VARIABLE *WH*-WORDS IN TURKISH

by

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ABSTRACT

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This study analyzes the syntactic and semantic properties of *wh*-words in Turkish. In view of the fact that *wh*-words in Turkish do not appear only in *wh*-questions but occur in non-interrogative environments, it is argued that *wh*-words do not have inherent quantificational force by themselves. The claim is that *wh*-words in Turkish are syntactic variables and are bound by the specific operator(s) in the context in which they appear. In other words, the semantic content of the *wh*-words is assigned syntactically. It is proposed that it is the presence of those operators which assign the interpretation of the *wh*-words as the negative quantifier, the universal quantifier or the interrogative word.

With respect to the negative quantifier reading *wh*-words receive, it is proposed that it is the presence of the TP-level Gen-(eric) operator which binds the wh-words and assigns their reading accordingly. On the other hand, the interaction of the Gen-operator and Neg(ative) operator in the structure assigns the universal quantifier reading to the *wh*-words. It has also been noted that *wh*-words are always interpreted as the non-interrogative elements in the domain of the *ki* particle. The interrogative reading which *wh*-words are assigned is accounted for by the existence of the phonologically null [Qu]-operator in the C-domain which binds the *wh*-words and determines their reading as interrogative. Such morphological processes as pluralization and reduplication are also noted to be processes which give rise to ambiguous or non-interrogative reading of the *wh*-words.

To conclude, the analysis of the *wh*-words as non-quantificational elements and the fact that they are assigned different interpretations in different syntactic contexts in Turkish support the claim that they are variables and are dependent for their interpretation on other elements present in the structure.

KISA ÖZET

Bu çalışmanın amacı Türkçe'deki soru sözcüklerinin sözdizimsel ve anlamsal özelliklerini incelemektir. Çalışmada Türkçe'de soru sözcüklerinin yalnızca soru yapılarında değil, aynı zamanda başka yapılarda da bulunmasından dolayı, bu kelimelerin aslında içsel niceleyici güce sahip olmadıkları öne sürülmektedir. Tezin ana savı, Türkçe'deki soru sözcüklerinin sözdizimsel değişkenler oldukları ve bulundukları yapılardaki belirli işleyiciler tarafından bağlandıklarıdır. Belirli işleyiciler tarafından bağlanan soru sözcüklerinin bu işleyicilerin doğasına göre olumsuz niceleyici, evrensel niceleyici, ya da soru anlamı kazandıkları önerilmektedir.

Olumsuz işleyici olarak anlaşılan *ne*-sözcüklerinin aynı yapıda bulunan Kapsayıcı işleyicisinin varlığından dolayı bu anlamı kazandığı açıklanmaktadır. Diğer taraftan, *ne*-sözcükleriyle aynı ortamda bulunan Kapsayıcı ve Olumsuzluk işleyicilerinin etkileşiminin soru sözcüklerine evrensel niceleyici anlamı kazandırdığı belirtilmektedir. *Ne*-sözcüklerinin her zaman soru anlamı dışında anlaşıldığı ortamlar ise *ki* biriminin varlığıyla açıklanmaktadır. *Ne*-sözcüklerinin sesbirimsel içeriği olmayan bir soru işleyicisi tarafından bağlanması durumunda ise soru anlamı kazandıkları belirtilmektedir. Ayrıca, çoğullama ve tekrarlama gibi biçimbilimsel süreçlerin *ne*-sözcüklerinin anlamlarını belirleyen süreçler oldukları belirtilmektedir.

Sonuç olarak, Türkçe'de *ne*-sözcüklerinin niceleyici olmayan öğeler olması ve farklı anlamlar yüklenmesi *ne*-sözcüklerinin sözdizimsel değişkenler olduğu ve anlam kazanmaları için bulunduğu yapılardaki işleyicilere bağlı oldukları savı desteklenmektedir.

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CHAPTER I

INTRODUCTION

1.1. The Aim

The aim of this thesis is to investigate the syntactic and semantic properties of *wh*-words in Turkish. It will be argued that a *wh*-word in Turkish is not an inherently quantificational element by itself, but that it is a variable which depends for its interpretation on other elements present in the structure. It will be shown that *wh*-words in Turkish are ambiguously interpreted as the universal quantifier, the negative quantifier, or the interrogative element depending on the syntactic context in which they appear. This is exemplified in (1a-b).

(1) a. San-a **kim** inan-ır ? / .
You-DAT who-NOM believe-AOR
(i) "Who would believe you?"
(ii) "No one would believe you."

b. Ahmet **ne-yi** bil-me-z ? / .
You-DAT know-NEG-AOR
(i) "What does Ahmet not know?"
(ii) "Ahmet knows everything."

The claim here will be that the ambiguity of *wh*-words in Turkish is due to the fact that the *wh*-words in Turkish are bound by different operator(s) which appear at the TP-level or the CP-level. Specifically, when a *wh*-word is bound by the TP-level Gen(eric)-operator, it receives the negative quantifier reading. When it is in the domain of the TP-level Gen-operator and the Negative operator, it is assigned the universal quantifier reading. On the other hand, when a *wh*-word is bound by the phonologically null Qu(estion) operator which is assumed to be base-generated in the C-domain, as proposed by Cheng (1997), Watanabe (1991, 1997) among others, it is interpreted as the interrogative word. It will also be argued that such morphological processes as reduplication and pluralization lead to the ambiguous or non-interrogative interpretation of the *wh*-words. The effect of the *-ki* particle which appears

in the C-domain on the interpretation of the *wh*-words will also be investigated with the aim of showing the nature of interaction between the CP-level and TP-level operators in Turkish. I now turn to the properties of the *wh*-words in Turkish.

1.2. The Nature of *Wh*-words in Turkish

Turkish is often referred to be a *wh-in-situ* language (cf. Akar 1990; Arslan, 1999) in which *wh*-words do not exhibit obligatory overt movement to sentence-initial position in *wh*-questions.[1] Rather, a *wh*-word stays where it is base-generated at the D-structure without having to move to clause-initial position. It will be shown that *wh*-words in Turkish are not only interpreted as interrogative elements but are assigned various readings according to the syntactic context in which they appear. It follows that *wh*-words in Turkish are variables and are bound by external operators in the structure where the nature of the reading *wh*-words receive is determined by the operator(s) that bind them.

1.2.1 *Wh*-words in Turkish

As can be observed in (1a-b) above, *wh*-words are multiply ambiguous with respect to the reading they are assigned in the structure. As will be discussed in the following chapters, the reading the *wh*-word receives is determined by the nature of the operator which binds it in a particular construction. Table (I) below provides the list of the *wh*-words in Turkish.

Table I.

(I) a. *Argument wh-phrases* (i) *kim* "who" (ii) *ne* "what"	b. *Adjunct wh-phrases* (i) n*e zaman* "when" (ii) n*asıl* "how" (iii) *niye / niçin* "why" (iv) *nerede* "where"	c. *D-Linked wh-phrase* (i) *hangi* "which"

[1] Akar (1990) investigates the scrambling properties of *wh*-words in Turkish and Arslan (1999) analyzes *wh*-questions in Turkish within the framework of Aoun&Li (1993a).

Table (I) shows both argument and adjunct *wh*-phrases in Turkish. The *wh*-words in (Ia) are those that typically occur in an argument position. They also function as the complement of a postposition (i.e. an adjunct phrase) in such cases as *kim ile* "with whom", *ne için* "for what". Those in (Ib) are the canonical adjunct *wh*-words which do not commonly occur in an argument position. The *wh*-word in (Ic), on the other hand, is the D(iscourse)-linked *wh*-phrase, in the sense of Pesetsky (1987), which typically occurs in the [Spec, NP] position as in *hangi öğrenci* "which student". Similar to their regular NP counterparts, *wh*-words in Turkish are inflected with case markers according to their grammatical function in the structure. The examples in (2) and (3) illustrate the *wh*-words in Turkish in different grammatical functions.

(2) Kitab-ı **kim** al-dı? (Subject *wh*-phrase)
book-ACC who-NOM take-PAST
"Who took the book?"

(3) a. Ahmet **kim-i** gör-dü? (Acc-complement)
Ahmet-NOM who-ACC see-PAST
"Who did Ahmet see?"

b. Murat **kim-e** bak-tı? (Dative complement)
Murat-NOM who-DAT look at-PAST
"Who did Murat look at?"

c. Cem **nere-ye** git-ti ? (Dat-adjunct)
Cem-NOM where-DAT go-PAST
"Where did Cem go?"

The constructions in (2) and (3a-c) illustrate the structure of simple *wh*-questions in Turkish. As can be observed in the examples above, the typical position for the *wh*-words in Turkish is to the left of the verb in the *wh*-question constructions. In other words, they occur in a position in which their non-interrogative counterparts would occur in a non-interrogative structure. In (3a) the *wh*-word *kim-i* "who-ACC" which is the complement of the verb *gör-* "see" appears to the left of the verb. Similarly, in (3b) the *wh*-word *kim*-e "who-DAT" is the complement of the verb *bak-* "look at" and precedes it. In (3c) the *wh*-word *nere-ye* "where-DAT" is the adjunct and appears pre-verbally. In (2) the *wh*-word *kim* "who-NOM" which is

the subject of the sentence also appears in the pre-verbal position. The assumption is that the *wh*-word *kim* "who-NOM" in (2) also stays at the D-Structure position (i.e. in the [Spec, VP]), the *wh*-word preceding the verb and the complement of the verb preceding the subject. Akar (1990) investigates *wh*-questions in Turkish and accounts for the behavior of *wh*-words occurring in the immediately pre-verbal position by a single rule, namely, Q-word placement rule. Q-word placement rule is a rule for question words which states "[move a Q-element to the immediately preverbal position at S-Structure]" (Akar, 1990:60).[2] Akar (1990) accounts for the occurrence of the subject *wh*-words in the immediately pre-verbal position by the Q-placement rule and notes that the occurrence of the *wh*-words in other positions is permitted if certain conditions obtain. I will argue that a subject *wh*-word stays where it is base-generated at D-Structure without undergoing the Q-placement rule.

1.3. The Interpretation of *Wh*-words

What is significant is that *wh*-words in Turkish are not interpreted only as interrogative elements. Consider the structures below.

(4) a. Cevab-ı **kim** bil-di?
answer-ACC who-NOM know-PAST
"Who knew the answer?"

b. Cevab-ı **kim** bil-ir ? / .[3,4]
answer-ACC who-NOM know-AOR
(i) "Who would know the answer?"
(ii) "No one would know the answer."

---

[2] Note that Akar's work (1990) dates before the VP-internal subject hypothesis (Koopman&Sportiche, 1991). In her analysis Akar assumes that subject NPs are base-generated in [Spec, TP] position and claims that subject NPs lower to the immediately pre-verbal position through the Q-placement rule.

[3] Throughout the thesis, the symbols ? / . are used to indicate that the structure is ambiguous between the interrogative and the non-interrogative readings.

[4] The ambiguity of the *wh*-words in the structures analzyed here is judged differently by different native speakers. For those who had difficulty in getting the non-interrogative interpretations of the *wh*-words without

The wh-word *kim* "who" in (4a) is interpreted only as the interrogative element and the structure has only *wh*-question reading. However, the reading that the *wh*-word is assigned in (4b) is not restricted to the interrogative question reading, as the ambiguity indicates. The *wh*-word in (4b) is interpreted as the negative quantifier in the non-interrogative reading. We take this to indicate that *wh*-words in Turkish are ambiguously interpreted under certain syntactic conditions. The aim of this thesis is to uncover the nature of these conditions. In the following chapters, the syntactic conditions under which *wh*-words receive different interpretations in Turkish will be investigated in detail.

In addition to the occurrence of the *wh*-word in its simple form, as illustrated in (4b), constructions in which the *wh*-word has undergone certain morphological processes are also potentially ambiguous. These morphological processes are discussed in the following sections.

1.3.1. Plural wh-words

In those cases in which the *wh*-word is pluralized, it displays ambiguity. Consider the structures below.

(5) a. Buraya **kim-ler** gel-me-di ? / .
here who-PL-NOM come-NEG-PAST
(i) "Who did not come here?"
(ii) "(It seems) Everyone came here."

b. Biz **kim-ler-i** gör-me-di-k ? / .
we-NOM who-PL-ACC see-NEG-PAST-AGR
(i) "Who did we not see?"
(ii) "(It seems) We saw everyone."

---

the *ki* particle pointed out the obligatory presence of the *ki* particle in the structure.

(6) a. Biz **nere-ler-e** git-me-di-k ? / .
we-NOM where-PL-DAT go-NEG-PAST-AGR
(i) "Where did we not go?"
(ii) "(It seems) We went everywhere."

b. Biz **ne zaman-lar** siz-e yardım et-me-di-k ? / .
We-NOM when-PL you-DAT help-NEG-PAST-AGR
(i) "When did we not help you?"
(ii) "We helped you every time."

As indicated by the constructions above, pluralized *wh*-words display ambiguity between the interrogative reading and the non-interrogative reading when in the domain of negation. Note that the *wh*-words *kim-ler* "who-NOM" and *kim-ler-i* "who-PL-ACC" in (5a-b) are arguments. On the other hand, the *wh*-words *nere-ler-e* "where-PL-DAT" and *ne zaman-lar* "when-PL" in (6a-b) are adjuncts and exhibit ambiguity as well. However, not all adjunct *wh*-words are ambiguous when pluralized. In fact, pluralization of certain *wh*-words yields ungrammatical structures as illustrated below.

(7) * Cem **nasıl-lar / neden-ler**/**niçin-ler** gel-me-di ? / .
Cem-NOM how-PL / why-PL come-NEG-PAST
"Cem did not come here anyhow / for any reason."

The ungrammaticality of (7) indicates that only certain type of adjunct *wh*-words shows ambiguity when pluralized. The *wh*-words that display ambiguity in (6a-b) are referred to be nominal adjuncts (i.e. an adjunct containing an NP). On the other hand, in (7) the adjuncts are considered to be adverbial, (i.e. adjuncts containing an adverb).[5] Therefore, the ungrammaticality of (7) as opposed to the grammaticality of (6a-b) indicates that only nominal *wh*-adjuncts can be pluralized and display ambiguity in Turkish.

[5] Cole&Hermon (1998) also discuss structures similar to the ones with nominal and adverbial adjuncts indicating that only the former type exhibits ambiguity similar to the one observed in examples in (6a-b). In their analysis Cole&Hermon argue that Malay is one of those languages in which only nominal adjuncts are bound by operators and receive various interpretations. Tsai (1999) also argues that only nominal elements are subject to operator binding. Tsai notes that adverbial adjuncts are true quantifiers and are subject to LF movement.

1.3.2. Reduplication

Reduplication is another morphological process through which a *wh*-word receives only the non-interrogative reading. The significant issue here is that the *wh*-phrase is always marked with plural when it is reduplicated.

(8) a. Bura-ya **kim-ler** **kim-ler** gel-di.
Here-DAT who-PL-NOM who-PL-NOM come-PAST
(i) "Many (people) came here".
(ii) * "Who came here?"

b. Sen **ne-ler** **ne-ler** bil-ir-sin.
You-NOM what-PL what-PL know-AOR-AGR
(i) "You know many (things)"
(ii) * "What do you know?"

As can be observed in (8a-b), when the plural *wh*-words are reduplicated, they are only interpreted as non-interrogative elements. The difference between the structures in (5a-b) and (6a-b) on the one hand, and (8a-b) on the other hand, is that in the pluralization process a *wh*-word has the non-interrogative reading as well as the interrogative reading. However, in the process of reduplication, the only reading a *wh*-word is assigned is the non-interrogative reading.[6] In those cases in which the plural marker is unavailable, the non-interrogative reading of the *wh*-word is also unavailable.

(9) a. * Buraya **kim kim** geldi.
here who who come-PAST
(i) "Many (people) came here."
(ii) "Who came here?"

[6] Reduplication of *wh*-words has been observed to induce non-interrogative readings of *wh*-words. For the analyses of reduplication in various languages, see Haspelmath (1997) and Cole & Hermon (1998), among others.

Note that only those plural *wh*-words in the argument position are reduplicated. When the reduplicated *wh*-word is an adjunct, this yields ungrammatical structures.

(10) a. * Bura-ya **nasıl-lar nasıl-lar** gel-di-niz ? / .
here-DAT how-PL how-PL come-PAST-AGR

b. * Ora-ya **niçin-ler niçin-ler** git-ti-niz ? / .
there-DAT why-PL why-PL go-PAST-AGR

1.4. Conclusion

This section discussed the syntactic properties of *wh*-words in Turkish. The nature of *wh*-question formation in Turkish as a *wh-in-situ* language has been noted. It was also shown that the interrogative reading is not the only reading that *wh*-words are assigned. Specifically, it was pointed out that under certain syntactic conditions, certain *wh*-words in Turkish are interpreted with other than the interrogative reading. In the following chapters, those structures in which a *wh*-word displays ambiguity will be discussed in some detail. It will be shown that *wh*-words in Turkish are variables and are subject to external binding for their interpretation.

1.5. Organization of the Thesis

The thesis is organized as follows. Chapter II gives an outline of the theoretical framework according to which this thesis is written. This chapter also includes an overview of the literature on the interpretation of *wh*-words in the generative framework. Chapter III discusses the conditions under which the *wh*-words in the non-subject position receive various interpretations in Turkish. Chapter IV investigates the interpretation of the *wh*-words in the subject position. This chapter also discusses the scrambling phenomenon in Turkish and includes the analysis of the interpretation of the scrambled *wh*-words. Chapter V considers island phenomena with respect to *wh*-word interpretation. Chapter VI is the conclusion.

CHAPTER II

THEORETICAL FRAMEWORK

This chapter introduces the theoretical framework within which this thesis is written. The previous analyses with respect to the interpretation of the *wh*-words across languages will be discussed in some detail.

2.1. Generative Theory

This thesis assumes the assumptions and premises of the Principles and Parameters framework as first initiated by Chomsky (1981, 1986) and later reformulated in Chomsky (1993, 1995) as the Minimalist Program. The basic assumption of the generative framework is that there is a set of universal principles common to all human languages. The differences observed across languages are the result of parametric variation exhibited by different languages. The GB framework, as formulated by Chomsky (1981), proposed four distinct levels of representation for the syntactic structures: D(eep)-Structure, S(urface)-Structure, Logical Form (LF) and Phonetic Form (PF). It was held that D-Structure is generated by the lexicon (i.e. the list of all lexical items) and the categorial component which together constitute the base. It was further held that phrase markers are generated by categorial component. These structures are then mapped into S-Structure by a single rule Move-alpha which constitutes the transformational component. S-Structure representations which are generated in syntax are fed into two interface levels, the PF and LF, PF being the interface with the phonology, LF being with the interpretation of the structures. Scope relations as well as operator-variable relations were among the LF related phenomena.

The representations of syntactic structures as well as the nature of universal principles were reformulated in Chomsky (1993, 1995) and in later work. The MP eliminates D-Structure, and S-Structure representations from the universal grammar, holding that syntactic structures link only two levels of representation, namely the PF and LF. The MP further holds that the structure is built by the operation MERGE, which combines two elements to form a single unit which then enters into a relation with the appropriate head.

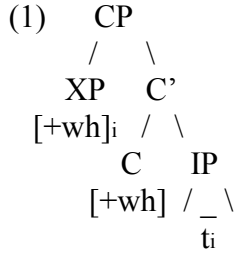
With respect to the configuration of the clause structure, one of the issues widely debated within the generative literature has been the position of the subject. The earlier studies assumed the subject to have been base-generated outside the VP (cf. Williams, 1981), in [Spec, IP] position (cf. Pollock, 1989). Koopman and Sportiche (1991), on the other hand, proposed that subject NPs are base-generated within the VP. In support of *VP-internal Subject Hypothesis*, K&S argued that there is strong evidence for the claim that subject NPs are generated within the VP domain. The argumentation in favor of the VP-internal subject hypothesis was concerned with the argument structure of verbs. K&S claimed that arguments of a verb are θ-marked by the verb where theta-marking entails syntactic closeness. The significance of this claim is that for an NP to be theta-marked by a lexical verb, it has to be within the domain of the verb (i.e. within the VP). Once it is assumed that all arguments of the verb are base-generated in the VP-domain, a uniform account of θ-marking can be given. If, on the other hand, it is assumed that subject NPs are base-generated in [Spec, TP], there would not be any way to explain that requirement.

An alternate account to *VP-internal subject hypothesis* reformulated within the MP framework was proposed by Kratzer (1996). In her analysis, Kratzer (1996) argues that subject NPs are not verbal arguments. Rather, a subject NP is an argument of the inflectional head *Voice* which is base-generated in the [Spec, VoiceP] which is immediately above the VP. The head *Voice* assigns the external theta role to the subject and assigns Accusative case to the object NPs. In the Minimalist Program, external arguments are introduced outside the lexical VP via the functional projection vP (cf. Chomsky, 1995). However, Öztürk (2005) argues that Turkish does not show any evidence to argue for the vP projection in its phrase structure. Therefore, in this thesis I opt to follow the assumptions made by K&S (1991) and argue that subject NPs are base-generated within the VP and leave the alternate analysis for further research.

2.2. *Wh*-questions

Languages differ with respect to the strategies they employ for *wh*-question formation. In those languages like English, a *wh*-phrase is assumed to be moved to the sentence-initial position at S-Structure leaving behind a co-indexed trace as there is a difference in the position in which a *wh*-phrase occurs in contrast to its NP counterpart (cf. Chomsky 1981).

Within the Government and Binding framework, the motivation behind this assumption is that in a language with overt *wh*-movement, the head of the interrogative question, namely the head Cº, has [+wh] feature and a *wh*-phrase undergoes movement in order to agree with the head Cº. The structure of a *wh*-question would then be as in (1).

(1)


On the other hand, in those languages like Turkish, Chinese, and Japanese, a *wh*-word does not obligatorily move to the sentence-initial position in *wh*-questions at S-Structure. Rather, it appears in a position in which its non-interrogative counterpart would occur in a declarative sentence. Therefore, this type of languages is often referred to as *wh-in-situ* languages (cf. Huang, 1982). The question that arises under the assumptions discussed above is how the in-situ *wh*-word is associated with the head C° given that an *in-situ wh*-word appears where it is base-generated. There have been a number of proposals made to account for the *wh-in-situ* phenomenon in the literature. These analyses can be divided into two main types (i) LF-movement (covert movement), (ii) operator binding. In the following, I will discuss the motivation and the argumentation of those proposals.

2.2.1. Approaches to *wh-in-situ*

2.2.1.1 LF-Movement

The LF-movement approach to *in-situ wh*-words was first proposed by Huang (1982). Huang (1982) investigates the properties of *wh*-constructions in Chinese which is a *wh-in-situ* language and argues that *wh*-words in Chinese are quantifiers. Huang (1982) proposes a covert raising approach for *in-situ wh*-phrases. Huang notes that as quantifiers undergo non-overt raising at LF, *wh*-phrases, having quantificational properties, also undergo movement to their scope position at LF. In other words, Huang (1982) proposes that as *wh*-words are quantificational elements, they are not interpreted *in situ* but are subject to raising at LF. To support the covert raising analysis of *wh*-words, Huang argues that if an LF-analysis for *in-*

situ wh-words is assumed, then scope differences of *wh*-words and selectional restrictions of the verbs can be accounted for. Moreover, Huang (1982) notes that *wh*-constructions are subject to certain constraints related to movement such as Subjacency and the ECP. Therefore, the (un)grammaticality of certain structures is accounted for by non-overt raising analysis of *wh*-words at LF. Thus, under this analysis, languages do not differ with respect to whether they have a *wh*-movement rule or not but they differ at which level they apply this rule, namely at S-Structure or at LF.

2.2.1.2. Operator Binding

An alternate account to LF movement of *wh*-words in *wh-in-situ* languages was proposed by Aoun and Li (1993a). Aoun and Li argue that *in-situ wh*-words are not subject to covert movement at LF. Rather, *in-situ wh*-phrases are co-indexed and interpreted by means of the Question operator, (Qu-operator, henceforth). The [Qu]-operator is base-generated within the TP and moves to CP domain at S-structure and determines the scope of *wh*-words. The main argument of this proposal is the interaction of the operator *only* and the *wh*-phrase *in-situ*. For this Aoun&Li propose a mechanism called "*The Principle of Lexical Association"* (PLA) (cf. Tancerdi (1990)). The PLA holds that an operator like *only* must be associated with a lexical constituent in its c-command domain at both S-structure and at LF. That is to say, the constituents associated with the operator *only* cannot undergo movement or topicalization. If we assume that an *in-situ wh*-phrase undergoes LF movement, the operator *only* does not c-command the *wh*-word at LF. In other words, the operator cannot be associated with the wh-word. Aoun and Li (1993a) give the following structure to support their claim.

(2) Ta zhi xihuan shei?
he only like who
"Who does he only like?"

Aoun&Li argue that if it is assumed that the *wh*-word in (2) undergoes LF movement, the operator *zhi* "only" does not c-command the *wh*-word at LF. In other words, the operator cannot be associated with the *wh*-word at LF. Therefore, the conclusion is that an in-situ *wh*-phrase stays *in situ* at all levels. Aoun&Li also argue that *wh*-phrases in Chinese are not regular *wh*-operators as in English. A *wh*-phrase in Chinese is interpreted as the interrogative

or an indefinite (non-interrogative) element. A *wh*-phrase is interpreted as the interrogative element when it is associated with a [+Qu] element and as the indefinite when it is licensed by a [-Qu] operator. What this analysis indicates is that a *wh*-word is in fact a variable (i.e. it does not have inherent quantificational force) in the sense of Heim (1982) and is subject to binding by certain elements which are binders for the variable *wh*-words.

Note that this analysis is compatible with the proposal that the [Qu]-operator is universally generated as a null operator and the *wh*-element is universally a variable (Cole& Hermon, 1998). Arslan (1999) analyzes *wh*-structures in Turkish and proposes an analysis similar to the one discussed in Aoun&Li (1993). In other words, *wh*-words in Turkish are bound by the [Qu]-operator which determines the scope of *wh*-words. Note that based on the presence of the Q-particle in yes/no questions, Aygen (1999) also argues for the existence of the Qu-operator in *wh*-question in Turkish. In this thesis the latter assumption is adopted. That is to say, *wh*-words are assumed to be variables which are bound by external operators in Turkish.

2.3. Indeterminate *Wh*-words

The nature of *wh*-words as indeterminates has been extensively investigated by Nishigauchi (1986, 1990), Aoun & Li (1993a), Cheng (1997), Li (1992), Lin (1998), Jayaseelan (2001), Tsai (1999) among others. An indeterminate / indefinite is defined as an element which lacks inherent quantificational force by itself and is dependent on another element in order to receive quantificational force (Heim, 1982; Nishigauchi, 1990). Heim (1982) studies indefinite NPs in English and argues that indefinite NPs like *a man*, *a donkey* do not have inherent quantificational force on their own and their quantificational force is determined by other elements in the structure like adverbs of quantification or an invisible operator. Therefore, the indefinite NP *a man* can have universal reading due to the presence of the adverb *always* as in (3). The sentence in (3) is interpreted as in (4).

(3) If a man owns a donkey, he always beats it.
(4) For every man and every donkey such that the former owns the latter, he beats it.

In order to explain the different interpretations of indefinite NPs, Heim (1982) proposes that an indefinite is in fact a variable in the logical sense and it “never contributes anything

more than this variable reading to the meaning of the sentences in which it occurs" (p. 130). Adverbs like *always* are binders for the variables and determine their quantificational force.

Nishigauchi (1990) proposes a similar account for the interpretation of *wh*-words in order to explain the various interpretations of the *wh*-words in Japanese. Nishigauchi (1990) argues that a *wh*-word in Japanese is not a quantificational element on its own but it receives various interpretations when bound by an appropriate particle (i.e. operator) present in the structure. That is, a *wh*-word in Japanese is interpreted as the universal quantifier when the particle *-mo* is attached to it. The wh-word is assigned the existential quantifier reading when it is bound by the particle *-ka* which is attached to the *wh*-word. On the other hand, when the *wh*-word is in the domain of sentential-final particle *-ka*, it is assigned the interrogative reading. Cheng (1997) also argues that *wh*-words in Chinese do not have quantificational force. Cheng notes that a *wh*-word can be interpreted as multiply ambiguous. As in Japanese, a *wh*-word in Chinese is interpreted as the existential, universal or interrogative quantifier according to the environment in which it occurs. Cheng (1997) treats *wh*-words as polarity items in that the environment in which they occur is very much like the environment the polarity item *any* in English appears. The analysis of Cheng's is alongside with the proposal made by Huang (1982) who notes that *wh*-words can be interpreted as quantifiers in certain "affective contexts".[1] An affective context for a *wh*-word involves a negative sentence, a yes / no question, an A-not-A question or a conditional clause. In all cases in which the *wh*-word is interpreted as a quantifier, the *wh*-word is in the scope of (i.e. c-commanded by) negation, yes / no form, or A-not-A question form, all of which give the verb a less than positive meaning (Huang, 1982: 242).

Li (1992) discusses the variable properties of *wh*-words and imposes two conditions for the *wh*-words to be interpreted as indeterminates; the first requirement being syntactic, the second semantic. The syntactic condition states that the indeterminate *wh*-word must be in the scope of (i.e. c-commanded by) its licenser at S-structure. The semantic condition, on the other hand, states that a *wh*-word is interpreted as the indeterminate element in the contexts where the truth value is negated, non-fixed, or asserted with uncertainty. Therefore, Li

[1] Huang (1982) treats *wh*-words as having inherent quantificational force and argues that they are subject to movement at LF.

argues that indeterminants are licensed in contexts where the truth value of the proposition is not positively fixed in a definite manner.

Lin (1996) investigates the variable nature of *wh*-words and suggests that a *wh*-word in Chinese in fact cannot be treated as a polarity item as its use is not restricted to those discussed by Huang (1982) and Cheng (1991, 1997). Lin argues that there exist a number of environments where an indefinite *wh*-word can appear but polarity *any* cannot. Thus Lin treats indefinite *wh*-words as "Existential Polarity *Wh*-Phrases" (EPWs, henceforth). Lin proposes a "Non-Entailment-of-Existence Condition" on EPWs which states that [the use of an EPW is felicitous iff the proposition in which the EPW appears does not entail the existence of a referent satisfying the description of the EPW] (Lin, 1996; 230). Lin provides three types of environments for the *wh*-word in which it is ambiguously interpreted. The first environment includes negation, yes/no questions and if-clauses. The second and the third environments, on the other hand, involve epistemic modality environments (i.e. those containing epistemic verbs or adverbs) and future environments (i.e. environments including modal verbs or imperatives which refer to the future). Lin notes that all of the environments are appropriate contexts where an EPW is subject to a non-existence condition.

Jayaseelan (2001) investigates the *wh*-words in Malayalam and argues that a *wh*-word signifies a variable in the sense of Nishigauchi (1990). When a *wh*-word is affixed to a conjunction / disjunction marker which acts as an operator, the *wh*-word is interpreted ambiguously. The affixation of the conjunction marker to a question word yields a universal quantifier reading, and the attachment of the disjunction marker to a question word yields an existential quantifier. Jayaseelan also observes that the use of a *wh*-word as an existential quantifier is restricted to certain contexts. The existential quantifier is only used when the identity of the person or the thing described is not known to the speaker. The interrogative reading of a *wh*-word is provided only when the *wh*-word is associated with a disjunction marker underlyingly. In the next section the strategies in which a *wh*-word receives various quantificational readings across languages will be discussed.

2.4. *Wh*-words as non-interrogative elements

As discussed above, the use of *wh*-words as variables has been extensively analyzed across languages. What these studies share in common is that a *wh*-word is not treated as a

bare *interrogative* word but as the element which receives different interpretations according to the syntactic environment in which it occurs. In other words, a *wh*-word is considered to be a variable and bound by a certain operator in its environment. This section is an overview of a number of strategies whereby a *wh*-word is multiply ambiguous in various languages.

2.4.1. Affixation

A number of studies have shown that *wh*-words are interpreted as non-interrogative elements by way of affixation. For instance, Cheng (1997) analyzes such languages as Polish and Bulgarian and argues that the interrogative reading of a *wh*-word in those languages takes a bare form and the indefinite form is derived from the bare form by means of affixation. The examples below are taken from Cheng.

(5) a. kto "who" gdzie "where" (Polish) Cheng (1997: 65-66)
b. kto-s "someone" gdzie-s "somewhere"

(6) a. koj "who" koga "when" (Bulgarian)
b. nja-koj "someone" nja-koga "sometime"

The examples in (5a) and (6a) illustrate the bare interrogative form of the *wh*-words. (5b) and (6b), on the other hand, indicate that when a certain affix is attached to the bare *wh*-word, it is interpreted as the existential quantifier. That is, when the suffix "-s" is attached to the *wh*-phrases in Polish in (5) and when the prefix "-nja" is attached in (6) in Bulgarian, the *wh*-words are assigned the non-interrogative reading. The languages given above are referred to be multiple *wh*-fronting languages in the literature (cf. Cheng, 1997) in that all the *wh*-words have to be moved to the sentence initial position in *wh*-questions, and it is only those languages, according to Cheng (1997: 66), that refer to affixation in the formation of an indefinite out of a *wh*-word. Cheng proposes that a *wh*-word in multiple fronting languages has to be fronted in order to be able to have the interrogative reading. The obligatory movement of all *wh*-phrases to clause-initial position in *wh*-questions follows from the fact that the DP in which a *wh*-word appears has a null determiner which occupies its head position. The null determiner has interrogative force. In order to license this null determiner a *wh*-word has to move to [Spec; CP] position that has [+*wh*]-feature whereby a *wh*-word acquires interrogative force through Spec-head agreement.

2.4.2. Particle Attachment

The use of *wh*-words as indeterminate elements by means of quantificational particles is widely discussed in the literature by Nishigauchi (1986, 1990), Watanabe (1997), Tsai (1999), Kishimoto (2001), Jayaseelan (2001) among others. For instance, Nishigauchi investigates the properties of *wh*-words in Japanese and argues that *wh*-words in Japanese behave like *indeterminate pronominal* elements, in the sense of Kuroda (1965), and are assigned various interpretations when they are in the domain of certain quantificational particles (Q-particles). In this sense, *wh*-words in Japanese are variables bound by those Q-particles which are binders for the *wh*-words.

(7)

Bare Form	Interrogative Reading	Universal Quantifier	Existential Quantifier
dare	dare…ka "who"	dare-mo "everyone"	dare-ka "someone"
nani	nani…ka "what"	nani-mo "everything	nani-ka "something"
doko	doko...ka "where"	doko-mo "everywhere"	doko-ka "somewhere"
itsu	itsu…ka "when"	itsu-mo "whenever"	itsu-ka "sometime"

(7) illustrates that *wh*-words in Japanese do not have only interrogative quantificational force. Instead, they are variables and their quantificational force is determined by certain particles in their environment. This means that when the *wh*-word is in the domain of the particle "-mo", it receives the universal quantifier reading. By the same token, when it is attached to the particle "-ka", it is interpreted as the existential quantifier. On the other hand, the sentential particle "-ka" assigns the *wh*-word the interrogative reading. These are exemplified by the examples below.

(8) a. *dare*-ga ringo-o tabe-ta ka? Watanabe (1997: 213)
Who-NOM apple-ACC eat-PAST Q
"Who ate the apple?"

b. *daremo*-ga ringo-o tabe-ta.
Eveyone-NOM apple-ACC eat-PAST
"Everyone ate the apple."

c. *dareka*-ga ringo-o tabe-ta.
someone-NOM apple-ACC eat-PAST
"Someone ate the apple."

Note that when the universal quantifier "dare*mo*" in (8b) is in the domain of negation in the structure, it is assigned negative quantifier reading as indicated in (9).

(9) *daremo* ringo-o tabe-nak-atta
anyone apple-ACC eat- NEG-PAST
"No one ate the apple"

In (9) the particle "-mo" is attached to the *wh*-word *dare*. The prediction is that the *wh*-word should receive the universal quantifier reading. However, it receives the negative quantifier reading as it is in the domain of the negative marker. Therefore, the combination of the *wh*-word and the particle yields the negative quantifier reading.

Note that the use of particles to derive quantifiers exhibits some differences from the affixation mentioned in the previous section in that particles behave more like prepositions or determiners than regular affixes as noted by Nishigauchi (1990). That is, they may not be strictly adjacent to the *wh*-word they assign quantificational force. This is illustrated by the structures below. The examples are taken from Tsai (1999: 54) and Kishimoto (2001: 598-599) respectively.

(10) a. *dare-ka*-kara henna tegami-ga todoi-ta
who-some-from strange leter-NOM arrive-PAST
"A strange letter came from somebody."

b. *dare*-kara-*ka* henna tegami-ga todoi-ta
who-from-some strange leter-NOM arrive-PAST
"A strange letter came from God knows who."

(11) a. Taroo-wa *nani-mo* kawa-nakat-ta.
Taroo-TOP anything-Q buy-NEG
"Taroo did not buy anything."

b. Taroo-wa *nani*-o kai-*mo*-si-nakat-ta.
Taroo-TOP anything-ACC buy-Q-do-NEG-PAST
"Taroo did not buy anything."

The structures in (10b) and (11b) indicate that a *wh*-word does not have to be adjacent to the particle by which it is assigned the universal quantifier reading. For instance the verb *kai* "buy" in (10b) intervenes between the *wh*-word and the particle. Nevertheless, the particle still binds the *wh*-word and the quantificational reading is yielded.

Another language in which *wh*-words display similar properties is discussed by Jayaseelan (2001). In his analysis, Jayaseelan argues that *wh*-words are variables in Malayalam and a disjunction / conjunction particle attached to a *wh*-word interprets it as the existential quantifier or as the universal quantifier which exhibit polarity sensitivity or have "free choice" use. There are two suffixes, *-um* and *-oo*, used to indicate conjunction and disjunction respectively in Malayalam.

(12) a. John-um Bill-um Peter-um
John, Bill and Peter

b. John-oo Bill-oo Peter-oo
John, Bill or Peter

As noted below, the same coordination markers are attached to the *wh*-words to yield indeterminate reading. The data are taken from Jayaseelan (2001: 65).

(13) a. aar-um "anybody"
who-CONJ

b. ent-um "anything"
what-CONJ

c. ewiDe-(y)um "anywhere"
where-CONJ

(14) a. aar-oo "somebody"
who-DISJ

b. ent-oo "something"
what-DISJ

c. ewiDe-(y)oo "somewhere"
where-DISJ

The examples in (13a-c) and (14a-c) indicate that when the conjunction marker *-um* is attached to the *wh*-word, this yields the universal quantifier reading. On the other hand, the *wh*-word is interpreted as the existential quantifier when the disjunction marker *-oo* is attached to it. However, what Jayaseelan also observes is that the existential quantifier has a restricted reading in that it is only used when the identity of the person or the thing is not known to the speaker.

(15) a. naan iruTT-il *aar*-e-*(y)oo* toTTu.
I darkness-in who-ACC-DISJ touched
"I touched somebody in the darkness"

b. # naan innale *aar*-e-*(y)oo* paricayappeTTu.
I yesterday who-ACC-DISJ met
"I met somebody yesterday"

As the unacceptability of the sentence in (15b) indicates, (15a) is the only appropriate environment in which *aar-oo* "who-ACC" can occur. Furthermore, the polarity reading found in Japanese is also observed in Malayalam.

(16) naan *aar*-e-(y)um kaND-illa / *kaNDu.
I who-ACC-CONJ saw-NEG / saw
"I did not see anybody"

The sentence in (16) indicates that when a *wh*-word which receives polarity reading is in the scope of negation, it is interpreted as the negative polarity item.

Jayaseelan also argues that when a *wh*-word is bound by the disjunction marker *-oo* at the sentential level, it is interpreted as the interrogative element. However, the disjunction particle does not surface in matrix or embedded constituent questions. The sentence in (17) is an example of a *wh*-question in Malayalam (Jayaseelan, 2001: 67).

(17) *aare* wannu?
Who came
"Who came?"

As indicated by the structure in (17), there is no overt particle which binds the *wh*-word and assigns it the interrogative quantificational force. Nevertheless, Jayaseelan proposes that the constituent questions have an underlying disjunctive particle *"-oo"* in Malayalam which surfaces in some "literary" types of discourse.

(18) it-*entu* kata-*(y)oo*? (Jayaseelan, 2001: 69)
this-what story-DISJ
"What story is this?"

Jayaseelan argues that the fact that (18) has a question particle but (17) does not is only a superficial difference. Jayaseelan notes that this is because of a deletion rule in Malayalam which deletes an underlying "-oo" in constituent questions.

2.4.3. Affective Contexts

Another context in which a *wh*-word is ambiguously interpreted does not involve a particular suffix or a particle. Instead, the bare *wh*-word appears in a number of structures in which its interpretation varies due to the presence of certain quantificational elements. For instance, Huang (1982) notes that *wh*-phrases like *shei* "who" and *shenme* "what" in Chinese are interpreted as the non-interrogative element when they occur in a certain context. Huang refers to these environments as *affective contexts*. These contexts involve yes/no questions, conditional clauses and structures with negation. Below are some examples taken from Huang (1982: 242).

(19) ta bu xiang chi *shenme* (?)
he not want eat what/anything
(i) "What did not he want to eat?"
(ii) "He did not want to eat anything."

(20) Zhangsan bu renwei hui xihuan *shei* (?)
Zhangsan not think you will like who / anyone
(i) "Who did not Zhangsan think that you will like?"
(ii) "Zhangsan did not think that you will like anyone."

The wh-word *shenme* "what" in (19) is ambiguous. It is interpreted as the interrogative element or it is assigned the existential quantifier reading. What Huang (1982) suggests for the different interpretations of the wh-word is that the wh-word *shenme* "what" in (19) is in the domain of the negative operator which assigns the *wh*-word the existential quantifier reading. The same is also true for the *wh*-word *shei* "who" in (20) where the *wh*-word exhibits ambiguity. Now consider the sentence below in which both *shei* and *shenme* occur.

(21) * Wo xihuan *shei* / *shenme* ren
I like who / what man
"I like somebody / something."

The ungrammaticality of (21) indicates that the use of a *wh*-word as the existential quantifier in affirmative contexts is unavailable. What licenses the *wh*-words in (19) and (20) is the negative element which takes the *wh*-words under its scope and therefore the *wh*-words are interpreted as the existential quantifiers. Yes/no questions are also considered to be an appropriate context for *wh*-words to be licensed as non-interrogative elements. The examples are from Chinese and Korean respectively.

(22) a. Ta xihuan *shenme* ma? (Li 1992 as cited by Bruening, 2004)
he like what Q
"Does he like anything?"

b. *Nwu*(kwu)-ka wass ni? (Hong 2004)
who-NOM came-Q
(i) "Who came?"
(ii) "Did someone come?"

In the structure (22a), the *wh*-word receives the existential quantifier reading as it is in the domain of the yes / no question particle *-ma* in Chinese. Similarly, in Korean the *wh*-word in (22b) is assigned the existential reading when in the domain of a question particle *-ni*.

Other affective contexts where a *wh*-phrase displays the same ambiguity are exemplified below.

(23) a. Ruguo ni you *shenme* haochi de dongxi..... (Lin, 1998)
If you have what tasty DE thing
"If you have something good to eat...." *Conditional*

b. Ta yiding / dagai shi bei *shenme* shi gei dange-le.
he must / probably be by what thing by delay-ASP
"He must / probably have been delayed by something" *Modal*

c. Ta yiwei wo xihuan *shenme*. (Li, 1992 as cited by Bruening 2004)
he think I like what
"He thinks I like something" *Non-factive verb*

In the sentence (23a), the presence of the conditional operator licenses the *wh*-word *shenme* "what" as the existential quantifier. In (23b), on the other hand, the *wh*-word receives the existential reading due to the presence of the epistemic modal / adverb. As Li (1992) argues, the non-factive verb *yiwei* "think" assigns the existential quantifier reading to the *wh*-word in (23c). Li notes that non-factive verbs like *yiwei* "think" is the binder by which *wh*-words are assigned the non-interrogative interpretation.

2.4.4. Reduplication of the *wh*-word

In certain languages reduplicated *wh*-words are interpreted as the non-interrogative elements. For instance, in Malay the *wh*-words *apa* "what", *siapa* "who", and *mana* "where" are interpreted as the non-interrogative word by means of reduplication as the constructions below indicate.

(24) a. Dia tidak membeli *apa-apa* untuk saya. (Cole and Hermon, 1998)
He not MENG-buy what-what for me
"He did not buy anything for me."

b. Saya tidak kenal *siapa-siapa* di universiti itu.
I not recognize who-who at university that
"I did not recognize anybody at that university."

c. Awak tidak pergi ke *mana-mana*.
You not go to where-where
"You did not go anywhere"

Cole and Hermon (1998) argue that *wh*-words in Malay are variables and in addition to being bound by the question operator, they are also bound by non *wh*-operators. In (24a-c) the variable *wh*-words are bound by the quantificational element overtly represented by the reduplication of the question word. Thus reduplication of the *wh*-words yields polarity reading.

2.5. *Wh*-words as Rhetorical Questions

A number of semantic / pragmatic approaches to the interpretation of *wh*-words exist in the literature. Among these are cited Han&Siegel (1997), Han (1998, 2002). These analyses consider *wh*-words to be *Rhetorical Questions*. They also assume *wh*-words to be variables. In these studies, the difference in the interpretations of the *wh*-words is accounted for as the output of a post-LF derivation which is determined through the interaction with a subpart of the interpretational component referred to as pragmatics. This post-LF derivation maps *wh*-words in those structures in which *wh*-words are interpreted ambiguously to the non-interrogative interpretation of the *wh*-words, giving rise to the various readings assigned to the *wh*-words.

2.6. Previous work on *wh*-questions in Turkish

There have been a number of analyses proposed for the syntactic properties of *wh*-questions in Turkish. For instance, Akar (1990) discusses the properties of simple *wh*-constructions and notes that *wh*-movement occurs, if at all, at LF (cf. Huang, 1982). Akar (1990) proposes two rules for the *wh*-questions in Turkish, namely, the Q-placement rule and the Q-scrambling rule and accounts for the occurrence of the *wh*-words with different functions in the immediately pre-verbal position in Turkish. Akar discusses the structures in which *wh*-words appear in other positions and argues that the occurrence of *wh*-words in different positions is accounted for in terms of Q-scrambling rule which moves the *wh*-words to certain positions.

Özsoy (1996) also argues for an LF-movement analysis for *wh*-questions in Turkish. Özsoy proposes that the unexpected grammaticality of certain *wh*-constructions containing Complex NPs and adjunct islands can be accounted for in terms of LF *pied-piping* mechanism similar to the one proposed by Nishigauchi (1990). Özsoy argues that a *wh*-word in a complex NP or an adjunct island does not undergo movement by itself, hence no violation of subjacency is observed. The [wh] feature of the *wh*-words percolates to the maximal projection by means of feature percolation. As the maximal projection is marked with [wh] feature, it is moved to the CP position of the matrix clause.

Arslan (1999), on the other hand, argues that LF-movement analysis of *wh*-questions in Turkish does not hold for certain constructions. Arslan proposes a *wh*-indexing mechanism as discussed by Aoun and Li (1993a) and argues that *wh*-words do not move at LF in Turkish but are co-indexed with the phonologically null [Qu]-operator in the C-domain. Arslan (1999) argues that the [Qu]-operator has two functions. It determines the scope of the *wh*-word in situ and provides an antecedent for the *wh*-word.

2.7. Conclusion

This chapter introduced the theoretical framework according to which this thesis is written and noted that *wh*-words in a number of languages are interpreted ambiguously under certain conditions. This is taken to be an indication that *wh*-words by themselves do not have interrogative quantificational force. Rather, their interpretation differs according to the environment in which they occur. In other words, *wh*-words in those languages are variables which are bound by external operators to be interpreted. In order to account for the conditions in which *wh*-words are interpreted ambiguously, four main strategies have been discussed. It has been argued that languages refer to different strategies for the interpretation of *wh*-words. These are (i) affixation, (ii) particle attachment, (iii) affective context, and (iv) reduplication of the *wh*-word. In the next chapter, the conditions under which *wh*-words in Turkish display ambiguity will be discussed in some detail.

CHAPTER III

WH-WORDS AS VARIABLES IN TURKISH

3.1. Introduction

This chapter proposes that a *wh*-word in Turkish is a variable bound by different operators where its interpretation is determined by the nature of the specific operator that binds it. The analysis to be presented in this chapter has certain implications for the generalization that if a language has *wh-in-situ*, then the *wh*-words are always interpreted as variables (Cole & Hermon, 1998; Bruening, 2004).[1] Given that Turkish is an *in-situ* language the prediction is that *wh*-words in Turkish will exhibit variable properties, being subject to external binding by certain operators. In this chapter, it will be argued that the interpretation of the *wh*-words in Turkish is determined by the presence or the absence of the operators in the structure such as the Gen(eric)-operator, the interaction of the Gen-operator and the Negative operator, and the presence of the particle *ki* in the C-domain. It will be shown that in the absence of the overt particle *ki* in the C-domain, the *wh*-word receives ambiguous reading between the question and non-question interpretations in the presence of the Gen-operator. This is due to the fact that Turkish lacks an overt Qu-operator in *wh*-question constructions unlike languages such as Japanese or Chinese. In the absence of the Gen-operator and the overt particle *ki*, the *wh*-words which are not marked for plurality always receive the interrogative reading. In those cases in which the *wh*-word is marked for plurality, on the other hand, it is interpreted ambiguously between the interrogative and universal reading when in the scope of negation. Note that the structures in which a *wh*-word is interpreted as the interrogative element and the non-interrogative element differ with respect to their intonation pattern. In those constructions in which the *wh*-word is interpreted as the non-interrogative element, the intonation pattern is that of a declarative structure with a falling intonation at the end of the structure which is argued to be the pattern of a declarative (i.e. non-interrogative) sentence by Ekenel, Arslan & Özsoy (2002).

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[1] Cole & Hermon (1998) and Bruening (2004) argue that if a language is a *wh-in-situ* language, it uses *wh*-words as variables. However, they maintain that Turkish is an exception for this claim as *wh*-words in Turkish are not used as variables. However, I argue here that *wh*-words in Turkish are variables being subject to binding.

On the other hand, in those constructions in which a *wh*-word is interpreted as the interrogative element, the structure has a canonical *wh*-question intonation with a rising pitch at the end of the structure (Ekenel, Arslan & Özsoy, 2002).[2] In the next section, I will discuss the structures in which the *wh*-words are ambiguously interpreted between the interrrogative and non-interrogative reading.

3.2. Generic Affirmative Structures

In this section it will be shown that a *wh*-word is interpreted ambiguously between the interrogative reading and the negative quantifier reading in a certain type of structure. The ambiguity a *wh*-word displays will be accounted for by the existence of the Gen(eric)-operator which binds the *wh*-word in the absence of the null Qu-operator in the C-domain. Consider the following structures.[3]

(1) a. Ahmet **ne-yi** bil-ir . / ?
Ahmet-NOM what-ACC know-AOR
(i) "What does Ahmet know?"
(ii) "Ahmet would know nothing"

b. Ayşe **kim-e** kız-ar . / ?
Ayşe-NOM who-DAT get angry-AOR
(i) "Who would Ayşe get angry with?"
(ii) "Ayşe would get angry with no one."

c. Cem **kim-i** sev-er . / ?
Cem-NOM who-ACC love-AOR
(i) "Who does Cem love?"
(ii) "Cem loves no one."

---

[2] The use of *wh*-words as quantificational elements when they are not uttered with interrogative intonation has been discussed in the literature. Basque is one of those languages as discussed by Etxepare (2005).

[3] Note that the interpretation of the *wh*-words in the non-subject position in Turkish will be investigated in this chapter. The interpretation of the subject NPs will be discussed in the next chapter.

The structures in (1a-c) display ambiguity between two readings. (1a) is interpreted as the interrogative sentence or it is interpreted as the non-interrogative structure, where the nature of the non-interrogative reading that the *wh*-word is assigned is that of a negative quantifier. Thus, in the interrogative reading of the construction, one can utter the structure in (1a) in a context in which s/he is trying to figure out what the person in question would know. The same structure, however, also has the non-interrogative reading in which the *wh*-word is interpreted as a non-interrogative element, namely, a negative quantifier in a situation in which the speaker intends to assert that the person in question would know nothing. Similarly, the *wh*-word *kim-e* "who-DAT" in (1b) can be interpreted as an ordinary *wh*-word or it has the negative quantifier reading meaning *no one*. The same holds also for the interpretation of the wh-word *kim-i* "who-ACC" in (1c) in which *kim-i* receives either the ordinary interrogative reading or the negative quantifier interpretation. The structures in (1a-c) indicate that *wh*-words in Turkish do not have only the interrogative reading but are assigned different interpretations. However, note that the structures above in which the verb is marked with the aorist marker contrast significantly with the following examples in which the verb is marked with the past, future and progressive markers respectively.

(2) a. Sen **kim-e** inan-dı-n?
You-NOM who-DAT believe-PAST-AGR
(i) "Who did you believe?"
(ii) * "You believed no one".

b. Sen **kim-e** inan-acak-sın?
You-NOM who-DAT believe-FUT-AGR
(i) "Who will you believe?"
(ii) * "You will believe no one".

c. Sen **kim-e** inan-ıyor-sun?
You-NOM who-DAT believe-PROG-AGR
(i) "Who do you believe?"
(ii) * "You believe no one".

As can be observed in the structures above, in those cases in which the verb is marked with a tense / aspect marker other than the aorist, (i.e. past, future or progressive markers), the

wh-word does not display ambiguity. It is interpreted only in the interrogative reading. We take the ambiguity in (1a-c), in contrast to the lack of ambiguity in (2a-c), to be an indication that *wh*-words in Turkish do not have inherent interrogative force by themselves but that their interpretation is dependent on other elements in the structure. This indicates that in those structures in which the *wh*-word is interpreted ambiguously, the *wh*-word is bound by different operators. The claim is that in (1a-c), in which the *wh*-words are ambiguous between the interrogative and non-interrogative reading, it is the nature of the operator that binds the wh-word that determines the interpretation of the *wh*-element. In those cases in which a phonologically null Qu(estion)-operator appears in the C-domain, as argued by Cheng (1991, 1997), Aoun & Li (1993), Watanabe (1997), the *wh*-word receives the interrogative reading regardless of the tense / aspect marker on the verb. On the other hand, in the absence of the Qu-operator in the C-domain, it is the presence of the Gen-operator which we assume to be base generated in the Aspect Phrase (AspP) that binds the *wh*-word, yielding the negative quantifier reading of the *wh*-word.

That genericity is closely linked with the aspectual system of languages has been amply discussed in such studies as Comrie (1976), Dahl (1985), Filip and Carlson (1997) and Rimell (2004). Filip and Carlson (1997), for instance, note that sentential constructions referred to as "habituals" all express genericity and contain some generic operator that is tightly related to the verb. Following Comrie (1976) and Dahl (1985), Filip and Carlson (1997) argue that genericity / habituality is part of the aspect category (Filip & Carlson, 1997: 6-8). A similar analysis was proposed by Rimell (2004) for English to account for the habitual sentences. Rimell (2004) argues that generic / habitual sentences in English contain a silent operator which can be identified with an aspectual head in the IP-domain. When this operator is combined with the verb (in the absence of past and future tense), it yields genericity.

As also noted by Yavaş (1978, 1982), genericity / habituality is expressed by the aorist marker in Turkish.[4] Based on the crosslinguistic studies focusing on the close link between the aspectual system of the language and genericity as well as the language specific investigation of the functions of the aorist marker in Turkish by Yavaş (1978, 1982), we propose that the

[4] The aorist marker is traditionally referred to be as an operator that can have generic, volitional and epistemic (subjective) readings, as discussed by Yavaş (1978; 1982), Dede (1986), and Enç (2004).

aorist marker also functions as the Gen-operator which binds the wh-words in (1a-c). This is illustrated by the following structures.

(3) a. Sabah-lar-ı sekiz-de kalk-*ar*-ım. (Yavaş, 1982: (9a))
morning-PL-ADD eight-LOC get up-AOR-1SG
"I get up at eight o'clock in the mornings"

b. Baba-m iş-e otobüs ile gid-*er*. (Yavaş, 1982: (8a))
Father-my work-DAT bus with go-AOR
"My father goes to work by bus."

In (3a-b) the verb *kalk*- "get up" and *git*- "go" are marked with the aorist marker. Yavaş (1982) argues that the aorist characterizes what is typical, normal or even inherent quality of the entity or the situation. In other words, the presence of the aorist marker yields habitual / generic reading. Contrast the sentences with those in which the verb is marked with a tense / aspect marker other than the aorist which we take to be the marker of genericity in Turkish.

(4) a. Cem buraya sabah gel-di.
Cem-NOM here morning come-PAST
(i) "Cem came here in the morning."
(ii) * "Cem used to come here in the morning."

b. a. Cem buraya sabah gel-ecek.
Cem-NOM here morning come-FUT
"Cem will come here in the morning."

In (4a-b) the verb is marked with the tense marker and the future marker respectively. However, neither of the sentences indicates genericity or habituality which indicates that genericity is part of the aspectual system in Turkish. Note also that only the aorist marker, but not progressive aspect marker, is used in generic / habitual sentences as discussed by Yavaş (1982). Consider the sentences below.

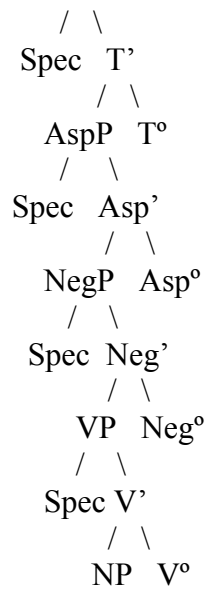
(5) a. Benim kasab-ım iyi et sat-ar. (Yavaş, 1982: (13))
I-GEN butcher-POSS good meat sell-AOR
"My butcher sells good meat."

b. Benim kasab-ım iyi et sat-ıyor. (Yavaş, 1982: (14))
I-GEN butcher-POSS good meat sell-PROG
"My butcher sells good meat."

Yavaş (1982) discusses the use of aorist marker and the progressive marker and argues that there is indeed a difference in the meaning of the (5a) and (5b). While the aorist has the effect of characterizing the entity in question, the progressive reports a certain behavior. Therefore, (5a) indicates that it is typical of my butcher that he sells good meat. This is a characteristic that he has whereas (5b) simply says that he sells good meat.

Based on the arguments presented above, we propose that the Gen-operator represented by the aorist marker as the head of the Aspect Phrase (AspP) in (1a-c) assigns the negative quantifier reading to the *wh*-words it binds. The *wh*-word is in the c-command domain of the Gen-operator which binds it, yielding the variable reading. Following Kornfilt (2002) and Kelepir (2001), we assume the following configuration of the TP to represent the clause structure of a simple sentence in Turkish.

(6)



As can be noted in the above representation, the VP is dominated by a number of verbal functional categories. (cf. Kornfilt (2002)). The verbal functional categories include T(ense) and Asp(ect). Kornfilt (2002) argues that the subject which is base-generated within VP moves to the specifier position of T(ense) in finite clauses. Kelepir (2001) proposes a similar clause structure for Turkish. Following Kornfilt (1996), Kelepir (2001) argues that there are in fact two types of verbal forms in Turkish. The first involves finite verbs while the second category includes participles that are embedded under a copula. The Tense / Aspect / Modality (TAM) markers such as *-Iyor* "progressive", *-Ir / -Ar / -r* "aorist", *-EcEK* "future", and *-mış / -ımış* "perfective" are generated in Aspect Phrase (AspP) (Kelepir, 2001: 41-42) between the VP and the TP. Enç (2004) argues for a clause structure which does not order functional categories strictly; rather Enç proposes that functional categories are represented in *zones*. The clause structure I am proposing in this thesis is compatible with her analysis as well. Aygen (1998), on the other hand, argues that Tense and Aspect are a hybrid or syncretic category heading a maximal projection T-AP which in turn bears another hybrid head Aspect / Modality.[5]

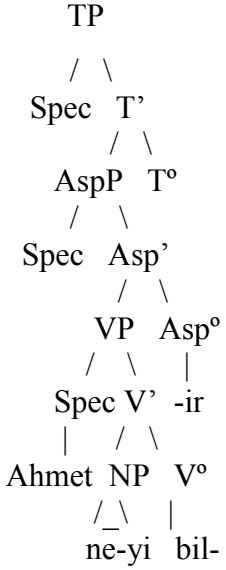
With respect to the representation of (1a) given in (7) below, we maintain that the subject NP is base-generated in the [Spec; VP] position at the base in accordance with the *VP-internal subject hypothesis* proposed by Koopman and Sportiche (1991).[6] The *wh*-phrase base-generated as the complement of the verb at the base structure stays *in situ* at S-Structure and is c-commanded by the Gen-operator which assigns the *wh*-word the negative quantifier reading. The structure in (1a) is represented in (7) below.

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[5] Aygen (1998) maintains that Tense and Aspect are related and proposes a double-headed syncretic or hybrid projection T/AP.

[6] Note that in K&S (1991) the assumption is that T(ense) has the EPP feature (Extended Projection Principle) and the subject NP has to raise to [Spec, TP] position to satisfy the EPP-feature on T°. What is also assumed is that by moving to [Spec, TP], the subject NP is assigned Nominative Case. Whether this assumption also holds for Turkish, namely, whether the subject NP is moved to [Spec, TP] for the EPP and Case reasons in Turkish, will be discussed in detail in the next chapter.

(7)



We argue that the presence of the Gen-operator assigns the negative quantifier interpretation to the *wh*-word it takes under its scope. This is an exceptional effect given the general behaviour of the Generic operator cross-linguistically. I leave the cause of such an effect yielded by the Gen-operator in Turkish for further research.

Note that the Gen-operator is present in the interrogative reading of the structure as well. However, it appears that it does not bind the *wh*-word for some reason and only the interrogative reading of the *wh*-word is yielded. In other words, the presence of the Qu-operator in the C-domain overrides the effect of the Gen-operator in the TP-domain.

3.3. Generic Negative Structures

In the previous chapter, it was pointed out that the presence of negation in languages like Chinese and Japanese gives rise to the non-interrogative reading of the *wh*-words. In other words, in sentences with negation a *wh*-word is interpreted as the interrogative or the non-interrogative element. Consider the Chinese structure below.

(8) Guojing mei-you mai shenme ? / . (Cheng, 1997: 97)
Guojing not-have buy what
(i) "What didn't Guojing buy?"
(ii) "Guojing did not buy anything."

In (8) the *wh*-word *shenme* “what” has the ordinary *wh*-question reading. However, it is also interpreted as the existential quantifier. Huang (1982) and Cheng (1997), among others, argue that this is due to the presence of the negative element which assigns non-interrogative reading to the *wh*-word in structures like (8). Huang (1982) argues that the *wh*-word is in the domain of negation which gives the verb a less than positive meaning (Huang, 1982), therefore it is interpreted either as the question word in one reading or as the existential quantifier in the other. Note that only those *wh*-words which are in the scope of negation are bound by negation. If the *wh*-word is not in the c-command domain of negation, it only exhibits *wh*-question reading as noted by Cheng (1997: 98).

(9) * Shei xiang-bu-xiang chi pingguo?
Who want-not-want eat apples
“Does anyone want to eat apples?”

The *wh*-word *shei* “who” in (9) functions as the subject of the construction. The presence of negation implies that the *wh*-word should display ambiguity. However, as can be noted, the structure can only be interpreted as a *wh*-question. This indicates that the *wh*-word *shei* “who” is not within the scope of the negative element *bu* “not” but has moved to a position outside the scope of negation and therefore cannot receive the existential quantifier reading. In Turkish, too, the interaction of the Gen-operator with negation gives rise to ambiguity. Consider the structure below.

(10) Ayşe **kim-i** sev-me-z . / ?
Ayşe-NOM who-ACC love-NEG-AOR
(i) “Who does Ayşe not love?”
(ii) “Ayşe loves everyone.”

The structure in (10) indicates that the Gen-operator together with negation yields ambiguity and the *wh*-word *kim-i* “who-ACC” is interpreted ambiguously. The next section discusses the interaction of negation with the Gen-operator and their semantic effect on the *wh*-words in Turkish.

3.3.1. The Interaction of the Gen-operator and Negative Operator

As can be noted in the constructions in which negation appears between the Gen-operator and the wh-phrase in Turkish, the *wh*-phrase is interpreted ambiguously between the interrogative and non-interrogative reading in Turkish. However, note that these constructions differ significantly from those in which only the Gen-operator appears. While in the former case, the *wh*-word is interpreted as the negative quantifier, in those constructions in which the Gen-operator and the Neg-operator co-exist, the *wh*-word is interpreted as the universal quantifier. In this way, Turkish contrasts with languages such as Chinese in which the *wh*-word is interpreted as the existential quantifier when bound by negation and Japanese in which a *wh*-word receives the negative quantifier reading under negation and the particle *mo*, as discussed in the previous chapter. This is illustrated in (11a-c) below.

(11) a. Ahmet **kim-e** güven-me-z ? / .
Ahmet-NOM who-DAT trust-NEG-AOR
(i) "Who would Ahmet not trust?"
(ii) "Ahmet would trust everyone".

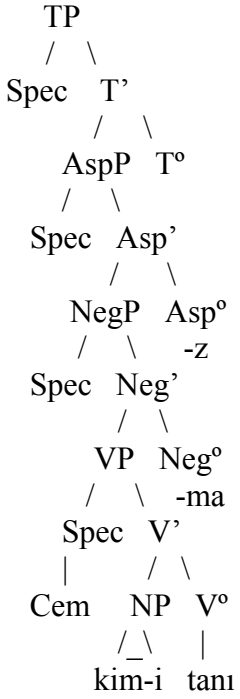
b. Sen **ne-yi** bil-me-z-sin ? / .
You-NOM what-ACC know-NEG-AOR-AGR
(i) "What do you not know?
(ii) "You would know everything".

c. Cem **kim-i** tanı-ma-z ? / .
Cem-NOM who-ACC know-NEG-AOR
(i) "Who does Cem not know?"
(ii) Cem would know everyone.

The structure in (11a) is ambiguous. It is interpreted as the interrogative structure in one reading or the non-interrogative construction in the other. In the former reading, the structure can be uttered by someone who intends to know who the person in question would not trust. In the latter reading, on the other hand, the *wh*-word *kim-e* "who-DAT" in (11a) is interpreted as the universal quantifier. That is, one can utter the same sentence in a context where s/he intends to assert that the person in question would be willing to trust everyone. In the same

vein, the *wh*-words *ne-yi* “what-ACC” in (11b) and *kim-i* “who-ACC” in (11c) display ambiguity between the interrogative and universal quantifier reading. The *wh*-word in (11b) can be interpreted as *what* or *everything* and the *wh*-word in (11c) as *who* or *everybody*. Recall that all the *wh*-words in (11a-c) have the universal quantifier reading in the above sentences as opposed to the negative quantifier reading of the *wh*-words in the previous section. The difference between the two is that when the *wh*-words receive the universal quantifier reading, they are all in the c-command domain of the negative marker {-mA} as well as the Gen-operator. Thus we propose that a *wh*-word in Turkish is assigned the universal quantifier reading when in the domain of the Neg-operator and Gen-operator which c-command the *wh*-word at S-Structure. In other words, the interaction of the two operators assigns the *wh*-word its interpretation. The representation of (11c) would then be as follows.

(12)



In (12) the assumption is that the subject NP is base-generated under [Spec, VP] at D-Structure. The *wh*-word *kim-i* “who-ACC” is the complement of the verb *tanı-* “know” and it is in the scope, (i.e. c-commanded by), of the Negative operator and the Gen-operator, the interaction of which determines its quantificational force as the universal quantifier. On the other hand, in the interrogative reading of the *wh*-word, the presence of the [Qu]-operator in the C-domain suppresses the effect of the TP-level operators and the *wh*-words are assigned only the non-interrogative reading. However, the question why the C-level [Qu]-operator

exhibits this property and overrides the the TP-level operators even though TP-level operators are closer to the *wh*-word remains unanswered for the time being.

Note also that the contrast seen in the previous section between those constructions in which the AspP contains the aorist marker as opposed to the other aspectual markers is also observed in the structures with negation. Consider the examples in (13).

(13) a. Sen **kim-e** inan-ma-dı-n?
You-NOM who-DAT believe-NEG-PAST-AGR
(i) "Who did you not believe?"
(ii) * "You believed everyone".

b. Sen **kim-e** inan-mı-yor-sun?
You-NOM who-DAT believe-NEG-PROG-AGR
(i) "Who do you not believe?"
(ii) * "You believe everyone".

c. Sen **kim-e** inan-ma-yacak-sın?
You-DAT who believe-NEG-FUT-AGR
(i) "Who will you not believe?"
(ii) * "You will believe everyone."

The structures in (13a-c) indicate that when the verb is marked with past tense, progressive or future markers, namely, when the aorist marker is absent, the *wh*-word is unambiguous. In other words, when the Gen-operator does not co-occur with the Negative operator, the universal quantifier reading of the *wh*-word is not available and the only available reading is the interrogative one.

3.3.2. Plurality and the Negative Operator

In this section, I will discuss plural marked *wh*-words, as another significant property exhibited by the *wh*-words with plural marker is that they are interpreted ambiguously when in the scope of negation. In other words, when plural marker {-lAr} is attached to the *wh*-word, this gives rise to the ambiguity of the wh-words. This is exemplified in (14a-b) below.

(14) a. Cem **ne**-ler-i bil-me-di ? / .
Cem-NOM who-PL remember-NEG-PAST
(i) "What did Cem not know?"
(ii) "(It seems) Cem knew everything."

b. San-a **kim**-ler inan-ma-yacak ? / .
You-DAT who-PL believe-NEG-FUT
(i) "Who will not believe you?"
(ii) "(It seems) Everyone will believe you."

The examples in (14a-b) lack the Gen-operator. Note that the verbs in (14) are marked with past and future markers. However, the *wh*-words are interpreted ambiguously. This implies that the presence of plurality has certain effect on the *wh*-word it is attached to and that the *wh*-words in (14a) and (14b) are interpreted as the universal quantifier due to presence of the plurality. Note that attaching plural to the *wh*-word is not a sufficient condition for the *wh*-word to be interpreted as the universal quantifier. It is in fact the interaction of the plural marker and negation that assigns universal quantifier interpretation to the *wh*-word.[7] The significance of this is that not only do TP-level operators interact, but also NP-level and TP-level operators interact with each other yielding the universal quantifier reading of the *wh*-words. If negation is not present in the structure, *wh*-words are interpreted only in the interrogative reading. This is illustrated in (15a-b).

(15) a. Buraya **kim-ler** gel-di?
here who-PL-NOM come-PAST
(i) "Who came here?"
(ii) * "Everyone / No one came here."

b. Biz **ne-ler-i** oku-yacağ-ız?
We-NOM what-PL-ACC read-FUT-AGR
(i) "What will we read?"
(ii) * "We will read everything / nothing."

[7] The status of plural marker as an operator has been discussed in the literature. For instance, Chierchia (1998: 345) discusses the analysis of plurality and its functions.

The *wh*-words in (15a-b) are interpreted with only the interrogative reading.

3.4. The *ki* particle

In the previous sections, it was argued that *wh*-words in Turkish display ambiguity between the interrogative reading and the non-interrogative reading due to the presence of the specific operator(s) at the TP-level. In this section, those contexts in which a *wh*-word displays only the non-interrogative reading are discussed. In other words, this section analyzes the *wh*-words bound by the particle *ki*. The *ki* particle appears sentence-finally in the structure and its presence makes the interrogative reading of the *wh*-word unavailable. This is illustrated by the structures in (16a-c).

(16) a. Ahmet **kim-e** inan-ır ki!
Ahmet-NOM who-DAT believe-AOR prt
(i) "Ahmet believes no one".
(ii) * "Who does Ahmet believe?"

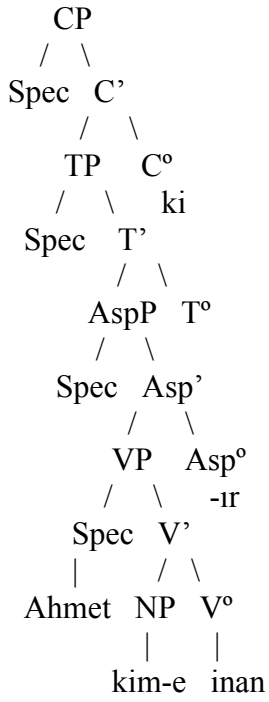
b. Sen **ne-yi** bil-ir-sin ki!
You-NOM what-ACC know-AOR-AGR prt
(i) "You know nothing".
(ii) * "What do you know?"

c. Cem **kim-i** tanı-r ki!
Cem-NOM who-ACC know-AOR prt
(i) "Cem knows no one".
(ii) * "Who does Cem know?"

In (16a-c) all the *wh*-words appear VP-internally. Note that in the examples given in the previous sections the *wh*-phrases were shown to be ambiguous between the interrogative and non-interrogative reading. However, the structures in (16a-c) indicate that the *wh*-word receives only the non-interrogative reading when in the domain of the *ki* particle. This means that the interrogative reading is unacceptable when the *ki* particle occurs in the structure. What this indicates is that the *ki* particle binds the wh-word yielding only the non-

interrogative reading. Following İnce (2004)[8], it is assumed that the particle *ki* occupies the head position of the CP taking the whole clause under its scope.

(17)



Note also that in those structures with negation only the non-interrogative reading of the *wh*-word is available. This is exemplified in (18a-b).

(18) a. Ahmet **kim-e** inan-ma-z ki!
Ahmet-NOM who-DAT believe-NEG-AOR prt
(i) "Ahmet would believe everyone"
(ii) * "Who would Ahmet not believe?"

b. Cem **kim-i** sev-me-z ki!
Cem-NOM who-ACC love-NEG-AOR prt
(i) "Cem loves everyone".
(ii) * "Who does Cem not love?"

[8] İnce (2004) notes that the *ki* particle appears to the right of the Q-particle "-mI" in yes/no questions in Turkish which indicates that it is in the CP domain.

The sentences in (16a-c) and (18a-b) indicate that only the non-interrogative reading of the *wh*-word is available when it is in the domain of the *ki* particle. Note that the Gen-operator is present in (16a-c) in which the *wh*-words are interpreted as only non-interrogative elements. On the other hand, the Gen-operator co-occurs with negation in (18a-b) where the *wh*-words are interpreted as the universal quantifier.

When the structures in which the Gen-operator is unavailable are considered, it appears that the presence of the *ki* particle induces the same results for the *wh*-words it binds. This is illustrated in (19a-d) below.

(19) a. Cem **kim-i** sev-di ki!
Cem-NOM who-ACC love-PAST particle
(i) "Cem loved no one".
(ii) * "Who did Cem love?"

b. Biz **kim-e** bağır-mış-ız ki!
We-NOM who-DAT yell-PERF-AGR prt
(i) "We have yelled at no one"
(ii) * "Who have we yelled at?"

c. Sen **ne-yi** bil-iyor-sun ki!
You-NOM what-ACC know-PROG-AGR prt
(i) "You know nothing"
(ii) * "What do you know?"

d. Biz **nereye** git-me-di-k ki!
We-NOM where go-NEG-PAST-AGR prt
(i) "We have gone everywhere"
(ii) * "Where did not we go?"

In (19a), the verb is marked with past tense. There is also no negation. In (19b), the verb is marked with the evidential marker and negation is not available in the structure. When we consider the sentence in (19c), the verb has progressive aspect marker. In all of the structures, the *wh*-word is associated with only negative quantifier reading. In (19d), on the other hand, the verb is marked with both past tense marker and negation. The Gen-operator is not

available in the structure. Nevertheless, the *wh*-word receives only the universal quantifier reading. This indicates that the presence of the *ki* particle in the structure has the same effect as the Gen-operator, as the *wh*-word is assigned the universal quantifier reading when bound by the *ki* operator in the domain of negation.

3.5. Qu-operator

As has been pointed out before, *wh*-question formation in Turkish differs from the one in *wh*-movement languages in that in Turkish *wh*-words do not display overt S-Structure movement to clause initial position. A *wh*-word occurs in a position in which its non-interrogative counterpart appears in a declarative sentence. This is illustrated in the examples below.

(20) a. A: Cem **kim-i** gör-dü?
Cem-NOM who-ACC see-PAST
"Who did Cem see?"

B: Cem Ali-yi gör-dü.
Cem-NOM Ali-ACC see-PAST
"Cem saw Ali."

b. A: Ahmet **hangi okul-a** gid-ecek?
Ahmet which school-DAT go-FUT
"Which school will Ahmet go?"

B: Ahmet bu okul-a gid-ecek.
Ahmet-NOM this school-DAT go-FUT
"Ahmet will go to this school."

c. A: Çocuk **nereye** bak-ıyor?
child-NOM where look-PROG
"Where is the child looking at?"

B: Çocuk resm-e bak-ıyor.
Çocuk-NOM picture-DAT look-PROG
"The child is looking at the picture."

As can be observed from the examples in (20a-c), *wh*-words do not undergo syntactic movement at S-Structure in Turkish regardless of whether they are arguments or adjuncts. This also holds for the sentences in which there is more than one *wh*-phrase. That is, all *wh*-words stay in situ in multiple *wh*-questions as well.

(21) a. A: Ahmet **kim-e ne-yi** ver-di?
Ahmet who-DAT what-ACC give-PAST
"Who did Ahmet give what?"

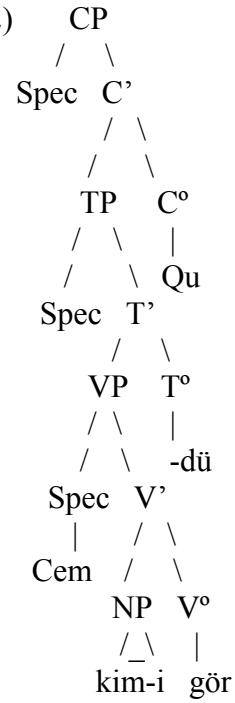
B: Ahmet Murat-a resm-i ver-di.
Ahmet-NOM Murat-DAT picture-ACC give-PAST
"Ahmet gave the picture to Murat."

Given that *wh*-words do not exhibit inherent interrogative force in Turkish, unlike Huang (1982), the question that arises is how the *wh*-word is interpreted as the interrogative element in the structure. To answer this question, I follow Aoun & Li (1993), Cheng (1997), and Watanabe (1997) and argue that in *wh-in-situ* languages phonologically null *wh*-operator appears in *wh*-questions in contrast to Huang (1982)'s claim that *wh*-words are quantificational elements and undergo covert raising at LF. In the [Qu]-operator analysis, a *wh*-word is assumed to be bound and interpreted by way of the [Qu]-operator which is base-generated and / or moved to Cº position.[9]

[9] What this analysis implies is that there is overt *wh*-movement in every language. In *wh-in-situ* languages the moved element is the phonologically null Qu-operator. Watanabe (1997) and Miyagawa (2001) claim that what distinguishes overt movement languages from the *wh*-in-situ languages is merely morphology. In *wh*-movement languages the *wh*-operator cannot be separated from the *wh*-phrase itself, hence the *wh*-word overtly moves at S-Structure. In *wh-in-situ* languages, on the other hand, the null *wh*-operator is separated from the *wh*-word and moves overtly to C-domain.

From that position the [Qu]-operator determines the scope of the *wh*-word and the sentence is interpreted as an interrogative clause. This binding relation is illustrated in (22).

(22)



Note that similar analyses for *wh*-questions in Turkish have been proposed by Arslan (1999) and Aygen-Tosun (1999). For instance, Arslan (1999) investigates *wh*-questions in Turkish and notes that a *wh*-word in *wh*-questions does not undergo LF-movement as Huang (1982) argues for *wh-in-situ* languages. Arslan follows the insight of Aoun & Li (1993) who claim that *wh*-words in Chinese do not undergo movement at S-Structure or at LF. Aoun & Li assume that there exists a question particle in *wh*-questions in Chinese. The question particle is base-generated within the TP in which the *wh*-word appears and is moved to Cº position at S-Structure. Arslan also maintains that this analysis is in line with the proposal made by Cheng (1997) who argues for the existence of the [Qu]-operator in *wh-in-situ* languages in the C-domain.[10] Note that there is an overt Q-particle which appears sentence-finally in yes / no questions in Turkish. Aygen (1999) argues that the Q-particle appears covertly in *wh*-questions and surfaces in echo questions.

[10] Note that Cheng (1997) argues that a Q-particle, either overt or non-overt, is base generated in the Cº position in all *wh-in situ* languages to type the structure (cf. Chomsky&Lasnik, 1977) as interrogative. See Cheng (1997) for the analysis and the details of the Clausal Typing Hypothesis.

Aygen (1999) bases her argumentation on the intervention effects and availability of pair-list reading and proposes that the Qu-operator appears in *wh*-questions and moves overtly to C°.[11] Following cross-linguistic studies on the existence of the Qu-operator and language specific investigations in Turkish, I argue that a *wh*-word in Turkish stays where it is base-generated and interpreted *in-situ* through the operator that binds it in the C-domain. In other words, its interpretation as interrogative is dependent on whether it is bound by the null [Qu]-operator.

Note that the above analysis accounts for why a *wh*-word is interpreted only as a non-interrogative element when bound by the *ki* particle. That is to say, when the *wh*-word is bound by the covert Qu-operator in the C-domain, it is interpreted as the interrogative element. If, on the other hand, a *wh*-word is bound by the *ki* particle which appears in the C° position, it is assigned only the non-interrogative reading. In other words, the non-overt Qu-operator and the *ki* particle are syntactically in complementary distribution and the content of the CP domain determines the interpretation of the *wh*-words. In the absence of such operators at the CP-level those operators in the TP-level assign the interpretation of *wh*-words in constructions. Note that a *wh*-word is assigned its reading by only one operator or the interaction of two operators at the TP level which assign different readings to *wh*-words. For instance, the TP-level Gen-operator assigns the negative quantifier reading to *wh*-words. However, the presence of TP-level Negation between the *wh*-word and the Gen-operator assigns the universal quantifier interpretation to *wh*-words. The same holds also for the constructions in which TP-level negation co-occurs with the NP level plurality, in which case *wh*-words are interpreted as the universal quantifier. This indicates that each operator, whether it is an NP-level or a TP-level operator, assigns its semantic content to the *wh*-word.

3.6. Conclusion

This chapter discussed the syntactic and semantic properties of *wh*-phrases in Turkish and argued that *wh*-phrases in Turkish are variables, in the sense of Heim (1982) and Nishigauchi (1990), among others, and their semantic content is dependent on external operators in the structure in which they appear. The various interpretations *wh*-words receive

[11] The reader is referred to Aygen (1999) for a detailed analysis of the existence of the null Q-particle in *wh*-questions in Turkish.

in Turkish have been accounted for by the presence or absence of the operator that binds them. It was proposed that a *wh*-word in Turkish is assigned the negative quantifier reading when bound by the Gen-operator represented by the aorist marker (cf. Yavaş, 1978, 1982) which is base-generated under the AspP. On the other hand, it was argued that a *wh*-phrase is assigned the universal quantifier reading when the Gen-operator co-occurs with the Neg-operator. The Gen-operator and negation are considered to be the TP-level operators and in the absence of the operators in the C-domain, these TP-level operators have been argued to assign the reading of the *wh*-words.

It was also pointed out that in a certain context the *wh*-words in Turkish receive only the non-interrogative reading. In those structures in which a *wh*-word is assigned only the non-interrogative reading, the *ki* particle appears which is base-generated in the C-domain (cf. İnce, 2004). The interrogative reading of a *wh*-word, on the other hand, was assumed to be assigned by the phonologically null Qu-operator which binds the *wh*-word and assigns its interpretation as the interrogative element.

CHAPTER IV

WH-PHRASES IN THE SUBJECT POSITION AND SCRAMBLED *WH*-PHRASES IN TURKISH

4.1. Introduction

This chapter discusses the *wh*-phrases in the subject position in Turkish. The question that arises is whether the *wh*-words in the subject position also exhibit ambiguity between the interrogative and non-interrogative reading similar to the *wh*-words in the object position discussed in the previous chapter. Given that a *wh*-phrase has to be in the c-command domain of the appropriate operator to receive the non-interrogative reading (cf. Huang 1982, Cheng, 1997), the *wh*-words in the subject position in Turkish are not expected to display variable property assuming that a subject NP base generated in [Spec, VP] moves to [Spec, TP] at S-Structure. In other words, within the assumption that subject NPs raise to [Spec, TP] in Turkish, the c-command relation between the *wh*-word and the operator inside the TP would no longer hold, in which case the *wh*-words receive only the interrogative reading. If, on the other hand, a *wh*-word does not move to [Spec, TP], then this would mean that it is still in the scope of the operator which binds it and consequently expected to exhibit ambiguity. It will be argued that *wh*-words in the subject position exhibit ambiguity as the non-subject *wh*-words in Turkish. This chapter also discusses the properties of scrambling in Turkish and the interpretation of the scrambled *wh*-phrases in the object position will be investigated. It will be shown that scrambled *wh*-phrases do not exhibit ambiguity between the interrogative reading and non-interrogative reading. The unambiguous reading of the scrambled *wh*-words indicates that they are outside the domain of the appropriate operator and the binding relation between the operator and the *wh*-word does not hold. In the next section, I will discuss scrambling in Turkish which will be significant for the analysis in this chapter.

4.2. Properties of Scrambling

This section discusses the properties of the phenomenon referred to as scrambling in Turkish. The term scrambling was first proposed by Ross (1967) to account for the word order difference of the constituents in a language. In particular, scrambling refers to a

movement rule through which constituents in a structure appear in those positions other than their unmarked positions. The canonical word order of sentence structure in Turkish is assumed to be SOV, the subject preceding the object and the verb following the object (Erguvanlı; 1984, Kural; 1992, and Kelepir; 2001, among others). However, a constituent can appear in any position as long as the structure does not contain a non-specific NP or a *wh*-phrase.[1] Consider the sentences below.

(1) a. Cem Ali-yi gör-dü.
Cem-NOM Ali-ACC see-past
"Cem saw Ali".

b. Ali-yi Cem gör-dü.
c. Cem gör-dü Ali-yi.
d. Ali-yi gör-dü Cem.
e. Gör-dü Ali-yi Cem.
f. Gör-dü Cem Ali-yi.

As noted above, the word order in (1a), namely SOV, is considered to be the basic word order in a simple Turkish structure. The constructions in (1b-f), on the other hand, are assumed to be derived from the canonical order by means of a single rule which is referred to as NP scrambling that moves elements to certain positions in a structure. To account for the various word order possibilities in Turkish, Erguvanlı (1984) argues that the difference observed in word order is due to certain conditions such as the information structure of the sentence. Erguvanlı (1984) notes that each position in a sentence in Turkish is associated with a pragmatic function such as *Topic*, *Focus*, and *Backgrounded information*.[2] The sentence-initial position is associated with *Topic* which contains the information that relates the sentence to the previous context. The immediately pre-verbal position, on the other hand, is associated with the *Focus* which contains new information. The post-verbal position is the one associated with the *Backgrounded* information which is said to include "afterthought material" (Kural, 1992).

Note that it is not the case that all constituents can be scrambled to any position in a structure in Turkish. There exist certain restrictions on the NPs to move to certain positions

[1] See Kural (1992), among others, for a detailed analysis of scrambling in Turkish.

[2] The reader is referred to Erguvanlı (1984) for an extensive discussion on the pragmatic aspects of word order in Turkish.

through scrambling. For instance, if a structure contains a non-specific NP, the only available position for that NP is the immediately preverbal position. In other words, a non-specific NP can only appear pre-verbally. The presence of non-specific NPs is not allowed in those positions such as the clause-initial or post-verbal position. This is illustrated in (2a-c).

(2) a. Cem *bir ev* satın al-dı.
Cem-NOM a house buy-PAST
"Cem bought a house".

b. * Cem satın al-dı *bir ev*.
Cem-NOM buy-PAST a house
Int.: "Cem bought a house".

c. * *Bir ev* Cem satın al-dı.
a house Cem-NOM buy-PAST
Int.: "Cem bought a house".

Non-specific NPs appear without case markers in Turkish as noted by Enç (1991). The NP *bir ev* "a house" in (2a) is not marked with accusative marker and appears in the pre-verbal position. The pre-verbal position is the only position a non-specific NP can occur in Turkish as the ungrammaticality of (2b-c) indicates.[3] A number of proposals have been made to account for the ungrammaticality of (2b-c). For instance, Kural (1992) maintains that the ungrammaticality of (2b-c) is due to the fact that non-specific NPs have a variable-like status in the sense of Heim (1982) and he argues that it seems likely that such a property can be derived from other independent principles of the theory (Kural, 1992:13). Öztürk (2005), on the other hand, argues that the structure in (2a) is an instance of *pseudo-incorporation* in which a non-specific NP (i.e. a bare noun, in her own terms) and a lexical verb form a complex predicate (2005: 50). Öztürk (2005) maintains that pseudo-incorporated NPs should be analyzed as part of the verbal complex. That is to say, bare NPs are base-generated as the immediate sisters of the lexical verb. Therefore, scrambling a bare NP to any position as in (2b-c) yields ungrammatical structures.

[3] Göksel (1996) argues that in certain contexts a non-specific NP can appear post-verbally only if the post-verbal constituent is not a question word or a focussed phrase.

Note that in Turkish it is not only simple NPs that can be scrambled to different positions by way of scrambling. *Wh*-words move to other positions through scrambling as well. As was noted before, Turkish is often referred to as a *wh-in-situ* language in which a *wh*-phrase appears in a position where its non-interrogative counterpart would appear in a non-interrogative sentence (cf. Arslan, 1999). Rather, a *wh*-word typically occurs in the immediately pre-verbal position. Nevertheless, *wh*-words also undergo scrambling as their regular NP counterparts at S-Structure. This is exemplified in the structures below.

(3) a. **Kim-i**$_i$ Ayşe t_i sev-iyor?
Who-ACC Ayşe-NOM love-PROG
"Who does Ayşe love?"

b. **Ne-yi**$_i$ Ayşe t_i getir-ecek?
What-ACC Ayşe-NOM bring-FUT
"What will Ayşe bring?"

c. **Neden / Niçin / Niye**$_i$ Cem Ayşe-yi t_i üz-dü?
Why / for what reason Cem-NOM Ayşe-ACC upset-PAST
"Why did Cem upset Ayşe?"

The *wh*-phrases in (3a-c) appear in the sentence-initial position. The difference in the word order of these structures is accounted for if it is assumed that the *wh*-words are base-generated and are scrambled from a position in which their regular NP counterparts would be typically generated. To account for the motivation why *wh*-words are scrambled to the sentence-initial position, Akar (1990) argues that the *wh*-words in (3a-c) are scrambled to the sentence-initial position through the process referred to as *Topicalization*. In other words, the *wh*-words are *topicalized* through scrambling. However, not all *wh*-phrases can be topicalized, as noted by Akar (1990). Consider the structures below.

(4) a. * / ? **Nereye**$_i$ Ayşe t_i git-ti?
where Ayşe-NOM go-PAST
Int.: Where did Ayşe go?"

b. * **Nasıl**$_i$ Ayşe t_i git-ti?
how Ayşe-NOM go-PAST
Int.: "How did Ayşe go?"

c. * / ? **Ne zaman**$_i$ Ayşe t_i git-ti?
when Ayşe-NOM go-PAST
Int.: "When did Ayşe go?"

The *wh*-words in (4a-c) are adjuncts and are not allowed to scramble to the sentence-initial position as opposed to the adjunct *wh*-words in (3c). Akar argues that the *wh*-words in (4a-c) are VP-internal adjuncts while the *wh*-words in (3c) are VP-external. Akar (1990) maintains that the distinction between the two is accounted for in terms of the number of blocking categories that exist between the trace left behind and the moved element.

Note also that *wh*-words, whether they are arguments or adjuncts, cannot appear in the post-verbal position as illustrated in (5).

(5) a. * Ahmet t_i gör-dü **kim-i**$_i$?
Ahmet-NOM see-PAST who-ACC
Int.: "Who did Ahmet see?"

b. * Cem t_i al-dı **ne-yi**$_i$?
Cem-NOM buy-PAST what-ACC
Int.: "What did Cem buy?"

c. * Selin t_i gid-ecek **nereye**$_i$?
Selin-NOM go-FUT where
Int.: "Where will Selin go?"

The *wh*-words in (5a-c) appear post-verbally. The ungrammaticality of the structures indicates that *wh*-words cannot occur in the post-verbal position. This means that *wh*-word scrambling is restricted to the pre-verbal domain in Turkish. Akar (1990) notes that this is due to the fact that only definite elements can occur in the clause-final position. Göksel (1996), on the other hand, argues that such focused constituents as *wh*-words are not allowed in the post-

verbal position. We will see in section 4.5. in this chapter that even though scrambling of certain *wh*-words to sentence-initial position is grammatical as shown in (3a-c), the ambiguity observed with non-scrambled *wh*-words disappears. In the next section, I will discuss the interpretation of the *wh*-words in the subject position.

4.3. *Wh*-Phrases in the Subject Position

In this section I discuss the *wh*-words in the subject position which exhibit ambiguity between the interrogative reading and non-interrogative reading. In the GB framework the assumption for the subject NPs is that they are base-generated in the [Spec, VP] at D-Structure and are moved to [Spec, TP] at S-Structure (Koopman & Sportiche, 1991). Koopman & Sportiche (K&S, henceforth) propose a number of arguments for the hypothesis that subject NPs are base generated VP-internally. Thus the exact location of a subject NP must be inside the VP (i.e. [Spec, VP]) at D-Structure. In particular, they maintain that certain grammatical relations such as theta-role assignment or subcategorization require configurational closeness. That is, a subject NP is an argument of the verb and is theta-marked by the verb. The movement of the subject NP from [Spec, VP] to [Spec, TP] is motivated by the requirement to satisfy the EPP feature on the T(ense). Moreover, by moving to [Spec, TP] position, the subject NP is assigned Nominative Case by Tº through Spec-head agreement.

This analysis predicts that the subject *wh*-words in Turkish should appear in a position above such operators as the Gen-operator and the Negatative operator assuming that those operators do not take scope over the element in the [Spec, TP]. Consider the structures below.

(6) a. Sana **kim** inan-ır / güven-ir . / ?
You-DAT who-NOM believe-AOR / trust-AOR
(i) "Who would believe / trust you?"
(ii) "No one would believe / trust you".

b. Ora-ya **kim** gid-er . / ?
There-DAT who-NOM go-AOR
(i) "Who would go there?"
(ii) "No one would go to there".

c. Ahmet-i **kim** sev-me-z . / ?
Ahmet-ACC who-NOM love-NEG-AOR
(i) “Who does not love Ahmet?”
(ii) “Everyone loves Ahmet”.

If we assume that subject *wh*-words are base-generated in the [Spec, VP] position at D-Structure and are moved to [Spec, TP] at S-Structure, the *wh*-words in (6a-b) and the *wh*-word in (6c) would be outside the domain of the Gen-operator and the Gen-operator and Neg-operator respectively. We therefore would expect that only the interrogative reading should be available. Nevertheless, the *wh*-words in (6a-c) display ambiguity between the interrogative reading and the non-interrogative reading. The *wh*-word *kim* in (6a) is interpreted as *who* in one reading and as *no one* in the other where the latter reading indicates that the *wh*-word stays in the scope of the Gen-operator at S-Structure. This implies that the subject *wh*-words are in their base position in (6a-c) have not undergone movement to [Spec, TP] at S-Structure in contrast to the assumption discussed above. Note that this argumentation that subject *wh*-words stay *in-situ* is compatible with the analysis proposed by Kelepir (2001). Kelepir (2001) argues that only those NPs which are presuppositional move out of the VP-domain. Following Diesing (1992) and Kennely (1994), Kelepir proposes that those elements which are non-presuppositional (i.e. –definite) remain inside the VP, namely, inside the existential closure. Since *kim* “who” in (6a-c) is inherently –definite, it stays inside the existential closure.

If *kim* “who” in (6a-c) does not move out of the VP-domain and remains *in situ*, then the question that follows is how the EPP-feature on the Tº is satisfied and how the *wh*-word is assigned Nominative Case in these constructions. To account for these questions I will follow the proposal made by Öztürk (2005, 2006) who argues that in Turkish subject NPs do not have to be moved to [Spec, TP] to satisfy the EPP feature on Tº. Rather, they stay in their theta positions where they are also assigned Case. The EPP, on the other hand, is satisfied through head movement of the verb. Öztürk (2006) gives the following pair to support her claim that subject NPs do not move.

(7) a. [TP _____ bana [sen üzül-müş-sün] gibi görün-üyor]
me you upset-PAST-2ps as seem-PROG
“It seems to me that you got upset”

b. [TP Sen$_i$ bana [t$_i$ üzül-müş-(sün)] gibi görün-üyor-sun].
You me upset-PAST-2ps as seem-PROG-2ps
"You seem to me to be upset"

As can be seen in the raising structure above, movement to [Spec, TP] position in (7a) is not obligatory. Öztürk (2006) argues that the subject NP *sen* "you" in (7a) does not move to [Spec, TP] positon of the matrix clause. On the other hand, the subject NP in (7b) is moved to [Spec, TP] of the matrix clause which triggers subject-verb agreement.[4]

Considering the structure in (6a) within the framework discussed above, we argue that the *wh*-word *kim* "who" stays in its base position. There seems to be no motivation for the *wh*-word to move to [Spec, TP] for the EPP reason or Case assignment. The *wh*-word in (6a) is in the scope of the Gen-operator and displays ambiguity between the interrogative reading and non-interrogative reading. Similarly, the *wh*-word *kim* "who" in (6b-c) appear VP-internally and are assigned different interpretations as they are in the scope of the operator(s) that bind them.

Given that [Spec, TP] position does not need to be filled at S-Structure in Turkish the question that follows is why the object of the verb *san-a* "you-DAT" is scrambled to sentence initial position in (6a) which we assume to be movement to [Spec, TP], namely A-movement, rather than to a position in the CP domain. The question whether scrambling is A-movement (movement to an argument position) or A'-movement (movement to a non-argument position) has been widely investigated in the literature. Mahajan (1990) draws a clear distinction between A- vs. A'-scrambling indicating that A- and A'-positions have different syntactic properties. Mahajan (1990) argues that A-scrambling yields a structure that enters binding theory whereas A'-scrambling does not provide new binders.

[4] Öztürk (2005) suggests that [Spec, TP] position may not be projected at all in Turkish. Following Alexiadou and Anagnostopoulou (1998), Öztürk argues that in pro-drop languages with rich verbal agreement head movement of the verb to Tº satisfies the EPP. That is, EPP checking dos not require MERGE / MOVE XP, but move Xº. In Turkish verbal agreement satisfies the EPP. This implies that [Spec, TP] does not have to be projected in Turkish. If subject NPs move to [Spec, TP] position, this movement is motivated for the subject NPs to achieve wide scope reading which yields overt verbal agreement which is also optional.

Moreover, A-scrambling is not reconstructable while A'-scrambling is. Kural (1992) gives the following example to argue for the A- nature of scrambling in Turkish.[5]

(8) a. Adam-lar$_i$ birbirlerini$_i$ gör-dü.
Man-PL-NOM each other-ACC see-PAST
"The men saw each other".

b. * Birbirlerini$_i$ adam-lar$_i$ gör-dü.
Each other-ACC man-PL-NOM see-PAST
"The men saw each other".

In (8a) the subject NP *adamlar* "the men" binds the object anaphor *birbirlerini* "each other". In (8b) however, in which the order of the constituents has been reversed the binding relation between the anaphor and the potential antecedent does not hold and the structure is ungrammatical. Kural (1992) argues that the ungrammaticality of (8b) is due to the fact that the object NP is moved to sentence initial position through A-scrambling, and it cannot be reconstructed at LF. If it were an instance of A'-scrambling, reconstruction for the object NP would be possible and the object NP would be bound at LF.

Another piece of evidence that the scrambled object is moved to an A-position comes from pronominal binding. A moved object can bind the pronominal inside the subject. The data are taken from Kural (1992).

(9) a. * [pro$_i$ sekreter-i] herkes-i$_i$ ara-dı.
pro secretary-3sg everyone-ACC call-PAST
"His secretary called everyone"

[5] Kural (1992) argues that in order to determine whether scrambling exhibits A-movement or A'-movement properties, one should incorporate a theory of focus into the system. That is, scrambling interacts with the focus information of the sentence. For details see Kural (1992).

b. Herkes-i_i [pro$_i$ sekreteri] ara-dı.
everyone-ACC pro secretary call-PAST
"His secretary called everyone"

In (9a), the object *herkes-i* cannot bind the pronominal element inside the subject. However, scrambling the object to the sentence initial position as in (9b) licenses the structure indicating that it is A-scrambling given that the moved object can bind the pronominal inside the subject.

Note that the analysis that object NPs are moved to [Spec, TP] in such examples as (6a-b) and (9b) is further evidenced in other languages. For instance, Miyagawa (2001, 2003, 2005) argues that in Japanese the object NP in (11b) is scrambled to the [Spec, TP]. Consider the following minimal pair and the argumentation from Miyagawa (2001: 299-300).

(10) a. Zen'in-ga sono tesuto-o uke-nakat-ta (yo-to omou).
all-NOM that test-ACC take-NEG-PAST
"All did not take that test." (all > not, *not > all)

b. Sono tesuto-o$_i$ zen'in-ga t_i uke-nakat-ta (yo-to omou).
that test-ACC$_i$ all-NOM t_i take-NEG-PAST
"That test, all did not take." (not > all, all > not)

Miyagawa (2001)[6] argues that the subject NP *zen'in* "all" in (10a) occupies a position which is outside the scope of negation as it takes unambiguous scope over negation. Assuming that negation occurs in a position between the VP and the TP (cf. Pollock, 1989), the unambiguous reading in (10a) indicates that the subject NP appears within the TP, namely in the [Spec, TP] position. In (10b), on the other hand, the subject NP is interpreted in the scope of negation which implies that it stays in its base-generated position. The object NP *sono tesuto* "that test" is scrambled to [Spec, TP] position leading to OSV word order.

[6] Miyagawa (2001, 2003, 2005) argues that movement of either the subject NP or object NP, or even, in some instances, object PP to [Spec, TP] position is motivated for the EPP requirement on T^o.

Note that in (10b) the interpretation in which “all” takes scope over “not” is also possible as there is a second derivation in which the subject first moves to [Spec, TP], and the object moves to a position higher than the TP domain (Miyagawa, 2005).

4.4. Object NP Scrambling in Turkish

We have argued that subject NPs stay in a position where they are base-generated without any motivation to move to [Spec, TP]. That position does not need to be filled at S-Structure in Turkish since in languages with rich verbal agreement head movement of the verb can satisfy the EPP (Öztürk, 2005:139). On the other hand, Öztürk (2005) argues that an object NP or any other constituent can be scrambled to [Spec, TP] position. However, if scrambling to [Spec, TP] is not motivated for the EPP reasons or Case assignment, the question that follows is what is the motivation that the objects in (7a-c) are scrambled to [Spec, TP] position? Öztürk (2005) proposes that movement of an object NP to [Spec, TP] is in fact motivated to establish a topic/subject-predication configuration in Turkish. To answer this question Öztürk (2005) argues that the NPs which are case-marked (i.e. referential) can be optionally scrambled to [Spec, TP] position. As NPs that behave like topics have to be specified as referential and specific (cf. Kiss, 2003; Öztürk, 2005), we follow Öztürk (2005) and argue that A-scrambling of object NPs is motivated to establish a Topic/Subject-Predication relation in Turkish. The moved element is the topic (i.e. logical subject) of the sentence and the rest of the sentence is about the topic. In other words, scrambling of object NPs is a syntactic operation that creates a predicate, of which a scrambled phrase becomes a subject. Öztürk (2005) argues that the argumentation given above is in accordance with Miyagawa (2004) who assumes that movement to [Spec, TP] position in Japanese is motivated for the EPP reason which works in tandem with Focus feature. Miyagawa (2004) argues that if the relevant focus feature, driving the movement of a phrasal category into [Spec, TP] is informational focus, then the leftmost element in [Spec, TP] is interpreted as the topic and the rest of the structure provides new information about this topic. Öztürk maintains that this analysis is compatible with the proposal made for Turkish (2005: 180). Note also that a similar analysis for object NPs which are scrambled to sentence-initial position was discussed by Kuno (2003). Kuno (2003) argues that object NP scrambling in Japanese is motivated to establish a topic-predicate relation. The object NPs which are scrambled to the clause-initial position become the subject of the predicate which is created by scrambling.

Note that there are also alternate constructions to the ones in (6a-c). These are the constructions in which the *wh*-word appears in sentence initial position, namely, in the [Spec, TP]. The question that is raised at this point is whether a *wh*-word which is base-generated in [Spec, VP] position is moved to [Spec, TP]. Consider the structures below.

(11) a. **Kim** san-a inan-ır . / ?
who-NOM you-DAT believe-AOR
(i) "Who would believe you?"
(ii) "No one would believe you".

b. **Kim** ora-ya gid-er. / ?
who-NOM there-DAT go-AOR
(i) "Who would go there?"
(ii) "No one would go there".

c. **Kim** biz-i iste-me-z . / ?
who-NOM we-ACC want-NEG-AOR
(i) "Who would not want us?"
(ii) "Everyone would want us".

In (11a-c) the subject *wh*-words precede the complement at S-Structure and display ambiguity between *wh*-question reading and the quantifier reading. The ambiguity of the wh-words in (11a-c) implies that the *wh*-words are still in the scope of the Gen-operator in (11a-b) and Neg-operator as well as the Gen-operator in (11c). The ambiguity of the *wh*-words is accounted for if it is assumed that the *wh*-words are in their base position without having undergone movement at S-Structure. This means that the subject NP *kim* in (11a-c) in [Spec, VP] position. The EPP, on the other hand, is satisfied through the head movement of the verb to T^{o} position.

4.5. Scrambling of Object *Wh*-Phrases

This section discusses the object *wh*-phrases which are scrambled to sentence initial position with respect to the interpretation they are assigned. In the previous section, I argued that object NPs are moved to [Spec, TP] position to establish a topic-predicate relation. If we

assume that the *wh*-phrase which is generated adjacent to the verb is scrambled to the [Spec, TP] position at S-Structure, this implies that the *wh*-word is no longer in the scope of the operator(s) and the binding relation between the *wh*-word and the operator(s) does not hold. Consider the structures in (12a-c).

(12) a. **Kim-i**$_i$ Ahmet t_i tanı-r?
who-ACC Ahmet-NOM know-AOR
(i) "Who does Ahmet know?"
(ii) * "Ahmet knows no one."

b. **Ne-yi**$_i$ Cem t_i bil-ir?
what-ACC Cem-NOM know-AOR-AGR
(i) "What would Ahmet know?"
(ii) * "Ahmet would know nothing."

c. **Kim-e**$_i$ Ayşe t_i kız-ar?
Who-DAT Ayşe-NOM get angry-AOR
(i) "Who would Ayşe get angry with?"
(ii) * "Ayşe gets angry with no one."

In (12a-c) the *wh*-words which are base-generated VP-internally have been scrambled to the sentence-initial position, in which case they do not display ambiguity. The only reading they are assigned is the interrogative reading. This indicates that they are not in the scope of the Gen-operator and the non-interrogative reading of the *wh*-word is unavailable. This is also illustrated in those cases in which the *wh*-word is outside the domain of the Gen-operator and the Neg-operator. The universal quantifier reading is unavailable as illustrated in (13a-c).

(13) a. **Kim-e**$_i$ Cem t_i inan-ma-z?
Who-DAT Cem-NOM believe-NEG-AOR
(i) "Who does Cem not believe?"
(ii) * "Cem believes everyone".

b. **Ne-yi**$_i$ Ahmet t_i bil-me-z-?
what-ACC Ahmet-NOM know-NEG-AOR
(i) "What does Ahmet not know?"
(ii) * "Ahmet would know everything".

In (13a-b) the *wh*-words *kim-e* "who-DAT" and *ne-yi* "what-ACC" appear to the left of the subject NPs at S-Structure. That is, they occur in a position which is outside the scope of the Gen-operator and negation. As the binding relation between those operators and the *wh*-word does not hold, only the *wh*-question reading is available. The subject *Cem* in (13a) is base-generated VP-internally at D-Structure. The object *kim-e* is scrambled to the sentence-initial position. The Gen-operator and negation do not bind the *wh*-word at S-Structure. The same holds also for the sentence in (13b). The scrambled *wh*-word *ne-yi* "what-ACC" is not in the binding domain of the the Gen-operator and negation, hence only the interrogative reading being available.

On the other hand, the reverse is true for those structures in which the *-ki* particle appears in the C-domain. From that position it c-commands the whole clause. Therefore, scrambling of the *wh*-words which are base-generated inside the VP does not intervene the relation between the *ki* particle and the *wh*-word. Consider the sentences in (14a-c).

(14) a. **Kim-e**$_i$ Cem t_i güven-ir ki.
Who-DAT Cem-NOM trust-AOR prt
(i) "Cem would trust no one."
(ii) * "Who does Cem believe?"

b. **Ne-yi**$_i$ Ahmet t_i sev-er ki.
what-ACC Ahmet-NOM like-AOR prt
(i) "Ahmet likes nothing"
(ii) * "What does Ahmet like?"

c. **Kim-i**$_i$ Murat t_i tanı-ma-z ki.
Who-ACC Murat-NOM know-NEG-AOR prt
(i) "Murat knows everyone"
(ii) * "Who does Murat not know?"

In (14a) the *wh*-word *kim-e* "who-DAT" is not in its base position at S-Structure. It is the complement of the verb and occurs VP-internally at D-Structure. It is moved to sentence-initial position through scrambling. Nevertheless, it is still in the domain of the *-ki* particle and is interpreted as the negative quantifier. The *wh*-word *ne-yi* "what-ACC" in (15b) and *kim-i* "what-ACC" in (15c) are also VP-internal constituents. However, the former receives the negative quantifier reading and the latter is interpreted as the universal quantifier which is an indication that the *-ki* particle always c-commands and determines the quantificational force of the *wh*-word no matter where it appears in the structure.

4.6. Conclusion

This chapter raised the question of whether the *wh*-words in the subject position are assigned different interpretations as the *wh*-words in the object position discussed in chapter 3. It was argued that *wh*-words in the subject position are ambiguous between the interrogative reading and non-interrogative reading. The ambiguous reading *wh*-words receive was accounted for by the assumption that subject *wh*-words base-generated VP-internally stay *in situ* at S-Structure without undergoing movement to [Spec, TP] in Turkish. In other words, subject *wh*-words are in the scope of TP-level operators at S-Structure and exhibit ambiguity as expected. The question how the EPP is satisfied was accounted for following the assumptions made by Öztürk (2005). Öztürk (2005) noted that in Turkish, which is a pro-drop language with rich verbal agreement, verb movement to T(ense) satisfies the EPP requirement. The nominative case on the subject, on the other hand, is assigned by Tº through long-distance agreement. This chapter also accounted for the motivation why object NPs are scrambled to sentence-initial position, namely to [Spec, TP], given that [Spec, TP] position does not need to be filled by subject NPs. It was proposed that object NPs are scrambled to [Spec, TP] to establish a Topic/Subject-Predicate relation as was proposed by Kiss (2003) for Hungarian and Kuno (2003) for Japanese.

This chapter also investigated the *wh*-words which are base-generated VP-internally and are scrambled to clause-initial position. It was argued that scrambled *wh*-words are interpreted only in the interrogative reading indicating that the position they are scrambled is outside the scope of the TP-level operators, namely, the Gen-operator or the Neg-operator with the Gen-

operator. On the other hand, scrambled *wh*-words receive non-interrogative reading only when they are bound by the CP-level particle *ki*.

CHAPTER V

VARIABLE *WH*-WORDS INSIDE ISLANDS

5.1. Introduction

This chapter discusses the interpretation of *wh*-words within islands with the aim of determining whether *wh*-words in Turkish display ambiguity in island constructions. In the following, I will discuss the island constraints in Turkish and the interpretation of *wh*-words receive in islands.

5.2. Island Constraints in Turkish

It was first Ross (1967) who noted that extraction out of certain structures might be blocked. That is to say, a number of structures with certain properties are islands for extraction. This section analyzes the structures where a *wh*-word appears in certain island constructions and discusses whether *wh*-words are subject to island constraints in Turkish. It will be shown that argument *wh*-words in islands take matrix scope without violating island constraints, while adjunct *wh*-phrases are subject to island constraints.

5.2.1. Complex NP Constraint (CNPC)

The Complex NP constraint states that a relative clause which is dominated by an NP is an island for movement. In other words, no constituent can be extracted out of a complex NP. The ungrammaticality of the structure in (1) shows that this constraint holds for English.

(1) * [$_{CP2}$ Who$_i$ did [$_{IP}$ you [$_{VP}$ make [$_{NP}$ the claim [$_{CP1}$ that [$_{IP}$ you met t$_i$ yesterday]]]]]]

In (1) the *wh*-phrase “who” is the argument of the verb *meet* in lower clause. It moves to the sentence-initial position to take the whole clause under its scope. However, this movement violates the Complex NP Constraint as the *wh*-word is moved out of the complex NP dominated by the NP *the claim*. On the other hand, the Turkish counterpart of the structure in (1) is grammatical.

(2) a. Cem [[**kim-i** sev-en] adam]-ı tanı-yor?
Cem-NOM who-ACC love-NOM man-ACC know-PROG
"Who is (x) such that Cem knows the man who loves x?

b. Cem [[**kim-in** beğen-diğ-i] ev-i] satın al-dı?
Cem-NOM who-GEN like-NOM-POSS house-ACC buy-PAST
"Who (x) is it such that Cem bought the house which x likes?

The *wh*-words *kim-i* "who-ACC" and *kim-in* "who-GEN" in (2a-b) are inside the Complex NP. The grammaticality of (2a-b) indicates that a *wh*-phrase, whether it is an external or internal argument of the verb inside the complex NP, takes matrix scope. In other words, argument *wh*-words which stay *in-situ* in the Complex NP constructions are associated with the matrix CP and the structure is interpreted as a *wh*-question. On the other hand, adjunct *wh*-phrases within a complex NP cannot take matrix scope and their presence in the Complex NP yields ungrammaticality. This is exemplified in (3a-b).

(3) a. * Cem [[Ali-nin **nasıl** yaz-dığ-ı] mektub-u] oku-du?
Cem-NOM Ali-GEN how write-NOM-POSS letter-ACC read-PAST
"How is (x) such that Cem read the letter that Ali wrote x ?"

b. * Cem [[Ali-nin **niye** bin-diğ-i] araba-yı] gör-dü?
Cem-NOM Ali-GEN why get in-NOM-POSS car-ACC see-PAST
"Why is (x) such that Cem saw the car which got in x ?"

The adjunct *wh*-phrases *nasıl* "how" and *niye* "why / for what reason" which are inside the complex NP in (3a-b) do not take matrix scope and the structures are ungrammatical. This indicates that only argument *wh*-words take matrix scope in complex NPs and are interpreted outside the Complex NP islands in Turkish.

5.2.2. Sentential Subject Constraint (SSC)

Sentential Subject Constraint holds that no element which is inside a sentential subject can be extracted out of that subject. This is illustrated in (4b).

(4) a. [That Mary lost the race] surprised us.

b. * What$_i$ did [that Mary lose t$_i$] surprise us?

The *wh*-phrase in (4b) is within the sentential subject. As the structure indicates, its overt extraction from the CP which is the subject of the sentence yields ungrammaticality. On the other hand, an argument *wh*-phrase in a sentential subject is interpreted outside the sentential subject taking the whole sentence into its scope in Turkish.

(5) a. [Cem-in yarış-ı kaybet-me-si] biz-i şaşırt-tı.
Cem-GEN race-ACC race-NOM-POSS we-ACC surprise-PAST
"That Cem lost the race surprised us"

b. [Cem-in **ne-yi** kaybet-me-si] biz-i şaşır-t-tı ?
Cem-GEN what-ACC lose-NOM-POSS we-ACC surprise-CAUS-PAST
"What is (x) such that Cem lost x surprised us?"

c. [Cem-in **kim-i** sor-ma-sı] biz-i heyecanlan-dır-dı ?
Cem-GEN who-ACC ask-NOM-POSS we-ACC excite-CAUS-PAST
"Who is (x) such that Cem's asking x excited us?"

The *wh*-words *ne*-yi "what-ACC" and *kim-e* "who-ACC" in (5b-c) are inside the sentential subject. The *wh*-word in (5b) is the argument of the verb *kaybet*- "lose". It can take scope over the sentence and the structure is interpreted as a *wh*-question. This holds also for the *wh*-word in (5c). However, as observed in the Complex NP Constraint, an adjunct *wh*-word in a sentential subject cannot take matrix scope and the structure is ungrammatical.

(6) a. * [Cem-in **niye** bağır-ma-sı] bizi üz-dü
Cem-GEN why shout-NOM-POSS us worry-PAST
"Why (x) is it such that Cem's shouting x worried us?"

b. * [Cem-in **ne zaman** okul-a git-me-si] sorun ol-du ?.
Cem-GEN when school-DAT go-NOM-POSS problem be-PAST
"When (x) is it such that Cem's going to school x became a problem?"

The ungrammaticality of the structures in (6a-b) as opposed to the grammaticality of the structures in (5b-c) indicates that whereas an argument *wh*-phrase in a Sentential Subject takes matrix scope, an adjunct *wh*-word inside the same construction does not.

5.2.3. *Wh*-Island Constraint

Those structures in which a part of an indirect question cannot be questioned are referred to as *wh*-islands. In other words, a wh-word cannot skip over another wh-word. For instance, the presence of the embedded wh-phrase "to whom" in (7) blocks the extraction of the wh-phrase "what" in the embedded clause.

(7) * What did you wonder to whom Sue give?

The ungrammaticality of (7) indicates that the *wh*-phrase "to whom" constitutes an island for the *wh*-phrase "what" and its extraction from this island leads to ungrammaticality. On the other hand, when the Turkish counterpart of the structure is considered, the occurrence of argument *wh*-phrases in *wh*-islands does not yield ungrammaticality.

(8) Cem [**kim-in ne-yi** satın al-dığ-ı-nı] sor-du? / .
Cem who-GEN what-ACC buy-NOM-POSS-ACC ask-PAST
(i) "What does Cem ask who bought?"
(ii) "Who does Cem ask bought what?"
(iii) "Cem asked who bought what."

The *wh*-phrases *kim-in* "who-GEN" or *ney-i* "what" in (8) take matrix scope without yielding ungrammaticality. However, when the *wh*-phrase inside the *wh*-island is an adjunct, it does not take scope over the structure as indicated in (9).

(9) a. Cem [**kim-in ne zaman** gel-diğ-i-ni] sor-du
Cem who-GEN when come-NOM-POSS-ACC ask-PAST
(i) "Cem asked who came when."
(ii) "Who does Cem ask came when?"
(iii) ?? "When does Cem ask who came?"

Similarly, when the *wh*-words inside the *wh*-island are adjuncts, they do not take matrix scope, only the non-interrogative reading being available.

(10) Cem [**ne zaman nereye** git-tiğ-i]-mi sor-du.
Cem when where go-NOM-POSS-ACC ask-PAST
(i) "Cem asked where I went when."
(ii) ?? "When did Cem ask I went?"
(iii) ?? Where did Cem ask I went when?

5.2.4. Adjunct Island Constraint

Extraction of a *wh*-element out of an adverbial / adjunct clause yields ungrammatical structures in English. The structure in (11b) illustrates that.

(11) a. We went to the movies [after [Sue washed the dishes]].
b. * What did we go to the movies [after [Sue washed t_i]]?

On the other hand, an argument *wh*-word in an adjunct clause in Turkish takes matrix scope as exemplified in (12a). Furthermore, as the grammaticality of the sentence in (12b) indicates, an adjunct in an adjunct clause takes matrix scope as well.

(12) a. Cem [**ne**-ye bak-ınca] kork-tu?
Cem what-DAT look at- get frighten-PAST
"What is (x) such that Cem got frightened when he looked at x?"

b. Cem [Ali **ne zaman** / **nereye** gid-ince] kork-tu?
Cem Ali when - where go- get frighten-PAST
(i) "When is (x) such that Cem got frightened when Ali went x?"
(ii) "Where is (x) such that Cem got frightened when Ali went x?"

As can be noted above, in Turkish *wh*-words inside islands are not extracted out of those islands at S-structure as their counterparts in English. On the one hand, argument *wh*-words take matrix scope and are interpreted outside those islands. Adjunct *wh*-words, on the other hand, are not interpreted outside the islands except for those structures in (12b). The question

that arises here is how we can account for the (un)grammaticality of the *wh*-words inside islands. To answer these questions there have been a number of proposals made in the literature. Özsoy (1996) investigates the *wh*-words in islands and proposes that the difference in the grammaticality between the argument and adjunct *wh*-words is accounted for in terms of the LF-raising analysis. Özsoy proposes a *feature percolation* mechanism (cf. Nishigauchi, 1990) through which argument *wh*-words percolate their [+*wh*] feature to the maximal projection in which they appear and the whole projection *pied-pipes* to the matrix CP at LF.[1] Özsoy argues that only argument *wh*-words which have inherently [+N] feature percolate their [+*wh*] feature to the maximal projection as opposed to the adjunct *wh*-words which have [-N] feature which explains why islands containing adjunct *wh*-words are ungrammatical. On the other hand, Arslan (1999) argues that LF movement analysis does not hold for certain island constructions in Turkish. Arslan (1999) investigates island constraints in Turkish and argues that *wh*-words in syntactic islands do not undergo movement to sentence initial position for scope purposes at S-Structure or at LF. Instead, *wh*-words are bound by a phonologically null question operator, represented as [Qu] through which they reflect their scope properties over the entire structure. That is, the *wh*-word and the [Qu]-operator are in operator-variable relationship and the [Qu]-operator is a binder for the wh-phrase which stays *in situ*. In order to account for the argument-adjunct asymmetry in islands, Arslan follows the assumptions made by Aoun and Li (1993a). Arslan proposes that the argument / adjunct asymmetry in Turkish is accounted for if it is assumed that a *wh*-in-situ in adjunct position must have an antecedent in the minimal clause in which it occurs whereas a *wh-in-situ* in argument position need not have a local antecedent in the minimal clause in which it occurs.[2] What this means is that argument wh-words are lexically governed by their heads. Therefore, they do not need to be governed by the [Qu]-operator in the minimal clause. The null operator is base-generated in the matrix CP and determines the scope of the *wh*-word. On the other hand, adjunct *wh*-phrases must be antecedent governed. The [Qu]-operator is base-generated in the embedded CP and moves to the matrix CP to take the clause under its scope leaving behind a trace. However, the trace left behind is not antecedent governed violating the ECP. Therefore the structures are ungrammatical.

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[1] The reader is referred to Özsoy (1990) for the *pied- piping* mechanism of the wh-words in Turkish.

[2] See Arslan (1999) for a detailed analysis of argument / adjunct asymmetry of wh-words in Turkish.

In the next section, I will discuss the interpretation of *wh*-words within certain islands.

5.3. The Interpretation of *wh*-words inside Islands

In the previous section, we showed that argument *wh*-words in Turkish are interpreted outside the island in which they appear and take matrix scope. The question that is raised here is whether *wh*-words which appear in syntactic islands are interpreted ambiguously between the interrogative and non-interrogative readings. Consider the following examples in which the *wh*-word occurs in a sentential subject and the matrix verb is marked with the Gen-operator and the Gen-operator and Neg-operator respectively.

(13) a. [Ali-nin burada **kim-i** gör-me-si] sen-i üz-er ?
Ali-GEN here who-ACC see-NM-POSS you-ACC upset-AOR
(i) "Who is (x) such that Ali's seeing (x) here upsets you?"
(ii) * "That Ali sees no one here does not upset you".

b. [O-na **kim-in** bağır-ma-sı] sen-i üz-me-z?
he-DAT who-GEN shout-NOM-POSS you-ACC upset-NEG-AOR
(i) "Who is the person (x) such that x's shouting at him does not upset you?"
(ii) * "That everyone shouts at him upsets you."

The *wh*-words in these structures are interpreted only in the interrogative reading, the non-interrogative readings such as *no one* or *everyone* not being available. This indicates that the *wh*-word *kim-i* "who-ACC" in (13a) is not in the scope of the Gen-operator, therefore it is interpreted unambiguously. This holds also for the structure in (13b) in which the *wh*-word *kim-in* "who-GEN" is not in the scope of the Gen-operator and negation. The *wh*-words are assigned only the interrogative reading. The unambiguous reading of the *wh*-words in (13a-b) indicates that they are in a position which is outside the scope of the Gen-operator, and the Gen-operator and the Neg-operator respectively. This implies that the sentential subjects in (13a-b) in which the *wh*-words appear have moved to [Spec, TP] position. As argued in Öztürk (2005, 2006), subjects move to [Spec, TP] position in Turkish. However, the motivation for that movement is not for Case or EPP reasons. The unambiguous reading of the *wh*-words shows that the sentential subjects in (13a-b) moved to the [Spec, TP] position.

Therefore, the operator-variable relation does not hold and only the interrogative reading of the *wh*-words is yielded.

On the other hand, in those structures in which the *wh*-words are in a Complex NP they are interpreted ambiguously. This is illustrated in (14a-b).

(14) a. Ali [**kim-in** yaz-dığ-ı makale]-yi sev-er?
Ali-NOM who-GEN write-NMN-POSS article-ACC like-AOR
(i) "Who is (x) such that Ali likes the article that x wrote?"
(ii) "Ali does not like the article that anyone wrote"

b. Ali [**kim-in** yaz-dığ-ı kitab]-ı sev-me-z . / ?
Ali-NOM who-GEN write-NOM-POSS book-ACC like-NEG-AOR
(i) "Who is (x) such that Ali does not like the book that x wrote?"
(ii) "Ali likes the book that everyone writes."

The *wh*-word *kim-in* "who-GEN" in (14a-b) appears in a Complex NP. It receives its interrogative reading. The significance of the structures in (14a-b) is that it is also assigned the non-interrogative reading. This indicates that the *wh*-words in (14a-b) are in the scope of the appropriate operator and are assigned different readings.

The structures in (15a-b) exemplify the *wh*-words in the adjunct islands.

(15) a. Ali [**kim** gel-ince] sevin-ir?
Ali-NOM who come-GER be happy-AOR
(i) "Who is the person (x) such that Ali would be happy when x comes"
(ii) * "Ali would not be happy when anyone comes."

b. Cem [**kim-in** gül-me-si]-ne kız-ma-z?
Cem-NOM who-GEN laugh-NOM-POSS-DAT get angry
(i) "Who is (x) such that Cem gets angry when x laughs?"
(ii) * "Cem does not get angry when anyone laughs".

The *wh*-words inside the adjunct islands are interpreted in the interrogative reading. On the other hand, the non-interrogative reading of the *wh*-word is not available. Note that the islands in which *wh*-words appear in (15a-b) are TP-level adjuncts. This indicates that the *wh*-word inside the adjunct island is outside the scope of the Gen-operator in (15a) and the Gen-operator and Neg-operator in (15b) respectively. This accounts for the unambiguous reading of the *wh*-words in the adjunct islands.

On the other hand, in those structures in which the *wh*-words are in the scope of the *ki* particle, they are assigned the non-interrogative reading. This is exemplified in (16a-c).

(16) a. [Ali-nin burada **kim-i** gör-me-si] sen-i üz-er ki? / .
Ali-GEN here who-ACC see-NM-POSS you-ACC upset-AOR prt
(i) * "Who is (x) such that Ali's seeing (x) here upsets you?"
(ii) "That Ali sees no one here does not upset you".

b. Ali [**kim-in** yaz-dığ-ı makale]-yi sev-er ki? / .
Ali-NOM who-GEN write-NOM-POSS article-ACC like-AOR prt
(i) * Who is (x) such that Ali likes the article that x wrote?
(ii) Ali does not like the article that anyone wrote.

c. Ali [**kim** gel-ince] sevin-ir ki?
Ali-NOM who come-GER be happy-AOR prt
(i) * "Who is the person (x) such that Ali would be happy when x comes"
(ii) "Ali would not be happy when anyone comes."

The structures in (16a-c) indicate that the *wh*-words which are interpreted in only interrogative reading in (13) and (15) are assigned the non-interrogative interpretation in the presence of the *ki* particle which is a CP-level operator.

Consider the *wh*-words inside the *wh*-islands with respect to the interpretation they are assigned.

(17) a. Ali [**kim-in** **ne-yi** oku-duğ-un-u] bil-ir?
Ali-NOM who-GEN what-ACC read-NOM-POSS-ACC know-AOR
(i) "Who is (x) and what is (y) such that Ali knows x read y?"
(ii) * "Ali knows no one who read nothing."

b. Ali [**kim-in** **ne-yi** oku-duğ-un-u] bil-me-z?
Ali-NOM who-GEN what-ACC read-NOM-POSS-ACC know-NEG-AOR
(i) "Who is (x) and what is (y) such that Ali does not know x read y?"
(ii) * "Ali knows everyone who read everything."

The constructions in (17a-b) indicate that the *wh*-words inside the *wh*-islands do not exhibit ambiguity. This implies that the bindig relation between the *wh*-words and the operator(s) is not established in *wh*-island constructions. The question that arises at this point is why the *wh*-words inside the islands display differences in terms of the interpretation they receive. I leave the question of why the *wh*-words display this property inside the islands for further research.

5.4. Conclusion

This chapter discussed the *wh*-words inside island in Turkish. It was shown that *wh*-words display argument / adjunct asymmetry in that argument *wh*-words inside the islands take matrix scope and are interpreted outside the islands in which they appear. On the other hand, it was pointed out that those *wh*-words in the adjunct position do not take matrix scope and are not interpreted outside the islands. The difference in the (un)grammaticality between argument and adjunct *wh*-words were accounted by the position of the phonologically null [Qu]-perator proposed by Arslan (1999). With respect to the interpretation the *wh*-words are assigned inside the islands, it was shown that *wh*-words inside the islands do not exhibit ambiguity except for the Complex NPs in the absence of the *ki* particle. However, in the presence of the *ki* particle, they are assigned only the non-interrogative reading.

CHAPTER VI

CONCLUSION

This thesis investigated the properties of the *wh*-phrases with respect to the various interpretations they are assigned under certain syntactic conditions in Turkish. It was argued throughout this study that *wh*-words in Turkish do not have inherent interrogative force by themselves but receive different readings assigned by external operators such as the [Qu]-operator, the interaction of the Gen-operator and the Neg-operator, and the particle *ki*, which bind them and determine their quantificational reading as the interrogative element, the negative quantifier or the universal quantifier. This behavior of the *wh*-words in Turkish was accounted for by the assumption that *wh*-words in Turkish are variables and are subject to binding similar to *wh*-words in those languages such as Japanese, Chinese, Hungarian, Malayalam and so forth.

In Chapter 1, the aim of the study was provided and the properties of the *wh*-words in Turkish were discussed. It was argued that the distribution of the *wh*-words in Turkish is not restricted to *wh*-constructions. It was pointed out that *wh*-words in Turkish appear in non-interrogative context in which *wh*-words are interpreted as the negative quantifier or the universal quantifier.

The purpose of the Chapter 2 was to introduce the theoretical framework according to which this thesis was written and make a cross-linguistic investigation of the previous studies concerning the nature of *wh*-words as variables. It was pointed out that there is a cross-linguistic diversity with respect to marking *wh*-words as variables in languages. Four main strategies, namely, (i) affixation, (ii) particle attachment, (iii) affective context, and (iv) reduplication through which a *wh*-word is ambiguously interpreted have been discussed

Chapter 3 is devoted to analyzing the structures in which a *wh*-word receives different interpretations. It was noted that the assignment of different readings to the *wh*-words is accounted for if it is assumed that *wh*-words are bound by external operators.

Chapter 4 discussed the properties of scrambling in Turkish. This chapter also investigated the *wh*-words in the subject position in Turkish. It was argued in this chapter that *wh*-words which are assumed to be base-generated VP-internally stay in that position at S-Structure as well. The interaction of the Gen-operator and the Neg-operator assign the reading of the subject *wh*-phrase. It was proposed in this chapter that subject NPs do not need to move to [Spec, TP] which is assumed to be the subject position for the EPP reasons. It was pointed out that the EPP feature on tense is satisfied by the movement of the verb to Tº as proposed by Öztürk (2005).

In Chapter V, the *wh*-words in island constructions were discussed. It was shown that while *wh*-words in the argument positions inside the islands can take matrix scope and are interpreted outside these islands, those *wh*-words in the adjunct positions cannot. It was also argued that *wh*-words are not assigned non-interrogative reading inside the islands except for the Complex NPs.

The analysis presented in this thesis has certain implications with respect to the quantification of the *wh*-words in Turkish. In particular, operator-variable relation is established at the NP-level, as in the case of pluralization and reduplication, at the TP-level, namely, the Gen-operator and negation, as well as the CP-level, the *ki* particle and the null [Qu]-operator. This indicates that the argumentation of the parameterization of the operator height in languages does not hold for the *wh*-dependencies in Turkish as Turkish employs those operators of different height. What is significant is that not only do these operators which appear at different levels bind the *wh*-variables but also the interaction of the operators determines their reading. What is even more significant is that the presence of the operators in the C-domain overrides the effect of those in the TP-domain.

The analysis has also certain implications for the quantification in Turkish in general. Given that *wh*-words are not quantificational elements in Turkish, the question that follows is whether there are true quantifiers in Turkish. Öztürk (2005) suggests that in Turkish quantifiers like *bütün* "all", *her* "every" and *çoğu* "most" do not behave like their counterparts in English and it may be that they are not true quantifiers but are bound by certain operators in the structure. Note also that this assumption is compatible with the argumentation that focussed elements do not undergo quantifier raising but are interpreted *in-situ* in Turkish. Özsoy (2005) argues that Focus in Turkish is established by forming an Agree relation

between C-projection and the *in-situ* element to be focused. Thus, this study also has implications for whether focused elements are quantificational in nature or not in Turkish. We leave this issue for further research.

Note also that with respect to the relation between the *wh*-words in the island constructions and their potential binder, the question that is raised is why it is that operator-variable relation in some constructions does not hold while in others it does. It appears that a thorough investigation on island constraints in Turkish should provide possible answers. This is left for further research.

What is also left for further studies is the position of subjects in Turkish. Given that subject NPs do not move to [Spec, TP] position at S-Structure in Turkish and the EPP is satisfied and Case is assigned through other mechanisms, one has to posit other evidence for the claim that subject NPs are moved to [Spec, TP] position at S-Structure.

One significant issue which was not addressed in this study is whether it should be possible to posit the existence of a null *ki* particle for those structures in which *wh*-words are interpreted ambiguously. In other words, one would argue that there is an underlying *ki* particle in the structure in which *wh*-words are interpreted in the non-interrogative reading and its overt presence is obligatory for at least one dialect in Turkish, which cannot infer the non-interrogative reading in the absence of the *ki* particle. This will also imply that since the presence of an overt or covert particle is obligatory for this dialect, then the Gen-operator might not be contributing to the establishment of the non-interrogative reading.

REFERENCES

Akar, D. (1990) *Wh-Questions in Turkish*. Unpublished M.A. Thesis. Boğaziçi University.

Alexiadou, A. & E. Anagnostopoulou. (1998) Parameterizing AGR; word order, V-movement and EPP checking. (in) *Natural Language and Linguistic Theory* 16, 491-539.

Aoun, J & Y.A, Li. (1993a) Wh-Elements In-Situ: Syntax or LF?. *LI* 24-2, 199-238.

Aoun, J & Y.A, Li. (1993b) On Some Differences between Chinese and Japanese Wh-elements. *LI* 24-3, 265-272.

Arslan, C. (1999) *Approaches to Wh-Structures in Turkish*. Unpublished M.A. Thesis. Boğaziçi University.

Aygen, G. (1998) *Split Infl Hypothesis in Turkish*. Unpublished M.A. Thesis. Boğaziçi University.

Aygen, G. (1999) Q-Particle in Turkish, Japanese and Sinhala. (in) *Proceedings of the International Conference Havana*: Cuba.

Boskovic, Selko (1999) On Multiple Feature Checking: Multiple Wh-Fronting and Multiple Head Movement. (in) *Working Minimalism*. (Eds.) Samuel David Epstein and Norbert Hornstein, MIT Press.

Bruening, Benjamin. (2004) Wh-Indefinites, Question Particles, and Wh-in-situ: There is No Relation. Ms. University of Delaware.

Cheng, Lisa Lai-Shen. (1997) *On the Typology of Wh-Questions*. Outstanding Dissertations in Linguistics Series, New York: Garland Publishing.

Cheng, Lisa. Lai-Shen & Johan Rooryck (1999) Licensing wh-in-situ. (in) *Syntax* 3 1-19.

Chierchia, G. (1998) Reference to kinds across languages. (in) *Natural Language Semantics* 6, 339-405.

Chomsky, N. (1977) On wh Movement. (in) *Formal Syntax* 71-132 (eds) P. Culicover, T. Wasow & A. Akmajian. New York: Academis Press.

_____ (1981) *Lectures on Government and Binding*. Dordrecht: Foris Publications.

_____ (1986) *Barriers*. Cambridge, Massachusetts, London, England: The MIT Press.

_____ (1993a) *Lectures on Government and Binding*. The Pisa Lectures. Berlin: Mouton de Gruyter.

_____ (1993b) A Minimalist Program for Linguistic Theory. (in) *The View from Building 20*. MIT Press, 1-52.

_____ (1995) *The Minimalist Program*. MIT Press, Cambridge.

Chomsky, N & H, Lasnik. (1977) Filters and Control. (in) *LI* 8, 425-504.

Cole, P. & G. Hermon. (1994) Is there LF Wh-Movement?, (in) *LI* 25- 2, 239-262.

Cole, P. & Hermon, G. (1998) The Typology of Wh-Movement. Wh-Questions in Malay. (in) *Syntax* 1-3, 221-258.

Comrie, B. (1976) *Aspect*. An Introduction to the Study of Verbal Aspect and Related Problems. Cambridge: Cambridge University Press.

Culicover, P. (1997) *Principles and Parameters*: An Introduction to Syntactic Theory. New York: Oxford University Press.

Diesing, M. (1992) *Indefinites*. MIT Press, Cambridge, Massachusetts.

Dong, Hongyuan. (2003) The Overt Movement of Wh-in-situ In Chinese. Ms. University of Essex.

Dongfan, Hua. (1999) Wh-variable Licensing in Mandarin Chinese. *Proceedings of the ESSLLI Student Session*, (ed.) Amalia Todirascu.

Ekenel, H. K, L. M. Arslan & A. S. Özsoy (2002) Türkçe'de Ezginin Çözümlenmesi ve Modellenmesi. (in) *XVI. Ulusal Türk Dilbilim Kurultayı Bildirileri*. (eds). Güray König, Nalan Büyükkantarcıoğlu, Firdevs Karahan. Ankara: Hacettepe University.

Enç, M. (1991) Semantics of Specificity. *LI* 22: 1-25.

Enç, M. (2004) Functional Categories in Turkish. (in) *The Proceedings of the Workshop in Altaic Formal Linguistics I*. MIT Working Papers in Linguistics Volume 46.

Erguvanlı, E. E. (1984) *The Function of Word Order in Turkish Grammar*. University of California Press. Berkeley and Los Angeles, California.

Filip, H. and G. Carlson (1997) Sui Generis Genericity. *Penn Working Papers in Linuistics*, Volume 4, 1-20.

Göksel, A. (1998) Linearity, focus and the postverbal position in Turkish. *Proceedings of the 7th International Conference on Turkish Linguistics*. L. Johnson, E. A. Csato, V. Locke, A. Menz and D. Winterling (eds.) Wiesbaden: Harrasowitz, 85-106.

Göksel, A. and S. Özsoy (2000). Is there a focus position in Turkish? *Proceedings of the 9th International Conference on Turkish Linguistics*, (eds). A. Göksel and C. Kerslake. Oxford University.

Haegeman, L. (1994) *An Introduction to Government and Binding Theory*. Oxford & Cambridge: Blackwell Publishers.

Hagstrom, Paul. (1998) *Decomposing Questions*. Unpublished Ph.D. Dissertation, MIT.

Han, Chung-Hye (1998) Deriving the Interpretation of Rhetorical Questions. (in) *Proceedings of West Coast Conference in Formal Linguistics*, volume 16, 1-17. Stanford: CSLI Publications.

Han, Chung-Hye (2002) Interpreting Interrogatives as Rhetorical Questions. (in) *Lingua*, volume 112, 201-229

Han, Chung-Hye & Laura Siegel (1997). Syntactic and Semantic Conditions on NPI Licensing in Questions. *Proceedings of West Coast Conference in Formal Linguistics*, volume 15, 177-191. Stanford: CSLI Publications.

Haspelmath, Martin. (1997) *Indefinite Pronouns*. Oxford: Clarendon.

Heim, I. (1982) *Semantics of Definite and Indefinite Noun Phrases*. Unpublished Ph.D. Dissertation. University of Massachusetts at Amherst.

Hong, Sun-Ho. (2004) On the Nature of Korean Wh-Expressions. Ms. University of Essex.

Huang, C-T, James. (1982) *Logical Relations in Chinese and the Theory of Grammar*. Unpublished Ph.D. Dissertation. MIT.

İnce, A. (2004) Island Sensitive Sluicing in Turkish. (in) *NELS*: 35. University of Connecticut.

Jayaseelan, K.A. (2001) Questions and Question-Word Incorporating Quantifiers in Malayalam. (in) *Syntax* 4-2, 63-93.

Kelepir, Meltem. (2001) *Topics in Turkish Syntax: Clausal Structure and Scope*. Unpublished Ph.D. Dissertation: MIT.

Kennelly, S. D. (1994) Caseless Existential DPs in Turkish. (in) Nash, L., Tsoulas, G. (eds) Paris-8 *Working Papers in Linguistics*.

Kishimoto, Hideki. (2001) Binding of Indeterminate Pronouns and Clause Structure in Japanese. *LI* 32-4, 597-633, MIT.

Kiss, K. E. (2003) Argument Scrambling, Operator Movement, and Topic Movement in Hungarian. (in) *Word Order and Scrambling*, S. Karimi (ed.), Blackwell, 22-43.

Koopman, H & Sportiche, D. (1991) The Position of Subjects, *Lingua*, 85: 211-58.

Kornfilt, J. (1997) On the Syntax and Morphology of Relative Clauses in Turkish. (in) *Dilbilim Araştırmaları*, Hitit Yayınevi, Ankara, 24-51.

Kornfilt, J. (2002) Functional projections and their subjects in Turkish clauses. (in) *The Verb in Turkish*, E. E. Taylan (ed.), Amsterdam: John Benjamins, 183-212.

Kratzer, Angelica. (1996) Severing the External Argument from Its Verb. (in) Johan Rooryck and Laurie Zaring (eds.). *Phrase Structure and Lexicon*. Dordrecht: Kluwer. pp. 109-138.

Kuno, M. (2003) Japanese Scrambling as Pure Merge. Ms. Harvard University.

Kural, Murat. (1992) Properties of Scrambling in Turkish. Ms. UCLA.

Lin, Jo-Wang. (1998) On Existential Polarity Wh-Phrases in Chinese. (in) *Journal of East Asian Linguistics* 7, 219-255. Kluwer Academic Publishers. Printed in Netherlands.

Mahajan, K, A. (1990) *The A/A-bar Distinction and Movement Theory*. Unpublished Ph.D. Dissertation, MIT.

Miyagawa, S. (1997) Against Optional Scrambling. *LI* 28: 1-25.

Miyagawa, S. (2001) EPP, scrambling, and wh-in-situ. (in) *Ken Hale: A Life in Language*, M, Kenstowicz (ed.), MIT Press, 299-338.

Miyagawa, S. (2004) On EPP. Ms. MIT.

Miyagawa, S. (2005) EPP and Semantically Vacuous Scrambling. (in) Sabel, Joachim and Mamoru Saito, (eds.) *The Free Word Order Phenomenon*. Berlin/New York: Mouton de Gruyter.

Nakamura, M. (2002) Two Types of Wh-In-Situ. (in) *Language Universals and Language Variation*. (eds.) Mengitsu Amberber and Peter Collins. Praeger Publishers.

Nishigauchi, T. (1990) *Quantification in the Theory of Grammar*. Kluwer Academic Publishers. Dortecht / Boston / London.

Özsoy, A. S. (1996) A'-Dependencies in Turkish. (in) *Current Issues in Turkish Linguistics*. (eds) Bengisu Rona Ankara: Hitit Yayınevi.

Özsoy, A. S. (2005) Crossing and Nesting Paths in Movement in Turkish. Ms. Boğaziçi University.

Öztürk, B. (2005) *Case, Referentiality and Phrase Structure*. Linguistics Today v. 77 Amsterdam : J. Benjamins.

Öztürk, B. (2006) Non-configurationality: Free Word Order and Argument Drop in Turkish. Ms. Boğaziçi University.

Pesetsky, D. (1987) Wh-in-situ: Movement and Unselective Binding. (in) *The Representation of (In)definites*, (eds.) E. Reuland and A.G.B ter Meulen. MIT Press, Cambridge, Massachusetts.

Pollock, Jean-Yves. (1989) Verb Movement, Universal Grammar, and the Structure of IP. *LI* 20:3 365-424.

Rimell, Laura. (2004) Habitual Sentences and Generic Quantification. (in) *WCCFL 23 Proceedings*, (eds.) G. Garding and M. Tsujimura. Sommerville, MA: Cascadilla Press.

Richards, Norvin. (1997) *What Moves Where When in Which Language*?. Published Ph.D. Dissertation. MIT.

Santos, Diana (1994) Integrating tense, aspect and genericity. Ms., Grupo de Linguagem Natural do INESC, Lisboa.

Tancerdi, C. (1990) Not only EVEN but even ONLY. Ms., The MIT.

Thrainsson, H. (2001) Object Shift and Scrambling. (in) *The Handbook of Contemporary Syntactic Theory*. (eds). Baltin. M & Collins. C.

Tsai, W. T. Dylan. (1999) On Lexical Courtesy. (in) *Journal of East Asian Linguistics*, 8, 39-73. Kluwer Academic Publishers. Printed in Netherlands.

Watanabe, Akira (1997) Wh-in-situ Languages. (in) *The Handbook of Contemporary Syntactic Theory*. eds. Baltin. M & Collins. C.

Wiese, Heike. (to appear) Wh-Words are not "interrogative" pronouns: The derivation of interrogative interpretations for constituent questions. To appear in: M. Hoey & N. Scott (eds.), *Questions: Multiple Perspectives on a Common Phenomenon. Language and Discourse Series*, University of Liverpool Press.

Wu, Jianxin. (1999) *Syntax and Semantics of Quantification in Chinese*. Unpublished Ph.D. Dissertation. University of Maryland.

Yavaş, Feryal. (1978) The Turkish Aorist. (in) *Kansas Working Papers in Linguistics*, Vol, 4, No. 1, 41-49.

Yavaş, Feryal. (1982) The Turkish Aorist. (in) *Glossa* 16:1.