – Wh-Adjunct – Verb2 – Verb1

Ayşe Ali'nin Neden/Ne Zaman/Kiminle gel-me-si-ni / gel-diğ-i-ni söyle-di
 Ayşe-Nom Ali-Gen Why/When/With Whom come-SC-3rd-Sg-Acc / come-IC-3rd-Sg-Acc say-Past-3rd -Sg
 Why/When/With Whom did Ayşe say that Ali should come/come?
 Ayşe said Why/When/With Whom Ali should come/come.

Subject1 – Subject2 – Wh-Argument – Verb2 – Verb1

Ayşe Ali'nin Ney-i yap-ma-sı-nı / yap-tığ-ı-nı söyle-di
 Ayşe-Nom Ali-Gen What-Acc do-SC-3rd-Sg-Acc / do- IC-3rd-Sg-Acc say-Past-3rd -Sg
 What did Ayşe say that Ali should do/did?
 Ayşe said what Ali should do/did.

Word Order 4

Subject1 – Subject2 – Verb2 – Wh-Adjunct – Verb1

Ayşe Ali'nin gel-me-si-ni / gel-diğ-i-ni Neden/Ne Zaman/Kiminle söyle-di
 Ayşe-Nom Ali-Gen come-SC-3rd-Sg-Acc / come-IC-3rd-Sg-Acc Why/When/With Whom say-Past-3rd -Sg
 Why/When/With Whom did Ayşe say that Ali should come/come?

Subject1 – Subject2 – Verb2 – Wh-Argument – Verb1

Ayşe Ali'nin yap-ma-sı-nı / yap-tığ-ı-nı Ney-i söyle-di
 Ayşe-Nom Ali-Gen do-SC-3rd-Sg-Acc / do- IC-3rd-Sg-Acc What-Acc say-Past-3rd -Sg
 Ayşe said what Ali should do/did.

1.5.3. Procedure

Before administering the questionnaire, a pilot study was carried out on a small group of students (n=24). Mackey, and Gass, (2005:43) define pilot testing as a small-scale trial of the procedures, materials, and methods which have been considered to be the major components of the study beforehand. The objective of a pilot study is to develop the questionnaire, to detect the problems and if it is necessary to revise and finally come to a certain conclusion about the way of presentation of the materials and the methods of the study (Mackey and Gass, 2005:43). The pilot questionnaire was administered to twenty-one senior students of the Department of English Linguistics of Hacettepe university. After the pilot study, it was realized that a shorter instruction section would

be enough for the participants to accomplish the task and decided to shorten the instruction section of the study.

During the administration of the questionnaire which was realized in 2005-2006 spring semester, the subjects were informed on the content of the study very briefly. It was explained that this study was not interested in the level of the subjects' command of Turkish. Each subject was asked to mark each sentence using one of the following options: (1) "question", (2) "statement", (3) "both a question and statement" and (4) "neither question nor statement".

1.5.4. Data Analysis

The data obtained were analyzed using SPSS 11.00. Since the study aims at identifying the effects of three variables (word order, two different complement clause markers, and four wh-words) on the interpretation and perception of complex sentences as interrogatives or embedded wh-questions, the effects of each variable were found out in terms of percentage and frequency.

1.6. OUTLINE OF THE STUDY

This study includes four chapters. The first chapter includes a general introduction for psycholinguistics, the statement of the problem, aims, research questions, method, subjects, data collection and analysis methods.

The second chapter includes a specific background information for the related topic. The general information about the position and movement condition of wh-words both in Turkish and in other languages from a syntactic and psycholinguistic point of view is also given in this chapter. Additionally, the review of similar studies is provided in the second chapter.

The third chapter includes the data analysis and discussion of the study. It provides the detailed statistical findings gathered out of the questionnaire with tables together with the interpretation of the statistical data in the light of previous studies.

The final chapter presents the results of the study and answers of the research questions together with future remarks.

CHAPTER 2

BACKGROUND TO THE STUDY

Chapter 2 includes the following topics which constitute the theoretical framework of the study: wh-constructions in the framework of generative grammar, the definitions of wh-movement and wh-in-situ, approaches to wh-in-situ, wh-questions and wh-complements in different languages, wh-words and wh-phrases in Turkish, wh-complement clauses in Turkish, features of scrambling and scrambled wh-phrases in Turkish, and psycholinguistic analysis of wh-constructions.

2.1. WH-CONSTRUCTIONS WITHIN THE TENETS OF GENERATIVE GRAMMAR

Carnie (2002:281) states that there are several different kinds of questions, two of which are majorly yes/no questions and wh-questions. Wh-questions take their names mostly by the first letters of the words that represent them. e.g. in English *who/whom, what, when, where, why, which, and how*. The phrase which contains one of the wh-words is called a wh-phrase (Cook and Newson, 1996:199).

In regard to wh-constructions, languages have been classified into wh-in-situ languages and wh-movement languages. For instance, English is said to have overt syntactic wh-movement since wh-phrases are overtly displaced in English. i.e. a wh-movement at syntactic level. Chinese and Japanese, on the other hand, are said to have covert wh-movement, i.e. wh-phrases do not have to be displaced in overt syntax (Watanabe, 2003:203).

Similarly, Bruening and Tran (2004) indicate that in all languages, it is possible to observe wh-phrases to have movement through clause initial position to construct an operator – variable relation. They further state that languages may differ according to

the place of this movement. The movement may take place either in PF (Phonetic form), in other words, overt syntax or in LF (Logical Form) in the Chomskyan sense¹.

2.1.1. WH-MOVEMENT IN OVERT SYNTAX

Carnie (2002:321) states that mainly two kinds of movement are defined in generative grammar as the movement which takes place between the D-structure and S-structure called overt movement and the movement which happens between S-structure and LF called covert movement. The notion of overt movement is related to wh-movement, whereas covert movement refers to wh-movement at LF.

Dong (2003) states that the original wh-movement theory was developed for the English type languages in which the complement (C) has two features as [+Q] and [+WH]. The [+Q] feature encodes the interrogative force of a sentence and the [+WH] feature selects a wh-question and needs to be checked. In order to account for wh-movement in overt syntax, consider the following two sentences:

- (1) David cleaned the window.
- (2) What did David clean?

In sentence (1) *David* is the agent, and *the window* is the theme. In sentence (2), *David* is again the agent and *what* is the theme. In sentence (1), the theme is the object of the verb, and follows it in the surface structure according to word order. But in sentence (2), the theme is *what* and it is at the beginning of the clause, i.e it is in a clause-initial position in overt syntax (Dong, 2003).

¹ Chomsky (1995:14-21) states that a language specifies an infinite range of symbolic objects called as structural descriptions (SDs). SDs provide data on the properties of each linguistic expression, including its sound and meaning. One of the symbolic systems is the level of Phonetic Form (PF) which specifies the aspects of sound, the concrete output of the language, and the other is the level of Logical Form (LF) specifying the meaning, which is at the same time the abstract notion constructed in the minds of the language users.

Cook and Newson (1996:200) states that there must be an empty position in the D-structure at the beginning of the sentence in order for the wh-word to move and it is the structure of CP which provides the empty specifier position. Wh-movement takes a wh-phrase from an argument position (A-position) and moves it to the specifier of CP.

Regarding the reason of the movement of wh-phrases, Shima (1999) and Lubanska (2005) state that the operation of movement is initiated by the need for features to be checked within the framework of the Minimalist Program. Also, Carnie (2002:285) states that a wh-phrase is said to move to the specifier of CP in order to check [+WH] feature.

Miyagawa (2003) proposes that in a wh-question, the root C carries the question force, and this feature on the C is linked with the wh-phrase in order to form a question, and this linkage in a wh-movement language is realized by moving the wh-phrase into the specifier of CP headed by the question C, in overt syntax.

Miyagawa (2003) states that the presence of wh-movement in English may be explained under the assumption of Fukui stating that functional heads project specifier positions, and these specifier positions should be occupied by an element which provides the agreement relation satisfied as S-structure between the head and the specifier.

Kuroda (1988 in Miyagawa: 2003) also argues that English is a forced agreement language. Therefore, it requires wh-movement in order to provide the agreement between the relevant feature on C and its specifier.

Thus, English is a language allowing wh-movement in overt syntax, i.e. the movement of the wh-phrase occurs in the phonetic form. By taking this idea as the base, Lubanska (2005) states that while some languages allow partial movement, some do not. If a language allows partial wh-movement, then [+focus] feature caused this overt movement. If partial movement is not allowed by a language, a [+WH] feature makes the movement start. In English, no partial movement is allowed, and the movement is

caused by the need to check a strong [+WH] feature, but not [+focus] feature. So, it is possible to infer that English is classified as a language having an overt wh-movement.

2.1.2. WH-IN-SITU

As it is stated above, Carnie (2002:321) indicates that mainly two kinds of movement are defined in generative grammar as the overt movement and covert movement. Covert movement takes place between S-structure and LF. Carnie (2002:321) further indicates that the notion of covert movement is related to wh-in-situ.

If a wh-phrase is not realized through syntactically or overtly, then such a process is called wh-in-situ. Although a movement is observed in wh-in-situ process, it occurs at LF (Pesetsky, 1987).

Some of the wh-in-situ languages are Japanese (Mathieu, 1999; Miyagawa, 2003), Chinese (Mathieu, 1999; Alphonse and Davis, 1997; Watanabe, 2003), Turkish (Kennely, 1992; Özsoy, 1996; Uzun, 2000; Miyagawa, 2003), Bengali (Bayer, 1995; 1997), Hindi (Bhatt, 2003) and Sinhala (Kishimoto, 2005).

In order to exemplify the wh-in-situ phenomenon, sentences given below from Chinese may be helpful:

- (3) a. Ni xiang chi sheme?
 you want eat what
 “What do you want to eat?”
- b. *Sheme ni xiang chi?
 what you want eat
 “What do you want to eat?”

(4) a. Ni kanijan-le shei?
 you see-ASP who
 “Who did you see?”

b. *Shei ni kanijan-le?
 who you see-ASP
 “Who did you see?” (Carnie, 2002:320)

As it seen above, the sentences (3b) and (4b) are not grammatical. But in (3a) and (4a), it is possible to see that wh-phrase remains in its base (theta) position and the sentences are not problematic. Thus, Chinese seems to have no overt wh-movement. (Carnie, 2002:320).

Miyagawa (2003) explains the matter of wh-movement at LF as follows;

How can the wh-phrase, sitting presumably inside the TP, get associated with the root C? The first attempt at answering this question is Huang (1982), who made the important proposal that the wh-phrase in a wh-in-situ language moves at LF, so the movement is not phonologically detected.

Bayer (1996:268) indicates that if there is not any visible sign of a +Wh scope marker, LF movement of a wh-phrase is certainly necessary.

One of the striking features about wh-in-situ languages is that these languages exhibit distinct properties regarding wh-in-situ. These differences are explained in detail in the following section.

2.1.3. APPROACHES TO WH-IN-SITU

Since there is no uniform wh-in-situ feature, several approaches have been developed. For instance, Miyagawa (2003) proposes four kinds of approaches about wh-in-situ constructions: level, pronunciation, the move vs. non-move with the effect of a Q-particle, and the feature movement.

The first approach is called “level”. The difference, according to this approach, is at the level of the wh-movement. Cheng and Rooryck (2000) propose that there are two types of wh-in-situ, one involving wh-feature movement at LF and the other involving no movement.

Huang (1982 in Görgülü, 2006) states that wh-elements are not interpreted in-situ and they are subject to raising at LF. As it is defined above, the approach of LF movement indicates the movement of wh-phrase in order to get an interrogative form in Logical Form, not visible in overt syntax.

The operator binding approach, on the other hand, includes the movement of a Q-element, which may occur either in overt syntax or in LF, in order to determine the scope of the wh-phrase (Kishimoto, 2005). Aoun and Li (1993a in Görgülü, 2006) argue that in-situ wh-phrases are co-indexed and interpreted via the question operator which determines the scope of wh-words.

The second approach is the pronunciation. According to this approach, the wh-phrase moves at the same level in all languages, but the difference is about the pronouncing of the wh-phrase. Whether it is pronounced as the head or the tail of the chain is taken into consideration. If the tail is pronounced there is no movement, and it is wh-in-situ language.

For instance, Cheng and Rooryck (2000) state that also the effect of intonation in licensing the wh-in-situ just like wh-particles and real wh-words in French plays an important role. They indicate that French has a mixed system of wh-interrogatives. Wh-words can undergo wh-movement or stay in-situ. The question cue in French wh-in-situ is also realized by the help of a special intonation that does not exist in sentences with wh-movement. Bayer (1996:272) indicates that also in Bengali the scope ambiguity may be resolved by the help of prosodic means.

The third approach is move vs. non-move. In this approach, a Q-particle on the C binds and therefore, licenses the wh-in-situ, so the wh-phrase does not move.

(7) a. Ranjit [kiidenek enôwa kiyôla] dannôwa dô?
 Ranjit how.many come-A that know-A Q
 “How many (people) does Ranjit know will come?”

b. Ranjit [kiidenek enôwa dô kiyôla] dannôwa
 Ranjit how.many come-A Q that know-A
 “Ranjit knows how many (people) will come.” (Kishimoto, 2005).

Kishimoto (2005) states that while (7a) is interpreted as a matrix *wh*-question, (7b) is interpreted as an embedded *wh*-question since the clause final Q-element marks the scope of the *wh*-phrase. The same situation may be observed in direct question formation in Sinhala as seen in (8):

(8) kiidenek potô kieuwa dô ?
 how.many book read-A Q
 “How many (people) read the book?” (Kishimoto, 2005).

Kishimoto (2005) also indicates that the clause-final Q particle does not mark a *wh*-constituent on the surface, instead, it specifies *wh*-scope.

Lieberman and Aoshima (2006) argue that Japanese marks the scope of *wh*-questions by the help of affixation of question marking particle (QM) to the verb. For embedded or main verbs, *-ka* and for only main verbs, *-no* is attached to the verb. They further indicate that direct questions are created by affixing a QM to the main verb as shown in sentence (9a) below, whereas indirect questions are created by affixing a QM to the embedded verb as presented in sentence (9b):

(9) a. John-wa [Mary-ga dare-ni atta-to] itta-no?
 John-top Mary-nom who-dat met-comp said-QM
 “Who did John say that Mary met?”

b. John-wa [Mary-ga dare-ni atta-ka] itta.
 John-top Mary-nom who-dat met-QM said
 “John said who Mary met.” (Lieberman and Aoshima, 2006)

The fourth approach is the feature movement. This approach explains a wh-in-situ language as having a morphologically separable wh-phrase which moves at overt syntax to C carrying the wh feature.

2.2. THE INTERACTION OF WH-PHRASES AND COMPLEMENT CLAUSES IN VARIOUS LANGUAGES

In various languages, there are certain interactions between wh-phrases and complement clauses.

For instance, Mathieu (1999) indicates that wh-in-situ in French single interrogatives is only possible in direct questions, but it is ungrammatical for embedded indirect questions. This situation correlates neither with many other optional wh-movement languages like (Arabic or Bahasa Indonesian), nor with wh-in-situ languages like Chinese or Japanese.

(10) a. Tu vois qui ce soir?
 You see who this evening

b. Qui i tu vois ti ce soir ?
 who you see this evening
 “Who are you seeing tonight ?”

There is no difference in the interpretations of sentences (10a-b). As it is seen in (10a) *qui* “*who*” remains in-situ, whereas in (10b) it moves to sentence-initial position, but the interpretation does not change.

Similar pattern is also observed in *wh*-complement clauses, as shown in the following examples:

- (11) a. *Je me demande [CP Jean a vu qui].
 I myself ask Jean has seen who
- b. Je me demande [CP qui Jean a vu ti].
 I myself ask who Jean has seen
 “I wonder who John saw.” (Mathieu, 1999)

As it is seen above, when there is no movement in the embedded complement clause in (11a), the sentence is ungrammatical, but when the *wh*-word *qui* *who* moves to the specifier position of the embedded clause as shown in (11b), the interrogative interpretation is provided.

Similarly, Cheng and Rooryck (2001) propose that there is non-uniformity of *wh*-in-situ considering European Portuguese and that there are three types of *wh*-in-situ in European Portuguese differentiating in multiple questions, in matrix single questions, and in embedded *se* questions.

Example in (12) is an example of *wh*-in-situ in European Portuguese in embedded *se* questions.

- (12) O Joao quer saber se tu compraste o *qué*
 Joao wants know if you bought what
 “Joao wants to know what you bought.”

Example in (13) also indicates that *wh-in-situ* is realized in European Portuguese in embedded questions:

- (13) O Joao pensa que a Maria viu quem
 the Joao thinks that Maria saw who
 “Who does John think that Mary saw?” (Cheng and Rooryck, 2001)

Cheng and Rooryck (2001) further indicate that the *in-situ wh*-phrases in European Portuguese can appear both in embedded clauses and in islands taking the matrix scope. In (14) below *o que* ‘what’ is in a complex NP island.

- (14) Tu acreditas [na proposta de [que o Joao comprou *o que*]]
 you believe the claim of that Joao bought what
 “What is the thing x such that you believe the claim that John bought x?”
 (Cheng and Rooryck, 2001)

Bhatt (2003) states that although *wh*-phrases in matrix clauses can appear *in-situ* and produce question interpretations, no wide-scope question interpretation is possible when *wh*-phrases remain *in-situ* in an embedded finite clause in Hindi. Example in (15) shows this fact:

- (15) Wahajat jaan-taa hai [ki Rima kis-ko pasand kar-tii hai]
 Wahajat-m know-Hab-Msg be-Prs-Sg that Rima-f who-Acc like do-Hab.f be.PrS-Sg
 “Wahajat knows who Rima likes.” (Bhatt, 2003:3)

The interpretation of (15) is an embedded question, but a matrix question is not possible.

But when the *wh*-phrase in embedded finite clauses is moved to sentence initial position overtly, as shown in (16), wide scope question interpretation is possible:

- (16) *kis-koi Wahajat jaan-taa hai [ki Rima ti pasand kar-tii hai]*
 Who-Acc Wahaj-m know-Hab-MSg be-Prs-Sg that Rima-f like do-Hab.f be.PrS-Sg
 “Wajahat knows who Rima likes.”
 “Who does Wajahat know Rima likes?” (Bhatt, 2003:3)

In (16), both the embedded question interpretation and matrix question interpretation are possible.

The situation completely changes when the complement clause is an infinitival in Hindi, as seen in example (17):

- (17) *tum [kyaa kar-naa] jaan-te ho*
 you.Pl what do-Inf. know-Hab-MPl be.PrS.2Pl
 “What do you know to do?”
 “ *You know what to do is.” (Bhatt, 2003:5)

In (17), deriving a matrix question interpretation is possible, whereas an embedded question interpretation impossible. Bhatt (2003) explains this situation as stating that infinitival clauses in Hindi do not constitute a domain for a question formation, there are no infinitival questions in Hindi. Dayal (1996 in Bhatt, 2003) indicates that infinitival clauses in Hindi are a kind of gerund. Thus, they lack a CP and cannot be a domain for question formation.

Bayer (1996) also states that in Bengali, if a wh-phrase occurs in an embedded clause and is intended to have matrix clause scope, the CP should occur in preverbal position as shown in (18):

- (18) *ora [CP ke as-be] Sune-che*
 they who come-Fut hear-Past
 “Who have they heard will come?”
 “They have heard who will come.” (Bayer, 1996:273)

In (18) both matrix and embedded readings are possible. However, as Bayer (1996) indicates when the same CP is right to the verb, it is not possible for the wh-subject to take matrix clause interpretation. Thus, only indirect reading (narrow scope) is possible as shown in (19):

- (19) ora Sune-che [ke as-be]
 they hear-Past who come-Fut
 ‘‘They have heard who will come.’’
 ‘‘ *Who have they heard will come?’’ (Bayer, 1996:273)

The possible interpretation of (19) is only embedded reading, but not matrix reading.

The interaction between complement clause markers and wh-words has also been analyzed in English. Specifically, it is shown that only the pattern of [-wh, -Fin] leads to ungrammatical sentences as shown in the following examples:

- (20) a. I explained how to fix the sink. [+wh, -Fin]
 b. I explained how we should fix the sink. [+wh, +Fin]
 c. I explained that we should fix the sink. [-wh, +Fin]
 d. *I explained to fix the sink. [-wh, -Fin] (Roberts, 2004:304)

In addition to these interactions between wh-words and complement clauses, there is also another significant variant of wh-movement in complement clauses which is called partial wh-movement.

2.3. WH-COMPLEMENT CLAUSES AND PARTIAL MOVEMENT

Cole and Hermon (1998) states that there are three types of wh-questions in Malay. These are the movement of wh-phrase to its position of understood scope, wh-in-situ and partially moved wh-phrase. Examples (21a-b) show partially moved wh-phrase in Malay:

(21) a. Ali memberitahu kamu tadi [CP *apai* (yang) [IP Fatimah baca ti]]
 Ali told you just now what (that) Fatimah read
 “Ali told you just now, what was Fatimah reading?”

b. Kamu percaya [CP *ke mana* i (yang) [IP Mary pergi ti]]
 You believe to where (that) Mary go
 “Where do you believe (that) Mary went?” (Cole and Hermon, 1998)

In (21a) *apai* “*what*” and in (21b) *ke mana* “*to where*” move to the pre-complementizer position, it can also be defined as the partial movement to the Spec-CP position of the subordinate clause.

Another example of partial movement of wh-phrase comes from Shima (1999). It is stated that languages like German and Ancash Quechua allow a wh-phrase to partially move to specifier of declarative complementizer. Examples below exemplify Ancash Quechua wh-partial movement.

(22) a. [CP *Ima-ta-taq* i (qam) kreinki [CP Maria muna-nqa-n-ta [CP Jose t1
 WhatACC you believe Maria want-NOM-3-ACC Jose
 ranti-na-n-ta]]] ?
 buy-NOM-3-ACC

b. [CP (qam) kreinki [CP Maria muna-nqa-n-ta [CP *Ima-ta-taq* i Jose ti
 you believe Maria want-NOM-3-ACC whatACC Jose
 ranti-na-n-ta]]] ?
 buy-NOM-3-ACC

c. [CP (qam) kreinki [CP Maria muna-nqa-n-ta [CP Jose *Ima-ta-taq* i
 you believe Maria want-NOM-3-ACC Jose whatACC
 ranti-na-n-ta]]] ?
 buy-NOM-3-ACC (Müller and Sternfeld, 1996:487 in Shima,
 1999:193)

In (24a), *apa* “what” occurs in the embedded clause. But, in (24b) *apa* “what” appears in the specifier position of the embedded CP which indicates a partial movement of the wh-phrase. The difference of the wh-partial movement between (24a-b) and (23a-b) is the absence of an overt marker indicating the scope of the wh-phrase in Madurese. In (24a-b), wh-phrase has scope over the entire sentence. In other words, the scope of the wh-word does not change although the wh-word scrambles to a different position in overt syntax (Davies, 2003).

Mc Daniel (1989 in Karimi, 2005:145) argues for the presence of a scope marker using German and Romani sentences. It is argued that wh-phrases move in these two languages, but not necessarily to the Spec CP. When there is partial movement, the Spec-CP should be filled by the scope marker *was* in German, and the scope marker *so* in Romani. Examples (25a-b) represent partial wh-movement with a scope marker in the Spec-CP in German and Romani:

(25) a. *was*_i galubt [IP Hans [CP [*mit wem*]_i [IP Jakob jetzt *ti* sprciht]]]?

What believes Hans with whom Jakob now talks

b. *so*_i [IP o Demiri mislinol [CP *kas*_i [IP i Ar'ifa dikhla *ti*]]]?

(McDaniel 1989:568 in Karimi, 2005:145)

2.4. SCRAMBLING

It is possible to state that scrambling is seen in languages which have free word order and which are at the same time considered to be wh-in-situ languages. For instance, Miyagawa (2003) indicates that Japanese and Turkish are both wh-in-situ languages having the property of scrambling.

Karimi (2005) states that generative studies on scrambling have taken two major approaches as base-generation and movement approach. According to base-generation

approach, scrambling is considered either to be free word-order at the level of D-structure or to be the result of merge. On the other hand, in movement approach, scrambling is regarded as being the result of Move α .

Mahajan (1990 in Kawamura, 2004) states that scrambling is divided into two types as clause-internal scrambling which is considered to be an A-movement and long-distance scrambling which is regarded as an A'-movement.

Karimi (2005) classifies two approaches as the A-movement and A'-movement approach when scrambling is considered to be as a syntactic movement. It is indicated that (A)rgument movement moves a DP from [+Theta], [-Case] position to a [-Theta], [+Case] position. Thus, A-movement is triggered by a morphological feature associated with Case. Karimi (2005) further indicates that passive and raising constructions are typical examples of A-movement.

On the other hand, Karimi (2005:51) states that A'-movement is traditionally assumed to create a chain whose tail is [+Case] and its head is [-Case]. Thus, A'-movement is triggered by other kinds of feature such as wh-feature but not Case feature.

The following example is from Persian indicating that wh-word is in an A' position.

(26) kodum ketab-ro_i Kimea fekr mi-kon-e Rahjue [bedune-inke pro e_i
 which book-ra Kimea think dur-do-3Sg Rahjue without that
 be-xun-e]ti be ketabxune pas-dad
 subj-read-3Sg to library returned (Karimi, 2005:53)

“Which book does Kimea think Rahjue returned to the library without reading.”

Erguvanlı (1984) states that in Turkish, scrambling rule indicates three types of movement as topicalization, focusing and backgrounding. The S-initial position is considered to be the topic position which allows only definite NPs except for +animate

indefinite. The preverbal position is the focus position where indefinite NPs obligatorily occur. Post-predicate position, on the other hand, is considered to be signalling backgrounded material in Turkish.

Akar (1990:40) states that scrambling is an optional rule which is responsible for many word order changes in a language. In Turkish, the main initiator of word order alterations is considered to be the rule of scrambling.

Kornfilt (2003a) states that overtly case-marked constituents in Turkish can scramble regardless of specificity. It is also indicated that while direct objects with overt accusative and subjects with overt genitive can freely scramble to various positions, their counterparts without any structural case markers cannot be scrambled. Thus, they remain in a position to the immediate left of the verb:

(27) Ahmet şahane (bir) pasta-yı dün akşam ye-di
 Ahmet fantastic a cake-Acc yesterday evening eat-Past
 “Ahmet ate the/a fantastic cake [+specific] yesterday evening.” (Kornfilt, 2003a:128)

(27) is an example of scrambled accusative direct object.

(28) *Ahmet (bir) pasta dün akşam ye-di
 Ahmet a cake yesterday evening eat-Past (Kornfilt, 2003a:128)

Intended meaning: “Ahmet ate (a) cake[-specific] yesterday evening.”

(28) is an example of unsuccessfully scrambled non-specific direct object without any accusative marker.

Kornfilt (2003a) assumes that scrambling in Turkish is a movement towards A'-positions which are the non-argument positions of topic and presuppositional

background. As stated above, there are certain languages which allow for scrambling, wh-words in such languages can also be scrambled.

2.4.1. WH-SCRAMBLING

As stated in 2.4, A'-movement is triggered by other kinds of feature such as wh-feature but not Case feature (Karimi:2005). Lieberman and Aoshima (2006) indicates that although Japanese is considered to be a wh-in-situ language, wh-phrases may undergo fronting, which is also known as “wh-scrambling”. However, the scrambling of wh-phrase does not effect the scope of the question. As seen in (29a-b), the interpretation of the sentence is an indirect question, since the QM is affixed to the embedded verb;

- (29) a. John-wa [Mary-ga dare-ni atta-ka] itta.
 John-top Mary-nom who-dat met-QM said
 “John said who Mary met.”
- b. Dare-ni John-wa [Mary-ga atta-ka] itta.
 Who-dat John-top Mary-nom met-QM said
 “John said who Mary met.”

Sabel (2001) indicates that in Japanese, wh-phrases undergo scrambling freely as shown in the examples below:

- (30) a. John-ga [CP Mary-ga nani-o katta ka] sitteiru.
 JohnNom MaryNom whatAcc bought Q knows
 “John knows what Mary bought.”
- b. [IP *Nani-o* [IP John-ga [CP Mary-ga t katta ka] sitteiru]].
 whatAcc JohnNom MaryNom bought Q knows
 “John knows what Mary bought.”

(Sabel, 2001)

Sabel (2001) further indicates that *wh*-phrase is long-scrambled to the matrix clause but the question marker *ka* makes it take the scope in the embedded clause. (30b) represents a declarative sentence with an embedded *wh*-question. Thus, it has the same interpretation with (30a). This suggests that scrambling as A'-movement can be undone at LF. Sabel (2001) states that one of the lower copies of the scrambled *wh*-phrase in the embedded CP may be associated with the [+*wh*] C-head assuming reconstruction in terms of the copy theory.

Furthermore, Saito (2004) states that Japanese allows both clause-internal and long scrambling. It is further stated that Japanese scrambling has a unique property of radical reconstruction. Saito (2004) defines radical reconstruction property of scrambling as “LF undoing property”, as shown in (31a-b):

(31) a. [IP John-ga [CP [IP minna-ga [CP Mary-ga dono hon-o yonda
 John-NOM all-NOM Mary-NOM which book-ACC read
 to] omotteiru] ka] siritagatteiru] (koto).
 that think Q want-to-know fact
 “[John wants to know [Q [everyone thinks [that Mary read which book]]]]”

b. [IP [CP Mary-ga dono hon-o yonda to]_i [John-ga [CP [IP minna-ga
 Mary-NOM which book-ACC read that John-NOM all-NOM
 t_i omotteiru] ka] siritagatteiru]] (koto).
 think Q want to know fact
 “[[That Mary read which book]_i, John wants to know [Q [everyone thinks t_i]]]”
 (Saito, 2004)

In (31b), CP containing a *wh*-phrase is scrambled out of the CP where the *wh*-phrase takes scope. The scrambled CP can be moved back at LF. Therefore, the interpretation of (31b) does not differ from that of (31a). This is the property of radical reconstruction (Saito, 2004).

(33) a. [S [COMP kimi] [NPTi] [adresimi sana ti verdi]]
 who address-Poss/1stsg-Acc you-Dat give-Past

“Who gave you my address?”

b. [S [COMP Neyii] [NP Satı] [VP Satılmış’a ti satacak]]
 what-Acc Satı Satılmış-Dat sell-Future

“What will Satı sell to Satılmış?”

In (33a-b), wh-word occurs in S-initial position as a result of topicalization which has been regarded as a feature of scrambling in Turkish.

Akar (2001:70) states that backgrounding which is one of the features of the scrambling of NPs in Turkish cannot be applied for wh-words. She further argues that backgrounding of wh-words functioning as the subject, direct object, indirect object, and oblique object is not possible. Examples in (34a-b) clearly show that wh-words cannot occur in postverbal position:

(34) a. * [S [NPTi] [VP Nergis’e ti kızdı] kimi]
 Nergis-Dat get angry-Past who

b. * [S [NP Aslı] [VP yarın ti dönecek] neredeni]
 Aslı tomorrow come back-Future where-Abl

(Akar, 2001:70)

Akar (2001:71) also indicates that a wh-word can be topicalized only if it occupies a theta-role, and that a wh-word in the position of an oblique object cannot be topicalized in Turkish. (35a-b) and (36a-b) show this view:

(35) a. [S' [SPEC Kim] [S[NP ti] [VP Nergis'e ti kızdı]]]
 who Nergis-Dat get angry-Past

“Who got angry with Nergis?”

b. [S' [SPEC Hangisini] [S[NP Sinan] [VP sana ti verdi]]]
 which-Poss/1stsg-Acc Sinan you-Dat give-Past

“Which one did Sinan give you?”

(36) a. *? [S'[SPEC Nereye] [S' [NP Aslı] [VP gitti]]]
 where-Dat Aslı go-Past

“Where did Aslı go?”

b. *? [S'[SPEC Ne zaman] [S'[NP Aslı] [VP gitti]]]
 when Aslı go-Past

“When did Aslı go?”

Akar (2001:71) further suggests that when wh-word does not move out of the VP, Q-scrambling rule may be applied to oblique objects freely.

(37) a. [S Sinan [VP ne zaman sizi ti davet etti]]
 Sinan when you-Acc invite-past

“When did Sinan invite you?”

b. [S Sinan [VP sizi ne zaman ti davet etti]]
 Sinan you-Acc when invite-Past

“When did Sinan invite you?”

Akar (2001) makes a distinction between two types of adjunct clauses as VP-internal and VP-external. It is also indicated that VP-internal adjunct phrases can not be topicalized, whereas VP-external ones can be. Examples (38a-b) show this fact:

(38) a. */? [S' [SPEC *Ne zaman*] [S' [NP *Aslı*] [VP *ti gitti*]]]
 When Aslı go-Past
 “When did Aslı go?”

b. [S' [SPEC *Neden*] [S [NP *Hakan*] [VP *Aslı'yı hergün arıyor*]]]
 Why Hakan Aslı-Acc everyday call-Prog
 “Why is Hakan calling Aslı everyday?”

Ne zaman “when” in (38a) is considered to be as VP-internal adjunct. Thus, scrambling of it to S-initial position in order to be topicalized is not possible. However, *neden* “why” in (38b) is considered to be as a VP-external adjunct. Thus, it is possible for it to scramble to S-initial position to be topicalized.

2.5. WH-WORDS IN TURKISH

Karimi (2005:141) indicates that there are three types of wh-words: wh-adjuncts, wh-arguments, and D(iscourse)-linked wh-words. There are certain differences among wh-words in terms of their internal syntactic patterns. Wh-arguments have a D-head, which is not observed in wh-adjuncts. The head of wh-arguments has inherently a focus feature, whereas wh-adjuncts lack this feature. Furthermore, due to their quantificational property, the derived position of wh-adjuncts should be same as sentential adverbs. The common point for the two heads is having the property of a wh-feature. These two types of wh-words are schematized by Karimi (2005) as follows:



Figure 1 Wh-adjunct and Wh-argument Diagram (Adapted from Karimi, 2005)

Wh-words in Turkish are *kim* “who”, *ne* “what”, *nere-de* “where”, *nasıl* “how” *ne zaman* “when”, *neden* “why”, *niye* “why”, *niçin* “why”, *hangi* “which” (Arslan, 1999:2). Wh-words in Turkish can be categorized using Karimi’s (2005) classification as follows:

adjunct wh-phrases: *ne zaman* “when”
 nasıl “how”
 niye/niçin “why”
 nere-de “where”

argument wh-phrases: *kim* “who”
 ne “what”

D-linked wh-phrase: *hangi* “which”

Görgülü (2006) states that although *kim* “who” and *ne* “what” typically occur in argument position, they also function as adjunct phrases when they are used with *ile* “with” and *için* “for”, i.e., *kim ile* “with whom” and *ne için* “for what”.

In Turkish, wh-phrases are said to have a property of non-moving. In other words, wh-phrases are said to remain in-situ both in main and embedded clauses (Uzun, 2000; Özsoy, 1996). Özsoy (1996:139) further indicates that Turkish does not possess a syntactic rule of wh-movement. Moreover, Özsoy (1996) defines wh-in-situ in relation to Turkish as follows: wh-phrases occur in those positions in which their NP-counterparts would be found in a regular sentence. Thus, the wh-phrases do not realize an overt movement in surface structure and remain in-situ. Akar (2001) proposes that wh-movement in Turkish is not a syntactic rule. In a question structure in Turkish no obligatory movement of wh-element to a specific position is observed.

Akar (1990, 2001) states that the immediately preverbal position is the most natural position for question words in Turkish. Kural (1992:18) also indicates that Turkish requires a wh-phrase to be in the immediately preverbal position. Similarly, Arslan

(1999:5) states that in simple Turkish wh-questions, the wh-constituent does not move to S-initial position in surface structure. Moreover, it is stated that although Turkish wh-phrases occur in-situ, they do not have scopal properties as shown in (39):

(39) Akın [ben-im ne zaman gel-me-mi] söyledi?

“When did Akın say I should come?” (Özsoy, 1996:141)

It is stated that wh-phrase in (39) occurs in the embedded clause, its scope, however, is the matrix clause. Thus, it is argued that Turkish has a wh-movement rule which has the effect of extracting a wh-phrase from a structure and placing it in an A'-position -Spec of COMP.

Ko (2003) states that in Turkish, wh-phrases cannot precede a subject except “*why*”. This statement is supported using the examples below:

(40) a. *?Nereye Ayşe git-ti?
Where Ayşe go-Past
“Where did Ayşe go?”

b. Niye Sevim Teyze Nergis-e kızdı?
Why Sevim Aunt Nergis-Dat get angry-Past
“Why did Aunt Sevim get angry at Nergis?” (Akar, 1990: 64-65)

Ko (2003) states that since *niye* “why” is merged in Spec-CP, it may precede the subject. This order may also be derived by scrambling of the subject in Turkish. Ko (2003) further argues that other wh-phrases should stay in the preverbal position due to the focus structure in Turkish. Therefore, they cannot precede the subject ,as shown in (40a).

Akar (2001:67) states that there is no obligatory syntactic movement of wh-element to a specific position within the question structure in Turkish. Wh-word is generally located

in preverbal position by the Q-placement rule which is applied at the surface level. In sum, Turkish is defined as a wh-in-situ language.

2.5.1. WH-COMPLEMENT CLAUSES IN TURKISH

Diessel (2001) states that complement clauses function as core arguments of a predicate and they are often formally unmarked or they include a complementizer. Erguvanlı Taylan (1993:166) states that complement clauses in Turkish are constructed by the nominalization of the verb with such suffixes as –DIk/(y)AcAk or –mA/-mAk. The complement clause is attached with a suffix indicating case, in accordance with the verb of the main clause. These complement clause markers are said to be different in terms of several points. For instance, Özsoy (1996:140) states that in embedded clauses in Turkish, verbs are marked with the atemporal –mA or temporal –DIk/-AcAk suffixes. Kornfilt (2003:141) indicates that nominal indicatives are marked for future with -(y)AcAk and for non-future with –DIk, whereas subjunctive nominal clauses have only one marker –mA and neutral for tense.

Kornfilt (2003:139) further distinguishes two main types of complement clause markers in Turkish as factive (indicative) and non-factive (subjunctive) suffixes. (41a) is an example for indicative and (41b) is an example for subjunctive nominalized embedded sentence. Therefore, -mA is the subjunctive complement clause marker and –DIk is the indicative complement clause marker.

(41) a. [Senin dün sabah evde yemek pişirdiğini]
 You-Gen yesterday morning home-Loc food cook-FN-2nd-Sg-Acc
 duydum

hear-Past-1st-Sg

“I heard that you cooked food at home yesterday morning.”

b. Senin yarın evde yemek pişirmeni]
 You-Gen tomorrow home-Loc food cook-NFN-2nd-Sg-Acc
 istiyorum

want-PresProg-1st-Sg

“I want for you to cook food at home tomorrow.”

“I want that you should cook food at home tomorrow.”

A similar distinction comes from Schaaik (2001:233). He states that –DIk and –mA result in two different interpretations as the former one indicating a fact, and the latter one indicating an act considering the verbs of perception (gör- “see” – izle- “watch”), performatives (söyle- “say”), apprehensives (anla- “understand” – farket- “realize” and putatives (bil- “know” – hatırla- “remember”) which all can take either a complement in –DIk or –mA.

Kornfilt (2003:142) states that nominal indicatives (factive) are CPs, whereas nominal subjunctives (non-factive) are homogenously DPs. She further indicates that indicative nominal clauses can host a Wh-operator which is licensed in the spec-CP position. On the contrary, subjunctive nominal clauses can not host a Wh-operator by virtue of being DPs. Thus, subjunctive clauses do not have a qualifying specifier position for the operator in question. The examples (42a-b) below clarify the point:

(42) a. [yemeğ-i kim-in pişir-diğ-in]-i sor-du-m /duy-du-m /
 food-Acc who-Gen cook-Fn-3rdSg-Acc ask-Past-1stSg hear-Past-
 1stSg
 söyle-di-m
 tell-Past-1stSg

“I asked/heard/told/ who had cooked the food.”

b. *[yemeğ-i kim-in pişir-me-sin]-i söyle-di-m
 food-Acc who-Gen cook-NFN-3rdSg-Acc tell-Past-1stSg

(Kornfilt, 2003.b:143)

Intended reading “I said who should cook the food.”

Kornfilt (2003b) states that the indicative nominal clause in (42a) has a Spec-CP position to host a Wh-operator. On the other hand, subjunctive nominal clauses in (42b) because of not having such a functional projection, cannot host a wh-operator. Furthermore, infinitival nominal clauses are deficient in that Turkish has neither infinitival relative clauses, nor infinitival embedded wh-questions (Kornfilt, 1996), as shown in the following examples:

(43) a. *Ahmet Ayşe’ye okumak bir kitap aldı.

Intenden reading: “Ahmet bought Ayşe a book to read.”

b. *Ahmet Ayşe’ye ne okumak söyledi.

Intended reading: “Ahmet told Ayşe what to read.” (Kornfilt, 1996:192-193)

Özsoy (1996:141) on the other hand, indicates that in Turkish complex sentence structure, wh-phrase occurs in the embedded clause as shown in (44):

(44) Akın [benim ne zaman gelmemi] söyledi?
 Akın I-1st-Gen what time come-Nom-1st-Poss-Acc say-Past
 “When did Akın say I should come?” (Özsoy, 1996:141)

The scope of wh-phrase in (44) is said to be the matrix clause. It is argued that wh-phrase in-situ never has scopal properties. The movement rule in Turkish has the effect of extracting a wh-phrase from structure and placing it to Spec-CP position. This movement is said to take place at LF (Özsoy, 1996:141).

Similarly, Uzun (2000:301) indicates that wh-phrases are in-situ, both in main and embedded clauses. (45) below helps clarify the claim:

- (45) Ayşe [kimin/Ahmet'in dün uyuduğunu] söyledi?/
 Ayşe who-Gen/Ahmet-Gen yesterday sleep-Ind-3rdSg say-Past
 “Whom did Ali say that slept yesterday?/ Ali said that Ahmet slept yesterday.”
 (Uzun, 2000:301)

Arslan (1999:19) states that wh-phrase undergoes a wh-movement rule at the level of LF but not at S-structure by the help of the scopal property of wh-phrase *kim* “who” in complement clause structure in Turkish. (46) exemplifies this:

- (46) Ali Zeynep-in kim-i ara-yacağ-ın-ı biliyordu.
 Ali Zeynep-Gen who-Acc call-Nm-Poss-3rd-Sg-Acc know-prog-Past
 “Ali knew who Zeynep would call.”
 “Who did Ali know Zeynep would call?”

Although wh-phrase is in the embedded clause in the surface structure in (46), it is possible to derive two different interpretations as a declarative sentence and an interrogative sentence. This fact is accounted for by the assumption that although no surface structure change has been occurred in the position of wh-phrase in surface structure, the scope of the wh-phrase has changed at LF. In other words, the wh-phrase has undergone a wh-movement not at syntactic level, but at LF (Arslan, 1999:19).

On the matter of matrix or embedded scope of wh-words in Turkish, Uzun (2000:85) indicates that in Turkish, how wh-phrases take the whole sentence in question domain, although they remain in the same position as in d-structure, is theoretically

problematic; especially compared with the movement of wh-phrases to S-initial position in English in order to take the whole sentence in question domain.

2.6. PSYCHOLINGUISTIC ANALYSIS OF WH-CONSTRUCTIONS

Sentences which contain wh-phrases have been studied using a psycholinguistic perspective in recent years. Such studies employ various techniques as questionnaires, event-related brain potentials (ERPs) and fMRI (functional magnetic resonance imaging system) experiments.

For instance, Fiebach and Schlesewsky (2001) investigates the processing of German wh-questions via ERP and fMRI experiments. The experiment was conducted on two steps. The first one analyzed the processing of German wh-questions with ERP and the material in this part was embedded wh-questions with case-marked masculine interrogative pronouns. In the second part of the study fMRI was applied in order to determine the neural correlates of the syntactic working memory mechanism identified in the first experiment.

Sussman and Sedivy (2003) studies the time course and nature of processing filler-gap relations in wh-questions and the role of verb argument frame information via using a headmounted eyetracking. Twenty-six members of the Brown University community participated in the experiment. All the subjects were native speakers of English. The subjects listened to a short narrative and at the same time the pictures of the entities which were mentioned in the story were shown to them. At the end of the story, the subjects were asked to answer the questions which were constructed via wh-phrases and while they were answering the questions, eye movements of the participants during giving response were recorded.

Felser and Clahsen (2003) examined the event-related brain potentials (ERPs) of nineteen native speakers of German during the processing of unambiguous German sentences containing different types of filler-gap dependency. A total of 140 sentence

quadruplets was constructed as raising and object topicalization, wh-object movement, long object topicalization, and short object topicalization. Each subject saw 140 sentences in two sessions. During the experiment a pause of two thousand ms occurred after each critical sentence. During these pauses, a test sentence which had to be verified by the subject by pressing one of two buttons was shown to the subjects.

One of the psycholinguistic studies which is interested in processing models is Lee (2004). In the study, two processing models, namely trace-based Government and Binding Grammar and the Active Filler Strategy, are analyzed through the usages of different wh-constructions. In the experiment twenty-eight sets of four sentences which include wh-phrases in relative clauses were administered to twenty-four native speakers of English in the University of Cambridge. The subjects' parsing strategies of these constructions were analyzed by the help of a word-by-word self-paced noncumulative moving window reading task.

Juffs (2005) studies the influence of first language on the processing of wh-movement in English as a second language. For the experiment, ungrammatical wh-extractions which violate island constraints, grammatical long-distance subject and object extractions from finite and non-finite clauses were administered to thirty Chinese, twenty-eight Japanese, and forty-six Spanish speakers as their mother tongue. During the self-paced reading technique, word-by-word reading times for each sentence were collected. It is found out that the presence or absence of wh-movement and the headedness of the verb phrase in native language can not explain all of the variation between the nonnative speaker groups.

Featherston (2005) examines the wh-movement in German within the tenets of generative grammar. Twenty-six multiple wh-questions made up of *was* "what", *wer* "who", *welches/welchem* "which/to which", *wem* "to whom" and *wann* "when" were administered to thirty-eight subjects in the experiment. Magnitude estimation method was employed in order to elicitate of grammaticality judgements with a minimum restriction.

Lieberman and Aoshima (2006) examines whether advanced English speaking learners of Japanese are able to interpret scopally ambiguous questions. The experiment includes forty-two subjects. Eighteen of the subjects are native speakers of English who are at the same time advanced L2 learners of Japanese. Twenty-four of the subjects are speakers of Japanese as their native tongue. In the test, wh-questions using question particles such as *-ka*, basic formation of wh-phrases such as *dare-ni* “wh-dat” and *dare-ga* “who-nom” are administered to the participants in order to detect their way of interpreting these different wh-question formations.

As seen in the studies mentioned above, wh-constructions in different languages have been analyzed by means of various data gathering tools using a psycholinguistic point of view.

CHAPTER 3

ANALYSIS AND DISCUSSION OF THE FINDINGS

This chapter presents the findings of the study together with their interpretation and discussion. Since the variables tested in the study are two types of complement clause markers (subjunctive –mA and indicative –Dik), two types of wh-words (wh-adjuncts and wh-argument), and four word order variations, the findings obtained will be analyzed accordingly.

3.1. INTERACTION BETWEEN COMPLEMENT CLAUSE MARKERS AND WH-WORDS

This section provides the findings on the interaction between complement clause markers and wh-words. This interaction is examined based on four word order variations. These word order variations are as follows:

- (1) Wh-word – S1 – S2 – V2 – V1¹
- (2) S1 – Wh-word – S2 – V2 – V1
- (3) S1 – S2 – Wh-word – V2 – V1
- (4) S1 – S2 – V2 – Wh-word – V1

¹ Subject1= Subject of the matrix clause
 Subject2= Subject of the embedded clause
 Verb1 = Matrix verb
 Verb2 = Embedded verb

Table 1 Interaction between Complement Clause Markers and Wh-words in the First Word Order (n=69)

WH-word – Subject1 – Subject2 – Verb2 – Verb1								
Ne zaman/Neden/Kiminle Ayşe Ali'nin gelmesini/geldiğini söyledi								
When/Why/With whom did Ayşe say that Ali should come/come								
Neyi Ayşe Ali'nin yapmasını/yaptığını söyledi								
What did Ayşe say that Ali should do/did								
	Subjunctive (SC) -mA				Indicative (IC) -Dİk			
	Question	Statement	Both	None	Question	Statement	Both	None
Ne Zaman	46 66.6%	6 8.6%	13 18.8%	4 5.7%	52 75.3%	5 7.2%	10 14.4%	2 2.8%
Neden	62 89.8%	2 2.8%	2 2.8%	3 4.3%	49 71%	9 13%	11 15.9%	-
Kiminle	33 47.8%	10 14.4%	17 24.6%	9 13%	27 39.1%	11 15.9%	19 27.5%	12 17.3%
Neyi	39 56.5%	7 10.1%	10 14.4%	13 18.8%	32 46.3%	6 8.6%	17 24.6%	14 20.2%

Table 1 provides the frequency and percentage of the subjects' perceptions regarding the sentences in which wh-words are placed in sentence-initial (S-initial) position. As seen in Table 1, for both complement clause markers, namely –mA and –Dİk, the most dominant interpretation is the interrogative one. Therefore, it is safe to argue that in this word order, all the sentences regardless of the complement clause markers and wh-words used are mostly perceived as direct wh-questions.

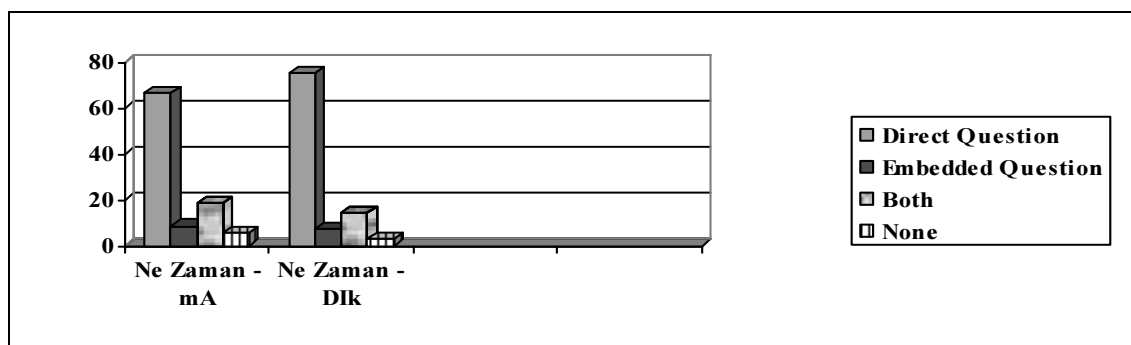


Figure 1 Interaction between Complement Clause Markers and Ne Zaman “When” (n=69)

When the wh-word *Ne Zaman* “When” is placed in S-initial position with complement clause marker –mA in the embedded clause (*Ne zaman Ayşe Ali'nin gelmesini söyledi*), it is mostly perceived as a direct wh-question (46, 66.6%). Thirteen subjects indicated

that both direct and embedded wh-question readings can be derived from the sentence (18.8%). Six subjects considered the sentence as an embedded wh-question (8.6%). Only four of them regarded that none of the meanings can be derived from the sentence (5.7%). When the same sentence is constructed with indicative –Dik (*Ne zaman Ayşe Ali'nin geldiğini söyledi*) similar findings are obtained. Majority of the subjects perceived it as a direct wh-question (52, 75.3%). Ten of them considered it as both a direct and an embedded wh-question (14.4%). Five of them indicated that the sentence is an embedded wh-question (7.2%). Only two subjects derived no meaning from the sentence (2.8%).

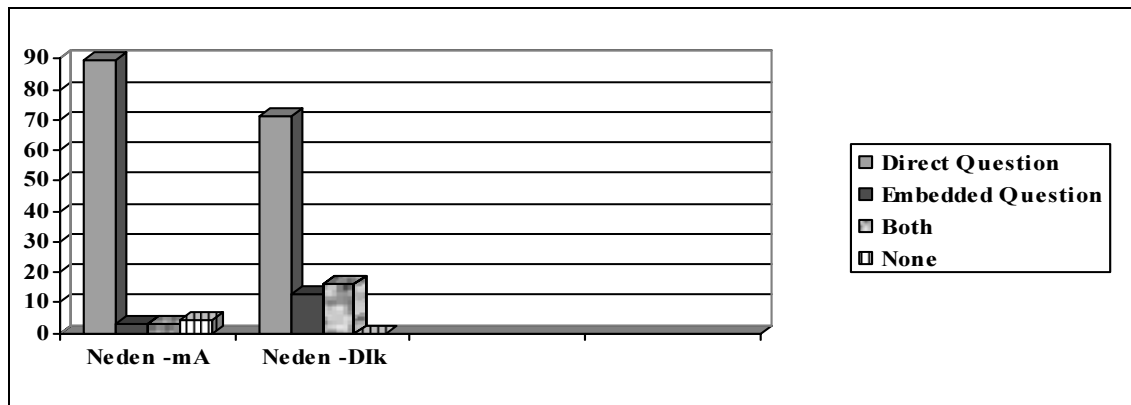


Figure 2 Interaction between Complement Clause Markers and Neden “Why” (n=69)

The results are the same for the wh-word *Neden* “Why” in that sentences with *neden* “why” are mostly perceived as direct wh-questions regardless of the complement clause suffix employed. When it is used with subjunctive (SC) complement clause marker –mA in the embedded clause (*Neden Ayşe Ali'nin gelmesini söyledi*), sixty-two subjects considered it as a direct wh-question (89.8%). Three subjects derived no meaning from the sentence (4.3%). The number of the subjects who perceived the sentence as an embedded wh-question and who perceived it as both a direct and an embedded wh-question is the same (each 2, 2.8%). When it is used with indicative complement clause marker –Dik (*Neden Ayşe Ali'nin geldiğini söyledi*), forty-nine subjects perceived it as a direct wh-question (71%). Eleven subjects considered the sentence as both a direct and embedded wh-question (15.9%). Nine of them regarded the sentence as an embedded wh-question (13%). No subject considered the sentence as meaningless. It may be pointed out as a slight difference between two types of complement clause markers

when *neden* “why” is used in S-initial position. Because the choices of the options except for the dominant perception changes in accordance with the use of distinct complement clause markers.

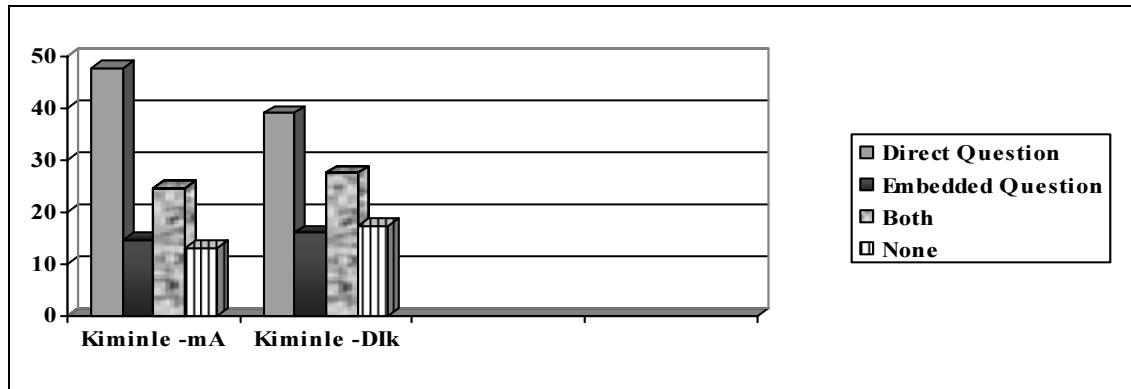


Figure 3 Interaction between Complement Clause Markers and Kiminle “With Whom” (n=69)

The wh-word *Kiminle* “with whom” also gives the same results. When it is used with subjunctive complement clause marker *-mA* (*Kiminle Ayşe Ali'nin gelmesini söyledi*), thirty-three subjects considered it as a direct wh-question (47.8%). Seventeen subjects regarded it as both a direct and an embedded wh-question (24.6%). Ten subjects regarded the sentence as an embedded wh-question (14.4%). Only nine subjects derived no meaning from the sentence (13%). When the same sentence is used with indicative complement clause marker *-DIk* (*Kiminle Ayşe Ali'nin geldiğini söyledi*), again the most of the subjects regarded the sentence as a direct wh-question (27, 39.1%). Nineteen of them considered it as both a direct and an embedded wh-question (27.5%). Twelve subjects derived no meaning from the sentence (17.3%). Only eleven of them considered the sentence as an embedded wh-question (15.9%).

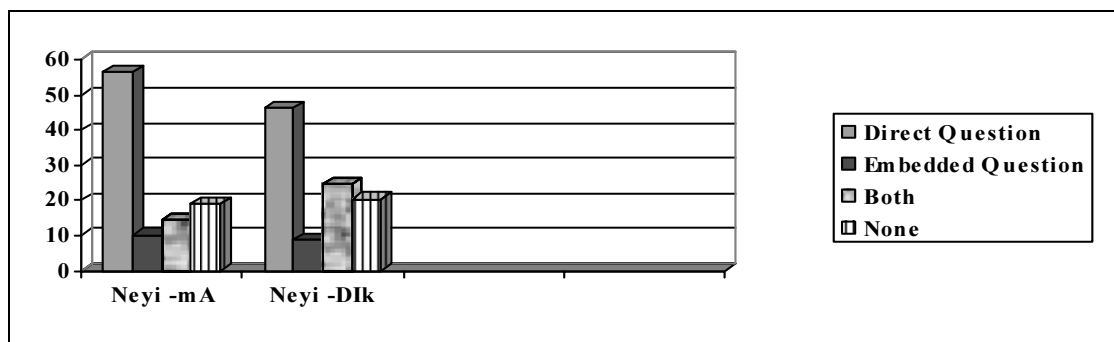


Figure 4 Interaction between Complement Clause Markers and Neyi “What-Acc” (n=69)

The results are also similar for wh-argument *Neyi* “What-Acc”. When it is used with subjunctive complement clause marker –mA (*Neyi Ayşe Ali ’nin yapmasını söyledi*), thirty-nine subjects considered the sentence as a direct wh-question (56.5%). Thirteen subjects derived no meaning from the sentence (18.8%). Ten of them derived both a direct and an embedded wh-question (14.4%). Only seven subjects considered the sentence as an embedded wh-question (10.1%). When the same wh-word is used with indicative complement clause marker –Dik (*Neyi Ayşe Ali ’nin yaptığını söyledi*), thirty-two subjects regarded it as a direct wh-question (46.3%). Seventeen of them regarded the sentence as both a direct and an embedded wh-question (24.6%). Fourteen subjects derived no meaning from the sentence (20.2%). The number of the subjects who perceived the sentence as an embedded wh-question is found to be only six (8.6%).

As it is seen above, for all the wh-words and for both subjunctive and indicative complement clause markers, namely –mA and –Dik, in word order one, the most common perception is direct wh-question interpretation. Therefore, it is possible to state that when wh-words occur at S-initial position, the interpretations of the sentences do not change based on complement clause suffixes. Thus, it may be stated that when wh-words appear in S-initial position, complex sentences seem to be perceived mostly as direct wh-questions. It indicates that S-initial position for such sentences is a possible position for wh-question formation in Turkish.

Table 2 below indicates the interaction between complement clause markers and wh-words in the second word order in which wh-word is placed in Specifier position of the Complementizer Phrase (Spec-CP) .

Table 2 Interaction between Complement Clause Markers and Wh-words in the Second Word Order (n=69)

Subject1 – WH-word – Subject2 – Verb2 – Verb1								
Ayşe Ne Zaman/Neden/Kiminle Ali'nin gelmesini/geldiğini söyledi								
When/Why/With Whom did Ayşe say that Ali should come/came?								
Ayşe Neyi Ali'nin yapmasını/yaptığını söyledi								
What did Ayşe say that Ali should do/did?								
	Subjunctive (SC) -mA				Indicative (IC) -DIk			
	Question	Statement	Both	None	Question	Statement	Both	None
Ne Zaman	46 66.6%	6 8.6%	16 23.1%	1 1.4%	35 50.7%	5 7.2%	28 40.5%	1 1.4%
Neden	53 76.8%	4 5.7%	10 14.4%	2 2.8%	36 52.1%	18 26%	15 21.7%	-
Kiminle	34 49.2%	9 13%	20 28.9%	6 8.6%	16 23.1%	28 40.5%	18 26%	7 10.1%
Neyi	41 59.4%	11 15.9%	11 15.9%	6 8.6%	33 47.8%	14 20.2%	22 31.8%	-

Table 2 shows the findings on the subjects' perceptions of the sentences in which the wh-word is placed in the Spec-CP position of the embedded clause. As seen above, all the sentences with -mA are mostly perceived as direct wh-questions regardless of the wh-words used in this word order. However, sentences with -DIk are perceived as direct wh-questions only when *ne zaman* "when", *neden* "why", and *neyi* "what-Acc" are used. When *kiminle* "with whom" which is a wh-adjunct is used, the most common perception is not direct wh-question, but an embedded wh-question.

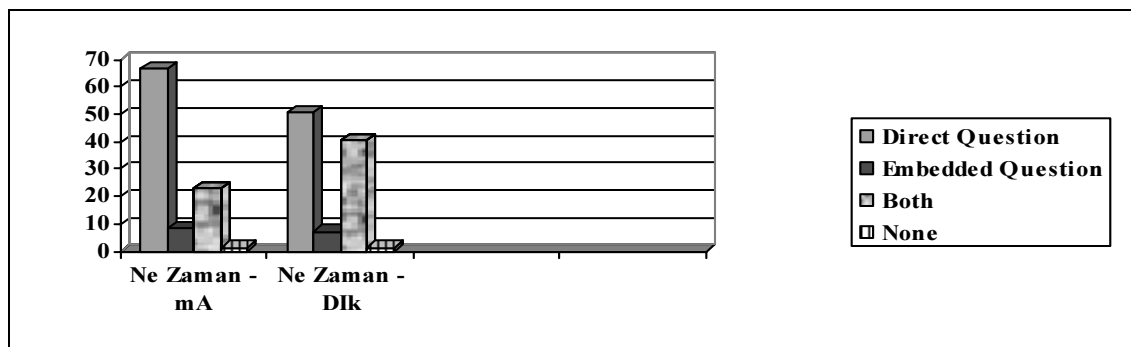


Figure 5 Interaction between Complement Clause Markers and Ne Zaman "When" (n=69)

When the wh-word *ne zaman* “when” is placed Spec-CP (*Ayşe ne zaman Ali'nin gelmesini/geldiğini söyledi*), sentences are mostly perceived as direct wh-questions. The number of the subjects who interpret the sentence as a direct wh-question when it is used with subjunctive –mA is found to be forty-six (66.6%). Sixteen subjects considered it as both a direct and an embedded wh-question (23.1%). Six subjects regarded the sentence as an embedded wh-question (8.6%). Only one subject derived no meaning from the sentence (1.4%). The number of the subjects who consider it as a direct wh-question when it is used with indicative –Dİk is found to be thirty-five (50.7%). Twenty-eight of them indicated that the sentence had both interrogative and declarative readings (40.5%). Five of them considered it as an embedded wh-question (7.2%). And again, only one subject derived no meaning from the sentence (1.4%).

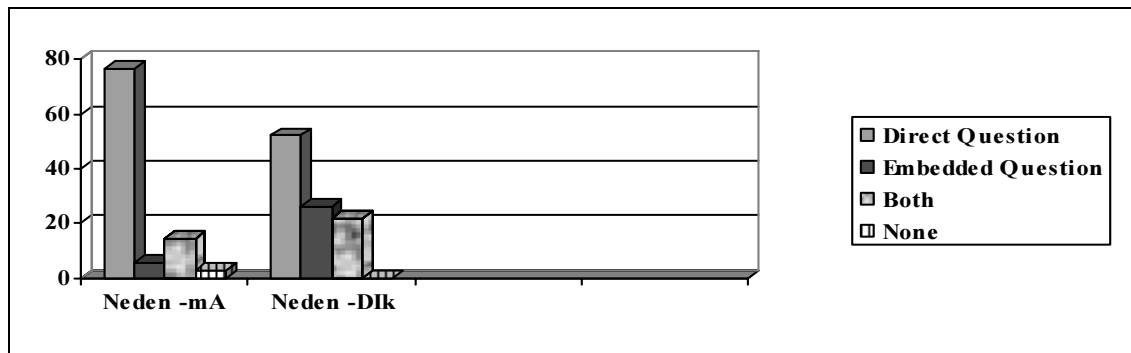


Figure 6 Interaction between Complement Clause Markers and Neden “Why” (n=69)

The sentence in which wh-word *neden* “why” is placed in Spec CP position of the embedded clause with subjunctive complement clause suffix –mA (*Ayşe neden Ali'nin gelmesini söyledi*) is considered by fifty-three subjects as a direct wh-question (76.8%). Ten subjects considered it as both a direct and an embedded wh-question (14.4%). Four subjects regarded the sentence as an embedded wh-question (5.7%). Only two subjects derived no meaning from the sentence (2.8%). When the same sentence is constructed via indicative complement clause suffix –Dİk (*Ayşe neden Ali'nin geldiğini söyledi*), thirty-six of the subjects interpreted the sentence as a direct wh-question (52.1%). Eighteen of them perceived it as an embedded wh-question (26%). Fifteen of them regarded the sentence as both a direct and embedded a wh-question (21.7%). No subject considered this sentence as meaningless.

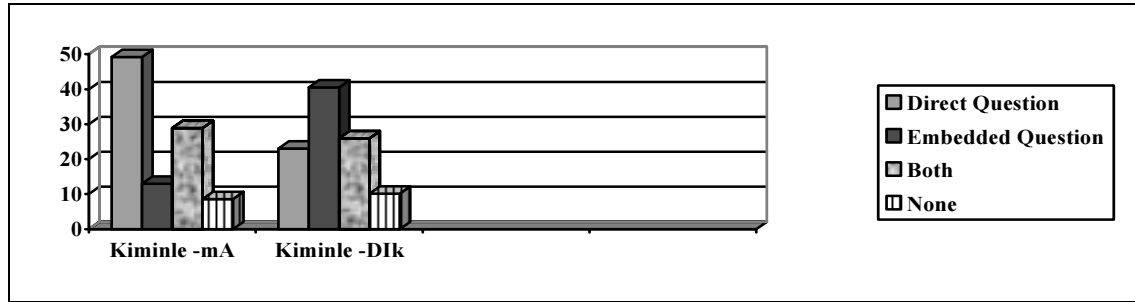


Figure 7 Interaction between Complement Clause Markers and Kiminle “With Whom” (n=69)

The sentence in which wh-word *kiminle* “with whom” is placed in Spec CP position (*Ayşe kiminle Ali'nin gelmesini söyledi*) is interpreted by thirty-four subjects as a direct wh-question (49.2%). Twenty subjects considered the sentence as both a direct and embedded wh-question (28.9%). Nine subjects regarded the sentence as an embedded wh-question (13%). Only six subjects derived no meaning from the sentence (8.6%). When the same sentence is constructed with indicative complement clause suffix –Dik (*Ayşe kiminle Ali'nin geldiğini söyledi*), different perceptions occur. Twenty-eight subjects interpreted it as an embedded wh-question but not a direct wh-question (40.5%). Eighteen subjects considered the sentence as both a direct and embedded wh-question (26%). Sixteen of them considered the sentence as a direct wh-question (23.1%). Only seven of the subjects derived no meaning from the sentence (10.1%).

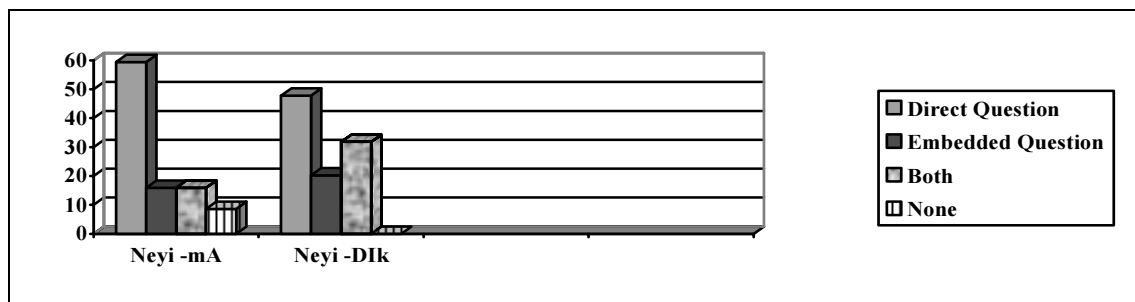


Figure 8 Interaction between Complement Clause Markers and Neyi “What-Acc” (n=69)

The sentence in which wh-argument *neyi* “what-Acc” occurs in Spec-CP (*Ayşe neyi Ali'nin yapmasını söyledi*) is interpreted as a direct wh-question by forty-one subjects (59.4%). The number of the subjects who perceived it as an embedded wh-question is the same with that of the subjects who interpreted it as both a direct and an embedded wh-question (each 11, 15.9%). Only six subjects derived no meaning from the sentence (8.6%). When the complement clause suffix is changed to indicative –Dik (*Ayşe neyi*

Ali'nin yaptığını söyledi), somewhat different perceptions occur except for the dominant reading of the sentence. Thirty-three of the subjects indicated that the sentence has a reading of a direct wh-question (47.8%). Twenty-two of the subjects derived both direct and an embedded wh-question readings from the sentence (31.8%). Fourteen subjects considered the sentence as an embedded wh-question (20.2%). Any subject did not perceive the sentence as meaningless.

Therefore, it is possible to state that the subjunctive –mA, and indicative –DIk complement clause suffixes slightly change the perception of the sentences in this word order in which wh-words occur in Spec-CP of the embedded clause. This difference results from the use of wh-adjunct *kiminle* “with whom” in Spec-CP in that sentences with –mA are mostly perceived as direct wh-questions but those with –DIk are commonly regarded as statements or embedded wh-questions. This finding also indicates that there may be an asymmetry among wh-adjuncts when they occur in Spec-CP and when different complement clause suffixes are employed. In other words, when wh-words appear in Spec-CP of the embedded clause, the interaction between *kiminle* “with whom” and two complement clause markers, namely –mA, and –DIk, is not the same.

Table 3 given below indicates the interaction between complement clause markers and wh-words in the third word order in which wh-words occur in the embedded clause.

Table 3 Interaction between Complement Clause Markers and Wh-words in the Third Word Order (n=69)

Subject1 – Subject2 – Wh-word – Verb2 – Verb1								
Ayşe Ali'nin Ne Zaman/Neden/Kiminle gelmesini/geldiğini söyledi								
When/Why/With Whom did Ayşe say that Ali should come/came								
Ayşe said When/Why/With Whom Ali should come/came								
Ayşe Ali'nin neyi yapmasını/yaptığını söyledi								
What did Ayşe say that Ali should do/did								
Ayşe said what Ali should do/did								
	Subjunctive (SC) -mA				Indicative (IC) -DIk			
	Question	Statement	Both	None	Question	Statement	Both	None
Ne Zaman	31 44.9%	17 24.6%	17 24.6%	4 5.7%	11 15.9%	42 60.8%	16 23.1%	-
Neden	34 49.2%	16 23.1%	14 20.2%	5 7.2%	18 26%	31 44.9%	19 27.5%	1 1.4%
Kiminle	30 43.4%	17 24.6%	19 27.5%	3 4.3%	12 17.3%	42 60.8%	15 21.7%	-
Neyi	24 34.7%	21 30.4%	19 27.5%	5 7.2%	16 23.1%	33 47.8%	16 23.1%	4 5.7%

Table 3 provides the findings on the subjects' perceptions of the sentences in which wh-words occur in the embedded clause. As seen above, all the sentences constructed via subjunctive marker –mA are perceived again as direct wh-questions, whereas when the same sentences are constructed by indicative marker –DIk, the perceptions of the subjects shift to embedded wh-questions regardless of wh-words.

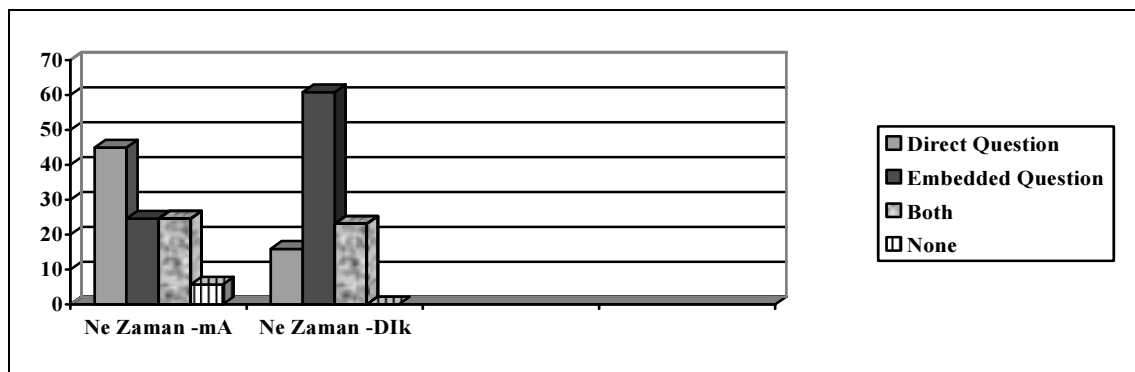


Figure 9 Interaction between Complement Clause Markers and Ne Zaman "When" (n=69)

When wh-word *ne zaman* "when" is used in the embedded clause with subjunctive complement clause marker –mA (*Ayşe Ali'nin ne zaman gelmesini söyledi*), thirty-one

subjects considered it as a direct wh-question (44.9%). The number of the subjects who perceived this sentence as an embedded wh-question and that of the subjects who considered it as both a direct and an embedded wh-question is the same (each 17, and 24.6%). Four subjects derived no meaning from the sentence (5.7%). On the other hand, when the complement clause marker is changed to indicative –Dİk (*Ayşe Ali'nin ne zaman geldiğini söyledi*), forty-two subjects considered it as an embedded wh-question (60.8%). Sixteen of them regarded the sentence as both a direct and an embedded wh-question (23.1%). Eleven of them considered it to be a direct wh-question (15.9%). No subject stated that they could not derive any meaning from the sentence.

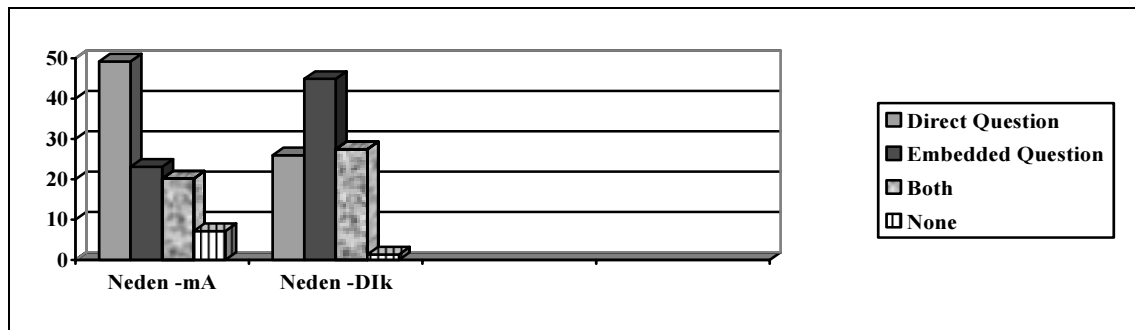


Figure 10 Interaction between Complement Clause Markers and Neden “Why” (n=69)

The sentence in which wh-word *neden* “why” occur in the embedded clause with subjunctive complement clause suffix –mA (*Ayşe Ali'nin neden gelmesini söyledi*) is considered by thirty-four subjects as a direct wh-question (49.2%). Sixteen subjects regarded it as an embedded wh-question (23.1%). Fourteen of them considered it to indicate both a direct and an embedded wh-question (20.2%). Five subjects derived no meaning from the sentence (7.2%). When the same sentence was constructed with indicative complement clause marker –DİK (*Ayşe Ali'nin neden geldiğini söyledi*), thirty-one subjects indicated that the sentence was an embedded wh-question (44.9%). Nineteen of them considered it to be both a direct and an embedded wh-question (27.5%). Eighteen subjects considered the sentence to be a direct wh-question (26%). Only one subject derived no meaning from the sentence (1.4%).

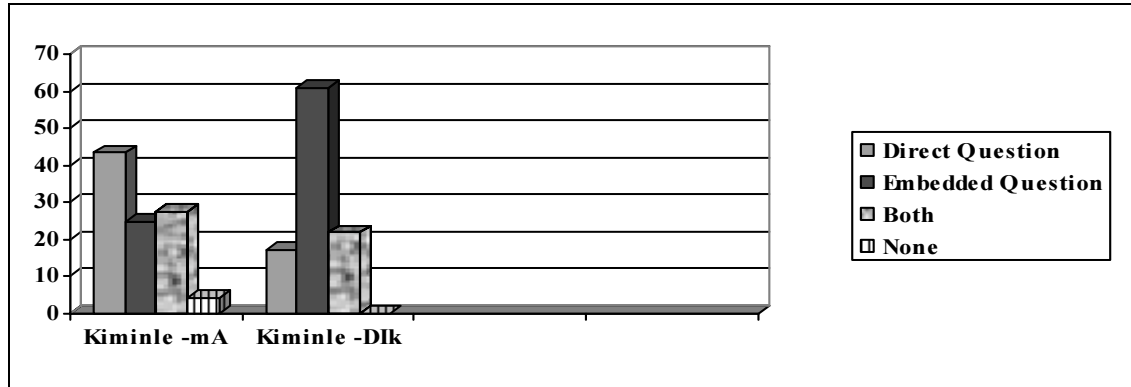


Figure 11 Interaction between Complement Clause Markers and Kiminle “With Whom” (n=69)

Similar results come from the use of wh-word *kiminle* “with whom”. When it is placed in the embedded clause with subjunctive complement clause marker –mA (*Ayşe Ali'nin kiminle gelmesini söyledi*), thirty subjects considered the sentence as a direct wh-question (43.4%). Seventeen subjects stated that it was an embedded wh-question (24.6%). Nineteen subjects considered the sentence as both a direct and an embedded wh-question (27.5%). Three subjects derived no meaning from the sentence (4.34%). When the same sentence is formed with indicative complement clause marker –DIk (*Ayşe Ali'nin kiminle geldiğini söyledi*), forty-two subjects considered the sentence as a statement or an embedded question (60.8%). Fifteen of them regarded it as both a direct and an embedded wh-question (21.7%). Twelve subjects considered the sentence to be a direct wh-question (17.3%). Again, no subject perceived it as meaningless.

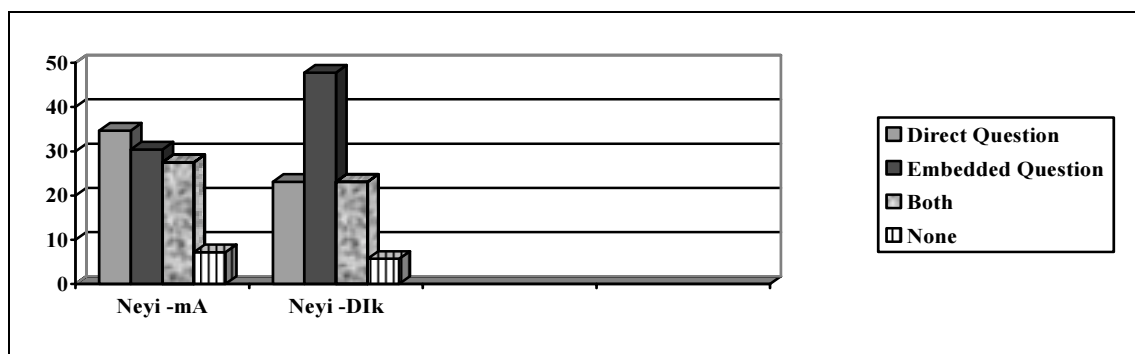


Figure 12 Interaction between Complement Clause Markers and Neyi “What-Acc” (n=69)

When wh-word *neyi* “what-Acc” is placed in the embedded clause with subjunctive complement clause marker –mA (*Ayşe Ali'nin neyi yapmasını söyledi*), twenty-four subjects considered the sentence as a direct wh-question (34.7%). Twenty-one subjects

regarded it as an embedded wh-question. (30.4%). Nineteen subjects stated that the sentence was both a direct and an embedded wh-question (27.5%). Five subjects derived no meaning from the sentence (7.2%). When the indicative complement clause marker –DIk was used in the embedded clause (*Ayşe Ali'nin neyi yaptığını söyledi*), nearly half of the subjects perceived the sentence as an embedded wh-question (33, 47.8%). The number of the subjects who considered it as an embedded wh-question and who interpreted it as both a direct and embedded wh-question is the same (each 16, 23.1%). Four subjects derived no meaning from the sentence (5.7%).

Therefore, it is possible to state that subjunctive and indicative complement clause suffixes have a great impact on the interpretation of the sentences as being direct or embedded wh-question when the wh-words tested occur in the embedded clause. It is clearly seen that when subjunctive complement clause marker –mA is used in the given order, all the sentences constructed with different wh-words have been perceived by the subjects as direct wh-questions. However, when the same sentences with the same wh-words are constructed via indicative complement clause marker –DIk, the subjects mostly perceived them as embedded wh-questions.

This finding is consistent with that of Kornfilt (2003:140) who argues that subjunctive nominal clauses are DPs, while, on the other hand, indicative nominal clauses are CPs. Furthermore, it is stated that in Turkish, nominal indicatives which are CPs have tense and thus have verbal properties, whereas subjunctive nominal clauses which are DPs lack corresponding verbal properties for tense. Kornfilt further indicates that indicative nominal clauses (in other words CPs) have a position in which a wh-operator is licensed. Thus, they can host wh-operators. However, subjunctive nominalized clauses do not host wh-operators and therefore cannot act as embedded wh- or yes/no questions (2003:142). Consider the following sentences:

(47) a. [yemeğ-i kim-in pişir-diğ-in]-i sor-du-m/duy-du-m/söyle-di-m
 food-Acc who-Gen cook-Fn-3sg-Acc ask-Pst-1sg/hear-Pst-1sg/tell-Pst-1sg
 “I asked/heard/told who had cooked the food.”

b. *[yemeğ-i kim-in pişir-me-sin]-i söyle-di-m
 food-Acc who-Gen cook-Nfn-3sg-Acc tell-Pst-1sg
 Intended meaning: “I said who should cook the food.” (Kornfilt, 2003:143)

Also, the findings of Bhatt (2003:5) on Hindi are similar to those obtained in the study. Bhatt (2003:5) states that infinitival clauses in Hindi do not form a domain for a question formation. Thus, there are no infinitival questions in Hindi. Dayal (1996 in Bhatt, 2003:5) indicates that infinitival clauses in Hindi are a kind of gerund, they lack CP, and they cannot be a domain for question formation as shown in (48):

(48) tum [kyaa kar-naa] jaan-te ho
 you-Pl what do-Inf know-Hab.MPl be-Prs.2Pl (Bhatt, 2003:5)

Matrix Question: “What do you know to do?”

*Embedded Question: “You know what to do.”

As seen in (48), the embedded question formation is not possible in Hindi when the complement clause includes infinitives. The same situation is also observed in Turkish when the complement clause is formed via subjunctive –mA.

Table 4 given below indicates the interaction between complement clause markers and wh-words in the fourth word order in which wh-word occurs immediately before the matrix verb.

Table 4 Interaction between Complement Clause Markers and Wh-words in the Fourth Word Order (n=69)

Subject1 – Subject2 – Verb2 – Wh-word – Verb1								
Ayşe Ali'nin gelmesini/geldiğini Ne Zaman/Neden/Kiminle söyledi								
When/Why/With Whom did Ayşe say that Ali should come/came								
Ayşe Ali'nin yapmasını/yaptığını neyi söyledi								
Ayşe said what Ali should do/did.								
	Subjunctive (SC) -mA				Indicative (IC) -Dik			
	Question	Statement	Both	None	Question	Statement	Both	None
Ne Zaman	60 86.9%	1 1.4%	8 11.5%	-	60 86.9%	3 4.3%	6 8.6%	-
Neden	54 78.2%	3 4.3%	9 13%	3 4.3%	56 81.1%	4 5.7%	8 11.5%	1 1.4%
Kiminle	38 55%	6 8.6%	11 15.9%	14 20.2%	45 65.2%	5 7.2%	14 20.2%	5 7.2%
Neyi	17 24.6%	5 7.2%	12 17.3%	35 50.7%	22 31.8%	8 11.5%	6 8.6%	33 47.8%

Table 4 provides the findings on the subjects' perceptions of the sentences in which wh-words are placed in preverbal position. As seen above, for all wh-words in word order four, the complement clause marker shift does not affect the perception of the sentences by the subjects. For both complement clause markers, the most frequently chosen option is direct wh-question reading. However, a striking differentiation on the perception of the sentences is realized for wh-word *neyi* “whatAcc” for both complement clause markers. This differentiation will be discussed in section 3.2 which deals primarily with the effects of different wh-words on interpretation of the sentences regardless of complement clause marker variation.

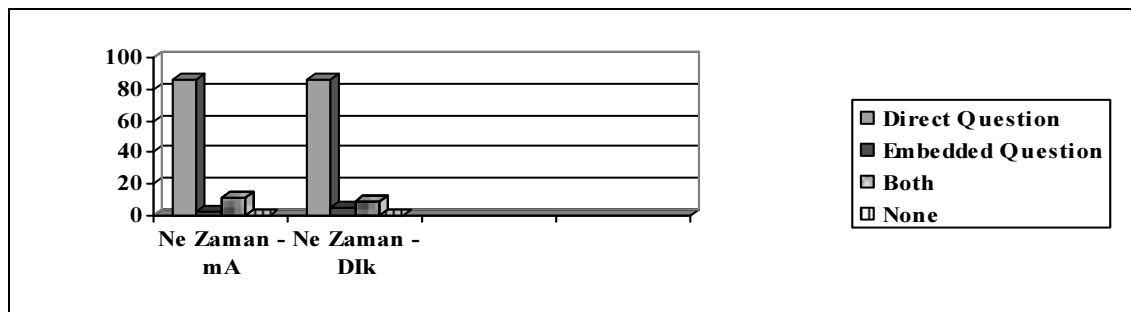


Figure 13 Interaction between Complement Clause Markers and Ne Zaman “When” (n=69)

When wh-word *ne zaman* “when” occur in preverbal position and when subjunctive complement clause marker –mA is used in the embedded clause (*Ayşe Ali'nin gelmesini ne zaman söyledi*), majority of the subjects regarded the sentence as a direct wh-question (60, 86.9%). Eight subjects stated that the sentence indicates both an interrogative and declarative reading (11.5%). Only one subject considered the sentence as an embedded wh-question (1.4%) . No subject stated that the sentence was either a direct or an embedded wh-question. When the same sentence is constructed with indicative complement clause marker –Dik (*Ayşe Ali'nin geldiğini ne zaman söyledi*), again sixty subjects considered the sentence as a direct wh-question (86.9%). Six subjects stated that the sentence indicated both an interrogative and a declarative meaning (8.6%). Only three subjects regarded it as an embedded wh-question (4.3%). Again, no subject perceived that it had either a direct or an embedded wh-question.

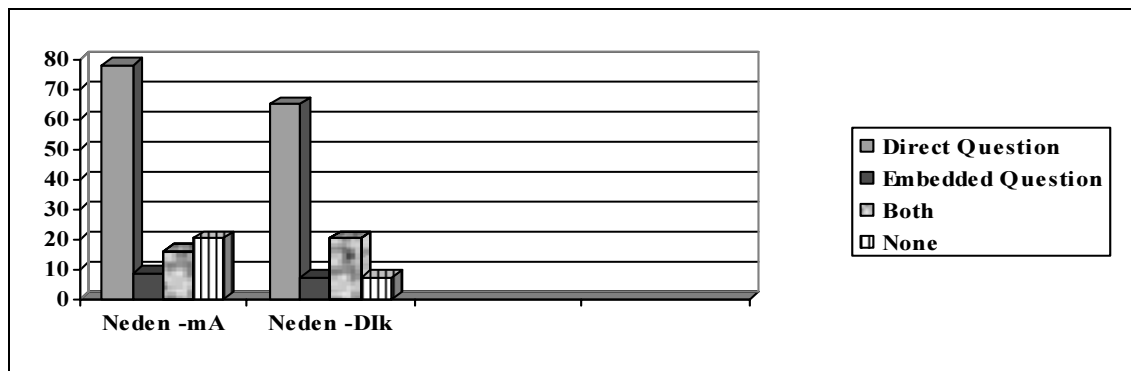


Figure 14 Interaction between Complement Clause Markers and Neden “Why” (n=69)

The sentence in which wh-word *neden* “why” is placed in preverbal position with subjunctive complement clause suffix –mA in the embedded clause (*Ayşe Ali'nin gelmesini neden söyledi*) is considered by fifty-four subjects as a direct wh-question (78.2%). Nine subjects indicated that the sentence had both an interrogative and a declarative meaning (13%). The number of the subjects who considered it to be an embedded wh-question and who derived no meaning from the sentence is the same. (Each 3, 4.3%). When the same sentence is constructed with indicative complement clause marker –Dik in the embedded clause (*Ayşe Ali'nin geldiğini neden söyledi*), fifty-six subjects considered the sentence as a direct wh-question (81.1%). Eight subjects regarded the sentence as having both an interrogative and a declarative reading (11.5%).

Four subjects stated that the sentence was an embedded wh-question (5.7%). Only one subject derived no meaning from the sentence (1.4%).

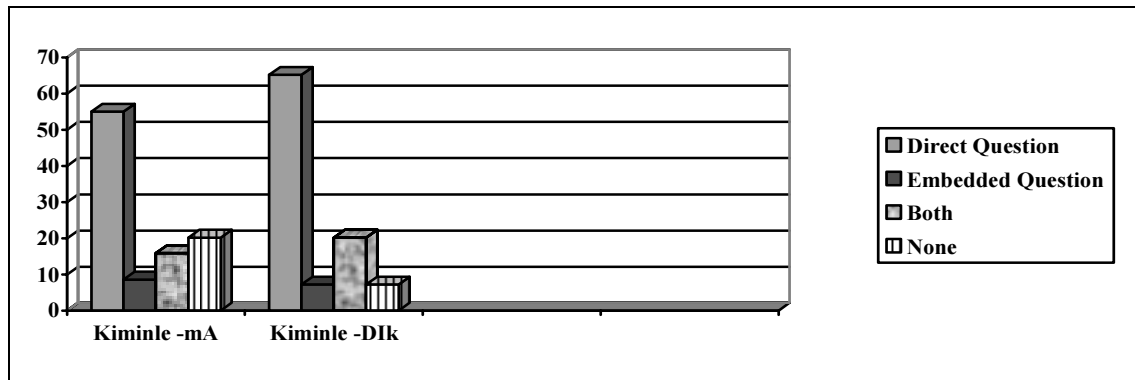


Figure 15 Interaction between Complement Clause Markers and Kiminle “With Whom” (n=69)

Similar results come from the use of wh-word *kiminle* “with whom”. When *kiminle* “with whom” is placed in preverbal position with subjunctive complement clause marker –mA in the embedded clause (*Ayşe Ali'nin gelmesini kiminle söyledi*), thirty-eight of the subjects regarded the sentence as a direct wh-question (55%). Fourteen subjects derived no meaning from the sentence (20.2%). Eleven subjects indicated that the sentence implied both a direct and embedded wh-question meaning (15.9%). Only six subjects considered it to be an embedded wh-question (8.6%). When the same sentence is constructed via indicative complement clause marker –DIk (*Ayşe Ali'nin geldiğini kiminle söyledi*), forty-five subjects indicated that the sentence was a direct wh-question (65.2%). Fourteen subjects regarded the sentence as both a direct and an embedded wh-question (20.2%). The number of those who stated that it has an embedded wh-question reading or that it has none of the readings is the same (each 5, 7.2%).



Figure 16 Interaction between Complement Clause Markers and Neyi “What-Acc” (n=69)

Perceptions of the subjects differs when *neyi* “what-Acc” occur in preverbal position. When wh-word *neyi* “what-Acc” is placed in preverbal position with subjunctive complement clause marker in the embedded clause (*Ayşe Ali'nin yapmasını neyi söyledi*), more than half of the subjects derived no meaning from the sentence (thirty-five, 50.7%). Seventeen of them considered it to be a direct wh-question (24.6%). Twelve subjects considered the sentence as having both a declarative and interrogative meanings (17.3%). Only five subjects regarded the sentence as an embedded wh-question (7.2%). When the same order is constructed with -Dik (*Ayşe Ali'nin yaptığını neyi söyledi*), nearly half of the subjects derived no meaning from the sentence (33, 47.8%). Twenty of them indicated that the sentence is a direct wh-question (31.8%). Eight subjects considered the sentence as an embedded wh-question (11.5%). Only six of them regarded the sentence as indicating both embedded and direct wh-question readings (8.6%).

Therefore, it is possible to indicate that the alteration of the complement clause markers in word order four, in which wh-words occur preverbally, does not affect the interpretation of the sentences by the subjects. For three wh-words, namely *ne zaman* “when”, *neden* “why”, *kiminle* “with whom” most of the subjects indicated that the sentences had interrogative meanings regardless of the types of the complement clause marker. Also, for the sentences in which *neyi* “what-Acc” is placed preverbally, the interpretations of the subjects did not change by the complement clause markers. For both of the sentences in which *neyi* “what-Acc” is used, most of the subjects did not derive any meaning from the sentences.

3.1.1. SUMMARY

3.1 provides the findings on the interaction between complement clause markers and wh-words based on four word order variations. It is possible to indicate that two complement clause markers, namely, subjunctive –mA and indicative –DIk, have led to a significant difference in the third word order in which wh-words occurs in the embedded clause. When the embedded structure is formed via subjunctive –mA, the subjects interpreted the sentences as direct wh-questions. However, when the same order is constructed via indicative –DIk in the embedded clause, the subjects interpreted the sentences as embedded wh-questions regardless of the wh-word. This finding clearly underlies the fact that similar to infinitival clauses, subjunctive nominal clauses are deficient in that they can not constitute embedded wh-constructions when wh-words are in the embedded clause. However, indicative nominal clauses allow for both direct and embedded wh-questions. In the first word order, in which wh-words are placed sentence-initially, the subjects interpreted the sentences as direct wh-questions for both complement clause markers. In the second word order, in which wh-words occur in Spec-CP position of the embedded clause, again most of the subjects perceived the sentences as direct wh-questions when two different complement clause markers are employed. However, a slight difference for wh-word *kiminle* “with whom” is observed when it is used with –DIk in the second word order. In the last word order, in which wh-words are placed in verb-initial position, most of the subjects considered the sentences again as direct wh-questions regardless of the complement clause marker variation.

3.2. INTERACTION BETWEEN WH-WORDS AND WORD ORDER VARIATIONS

In this section, four tables are given in order to point out the effects of different wh-words on the interpretations of the sentences regardless of complement clause markers. Thus, a total of 138 sentences has been included in the analysis of the effects of wh-words without considering two different complement clause markers.

Table 5 Effect of Wh-words in Word Order One (n=138)

Wh-word – Subject1 – Subject2 – Verb2 – Verb1				
Ne zaman/Neden/Kiminle Ayşe Ali'nin gelmesini/geldiğini söyledi				
When/Why/With whom did Ayşe say that Ali should come/came				
Neyi Ayşe Ali'nin yapmasını/yaptığını söyledi				
What did Ayşe say that Ali should do/did				
	Question	Statement	Both	None
Ne Zaman	98 71%	11 8%	23 16.7%	6 4.3%
Neden	111 80.4%	11 8%	13 9.4%	3 2.2%
Kiminle	60 43.5%	21 15.2%	36 26.1%	21 15.2%
Neyi	71 51.4%	13 9.4%	27 19.6%	27 19.6%

Table 5 provides the findings on the subjects' interpretations of the sentences when the wh-word is placed in sentence-initial (S-initial) position regardless of the complement clause marker. Thus, the number of sentences in Table 5 is given as 138 encapsulating sixty-nine sentences constructed via –mA and sixty-nine sentences formed via –Dik altogether. In Table 5, it is clearly seen that there is no differentiation in the perceptions of the sentences. All the sentences constructed via different wh-words are mostly interpreted by the subjects as direct wh-questions. Therefore, it is seen that although there are minor differences among four wh-words in the first word order, they are mostly perceived as used in direct wh-questions.

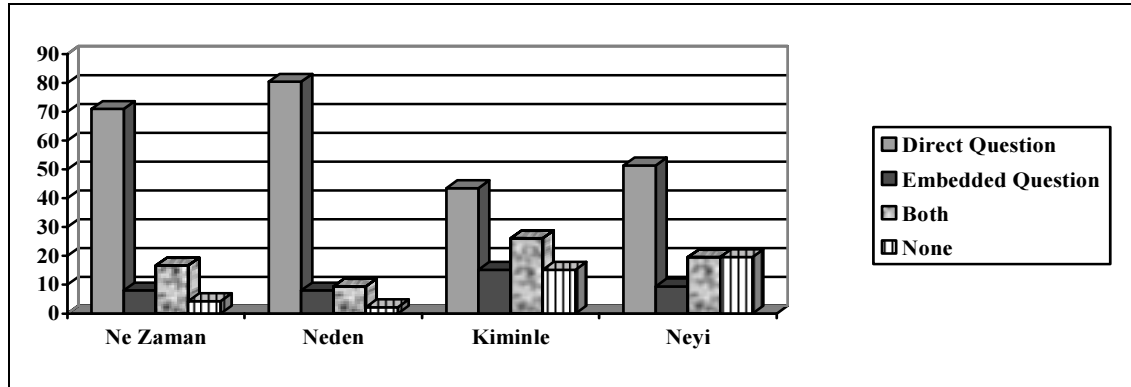


Figure 17 Effect of Wh-words in Word Order One (n=138)

Wh-word – Subject1 – Subject2 – Verb2 – Verb1

As seen in both Table 5 and Figure 17, among 138 sentences in which wh-adjunct *ne zaman* “when” occurs at S-initial position, ninety-eight of them were regarded to be direct wh-questions (71%). Twenty-three sentences were marked as both a direct and an embedded wh-question (16.7%). Eleven sentences were considered to be embedded wh-questions (8%). Only six sentences were considered to be meaningless by the subjects (4.3%).

Another wh-adjunct *neden* “why” leads to similar results. Among 138 sentences, 111 of them were considered to be direct wh-questions (80.4%). Thirteen sentences were classified as both having declarative and interrogative meanings (9.4%). Eleven sentences were regarded by the subjects as indicating declarative meaning (8%). Only three sentences were stated as relating no meaning to the subjects (2.2%).

Again, the other wh-adjunct *kiminle* “with whom” leads to similar results. Among 138 sentences, sixty of them were regarded as to be direct wh-questions (43.5%). Thirty-six sentences were considered to have both declarative and interrogative meanings (26.1%). The number of the sentences which were regarded to be embedded wh-questions and meaningless is the same (each 21, 15.2%).

When the sentences are constructed via wh-argument *neyi* “what-Acc” in S-initial position, the same results are obtained. Among 138 sentences, seventy-one of them were considered to be direct wh-questions (51.4%). The number of the sentences which

were considered to be both direct and embedded wh-questions is the same as that of the sentences which were considered to be meaningless (each 27, 19.6%). Thirteen sentences were regarded to be declaratives (9.4%).

As shown in Table 5 and Figure 17, when wh-words occur in S-initial position, the perceptions of the subjects did not differ based on different wh-words whether they are wh-adjuncts or wh-arguments. In other words, all of the wh-words used in the sentences were considered to be direct wh-questions .

Using the findings presented in Table 5, an interesting point can be emphasized about wh-adjunct *ne zaman* “when”. As stated above, when wh-word *ne zaman* “when” is placed S-initial position, which is argued to be the topic position in Turkish (Erguvanlı, 1984), majority of the subjects considered that the sentence had an interrogative meaning (71%). This finding is contra to Akar (2001) who states that *ne zaman* “when” is a VP internal oblique question word. Thus, it cannot be topicalized, unlike VP-external question words, as shown in (49) and (50), respectively.

(49) */? [S'[SPEC Ne zaman] [S'[NP Aslı] [VP ti gitti]]]
 When Aslı go-Past
 “When did Aslı go?”

(50) [S'[SPEC Neden] [S'[NP Hakan] [VP Aslı'yı hergün arıyor]]]
 Why Hakan Aslı-Acc everyday call-Prog
 “Why is Hakan calling Aslı everyday?” (Akar, 2001:72)

Akar (2001) argues that (49) is ungrammatical or at least awkward, but (50) is a proper one. The reason for this is that *ne zaman* “when” is a VP-internal oblique question word which cannot be topicalized, whereas *neden* “why” is a VP-external adjunct wh-word which can be topicalized properly. However, the findings obtained indicate that there is no problem for the topicalization of *ne zaman* “when” as *neden* “why” in Turkish. In other words, *ne zaman* “when” can successfully occur in S-initial position. And, such sentences are all grammatical. The difference may stem from the fact that Akar (2001)

studied simple sentences. But in the present study , complex sentences are tested. Thus, it may be argued that *ne zaman* “when” which is considered to be ungrammatical in simple sentences may be topicalized in Turkish complex sentence structures. It may also be stated that in simple and complex sentences, wh-words exhibit different syntactic behaviour.

Table 6 below provides the findings on the subjects’ interpretations of the sentences in which wh-words occur in the specifier of the complementizer phrase (Spec-CP).

Table 6 Effect of Wh-words in Word Order Two (n=138)

Subject1 – Wh-word – Subject2 – Verb2 – Verb1				
Ayşe Ne Zaman/Neden/Kiminle Ali’nin gelmesini/geldiğini söyledi				
When/Why/With Whom did Ayşe say that Ali should come/come?				
Ayşe Neyi Ali’nin yapmasını/yaptığını söyledi				
What did Ayşe say that Ali should do/did?				
	Question	Statement	Both	None
Ne Zaman	81 58.7%	11 8%	44 31.9%	2 1.4%
Neden	89 64.5%	22 15.9%	25 18.1%	2 1.4%
Kiminle	50 36.2%	37 26.8%	38 27.5%	13 9.4%
Neyi	74 53.6%	25 18.1%	33 23.9%	6 4.3%

In Table 6, it is clearly seen that there is no difference in the perceptions of the sentences based on different wh-words. The most frequent perception by the subjects is the interrogative one for all four wh-words in this word order like in the first word order variation. Thus, it may be emphasized that this word order leads also to direct wh-question reading.

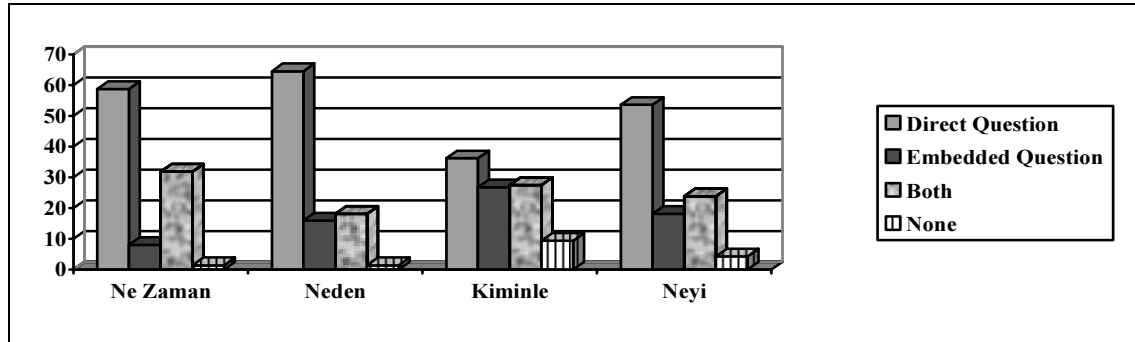


Figure 18 Effect of Wh-words in Word Order Two (n=138)

Subject1 – Wh-word – Subject 2 – Verb2 – Verb1

When the wh-adjunct phrase *ne zaman* “when” occurs in Spec-CP position of the embedded clause, more than half of 138 sentences were considered to be direct wh-questions by the subjects (81, 58.7%). Forty-four sentences were considered to have both declarative and interrogative meanings (44, 31.9%). Eleven sentences were regarded to be embedded wh-questions (8%). Only two sentences were stated to have no meaning (1.4%).

The situation does not change when wh-adjunct *neden* “why” occurs in Spec-CP position of the embedded clause. Again more than half of the sentences were considered to have interrogative meaning (89, 64.5%). Twenty-five of them were considered to have both direct and embedded wh-question readings (18.1%). Twenty-two of them were regarded as embedded wh-questions (15.9%). Only two sentences were thought to have no meanings (1.4%).

When wh-word *kiminle* “with whom” which is also a wh-adjunct is placed in Spec-CP of the embedded clause, fifty sentences were regarded to be direct wh-questions (36.2%). Thirty-eight sentences were regarded to have both direct and embedded wh-question readings (27.5%). Thirty-seven sentences were considered to be embedded wh-questions (26.8%). Only thirteen sentences were stated as relating no meaning at all (9.4%).

Like for three adjunct wh-phrases, the situation does not change for wh-argument *neyi* “what-Acc”. More than half of the sentences were considered to be direct wh-questions

(74, 53.6%). Thirty-three sentences were stated as indicating both embedded and direct wh-questions (23.9%). Twenty-five of them were regarded as having embedded wh-question reading (18.1%). Only six sentences were thought to have no meaning (4.3%).

Therefore, it is possible to state that when wh-words are placed in the Spec-CP position in Turkish complex sentence structure, the perception of the sentences do not vary according to the kind of the wh-word. In other words, wh-words do not have any effect on the perceptions of the sentences when they appear in Spec-CP of the embedded clause. For all wh-words, the subjects interpreted the sentences as indicating interrogative meaning. Therefore, it is possible to indicate that when wh-words, whether wh-adjunct or wh-argument, are placed in Spec-CP position of the embedded clauses, deriving a wh-question interpretation is possible. However, the sentences with *kiminle* “with whom” have lower rates in contrast to the sentences with other three wh-words.

Table 7 below presents the findings on the subjects’ perceptions of the sentences in which wh-words occur in the embedded clause.

Table 7 Effect of Wh-words in Word Order Three (n=138)

Subject1 – Subject2 – Wh-word – Verb2 – Verb1				
Ayşe Ali'nin Ne Zaman/Neden/Kiminle gelmesini/geldiğini söyledi				
When/Why/With Whom did Ayşe say that Ali should come/come				
Ayşe said When/Why/With Whom Ali should come/come				
Ayşe Ali'nin neyi yapmasını/yaptığını söyledi				
What did Ayşe say that Ali should do/did				
Ayşe said what Ali should do/did				
	Question	Statement	Both	None
Ne Zaman	42 30.4%	59 42.8%	33 23.9%	4 2.9%
Neden	52 37.7%	47 34.1%	33 23.9%	6 4.3%
Kiminle	42 30.4%	59 42.8%	34 24.6%	3 2.2%
Neyi	40 29%	54 39.1%	35 25.4%	9 6.5%

In Table 7, it is seen that in this word order, one of the wh-words, namely *neden* “why” behaves differently in that although the major perception is towards embedded wh-question, it leads to direct wh-question interpretation in the sentences tested.

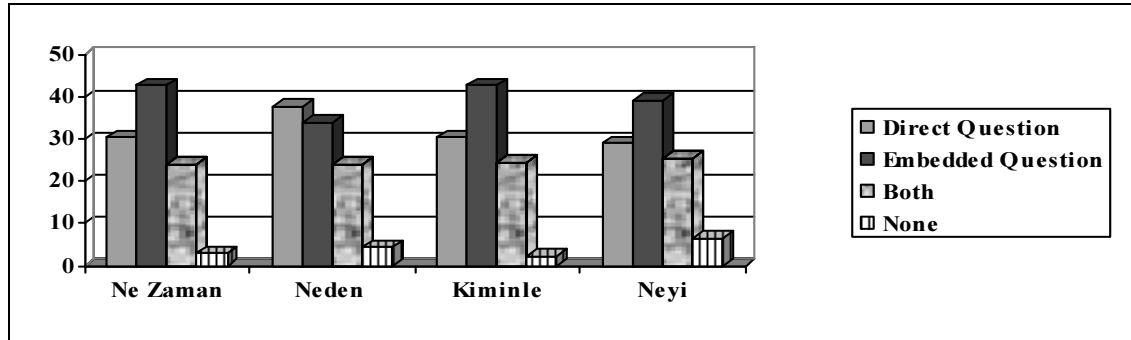


Figure 19 Effect of Wh-words in Word Order Three (n=138)

Subject1 – Subject 2 – Wh-word – Verb2 – Verb1

When the adjunct wh-phrase *ne zaman* “when” is placed in the embedded clause, fifty-nine of 138 sentences were considered to be embedded wh-questions by the subjects (42.8%). Forty-two of them were regarded to be direct wh-questions (30.4%). Thirty-three sentences were considered to have both direct and embedded wh-question readings (23.9%). Only four sentences were stated to have no meaning (2.9%).

The situation is different for *neden* “why”. Most of the sentences with *neden* “why” were regarded to be direct wh-questions. A total of fifty-two sentences was perceived as direct wh-questions (37.7%). Forty-seven sentences were considered to be embedded wh-questions (34.1%). Thirty-three of them were thought to have both a declarative and an interrogative meaning (23.9%). Only six sentences were stated to be meaningless (4.3%).

The perception of *kiminle* “with whom” is nearly the same as *ne zaman* “when” since fifty-nine sentences were considered to be embedded wh-questions (42.8%). Forty-two of them were considered to be direct wh-questions (30.4%). Thirty-four sentences were regarded to have both embedded and direct wh-question readings (24.6%). Only three sentences were considered to have neither readings (2.2%).

When the same sentence was constructed via *neyi* “what-Acc”, fifty-four of them were considered again to be embedded wh-questions (39.1%). Forty sentences were regarded to be direct wh-questions (29%). Thirty-five of them were stated as having both declarative and interrogative meanings (25.4%). Nine sentences were regarded to be meaningless by the subjects (6.5%).

Therefore, it is possible to state that *neden* “why” behaves exceptionally in this word order variation in which wh-words occur in the embedded clause. While *ne zaman* “when”, *kiminle* “with whom”, and *neyi* “what-Acc” are mostly stated by the subjects to indicate declarative meaning when they occur in the embedded clause, *neden* “why” is primarily considered to indicate an interrogative meaning. In other words, *neden* “why” constitutes a direct wh-question, whereas the other three wh-words form embedded wh-questions in this word order. It is not possible to explain this situation according to wh-adjunct and wh-argument classification since wh-argument *neyi* “what-Acc” is perceived as the same as wh-adjuncts *ne zaman* “when” and *kiminle* “with whom”. But, the other wh-adjunct *neden* “why” exhibits a totally different pattern. However it is stated that “why” has a different behavior in contrast to other wh-adjuncts in other languages, too. For instance, Ko (2005) indicates that there is a word order contrast with *niye* “why” and other wh-phrases in Turkish. It is not allowed for wh-phrases in Turkish to precede a subject, except *why* “neden” as shown in (51a-b):

(51) a. */? Nereye Ayşe git-ti?
 Where Ayşe go-Past
 “Where did Ayşe go?”

b. Niye Sevim Teyze Nergis-e kız- dı?
 Why Sevim Aunt Nergis-Dat get.angry-Past
 “Why did Aunt Sevim get angry at Nergis?” (Akar, 1990:64-65)

Ko (2005) explains the contrast in (51a) and (51b) with EMH (External-Merge Hypothesis). EMH states that *why* in wh-in-situ languages is externally merged into its potential checking position [Spec-CP] in the overt syntax. As seen in (51a), wh-word

nereye “where-Dat” remains in the preverbal focus position and thus, is not merged into Spec-CP in overt syntax. But in (51b) wh-word *niye* “when” is merged to its checking position [Spec-CP] in overt syntax. By considering the findings obtained, it is possible to argue that there is also an exception for complex sentence structure in Turkish when the sentence is formed via *neden* “why”. While the other three wh-phrases *ne zaman* “when”, *kiminle* “with whom” and *neyi* “what-Acc” are perceived by the subjects as indicating embedded wh-questions and thus taking embedded question domain when they are placed in the embedded structure, wh-word *neden* “why” is regarded to indicate interrogative meaning when it is scrambled out of V-initial position into the embedded structure.

Exceptional behavior of *neden* “why” is not only observed in Turkish. Bayer (2006:15) also states that *why* also causes exceptions in reading in Japanese and also in French as shown in (52) and (53a-b):

- (52) *Kimi-wa [[kare-ga naze kai-ta] hon]-o yomi masi-ta ka?
 you-Top he-Nom why write book-Acc read Q
 “You read book that he wrote why?”

Bayer (2006:15) indicates that example (52) is ill-formed since, although the wh-adjunct *naze* “why” is obviously bound by Q-particle *ka*, it fails to associate with it. Therefore, a proper question formation is not constituted. A similar situation is also observed in French.

- (53) a. tu as vu qui?
 You have seen whom
 b. * tu es venu pourquoi?
 you have come why

As seen in (53a-b), although *qui* “whom” and *pourquoi* “why” are remained in situ, while the sentence formed via *qui* “whom” is well-formed, the one with *pourquoi*

“why” is ill-formed. Bayer (2006:15) states that when *naze* “why” is replaced by *dooiu riyuu de* “what reason for” in sentence (52), the interpretation of the sentence is no more ill-formed and in a similar fashion, when the wh-word *pourqui* “why” is interpreted as “purposive” in sentence (53b), the sentence also becomes well-formed. A suitable answer to the question will be “...to study geometry” but not “...because I am sick”. Bayer (2006:16) further indicates that the difference is conceptual since people think of a finite countable set of individuals (persons, moments of time and places) in connection with *who*, *when* and *where*, but probably it is not in connection with *how* and *why*.

As seen above, the wh-adjunct *neden* “why” creates an exceptional case not only in Turkish, but also in Japanese and French. Although the exceptions do not all the way show the same peculiarities, it can be argued that *neden* “why” behaves in a different manner in contrast to the other wh-adjuncts when it occurs in the embedded clause.

Table 8 below provides the findings on the subjects’ perceptions of the sentences in which wh-words occur in preverbal position.

Table 8 Effect of Wh-words in Word Order Four (n=138)

Subject1 – Subject2 – Verb2 – Wh-word – Verb1				
Ayşe Ali’nin gelmesini/geldiğini Ne Zaman/Neden/Kiminle söyledi				
When/Why/With Whom did Ayşe say that Ali should come/come				
Ayşe Ali’nin yapmasını/yaptığını neyi söyledi				
Ayşe said what Ali should do/did.				
	Question	Statement	Both	None
Ne Zaman	120 87%	4 2.9%	14 10.1%	-
Neden	110 79.7%	7 5.1%	17 12.3%	4 2.9%
Kiminle	83 60.1%	11 8%	25 18.1%	19 13.8%
Neyi	39 28.3%	13 9.4%	18 13%	68 49.3%

In Table 8, it is clearly seen that the sentences in which *ne zaman* “when”, *neden* “why”, and *kiminle* “with whom” occur in preverbal position are mostly perceived as direct wh-questions. However, those in which *neyi* “what-Acc” is used preverbally are perceived as being neither direct nor embedded wh-questions.

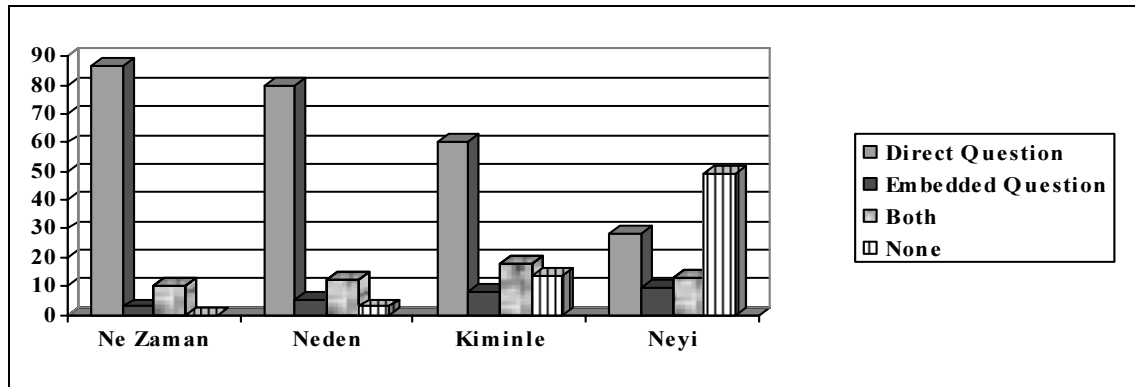


Figure 20 Effect of Wh-words in Word Order Four (n=138)
Subject1 – Subject2 – Verb2 – Wh-word – Verb1

When one of the wh-adjuents, namely *ne zaman* “when”, is placed in preverbal position, 120 of 138 sentences were considered to be direct wh-questions by the subjects (87%). Fourteen sentences were considered to have both declarative and interrogative meanings (10.1%). Only four sentences were regarded to be embedded wh-questions (2.9%). None of the sentences were considered to be meaningless by the subjects.

The situation for the other wh-adjuent *neden* “why” is similar to that for *ne zaman* “when”. The majority of the sentences were considered to be direct wh-questions (110, 79.7%). Seventeen sentences were indicated to have both embedded and direct wh-question readings (12.3%). Seven sentences were marked as embedded wh-questions (5.1%). Only four of the sentences were considered to be meaningless by the subjects (2.9%).

For another wh-adjuent *kiminle* “with whom” the results do not differ. Again, most of the sentences were considered to be direct wh-questions (88, 60.1%). Twenty-five sentences were marked as having both direct and embedded wh-question readings

(18.1). Nineteen sentences were considered to be meaningless by the subjects (13.8%). Eleven sentences were regarded to have embedded wh-question reading (8%).

The findings point to a difference between wh-adjuncts and wh-arguments. When wh-argument *neyi* “what-Acc” is placed in preverbal position, such sentences are perceived as having neither readings. While all wh-adjuncts were considered to be direct wh-question in this word order, the sentences constructed via wh-argument *neyi* “what-Acc” in preverbal position were mostly considered to be neither direct nor embedded wh-questions (49.3%). Thirty-nine sentences, were regarded to have a direct wh-question reading (28.3%). Eighteen sentences were marked as carrying both direct and embedded wh-question meanings (13%). Thirteen sentences were classified as embedded wh-questions (9.4%). Therefore, it is possible to indicate that in complex sentence structure in Turkish, wh-adjuncts *ne zaman* “when”, *neden* “why”, and *kiminle* “with whom” behave in the same way when they are placed in preverbal position. In other words, it is possible to construct interrogative complex sentences when wh-adjuncts occur preverbally in Turkish. However, wh-argument *neyi* “what-Acc” leads to different perceptions, in that the subjects considered such sentences as having neither direct nor embedded wh-questions.

It is also necessary to state that when wh-argument *neyi* “what-Acc” is placed in preverbal position, it successfully forms direct wh-questions in simple sentences, since the basic structure for wh-questions in Turkish is immediately to the left of the verb, or preverbal position. Consider the following example:

(54) [S [NP Satı] [VP ti Satılmış’a neyi satacak]]
 Satı Satılmış-Dat what-Acc sell-Fut
 “What will Satı sell to Satılmış?” (Akar, 2001:67)

(54) is an example of simple sentence. As seen above, the wh-argument *neyi* “what-Acc” is placed just before the verb and it forms an acceptable direct wh-question.

However, as Table 8 indicates, when wh-argument *neyi* “what-Acc” is placed before the matrix verb in complex sentences, it cannot constitute an acceptable direct wh-question.

Kornfilt (2001:191) indicates that verbal predicates assign both thematic roles and case to their arguments. Kornfilt (1994:52) further states that accusative case in Turkish is a structural case and it is assigned by the verb. It can be proposed that wh-argument *neyi* “what-Acc” is a phrase which behaves like a DP as pointed out by Karimi (2005).¹ DPs need case and thus, they should be in argument position of predicates. Therefore, it is possible to indicate that the accusative marker attached to wh-word *neyi* “what-Acc” is assigned by the embedded verb *yap-* “do”. Thus, *neyi* “what-Acc” is governed by the embedded verb. This claim is also supported by Arslan (1999).

- (55) [Tolga [Ayşe-nin ne-yi nasıl pişir-diğ-in] i biliyor]
 Tolga Ayşe-Gen what-Acc how cook-Nm-Poss-Acc know-Prog
 (Arslan, 1999:62)

Arslan (1999:63) indicates that *nasıl* “how” is a wh-adjunct and it needs to be antecedent governed. But, *neyi* “what-Acc” is a wh-argument and since it does not need an antecedent in the minimal clause, it is lexically governed by the embedded verb *pişir-* “cook”.

Therefore, it is possible to derive that since wh-adjuncts *ne zaman* “when”, *neden* “why”, and *kiminle* “with whom” are not lexically governed by the embedded verb, it is possible for them to scramble out of the VP and occur in preverbal position. However, the situation is just the vice versa for wh-argument *neyi* “what-Acc”. It is lexically governed by the embedded verb *yap-* “do” as shown in (56). Thus, it is not possible for it to occur just before the matrix verb *söyle-* “say”, since it is not governed by the matrix verb *söyle-* “say”.

- (56) *Ayşe Ali'nin yapmasını/ yaptığını neyi söyledi
 Ayşe Ali-Gen do-SC-3rd-Sg-Acc /do- IC-3rd-Sg-Acc what-Acc say-Past-3rd-Sg

¹ Karimi (2005:141) indicates that wh-arguments have a D-head, which is not observed in wh-adjuncts.

Therefore, the findings presented in Table 8 support the views of Kornfilt (1994, 2001), Akar (1990) and Arslan (1999) in that wh-argument *neyi* “what-Acc” is the argument of the embedded verb *yap-* “do”. In other words, *neyi* “what-Acc” is case marked and governed by the embedded verb *yap-* “do”. Thus, as stated above, it is not possible for it to extract out of the VP in which it is governed and occur just before the matrix verb *söyle-* “say”.

On the other hand, Kornfilt (1994:42) indicates that NPs which are marked with case may scramble to various places in the phrase. However, wh-word *neyi* “what-Acc” is case marked, but it is not possible for it to scramble out of the VP in which it is case assigned. When it is placed after the embedded word *yap-* “do”, it is no more in the domain of *yap-* “do” and thus a clash in the interpretation occurs.¹

The situation is different for wh-adjuncts. The occurrence of wh-adjuncts *ne zaman* “when”, *neden* “why” and *kiminle* “with whom” just before the matrix verb is possible in Turkish since wh-adjuncts do not behave as the arguments of the embedded verb in Turkish complex sentences. Thus, they can remain and move out of the embedded phrase more freely than VP internally governed wh-argument *neyi* “what-Acc”. Therefore, there is an asymmetry between wh-arguments and wh-adjuncts in complex sentences when wh-words occur immediately before the matrix verb. Such an asymmetry between two types of wh-words has also been observed in Mandarin Chinese (Chen, 2004) and in Malay (Cole and Hermon, 1998). This asymmetry seems to be a result of distinct patterns of wh-arguments and wh-adjuncts. Karimi (2005) argues that wh-adjuncts can be placed in different positions and that in each case, they take scope over that part of the sentence it c-commands. As wh-adjuncts provide adverbs in a sentence and as adverb placement is driven by interpretation, it is natural for wh-adjuncts to be placed in different parts of the sentence.

¹ The other wh-argument *kimi* “who-Acc” is also unacceptable in the same word order:
 Ayşe Ali’nin kimi aramasını söyledi “Whom did Ayşe say that Ali should call?”;
 *Ayşe Ali’nin aramasını kimi söyledi “Whom did Ayşe say that Ali should call?”

3.2.1. SUMMARY

In this section, the effects of different wh-words on the perception of sentences are analyzed based on word order variations. It is possible to indicate that for the first order in which wh-words are placed in S-initial position, wh-words have no effect in the perception. For all wh-words, the subjects indicated that the sentences are direct wh-questions. The same perception is also observed for the second word order in which wh-words are placed in Spec-CP position of the embedded clause. For all wh-words, the subjects perceived that the sentences are direct wh-questions. However, for the third word order in which wh-words are placed in the embedded clause a different perception is observed. While the sentences in which *ne zaman* “when”, *kiminle* “with whom”, and *neyi* “what-Acc” are used were considered to be embedded wh-questions, those with *neden* “why” were regarded to be direct wh-questions. Another slight change in the perceptions of the subjects according to wh-word variation is observed in the fourth word order in which wh-words occur in preverbal position. While in regard to three wh-adjuncts *ne zaman* “when”, *neden* “why”, and *kiminle* “with whom”, the most dominant perception is direct wh-question, in regard to wh-argument *neyi* “what-Acc”, most of the subjects indicated that the sentence was meaningless when *neyi* “what-Acc” is placed in preverbal position.

3.3 INTERACTION BETWEEN WORD ORDER AND COMPLEMENT CLAUSE MARKERS

This section deals with the effects of word order variations on the perception of the sentences. It also presents the findings on the interaction between four word order options and two complement clause markers.

Table 9 Perception of the Sentences in Word Order One (n=552)

WH-word – Subject1 – Subject2 – Verb2 – Verb1				
Ne zaman/Neden/Kiminle Ayşe Ali'nin gelmesini/geldiğini söyledi				
When/Why/With whom did Ayşe say that Ali should come/came				
Neyi Ayşe Ali'nin yapmasını/yaptığını söyledi				
What did Ayşe say that Ali should do/did				
	Question	Statement	Both	None
WH-S1-S2-V2-V1	340 61.5%	56 10.1%	99 17.9%	57 10.3%

As seen in Table 9, the most frequently chosen interpretation by the subjects is direct wh-question and the least chosen one is embedded question (340, 61.5% and 56, 10.1% respectively). The following figure presents these findings in a diagram.

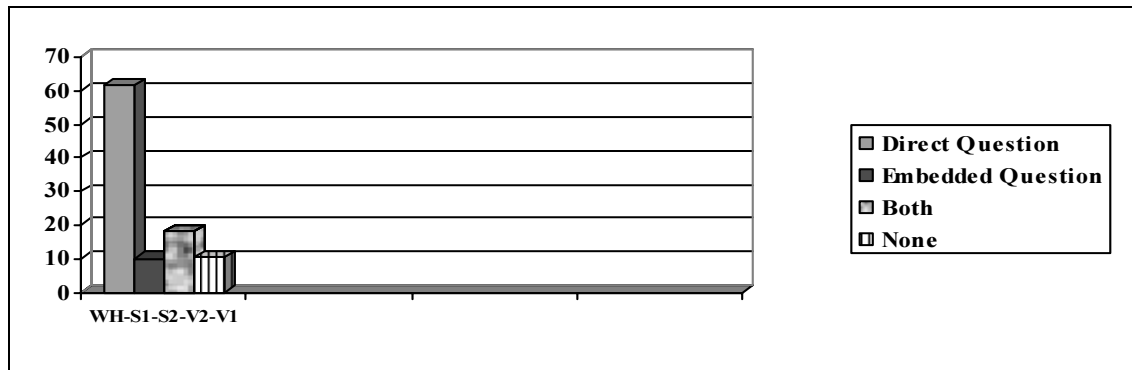


Figure 21 Perception of the Sentences in Word Order One (n=552)

Wh-word – Subject1 – Subject2 – Verb2 – Verb1

In the first word order, in which wh-words occur in S-initial position, 340 of 552 sentences were processed as direct wh-questions (61.5%). Ninety-nine sentences were considered to have both direct and embedded wh-question readings (17.9%). Fifty-seven of them were regarded to be meaningless (10.3%). Fifty-six of them were considered to be embedded wh-questions (10.1%).

Table 9 and Figure 24 show us that sentences in which wh-words are placed in S-initial position are majorly perceived by the subjects as direct wh-questions. In other words, wh-words in S-initial position form direct wh-questions.

This result may indicate some additional information besides the commonly held assumptions on the place of wh-words in Turkish. For instance, it is widely accepted that the immediately preverbal position is the most natural position for wh-question formation in Turkish (Kural, 1992; Arslan, 1999; Akar, 1990, 2001). Moreover, Arslan (1999:5) indicates that in simple Turkish wh-questions, the wh-constituent does not move to S-initial position in surface structure. But the results given in Table 9 and Figure 21 indicate that in Turkish complex sentence structures, the scrambling of wh-phrase to S-initial position is also possible. Thus, wh-words may scramble to S-initial position in Turkish complex sentence structure and form direct wh-question reading. In other words, it can be argued that S-initial position in complex sentences is one of the most natural positions for wh-question formation in Turkish.

Table 10 Perceptions of the Sentences with Two Different Complement Clause Markers in Word Order One (n=276)

	Question	Statement	Both	None
WH-S1-S2-V2-V1 (-mA)	180 65.2%	25 9%	42 15.2%	29 10.5%
WH-S1-S2-V2-V1 (-DIk)	160 57.9%	31 11.2%	57 20.6%	28 10.1%

As shown in Table 10, it is seen that for both complement clause markers, the subjects most frequently interpreted the sentences as direct wh-questions (for –mA 180, 65.2%, and for –DIk 160, 57.9%). The other options for two complement clause suffixes are also similar, as shown in Table 10 above. Therefore, it should be pointed out that the use of indicative and subjunctive suffixes in the embedded clause does not have any effect on the perception of the sentence, since the most dominant perception of the sentences with two different complement clause suffixes is direct wh-questions.

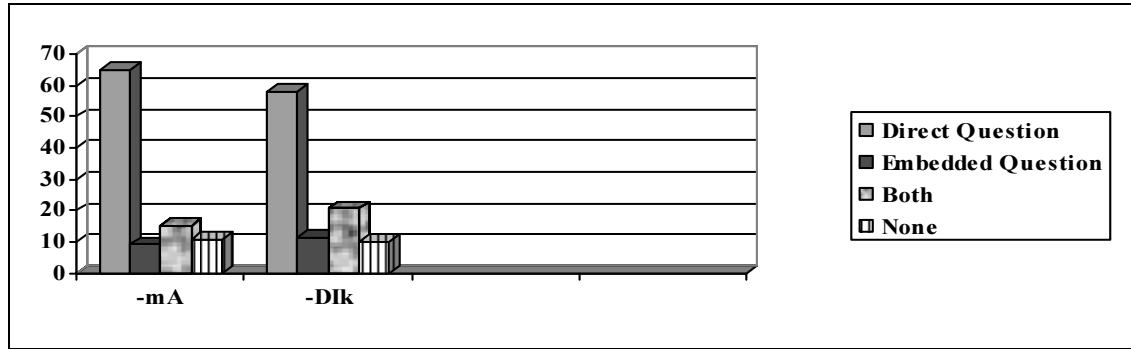


Figure 22 Perceptions of the Sentences with Two Different Complement Clause Markers in Word Order One

Wh-word – Subject1 – Subject2 – Verb2 – Verb1 (n=276)

When wh-words occur in S-initial position with subjunctive complement clause marker –mA in the embedded clause, 180 sentences were regarded to be direct wh-questions (65.2%). Forty-two of them were considered to be indicating both a direct and an embedded wh-question (15.2%). Twenty-nine sentences were thought to have neither direct nor embedded wh-question readings (10.5%). Twenty-five of them were stated to be embedded wh-questions. (9%).

When wh-words occur in S-initial position with indicative complement clause marker –DIk in the embedded clause, 160 sentences were regarded to be direct wh-questions (57.9%). Fifty-seven of them were considered to be both declaratives and interrogatives (20.6%). Thirty-one sentences were considered to be embedded wh-questions (11.2%). Twenty-eight of them meant nothing to subjects (10.1%).

Thus, it is possible to state that the differentiation of the complement clause markers do not make any difference in the perceptions of the sentences constructed via wh-words which occur in S-initial position in Turkish. The scrambled wh-word forms direct wh-questions whether the suffix in the embedded clause is –mA or –DIk.

Table 11 Perceptions of the Sentences with Two Different Complement Clause Markers in Word Order Two (n=552)

Subject1 – WH-word – Subject2 – Verb2 – Verb1				
<p>Ayşe Ne Zaman/Neden/Kiminle Ali'nin gelmesini/geldiğini söyledi When/Why/With Whom did Ayşe say that Ali should come/came? Ayşe Neyi Ali'nin yapmasını/yaptığını söyledi What did Ayşe say that Ali should do/did?</p>				
	Question	Statement	Both	None
S1-WH-S2-V2-V1	294 53.2%	95 17.2%	140 25.3%	23 4.1%

Table 11 indicates that in word order two in which wh-words occur in Spec-CP of the embedded clause, the subjects mostly interpreted the sentences as direct wh-questions (294, 53.2%). The option that the sentences have neither direct nor embedded wh-question readings is the least preferred one (23, 4.1%).

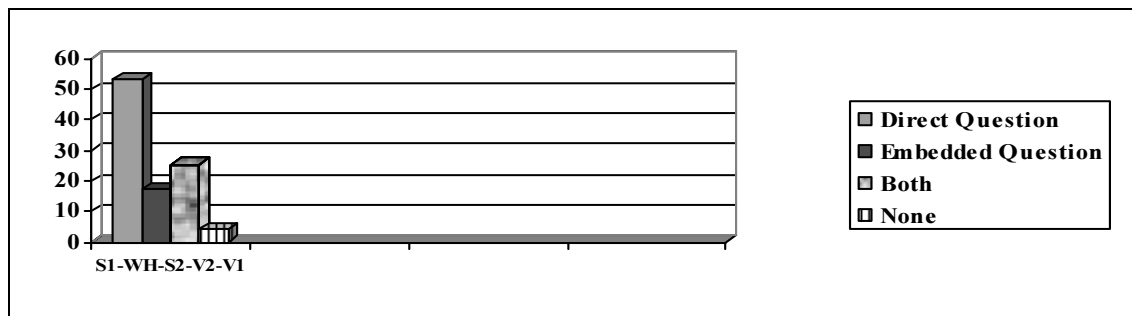


Figure 23 Perception of the Sentences in Word Order Two (n=552)

Subject1 – Wh-word – Subject2 – Verb2 – Verb1

In the second word order, in which wh-words occur in Spec-CP position of the embedded clause, 294 sentences out of 552 were perceived as direct wh-questions (53.2%). 140 sentences were considered to be having both direct and embedded wh-question readings (25.3%). Ninety-five sentences were considered to be embedded wh-questions (17.2%). Twenty-three of them were regarded to have neither direct nor embedded wh-question readings (4.1%). As it is seen in Table 11 and Figure 23, the complex sentences in which wh-words appear in Spec-CP position of the embedded clause are mostly interpreted by the subjects as direct wh-questions. Therefore, it is

possible to indicate that wh-words in Turkish may also scramble to Spec-CP position of the embedded clause in complex sentence structure forming direct wh-question. In other words, the other natural position for wh-question formation in complex sentences is the one in which wh-words occur in Spec-CP of the embedded clause.

Table 12 Perceptions of the Sentences with Two Different Complement Clause Markers in Word Order Two (n=276)

	Question	Statement	Both	None
S1-WH-S2-V2-V1(-mA)	174 63%	30 10.8%	57 20.6%	15 5.4%
S1-WH-S2-V2-V1(-DIk)	120 43.4%	65 23.5%	83 30%	8 2.8%

In Table 12, it is seen that when different complement clause suffixes are used in this word order, there is no differentiation in the interpretations of the subjects. Most of the subjects interpreted the sentences as interrogatives when wh-words are placed in Spec-CP position of the embedded clause (for -mA 174, 63%, and for -DIk 120, 43.4%).

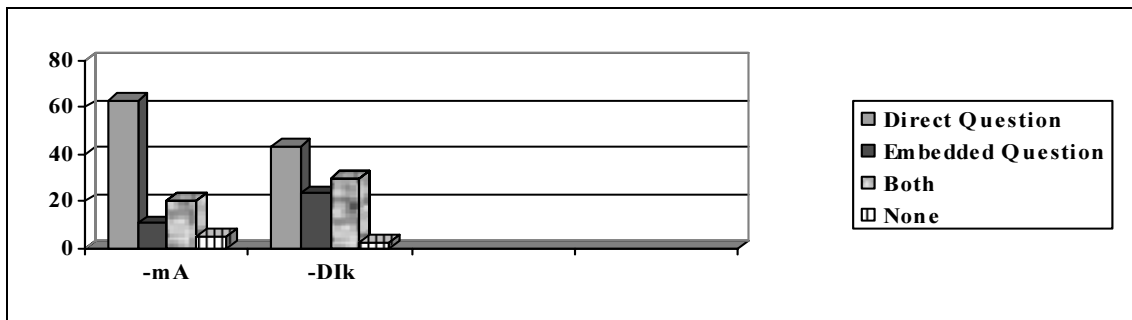


Figure 24 Perceptions of the Sentences with Two Different Complement Clause Markers in Word Order Two (n=276)

Subject1 – Wh-word – Subject2 – Verb2 – Verb1

When wh-words were scrambled to Spec-CP position of the embedded clause with subjunctive complement clause marker -mA in the embedded clause, 174 sentences were considered to be direct wh-questions (63%). Fifty-seven of them were regarded to be indicating both direct and embedded wh-questions (20.6%). Thirty of them were

stated to be embedded wh-questions (10.8%). Only fifteen sentences were thought to have none of the readings (5.4%).

When wh-words were placed in Spec-CP position of the embedded clause with indicative complement clause marker in the embedded clause, 120 sentences were regarded to be direct wh-questions (43.4%). Eighty-three sentences were considered to be both embedded and direct wh-questions (30%). Sixty-five sentences were considered to be embedded wh-questions (23.5%). Only eight sentences were perceived as having neither direct nor embedded wh-question readings (2.8%).

Thus, it is possible to suggest that the differentiation of the complement clause markers do not make any difference in the perceptions of the sentences constructed via wh-words which scramble to Spec-CP position of the embedded clauses in Turkish complex sentences. The scrambled wh-word forms a direct wh-question whether the marker in the embedded clause is –mA or –DIk. However, it may be argued that the use of –mA leads to raise in the perception of the sentences as direct wh-questions. The other slight difference between the use of –mA and –DIk in these sentences is that the possibility of perceiving sentences with –mA as embedded wh-questions is less than those with –DIk in this word order.

Table 13 Perceptions of the Sentences with Two Different Complement Clause Markers in Word Order Three (n=552)

Subject1 – Subject2 – Wh-word – Verb2 – Verb1				
Ayşe Ali'nin Ne Zaman/Neden/Kiminle gelmesini/geldiğini söyledi				
When/Why/With Whom did Ayşe say that Ali should come/came				
Ayşe said When/Why/With Whom Ali should come/came				
Ayşe Ali'nin neyi yapmasını/yaptığını söyledi				
What did Ayşe say that Ali should do/did				
Ayşe said what Ali should do/did				
	Question	Statement	Both	None
S1-S2-WH-V2-V1	176 31.8 %	219 39.6%	135 24.4%	22 3.9%

Table 13 indicates that when wh-words are placed in the embedded clause, the subjects mostly interpreted the sentences as embedded wh-questions (219, 39.6%). In this word order, the subjects rarely perceived that the sentences have neither direct nor embedded wh-questions (22, 3.9%) .

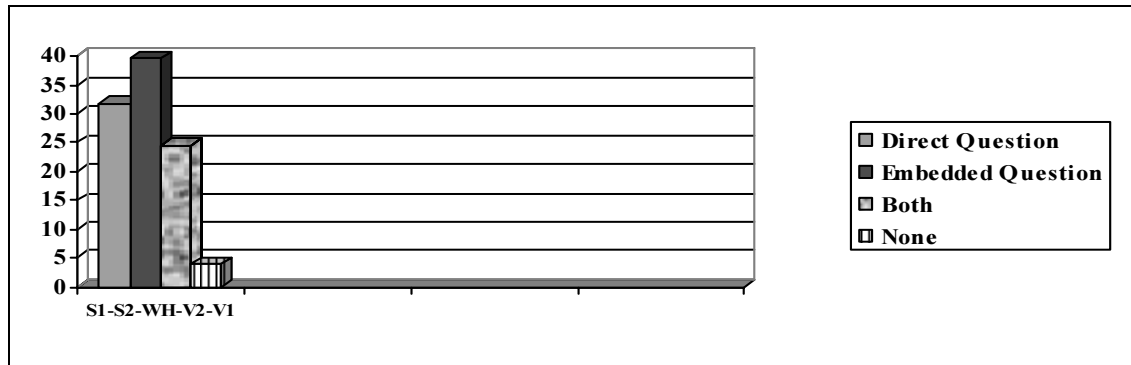


Figure 25 Perception of the Sentences in Word Order Three (n=552)
Subject1 – Subject2 – Wh-word – Verb2 – Verb1

In the third word order, in which wh-words occur in embedded clause, 219 sentences out of 552 were chosen to be embedded wh-questions (39.6%). 176 sentences were considered to be direct wh-questions (31.8%). 135 sentences were considered to be having both interrogative and declarative meanings (24.4%). Only twenty-two sentences were perceived as having none of the readings (3.9%).

Table 13 indicates that in word order three, the most common perception of the subjects is towards embedded wh-question. The least preferred option is the fourth one indicating that the sentences have neither direct nor embedded wh-question readings. When wh-words occur in embedded clause, sentences are perceived as embedded wh-questions. In other words, an embedded wh-question is constructed when the wh-word is placed in the embedded clause in Turkish. Therefore, it can be stated that when wh-words occur in the embedded clause, a different perception is observed. This finding points out very clear effect of the word order on the perception of the sentences. As it will be detailed below, the two complement clause markers also cause a differentiation in the perceptions of the sentences in this word order.

Table 14 Perceptions of the Sentences with Two Different Complement Clause Markers in Word Order Three (n=276)

	Question	Statement	Both	None
S1-S2-WH-V2-V1 (-mA)	119 43.1%	71 25.7%	69 25%	17 6.1%
S1-S2-WH-V2-V1 (-DIk)	57 20.6%	148 53.6%	66 23.9%	5 1.8%

Table 14 indicates that there is a significant difference in the interpretations of the subjects based on complement clause markers. When the sentences are constructed via subjunctive complement clause marker *-mA*, the subjects mostly interpreted the sentences as direct wh-questions (119, 43.1%). When the same sentences are constructed via indicative complement clause marker *-DIk*, most of the subjects interpreted the sentences as embedded wh-questions (148, 53.6%).

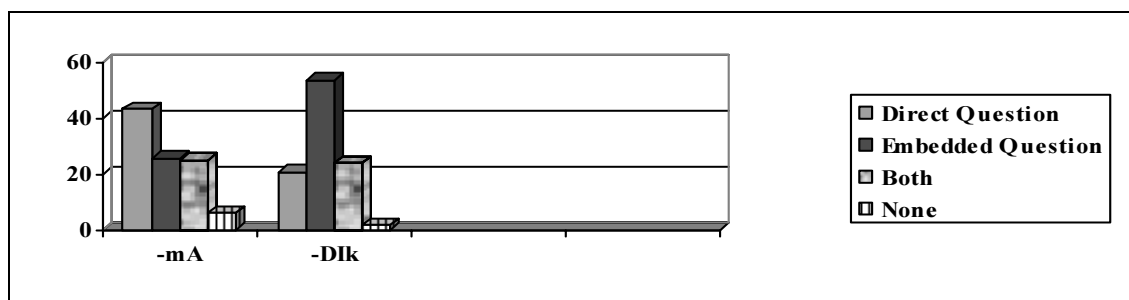


Figure 26 Perceptions of the Sentences with Two Different Complement Clause Markers in Word Order Three (n=276)

Subject1 – Subject2 – Wh-word – Verb2 – Verb1

As seen in Table 14, when the wh-words appear in the embedded clause with subjunctive complement clause marker *-mA*, 119 sentences were considered to be direct wh-questions (43.1%). Seventy-one of them were stated to be embedded wh-questions (25.7%). Sixty-nine of them were regarded to be both a direct and an embedded wh-question (25%). Only seventeen sentences were thought to have none of two readings (6.1%).

On the other hand, when wh-words occur in the embedded clause with indicative complement clause marker, half of the sentences were regarded to be embedded wh-

questions (148, 53.6%). Sixty-six sentences were considered to be both direct and embedded wh-questions (23.9%). Fifty-seven sentences were considered to be direct wh-questions (20.6%). Only five sentences were perceived as having neither direct nor embedded wh-question readings (1.8%).

As mentioned earlier, Kornfilt (2003) states that subjunctive clauses (-mA) are DPs in Turkish. Therefore, they cannot host wh-operators in order to form embedded wh-questions. In other words, wh-words in subjunctive clauses in Turkish cannot construct embedded wh-questions. Thus, it is not possible to derive an embedded wh-question meaning out of a sentence in which wh-words occur in the embedded clause formed via subjunctive complement clause marker -mA. The statistical findings given in Table 14 exactly supports this observation since the sentences constructed via subjunctive complement clause marker -mA are mostly considered to relate direct wh-question reading by the subjects. This means that the wh-phrase in the embedded structure does not form an embedded wh-question in Turkish as Kornfilt (2003) indicates.

The statistical findings also indicate that when the same construction is formed via indicative complement clause marker, the subjects tend to perceive the sentences as declaratives but not interrogatives. As mentioned earlier indicative nominal clauses can host wh-operators (Kornfilt, 2003), since they are CPs enabling them to host wh-operators to form embedded questions. The statistical findings presented in Table 14 also support this observation since the sentences formed via indicative -DIk in the embedded clause were majorly considered by the subjects as statements, in other words, embedded wh-questions. The unavailability of embedded wh-questions in certain structures is also observed in other languages such as Bangla (Bayer, 1995) and German (Sabel, 2001).

Table 15 Perceptions of the Sentences with Two Different Complement Clause Markers in Word Order Four (n=552)

Subject1 – Subject2 – Verb2 – Wh-word – Verb1				
Ayşe Ali'nin gelmesini/geldiğini Ne Zaman/Neden/Kiminle söyledi				
When/Why/With Whom did Ayşe say that Ali should come/come				
Ayşe Ali'nin yapmasını/yaptığını neyi söyledi				
Ayşe said what Ali should do/did.				
	Question	Statement	Both	None
S1-S2-V2-WH-V1	352 63.7 %	35 6.3%	74 13.4%	91 16.4%

Table 15 indicates that in word order four in which wh-words appear immediately before the matrix verb, the subjects mostly interpreted the sentences as direct wh-questions (352, 63.7%). The option that sentences are embedded wh-questions is the least preferred one (35, 6.3%).

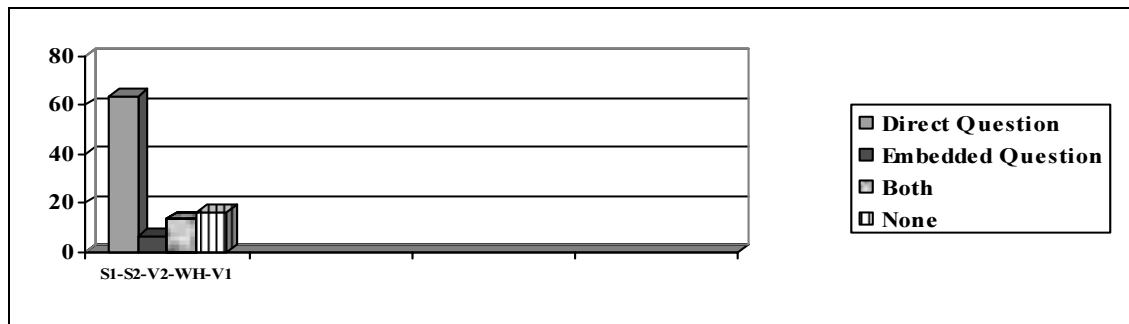


Figure 27 Perception of the Sentences in Word Order Four (n=552)

Subject1 – Subject2 – Verb2 – Wh-word – Verb1

In the fourth word order, in which wh-words are placed in pre-matrix verb, 352 sentences out of 552 were chosen to be direct wh-questions (63.7%). Seventy-four sentences were regarded to have both direct and embedded wh-question readings (13.4%). Ninety-one sentences were regarded to be neither direct nor embedded wh-questions (16.4%). Only thirty-five of the sentences were considered to be embedded wh-questions (6.3%).

These findings indicate that when wh-words are placed preverbally in Turkish complex sentence structure, they form direct wh-questions. It is important to state that, among four word orders examined, the fourth one, in which wh-words occur immediately before the matrix verb, is the one which is preferred to indicate interrogative meaning with the highest percentage. This finding supports the views that the most natural position of wh-phrases in Turkish is the verb-initial position by Kural (1992), Arslan (1999) and Akar (2001). Thus, it is safe to argue that this position is also the most natural position for wh-question formation in complex sentences.

Table 16 Perceptions of the Sentences with Two Different Complement Clause Markers in Word Order Four (n=276)

	Question	Statement	Both	None
S1-S2-V2-WH-V1 (-mA)	169 61.2%	15 5.4%	40 14.4%	52 18.8%
S1-S2-V2-WH-V1 (-DIk)	183 66.3%	20 7.2%	34 12.3%	39 14.1%

As it is seen in Table 16, it is possible to suggest that the variation in complement clause suffixes did not differentiate the interpretations of the subjects. For both markers, the subjects mostly interpreted the sentences as direct wh-questions (for –mA 169, 61.2%; for –DIk 183, 66.3%). The other options appear to be nearly the same for both –mA and –DIk.

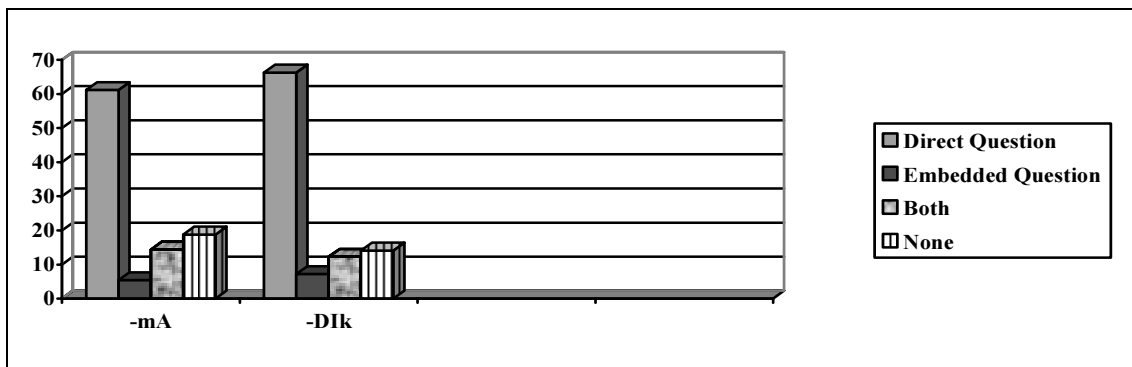


Figure 28 Perceptions of the Sentences with Two Different Complement Clause Markers in Word Order Four (n=276)

Subject1 – Subject2 – Verb2 – Wh-word – Verb1

As seen in Table 16 and Figure 31, all the sentences constructed via wh-words in matrix verb-initial position with two different complement clause suffixes were regarded as direct wh-questions. When wh-words were placed in verb-initial position with subjunctive complement clause marker –mA, 169 sentences were considered to be direct wh-questions (61.2%). Fifty-two sentences were perceived as being neither direct nor embedded wh-questions (18.8%). Forty sentences were regarded to be indicating both direct and embedded wh-question readings (14.4%). Only fifteen sentences were stated to be embedded wh-questions (5.4%).

Similarly, when wh-words were placed in matrix verb-initial position with indicative complement clause marker –DIk, 183 sentences were regarded to be direct wh-questions (66.3%), Thirty-nine sentences were stated to have none of the two readings (14.1%). Thirty-four sentences were considered to be both direct and embedded wh-questions (12.3%). Only twenty sentences were considered to be embedded wh-questions (7.2%).

Therefore, it is safe to state that there is no difference stemming from complement clause markers in the fourth word order. For all the sentences in which wh-words are placed in verb-initial position, most of the subjects perceived the sentences as indicating direct wh-questions. Therefore, it is also possible to state that the most natural position of wh-words in complex sentence structures in Turkish is the verb-initial position regardless of the complement clause markers used.

3.3.1. SUMMARY

As the findings presented show, matrix verb-initial position is the most natural position for wh-phrases not only in simple sentence structure, but also in complex sentence structure in Turkish. Another finding obtained is that wh-words in Turkish complex sentence structure may scramble to Spec-CP of the embedded clause and S-initial position. In these two positions, the sentences have also interrogative meanings. In other words, they form direct wh-questions but not embedded ones. However, when wh-words occur in the embedded clause, the sentences are mostly perceived as

embedded wh-questions. The most commonly chosen word order for the direct wh-question reading is the one in which wh-words occur in preverbal position (352, 63.7%). The second highest position for wh-question formation is the first word order in which wh-words occur in S-initial position (340, 61.5%). The second word order in which wh-words occur in Spec-CP position of the embedded clause is the third highest position for wh-question formation (294, 53.2%). Therefore, it is safe to indicate that pre-matrix verb position seems to be the most natural position for wh-words in Turkish complex sentence structure. Additionally, the scrambling of wh-words to S-initial and Spec-CP of the embedded clause positions is also possible. When wh-words scramble to these positions, they keep the ability of forming direct wh-questions. In other words, they reconstruct the direct wh-question reading at LF.

As argued by Saito (1989 in Kawamura, 2004:53), in Japanese which allows for scrambling, scrambled wh-phrases have their original interpretation, which is called radical reconstruction property of scrambling. In other words, scrambling does not lead to new scope relationships, as shown in the examples below:

(57) a. John-ga [Mary-ga nani-o yonda ka] sitta.
 John-Nom Mary-Nom what-Acc read Q know-Past
 “John knew what Mary read.”

b. Nani-o John-ga [Mary-ga t yonda ka] sitta.
 What-Acc John-Nom Mary-Nom read Q know-Past
 (Kawamura,2004:53)

Therefore, it can be stated that if wh-words scramble to S-initial position and to Spec-CP of the embedded clause in Turkish, they retain their original interpretation as direct wh-questions assuming that their original position is immediately before the matrix verb. Thus, wh-reconstruction occurs in S-initial position and in Spec-CP of the embedded clause. However, unlike Japanese, reconstruction property of scrambling in Turkish seems not to be so radical in that when wh-words scramble to the embedded clause, a new interpretation occurs. In other words, they lead to embedded wh-question

readings or a new scope relationship. Therefore, it may be suggested that scrambling in Turkish is not purely optional, unlike Japanese scrambling. This feature of Turkish scrambling seems to be consistent with Fox's (2000) theory of optional operation or scope economy in that Turkish scrambling has some effect on the output, making possible a new scope relationship.

In sum, it is clearly seen that both word order and two distinct complement clause markers have significant effects on the perception of the sentences. In other words, the interaction between word order, and –mA and –DIk significantly affects the formation of wh-questions in Turkish.

CHAPTER 4

CONCLUSION

In this study, the position of wh-words in Turkish complex sentences is analyzed adopting a psycholinguistic point of view. Previous studies on wh-constructions in Turkish are almost only syntax-oriented. Therefore, it is possible to argue that a psycholinguistic study on the subject matter has not been carried out yet. It is well known and widely accepted that psycholinguistic research has become interdisciplinary and begun to be regarded as a part of cognitive science. Then, it is not possible to ignore the advantages of the amalgam of two study areas, psychology and linguistics, in deciphering the complex mechanism of speakers in language processing. Given the merits of psycholinguistic endeavor, and the absence of such a psycholinguistic study in Turkish, this study attempts to analyze wh-words in Turkish complex sentences using the statistical data gathered out of the perceptions of native Turkish speakers. Based on the findings obtained through the administration of the questionnaire, the following conclusions on the effects of complement clause markers, of different wh-words (wh-adjuncts and wh-arguments), and of scrambling of wh-words or word order variations on the interpretations of the sentences can be drawn.

(1) The analysis of the interaction of different complement clause markers, namely, subjunctive –mA and indicative –DIk, with different wh-words shows that two complement clause markers have not created any difference in three word order variations. However, these suffixes are found to lead to difference in the perception of the sentence in one word order variation in which wh-words occur in the embedded clause (word order three)¹.

In the first word order in which wh-words are placed in S-initial position, the sentences are majorly interpreted as direct wh-questions (65.2% for subjunctive –mA and 57.9% for indicative –DIk). It is observed that there is no differentiation in the interpretations

¹ 1. word order: Wh-word – S1 – S2 – V2 – V1
 2. word order: S1 – Wh-word – S2 – V2 – V1
 3. word order: S1 – S2 – Wh-word – V2 – V1
 4. word order: S1 – S2 – V2 – Wh-word – V1

of the sentences in this word order. In other words, there is no distinction in forming wh-questions due to complement clause marker variation when wh-words appear in S-initial position.

In the second word order in which wh-words occur in Spec-CP position of the embedded clause again most of the sentences are interpreted as direct wh-questions for both of the complement clause markers. In other words, different complement clause markers did not lead to any difference on the interpretations of the sentences (63% for –mA and 43% for –DIk).

In the third word order in which wh-words are placed in the embedded clause it is possible to observe a significant distinction stemming from the use of different complement clause markers. The sentences constructed via subjunctive complement clause marker –mA are mostly perceived by the subjects as direct wh-questions (43.1%). On the other hand, the sentences formed with indicative complement clause marker –DIk are commonly interpreted by the subjects as embedded wh-questions (53.6%). This finding is parallel to the view of Kornfilt (2003) who argues that subjunctive nominalized clauses cannot act as embedded wh-questions in Turkish since they do not host wh-operators while indicative ones do. In other words, subjunctive clauses are deficient in that their dominant reading is not embedded wh-question when wh-words occur in the embedded clause.

In the fourth word order, in which wh-words are to the left of the matrix verb, the complement clause marker variation does not have any effect on the interpretations of the sentences. For both –mA and –DIk, the most chosen option by the subjects is the interrogative one (61.2% for –mA, and 66.3% for –DIk).

These findings clearly show that subjunctive clauses and indicative clauses do not have a uniform syntactic behavior. Word order variations make this asymmetry between subjunctive and indicative clauses more evident. When wh-words appear in the embedded clause, the use of –mA mostly leads to direct wh-questions. However, in the same word order, the use of –DIk commonly results in embedded wh-questions.

Given the findings on four word order permutations, it can be argued that subjunctive clauses allow only for direct wh-questions. However, indicative clauses allow for both direct and embedded wh-questions. Thus, subjunctive clauses are more deficient than indicative clauses in terms of allowing embedded wh-constructions.

(2) The analysis of different wh-words on interpretation of sentences without taking into consideration the complement clause markers shows that using different wh-words has not made any variation in the interpretation of the sentences in word order one and two in which wh-words occur either in S-initial position or in Spec-CP of the embedded clause, respectively. However, there is a differentiation in word order three in which wh-words are placed in the embedded clause. This difference is observed in relation to the use of wh-adjunct *neden* “why”. In the third word order, when the other wh-words, namely, *ne zaman* “when”, *kiminle* “with whom” and *neyi* “what-Acc” are used, sentences are perceived to be embedded wh-constructions. But those in which *neden* “why” is employed are regarded by the subjects as having interrogative meaning. Given that “why” had different syntactic pattern in contrast to other wh-words, this exceptional behavior of *neden* “why” is quite understandable. The other exceptional case is observed in the fourth word order in which wh-words are to the left of the matrix verb. In this word order, while the sentences in which wh-adjuncts *ne zaman* “when”, *why* “neden” and *kiminle* “with whom” are used are considered to be direct wh-questions, those in which wh-argument *neyi* “what-Acc” is used are considered to have neither direct nor embedded wh-question readings. This finding shows that *neyi* “what-Acc” is governed by the embedded verb and that its case is assigned by the embedded verb. Therefore, when it occurs out of its governing clause, it fails to license a wh-construction. This finding also indicates an apparent asymmetry between wh-adjuncts and wh-arguments. It seems that wh-adjuncts can scramble more freely in contrast to wh-arguments. This distinction comes from the fact that wh-adjuncts, like their non-interrogative counterparts, namely adverbs, can appear in various positions in a sentence since adverb placement, and thus, wh-adjunct placement is driven by interpretation (Karimi, 2005).

(3) The analysis of the effect of different word orders on interpretation without taking into consideration the wh-word variation indicates that in the first, second and fourth word order, there is a correlation among the perceptions of the sentences by the subjects. In these word orders, the subjects' interpretations of the sentences are majorly towards direct wh-questions. In the third word order, in which the wh-words are placed in the embedded clause, the subjects indicate that the sentences are statements, in other words, embedded wh-questions.

In the first word order in which wh-words are placed sentence-initially, 61.5% of the sentences are regarded by the subjects as direct wh-questions, 17.9% of them are stated to be both direct and embedded wh-questions. 10.3% of the sentences are perceived as neither direct nor embedded wh-questions. Only 10.1% of the items are perceived to be embedded wh-questions. These findings suggest that when wh-words, regardless of being wh-adjuncts or wh-arguments, are placed in S-initial position, they mostly form direct wh-question in Turkish complex sentence structure. The findings also indicate that S-initial position is one of the positions for direct wh-question formation in Turkish complex sentence structure.

In the second word order in which wh-word is placed in Spec-CP position, 53.2% of the sentences are regarded by the subjects as indicating direct wh-questions. 25.3% of them are considered to have both direct and embedded wh-question readings. 17.2% of them are indicated to be embedded wh-questions. Only 4.1% of the sentences are regarded to have neither of the perceptions by the subjects. This finding indicates that when wh-words scramble to Spec-CP position in Turkish complex sentence structure, they also form direct wh-question reading. In other words, the Spec-CP position of the embedded clause may be indicated as another suitable position for direct wh-questions in Turkish complex sentence structure.

In the third word order in which wh-words are placed in the embedded clause, the interpretations of the subjects differ. The most frequently chosen interpretation is the embedded wh-construction. In this word order, 39.6% of the sentences are regarded by the subjects as embedded wh-questions. 31.8% of the sentences are considered to be

direct wh-questions. 24.4% of the sentences are indicated to have both a direct and an embedded wh-question reading. Only 3.9% of the sentences mean nothing to the subjects. This finding indicates that when wh-words scramble to embedded clause in Turkish complex sentence structure, they form embedded wh-question readings but not direct ones. Therefore, it is clearly seen that word order differentiation has a significant effect on the perception of the sentences. It is also evident that scrambling in Turkish is not completely optional, since it leads to new scope relationships.

In the fourth word order, in which wh-words are to the left of the matrix verb, the highest ratio of direct wh-question interpretation is found (63.7%). 16.4% of the sentences are indicated to have neither direct nor embedded wh-question readings. 13.4% of the sentences are considered to be both direct and embedded wh-questions. 6.3% of the sentences are regarded to be embedded wh-questions. This finding shows that when wh-words occur immediately left of the matrix verb they form direct question readings in Turkish complex sentences. Since the highest ratio of direct question perception is observed in this word order, it is possible to claim that the immediate left of the matrix verb is the most natural position for wh-words in Turkish complex sentence structure.

In the first, second and fourth word orders in which wh-words occur in S-initial, Spec-CP of the embedded clause and pre-matrix verb positions, complement clause markers do not make any difference in the perceptions of the subjects whereas in the third word order in which wh-words are placed in the embedded structure, complement clause marker variation also causes a differentiation in the perceptions of the subjects. While most of the subjects indicate that the sentences formed via –mA are direct wh-questions, the ones formed with –DIk are considered to be mostly embedded wh-questions. This exceptional case is due to the structural difference of DPs and CPs. While the former ones cannot host wh-operators and thus, cannot form embedded wh-questions, the latter ones can host wh-operators which make them possible to form embedded question readings.

To sum up, this study is based on the interpretations of sixty-nine university students whose mother tongue is Turkish. The questionnaire is applied to the subjects in written form and no oral representation of the items in the questionnaire is provided during the experiment in progress. It may well be the case that when the same items are presented orally, the results gathered out of the study might change since the intonation contours play crucial role in the topic/focus differentiation in Turkish. Thus, the results and findings proposed in the study should be evaluated in the framework of these facts.

As a concluding remark, it should be important to state that this study reveals out some experimental data on the interpretations of wh-words when they are in interaction with complement clause markers, and when they occur in different positions of Turkish complex sentence structures. A further analysis which is designed in a different way but through the same perspective may point out some debatable facts on the scope relations of wh-words in Turkish.

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APPENDIX

THE QUESTIONNAIRE

Aşağıdaki ankette 50 adet cümle okuyacaksınız. Sizden her bir cümle için, o cümlenin

1. soru cümlesi mi, (1)

2. ifade belirten cümle mi, (2) ya da

3. hem soru hem ifade belirten cümle mi (3)

olduğunu belirtmenizi istiyoruz. Eğer ilk üç seçenekten hiçbirisi olduğunu düşündüğünüz bir cümle varsa bunu da (4) işaretleyerek belirtmenizi istiyoruz.

Anadili aynı olan insanlar aynı cümle için farklı algılara sahip olabilir. Dolayısıyla bu anketteki cümlelerin sizlerin Türkçe bilgi ve kavrama düzeylerinizi ölçmek gibi bir amacı yoktur. Sizden sadece anketteki cümlelere odaklanarak, yukarıdaki ifade edilenler doğrultusunda, cümlelerle ilgili algılarınızı belirtmenizi istiyoruz.

Lütfen cevaplamadan önce her cümleyi dikkatlice okuyunuz, cümlenin yapısı üzerine odaklanarak, herhangi bir yazım ya da işaretleme hatasını göz önünde bulundurmayınız. Lütfen her cümle için bir seçeneği işaretleyiniz ve 50 cümlenin tümünü işaretlediğinizden emin olunuz.

- 1.()Ayşe ne zaman Ali'nin gelmesini söyledi
- 2.()Ayşe söyledi Ali'nin ne zaman gelmesini
- 3.()Neden Ayşe Ali'nin gelmesini söyledi
- 4.()Ayşe Ali'nin kızdığını söyledi
- 5.()Ayşe Ali'nin yapmasını neyi söyledi
- 6.()Ayşe Ali'nin neden gelmesini söyledi
- 7.()Ayşe Ali'nin kiminle gelmesini söyledi
- 8.()Kiminle Ayşe Ali'nin gelmesini söyledi
- 9.()Ayşe Ali'nin geldiğini gördü
- 10.()Ayşe Ali'nin neyi yaptığını söyledi
- 11.()Ayşe Ali'nin kiminle geldiğini söyledi
- 12.()Ayşe Ali'nin ne zaman geldiğini söyledi

- 13.()Ayşe neyi Ali'nin yapmasını söyledi
- 14.()Neden Ayşe Ali'nin geldiğini söyledi
- 15.()Ayşe Ali'nin gelmesini ne zaman söyledi
- 16.()Ayşe Ali'nin geldiğini neden söyledi
- 17.()Ayşe Ali'nin arayacağını sandı
- 18.()Neyi Ayşe Ali'nin yaptığını söyledi
- 19.()Ayşe neden Ali'nin gelmesini söyledi
- 20.()Ayşe ne zaman Ali'nin geldiğini söyledi
- 21.()Ayşe Ali'nin gelmesini istedi
- 22.()Ayşe Ali'nin neden geldiğini söyledi
- 23.()Ayşe söyledi Ali'nin kiminle geldiğini
- 24.()Ayşe Ali'nin gelmesine kızdı
- 25.()Ayşe Ali'nin geldiğini ne zaman söyledi
- 26.()Neyi Ayşe Ali'nin yapmasını söyledi
- 27.()Ayşe kiminle Ali'nin gelmesini söyledi
- 28.()Kiminle Ayşe Ali'nin geldiğini söyledi
- 29.() Ayşe Ali'nin aramasını istedi
- 30.()Ayşe neyi Ali'nin yaptığını söyledi
- 31.()Ayşe Ali'nin ne zaman gelmesini söyledi
- 32.()Ayşe söyledi Ali'nin neden geldiğini
- 33.()Ayşe Ali'nin gelmesini neden söyledi
- 34.()Ayşe Ali'nin geldiğini kiminle söyledi
- 35.()Ayşe Ali'nin sorduğunu duydu
- 36.()Ayşe Ali'nin gelmesini kiminle söyledi
- 37.()Ne zaman Ayşe Ali'nin geldiğini söyledi
- 38.()Ayşe söyledi Ali'nin neyi yapmasını
- 39.()Ayşe kiminle Ali'nin geldiğini söyledi
- 40.()Ayşe Ali'nin arayacağını duydu
- 41.()Ayşe söyledi Ali'nin neyi yaptığını
- 42.()Ayşe Ali'nin yaptığını neyi söyledi
- 43.()Ayşe Ali'nin geldiğini söyledi
- 44.()Ayşe neden Ali'nin geldiğini söyledi

- 45.()Ne zaman Ayşe Ali'nin gelmesini söyledi
46.()Ayşe söyledi Ali'nin neden gelmesini
47.()Ayşe söyledi Ali'nin ne zaman geldiğini
48.()Ayşe Ali'nin geldiğini duydu
49.()Ayşe Ali'nin neyi yapmasını söyledi
50.()Ayşe söyledi Ali'nin kiminle gelmesini

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