COMPLEX CLAUSES WITH EMBEDDED CONSTITUENT INTERROGATIVES IN TURKISH SIGN LANGUAGE (TİD)

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DECLARATION OF ORIGINALITY

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ABSTRACT

Complex Clauses with Embedded Constituent

Interrogatives in Turkish Sign Language (TİD)

The aim of this thesis is twofold: while presenting my observations on the syntax and prosody of clausal wh-complements in Turkish Sign Language (TİD), I discuss the implications of my findings to matrix interrogatives and the embedded information structure in TİD. First of all, I present evidence in favor of the presence of clausal wh-complements in TİD. Secondly, I present my data and observations on different grammatical patterns of matrix word order, and the properties of matrix subject pronoun copy with respect to ASK-type and KNOW-type verbs. Then, I show that TİD clausal wh-complements are significantly different from matrix wh-interrogatives in their distribution of wh-items. Building on this coupled with an observation on the spreading domain of BROW RAISE, I conjecture that the embedded context might only allow for wh-in-situ and that any other configuration in the surface might emerge due to information structural movement of constituents other than the wh-item. Moreover, I show that TİD distinguishes between the wh-complements of ASK-type and KNOW-type verbs with respect to their prosodic properties and quantification. The need to study clausal wh-complements in TİD lies in the fact that it is at the junction of interrogatives, complexity and reported speech. Several studies in these areas had already paved the way to this thesis. I hope my findings will shed some light upon the discussions and studies on interrogatives, complexity and reported speech and if on the right track pave the way to future research.

ÖZET

Türk İşaret Dili'nde (TİD) İçeyerleşik Bileşen Soruları İçeren Karmaşık Tümceler

Bu tezin iki amacı bulunmaktadır. Türk İşaret Dili (TİD)'ndeki ne-soru yantümcelerinin sözdizimsel ve bürünsel özelliklerini paylaşırken, bu gözlemlerimin TİD'deki ana sorulara ve içeyerleşik bilgi yapısına verdiği ipuçlarını tartışıyorum. İlk olarak, TİD'de ne-soru yantümcelerinin varlığını gösteren kanıtları sunacağım. Bundan sonra, SOR-tipi ve BİL-tipi yüklemlerin anatümce düzeyinde gösterdikleri kurallı sözcük sıralarını ve anatümce özne kopyasının özelliklerini paylaşacağım. Sonra, TİD'de ne-soru yantümcelerinin ana sorulardan ne-soru öbeğinin dağılımı açısından farklı olduğunu göstereceğim. Bundan ve KAŞ YUKARI'nın yayılma alanından ilerleyerek, TİD içeyerleşik bağlamın sadece yerinde ne-soru öğelerine izin veriyor olabileceğini ve yüzey sözdizimde ortaya çıkan diğer yapılandırmaların ne-soru öğesi dışındaki bileşenlerin bilgi yapısal taşımalar sonucu ortaya çıkabileceği varsayımında bulunacağım. Dahası, TİD'de SOR-tipi ve BİL-tipi yüklemlerin ne-tümleçlerinin bürünsel ve niceliksel açıdan farklı olduklarını gözlemliyorum. TİD'deki ne-soru yantümcelerini araştırmamdaki neden, konunun soru yapıları, karmaşıklık ve dolaylı anlatımın kesişiminde bulunmasında yatmaktadır. Ne-soru yantümcelerini çevreleyen birçok konudaki çalışma bu tezin önünü açmıştı. Bu çalışmamın soru oluşumu, karmaşıklık ve dolaylı anlatım konularındaki tartışmalara ışık tutacağını ve eğer doğru yoldaysa gelecek çalışmaların yolunu açacağını ümit ediyorum.

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To the curious

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ABBREVIATIONS AND CONVENTIONS

Abbreviations

Sign Languages

ASL	American Sign Language	
Auslan	Australian Sign Language	
BSL	British Sign Language	
FinSL	Finnish Sign Language	
HKSL	Hong Kong Sign Language	
HZJ	Croatian Sign Language	*Hrvatski Znakovni Jezik*
ISL	Israeli Sign Language	
IPSL	Indo-Pakistani Sign Language	
LIS	Italian Sign Language	*La Lingua Italiana dei Segni*
LSB	Brazilian Sign Language	*A Lingua de Sinais Brasileira*
LSC	Catalan Sign Language	*La Llengua de Signes Catalana*
LSE	Spanish Sign Language	*La Lengua de Signos Española*
NGT	Sign Language of the Netherlands	*Nederlandse Gebarentaal*
NS	Japanese Sign Language	*Nihon Shuwa*
NZSL	New Zealand Sign Language	
ÖGS	Austrian Sign Language	*Österreichische Gebärdensprache*
TİD	Turkish Sign Language	*Türk İşaret Dili*

Nonmanual Markers

NMM	Nonmanual Marker
br	BROW RAISE
bf	BROW FURROW
hb	HEAD BACKWARD
hf	HEAD FORWARD
hn	HEAD NOD
hs	HEAD SHAKE
pl	PURSED LIPS
rht	RIGHTWARD HEAD TILT
lht	LEFTWARD HEAD TILT
tm1	Topic Marker 1
tm2	Topic Marker 2
whq	wh-question marker

Phrases

TP	Tense Phrase
CP	Complementizer Phrase
PP	Postpositional Phrase

Conventions

Glossing Conventions

IX-1, IX-2, IX-3, …	Pointing indexicals. 1, 2, 3 refers to persons.
DOG_a IX-3-a	Coindexation between a pronominal and its antecedent.

Conventions Regarding the Spreading Domain of Nonmanual Markers and the Encoding of Agreement Verbs

The spreading domain of a nonmanual marker is indicated as a continuous line ending in the abbreviation of that nonmanual marker. Agreement verbs such as ASK below display the encoding of the movement path between an entity *a* and an entity *b* by indicating the two loci associated with those entities written before and after the verb separated with a dash. The referential antecedents of the two ends of the verb are indicated in the form of subscript coindexation on the overt proper names or on the indexicals that may or may not follow an overt proper name.

_____hb

_____br

_____hn _____hs

HALE IX_a BILGE IX_b IX-3 a-ASK-b [AYŞE WHERE BORN]

CHAPTER 1

INTRODUCTION

The main concerns of this thesis are to describe embedded constituent interrogatives (clausal wh-complements) in Turkish Sign Language (*Türk İşaret Dili* – henceforth TİD) and to discuss the theoretical implications emanating from my findings. In doing so, it aims to shed light upon a number of intersecting issues in surrounding topics such as question formation, prosody of questions, complexity, reported speech and information structure. Clausal wh-complements will be the main scope of this thesis, however, I will also discuss with attenuation the implications of my findings to simplex constituent questions, declarative embedding, and matrix and embedded aspects of TİD information structure. The following English sentences in (1) exemplify the structures that I study in this thesis.

(1) a. I know [what it takes to get in to a Ph.D. program].

b. I asked [what it takes to get into a Ph.D. program].

In the examples above, the matrix verbs *ask* and *know* take non-information seeking constituent interrogatives as clausal complements. In my thesis, I study similar constructions in TİD, such as the following.

(2) [WHEN START BUILD] KNOW^NOT

(I) don't know when they will start building (the bridge).

I will report my findings on TİD clausal wh-complements such as the one in brackets in the example above, with respect to their syntactic and prosodic properties. Further in my thesis, I will discuss the implications of my findings.

TİD (Türk İşaret Dili – Turkish Sign Language) is the first language of the members of the Deaf community in Turkey. The exact number of signers is unknown (Zeshan 2002). However, according to the information that can be found at http://turkisaretdili.ku.edu.tr/en the UN estimate of the deaf population in Turkey is around 2,5 million. According to local government reports (the 1998 Budget Report of the Ministry of Education), however, the estimate is 400,000. According to Kemaloğlu (2012), 0.37% of the Turkish population has hearing loss (Turkey Disability Survey 2002). The website, which I mentioned above, reports, as is the case with most of the rest of the world, 90 percent of Turkish deaf children are not born to deaf parents. This results in the belated acquisition of sign language of a deaf child and most deaf children in Turkey are, as a result, exposed to TİD when they are around 6 or 7 years of age. They learn TİD from their peers at school. According to Özsoy et al. (2013) the Deaf in Turkey have varying degrees of native competence, which is the consequence of their social circumstances and schooling. They report that even some teachers are unaware of the fact that Turkish is not the native language of their deaf students and that the teachers have little to no knowledge of TİD. Nevertheless, TİD is officially recognized as a language by the 2005 Disability Act of the Turkish Grand National Assembly. For a more detailed report see Özsoy et al. (2013).

Although TİD may still be considered an understudied language compared to several other (mostly Western) sign languages, a significant amount of linguistic research has been conducted. A periodically updated and detailed bibliography of studies on Turkish Sign Language is retrievable from http://www.enginarik.com/turkish-sign-language-bibliography. Given TİD's

typologically unusual grammatical aspects compared to other sign languages (Zeshan 2003), it has attracted much interest.

The need to study clausal wh-complements in TİD has much to do with the subject's close relevance to specifically two main areas of research in TİD: interrogatives and complexity. Interrogatives in TİD have been studied by three insightful lines of research independent of each other. The first study on interrogatives in TİD, to the best of my knowledge, is Zeshan (2006), where she reports her observations on polar and constituent interrogatives with regards to nonmanual markings associated with the two types and the distributional patterns of wh-items. Another line of research is that of Makaroğlu and İşsever. Makaroğlu (2012) studies constituent interrogatives with respect to the nonmanual markers that distinguish them from declaratives and the ones that distinguish between polar and constituent interrogatives. He also brings about an information structure – driven syntactic account to the four grammatical configurations in which matrix interrogatives can occur. A study, which follows this, is İşsever & Makaroğlu (2013). In this study, the authors return to the issue of grammatical positions of wh-items in TİD matrix questions and seek a syntactic account for the multiple grammatical wh-patterns. Finally, in Göksel & Kelepir (2013), the observations of Makaroğlu and those of Zeshan on the nonmanual markers associated with interrogatives are challenged by a novel account to clause-typing of interrogatives incorporating the presence of a question-morpheme. Göksel & Kelepir (2013) brings together their observations on the nonmanuals of polar and constituent interrogatives, and syntactic patterns of wh-items. As for complexity, the only study that is directly related[1] to the type of embedding in TİD that I study is Göksel & Kelepir (in press). In this very

[1] See Chapter 2 for studies on relative clauses.

first study on the topic, Göksel and Kelepir present their observations on clausal complementation in TİD coupled with a series of tests aiming to prove the existence of clausal complementation in the language. Given that the studies on both complexity and interrogatives have paved the way to more research in the language, started up new discussions on contradictory observations and that clausal wh-complements could be considered half way between the two, which have implications to both areas, studying this grey area will shed light upon a number of disputable issues.

As is the case with possibly most sign language studies, nonmanual markers constitute an important part of my study. The linguistic significance of nonmanual markers have been put forth in a number of sign language studies (see Chapter 4). Examples throughout the study in which nonmanual markers are essential to the discussion are presented with the nonmanual markers the constructions are associated with and with their spreading domains[2].

The data under discussion consist of sentences from various sessions of recorded free speech and 99 elicited sentences from an overall body of 18 native consultants. The results of grammaticality judgment tasks will be presented under each example (where applicable) on a scale from 1 to 5. (1 = ungrammatical, 5 = grammatical).

The thesis is organized as follows. After I present my observations on the effect of clausal wh-complements in matrix word order in TİD, the position of the wh-items in the embedded context and the prosody of embedded constituent interrogatives[3] I will discuss the implications of these observations. It will then

[2] See Abbreviations and Conventions for the glossing and nonmanual marker conventions.
[3] In this study "embedded constituent interrogatives" will strictly refer to "clausal wh-complements" only, the two terms might be used interchangeably throughout the thesis referring to the complement

become obvious that TİD prosodically/morphosyntactically distinguishes between the clausal wh-complements of ASK-type (intensional) verbs and those of KNOW-type (extensional) verbs[4]. Moreover, this case of bifurcation will be supported by a quantificational asymmetry noticed long ago in spoken language linguistics. A second discussion will be on the position of the embedded wh-item and what TİD embedded information structure might look like.

My study provides independent new evidence to the discussion on the morphological realization of the Q-morpheme in TİD. The lack of BROW FURROW (Makaroğlu 2012's constituent interrogative clause-typer) and the existence of HEAD BACKWARD (Göksel & Kelepir 2013's constituent question clause-typer) in clausal wh-complements of intensional (ASK-type) predicates have two outcomes: the morphological realization of the Q-morpheme in TİD is indeed the nonmanual marker HEAD BACKWARD, and that TİD distinguishes between the clausal wh-complements of ASK-type verbs and those of KNOW-type verbs in terms of prosody. Taking this a step further, I will analyze the spreading domain of BROW RAISE, a nonmanual marker systematically found in all clausal wh-complements, with respect to two grammatical surface positions in which a wh-item can occur, namely the in situ and the embedded right periphery. Building on this, coupled with the asymmetry between where wh-items can occur in the embedded context and the root context, I will discuss what the embedded information structure of TİD might look like.

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of an interrogative embedding verb. Embedded constituent interrogatives in other syntactic environments such as the external argument or adjunct in a clause will not be discussed.

[4] These verb types will be discussed in more detail in Chapter 2. For now, suffice it to say that I refer to KNOW-type verbs as extensional (in some cases as verbs of retaining knowledge) and to ASK-type verbs as intensional (in some cases as inquisitive verbs), following Groenendijk and Stokhof's (or in a few cases Karttunen's) taxonomy.

This study leaves open several issues and is concerned with presenting the observations made so far. Further research on the language is required in order to have a more complete picture that encompasses embedded polar questions, topicalization, focalization and embedded constituent interrogatives in other possible syntactic environments, such as the external argument of a predicate and the complement of a postposition.

The structure of the thesis is as follows. Chapter 2 consists of the required background knowledge in order to comfortably follow the comparisons that will be made and the implications of the observations and comparisons, which will be presented further in the thesis. In Chapter 3, I introduce the content of the datasets that are the backbone of this study as well as the consultant profiles and the software and hardware used in eliciting and editing my data. I elaborate on the preparation and evaluation of specific data elicitation tasks and grammaticality judgment tests. Chapter 4 presents evidence in favor of the existence of a wh-embedding mechanism, ruling out potential doubts regarding the subordinate status of strings of alleged embedding verbs and interrogative clauses in their vicinity, as well as the possibility of confusing clausal wh-complements for headless relative clauses. In Chapter 5, I present my data and the observations I made with respect to the results of the grammaticality judgment tests. Chapter 6 brings about several theoretical questions that arise as the consequence of my observations and discuss their implications as well as other possible interpretations that might come about. Chapter 7 reports my findings and their implications, and concludes.

CHAPTER 2

BACKGROUND

This chapter presents prior research on a number of directly related and surrounding topics that will become resourceful elements in circumscribing my argumentation. The fundamental topics are divided into two sections: interrogatives and complexity. The section on interrogatives aims to present the literature on the syntax and semantics of interrogatives/questions in spoken languages with an emphasis on constituent interrogatives and extends the background content into studies on the syntax, semantics and prosody of sign language interrogatives. The section on complexity, in a similar fashion, presents some of the relevant literature on spoken language complex structures first and then extends it into sign language complexity. This section punctuates embedded constituent interrogatives while presenting the literature on other complex structures in both signed and spoken languages. Both sections present literature on surrounding topics in Turkish Sign Language. These include the syntax and prosody of TİD questions, observations on clausal complementation and relative clauses. The last section briefly presents agreement verbs in sign languages.

2.1 Interrogatives

Interrogative is one of the four main types of sentences crosslinguistically. Although, what seems at first to distinguish interrogatives from other three sentence types (declarative, exclamation and imperative) is their information seeking status, interrogatives quite often do occur in non-information seeking environments such as rhetorical questions and indirect questions. This section is dedicated to presenting

types of interrogatives with respect to their information seeking status, their semantico-syntactic classification and intonational properties. Sign language-specific properties of interrogatives will also be presented. Here, I would like to point out that throughout my study *interrogative* strictly refers to the syntactic sentence type and *question* refers to a semantic clause type.

2.1.1 Interrogative types

In this subsection, I classify interrogatives with respect to three criteria: their syntactic type (polar vs. constituent distinction), their information seeking status, and the syntactic environment in which they can occur (matrix vs. embedded contexts).

2.1.1.1 Polar and constituent interrogatives

Leaving aside alternative questions for the purposes of this study, there are two main syntactic types of interrogative clauses: polar and constituent. Polar interrogatives are the ones whose expected answer is either 'yes' or 'no'. Constituent interrogatives, on the other hand, seek an answer other than 'yes' or 'no'[5]. The aim of constituent interrogatives is to elicit the missing content in a sentence in the form of a constituent or constituents. This is achieved by the use of interrogative words that are available in the lexical inventory of all languages. Moreover, many languages (intonational languages), make a distinction between the prosodic marking

[5] Throughout the study the terms constituent and polar might be interchangeably used with wh- and yes/no respectively.

of polar interrogatives and the prosodic marking of constituent interrogatives[6]. Consider the following Turkish examples adapted from Göksel et al. (2008):

Constituent interrogative:

(3) Aynur'un Almanya'dan döndüğünü] nasıl biliyordun

H- H* L H%

[----------A----------][-------B-------]

Aynur.GEN[7] Germany.ABL return.COMP.ACC how know.PRG.PST.2PS

How could you tell that Aynur returned from Germany?

Polar Interrogative:

(4) Aynur'un Almanya'dan döndüğünü biliyor muydu

H- H* L%

[----------A----------][-----B------]

Aynur.GEN Germany.ABL return.COMP.ACC know.PRG QP.PST.3PS

Did she/he know that Aynur returned from Germany?

Göksel et al. (2009) divide interrogatives in Turkish into two parts with respect to their prosodic marking (indicated as A and B under each example). They claim that part A distinguishes interrogatives from declaratives, and has[8] a high plateau leading up to a peak (H*) (see Göksel et al. (2008) for graphs). Part B, on the other hand, distinguishes between constituent interrogatives and polar interrogatives. Constituent

[6] I will present studies on the different forms of prosodic markings in sign language interrogatives further in this chapter.

[7] GEN: Genitive, ABL: ablative, COMP: Complementizer, ACC: Accusative, PRG: Progressive, PST: Past, P: Person, S: Singular, QP: Question Particle.

[8] Declaratives have fluctuating intonation from the onset of the sentence until the focused phrase (Göksel et al. 2009).

interrogatives have a fall (L) which comes right after the peak (H*) followed by rising intonation (H%). Polar interrogatives, conversely, show falling intonation (L%) right after the peak (H*).

2.1.1.2 Information seeking and non-information seeking interrogatives

The information seeking nature of an interrogative, even though it seems to be parallel with the nature of questions at first sight, is not always at work in all interrogative clauses. While some interrogative clauses are information seeking, that is they are *questions*, some, although they are in the form of an interrogative, are not information seeking. In order to better understand this dual nature of interrogatives, it would be useful to consider Moulton (1987)'s analysis. In this study, Moulton classifies all sentences with respect to two question/interrogative-oriented criteria[9]: two types of sentences [± Questions] and two types of intonation [± Interrogative]. A [-Question] would be any sentence other than an interrogative. It may or may not bear a question intonation (Moulton's [+Interrogative] or [-Interrogative]). Any sentence that is [+Question] is in the form of an interrogative, bearing the syntax of an interrogative, it may or may not be information seeking depending on the second criterion. Conversely, any sentence that is [+Interrogative] is understood as information seeking, regardless of whether it is in the form of an interrogative [+Question] or not [-Question]. The following table should help to better understand Moulton's classification and how I interpret it with respect to the terms I use throughout the thesis:

[9] It is crucial to note that there is a mismatch between the terms I use here and the ones Moulton uses in his work. What I refer to as *interrogative*, Moulton refers to as *question*, and Moulton's *interrogative* is the question intonation that is present in my *information seeking interrogatives*.

Table 1. Moulton's Classification of Sentences

Moulton's *Interrogative* / Moulton's *Question*	+	-
+	A Information seeking clause in the form of an interrogative	B Non – information seeking clause in the form of an interrogative
-	C[10] Information seeking clause not in the form of an interrogative	D Non – information seeking clause not in the form of an interrogative

[10] For simplicity's sake, I will not discuss sentences that fall in groups C and D.

A straightforward example to the class A in the table above would be a constituent interrogative that bears question intonation. Consider the example below:

(5) Who killed the cat?

Example (5) is the kind of interrogative clause that seeks the identity of the killer. The speaker, who wants to find out the identity of the killer, will utter the interrogative clause above with appropriate information seeking question intonation.

However, a clausal wh-complement (henceforth wh-complement) would still be in the form of an interrogative, but be non-information seeking. This type of clauses, such as *'who killed the cat'* in the following examples, are under the spotlight in this thesis and falls into the group B in the table above.

(6) I know [who killed the cat].

(7) I asked [who killed the cat].

Further in this chapter, we shall see that, although non-information seeking wh-complements of ASK-type verbs like in example (7) are considered to belong to the semantic class *question*, the ones like in example (6) are not. TİD marks this distinction morphologically, by means of the presence of question intonation in wh-complements in indirect discourse with ASK-type verbs and the absence of it in wh-complements with KNOW-type verbs. I will elaborate on the semantic differences between these two types of verb further in this chapter.

Although in my study *interrogative* strictly refers to the syntactic sentence type and *question* to a semantic type, Moulton (1987)'s classification becomes useful

in understanding the distinction between interrogatives that are information seeking and the ones that are not. I'd like to note here that the [+Question, -Interrogative] types, echo questions and rhetorical questions, are not a part of my discussion here. The significance of the information seeking status of interrogatives in my discussion comes in at distinguishing among strings that contain a wh-element with regards to their embedded status. A straightforward means to identify wh-complements is to check whether that interrogative string is information seeking or not and to see whether there is a matrix verb candidate that offers a mutual semantic compatibility in that interrogative's proximity. Another important aspect to keep in mind while identifying wh-complements is to see whether the string bears an intonation that is related to its information seeking status or not. Further in this study, we shall see that TİD is a language where information seeking status and intonation do not always neatly overlap.

2.1.1.3 Matrix and embedded interrogatives

A third criterion to group interrogatives is of a syntactic nature. Both polar and constituent interrogatives, as two subtypes of a syntactic sentence type, may occur either in a matrix context or in an embedded context. And again, both matrix and embedded interrogatives, regardless of their syntax, may or may not be information seeking depending on use.

A crucial distinction between matrix and embedded interrogatives is that while in the former the missing content is interpreted in the root clause (8a), in the latter the missing content is interpreted in the embedded clause (8b). This, however, does not mean that every embedded wh-item (that is, a wh-item which in the surface

order occurs in the embedded clause) will be interpreted in the embedded clause. Under certain semantic and intonational circumstances, a syntactically embedded wh-item must be interpreted in the root clause (8c).

(8) *Matrix scope:*

a. [Nereye gid-ecek-sin?]

Where go.FUTURE.2S

Where will you go?

Embedded scope:

b. [[Sen-in nereye gid-eceğ-in]-i bil-iyor-um].

You-POSS.2P where go.COMP.POSS.2P.ACC know.PROG.1S

I know where you will go.

Matrix scope (embedded in surface syntax):

c. [[Sen-in nereye gid-eceğ-in-i] düşün-üyor-Ø]?

You-POSS.2P where go.COMP.POSS.2S.ACC think.PROG.3P

Where does she/he think you will go?[11]

The sentence in (8a) is a simplex interrogative clause with constituent interrogative intonation (see section 2.1.1.1), with the wh-item *nereye* taking matrix scope. Example (8b), however, shows that a wh-item (*nereye* in this case), can be in the embedded clause taking embedded scope. In this thesis, only the type of

[11] Note that with declarative (falling) intonation this Turkish sentence translates into *'She/he wonders where you will go.'*, showing the importance of intonation in the interpretation of wh-items in complex structures. See Özsoy (2009) for a discussion on how intonation distinguishes wide and narrow scope readings of such wh-items in Turkish. Prosodic properties of embedded wh-items in Turkish are mentioned in Göksel et al. (2008).

embedded interrogatives that take embedded scope such as the one in (8b) will be discussed. Example (8c) and such is beyond the scope of this thesis and will not be addressed (see Göksel & Kelepir (in press) for embedded wh-items that are interpreted in the root clause in TİD).

2.1.2 Constituent interrogative formation

Cheng (1991), in her dissertation *On the typology of Wh- Questions*, classifies languages into two groups with respect to the clause-typers used to mark the constituent interrogative: *wh-movement* languages like English and *question particle* languages like Chinese. Assuming that *Principle of Economy* (Chomsky 1989) holds, she argues that no language uses both ways to clause-type an interrogative and suggests that if a language allows the wh-word in a constituent interrogative to stay in situ, that language is a language without syntactic wh-movement. She calls those *wh-in-situ*[12] languages and any movement of a wh-item that occurs is not for wh-licensing but for other reasons. She argues that the presence of overt yes-no particles in a given language implies the presence of a Q-particle in that language. Contrastingly, in wh-movement languages she argues that it is the obligatory movement itself that is required to clause-type the constituent interrogative. Furthermore, on that note, while some languages have a lexical inventory dedicated to interrogatives only, some languages use identical morphology for wh-words and existential/universal quantifiers or indefinite words, the uses are distinguished with respect to their semantico-syntactic environment.

[12] Cheng (1991) mentions French might be a counter example to her generalization because while matrix in-situ wh-words are allowed in French, embedded wh-words with interrogative force must undergo overt syntactic wh-movement to the [Spec, CP] position.

2.1.3 Constituent interrogatives in sign languages

As an emerging area of research, several aspects of interrogative clauses in many sign languages have been studied in general or dedicated works. This subsection is dedicated to presenting some of these works which are relevant to my discussion. Syntactic and prosodic (nonmanual) properties of constituent interrogatives will be under the spotlight.

2.1.3.1 Syntactic properties of constituent interrogatives

Perhaps, the most striking peculiarity of sign language constituent interrogatives is that a significant number of them allow for clause-final wh-items. This peculiar behavior of sign languages, coupled with observations on nonmanual marking of interrogatives, has led some researchers to claim that the specifier position of CP[13] may not be universally left-branching (Aarons et al. 1992; Aarons 1994; Neidle et al. 1994a, b; Neidle & Maclaughlin 2002 for ASL, Cecchetto et al. 2009 for LIS, Pfau & Zeshan 2003 for IPSL). Other researchers, conversely, have denied this controversial claim and put forth analyses to account for a *seemingly* right-branching [spec, CP] (Petronio & Lillo-Martin 1997 for ASL). Another sign language peculiar phenomenon is the doubling of the wh-word. *Wh-doubling* is considered to be a subtype of focus doubling. The issue of wh-doubling and the directionality of the specifier of CP will be addressed with examples further in this chapter.

[13] CP = Complementizer Phrase. In the generativist framework, CP is the maximal projection that dominates the entire clause.

Constituent interrogative formation in ASL has been in the center of fervent debate concerning its syntax. While one group of researchers (Aarons et al. 1992; Aarons 1994; Neidle et al. 1994a, b; Neidle & Maclaughlin 2002) claims that [spec, CP] is in the right periphery, another camp (Petronio & Lillo-Martin 1997) claims that ASL patterns with the universal tendency, i.e. it has a left-branching [spec, CP]. While the former group of researchers' claim finds its roots in the widespread occurrence of rightward wh-items in ASL, the latter claims that it is an illusion created by independently motivated syntactic or discourse-related factors. Further in this chapter, we shall see that both leftward and rightward movement analyses (in cases of phrasal movement and head movement, respectively) have been put forth for the syntax of TİD simplex questions in a single study (İşsever & Makaroğlu 2013).

As for the argumentation of simplex constituent interrogatives in Brazilian Sign Language (LSB), Nunes & Quadros (2006) follow Petronio & Lillo-Martin (1997)'s left-branching [spec, CP] position. They part ways with Petronio and Lillo-Martin's discussion in that while ASL has a head-final CP projection, LSB has a head-initial one. Petronio & Lillo-Martin (1997) claim that right peripheral occurrences of wh-items in ASL are due to base-generated wh-words in the C^0 of a head-final CP, while Nunes & Quadros (2006) attribute right peripheral occurrences to the movement of the remaining part of the TP (remnant-movement) from which a wh-item would be extracted and moved to the designated position in the head-initial CP, to a higher projection. Both ASL and LSB occurrences of rightward wh-words result from focus motivated movement phenomena (Nunes & Quadros 2006). This allows for the grammaticality of interrogatives where a right peripheral wh-word and a higher wh-phrase can co-occur:

(9) [JOHN BUY WHICH BOOK YESTERDAY] [WHICH]

Which book did John buy exactly yesterday?

Data taken from Nunes & Quadros (2006) ex. (11) – LSB

This brings us to the issue of wh-doubling. Doubling of wh-items as well as other items have been observed in a number of sign languages (see Aarons et al. 1992; Aarons 1994; Neidle et al. 1994a, b (ABKN[14]) and Petronio & Lillo-Martin 1997 for ASL; Branchini et al. 2013 for LIS; Nunes & Quadros 2006 for LSB; and Makaroğlu 2012, İşsever & Makaroğlu 2013 and Göksel & Kelepir 2013 for TİD) and analyses of varying explanations have been put forth. According to a number of studies by ABKN, ASL has a right-branching CP specifier node and rightward moved wh-items are located in [spec, CP]. Wh-doubles, in their analysis, are then attributed to base-generated wh-topics in the left periphery. The competing analysis by Petronio and Lillo-Martin (1997) argues that ASL has a left-branching spec, CP and they claim that the rightward wh-duplicates are base-generated in the C^0, as is the case with focus doubles. Consider the following examples below, which illustrate the four grammatical matrix wh-configurations in ASL (in-situ, double, clause-final and clause-initial respectively). The following are data adapted from Petronio & Lillo-Martin (1997), ex. (14), (47), (49b), (61), (66) and (108a) respectively:

(10) *In-situ wh-object*

_____whq[15]

a. JOHN BUY WHAT YESTERDAY

What did John buy yesterday?

[14] Petronio and Lillo-Martin (1997) refer to Aarons, Bahan, Kegl and Neidle as ABKN for the sake of simplicity. I will follow them in that.

[15] The nonmanual marker *whq* is phonologically expressed as BROW FURROW in ASL.

Object as clause initial wh-phrase – clause final wh-head double construction

_____whq

b. WHICH COMPUTER YOU WANT WHICH

Which computer do you want?

c. *WHICH COMPUTER JOHN BUY WHICH COMPUTER

Clause – final wh-subject (head only)

_____whq

d. BUY CAR WHO

Who bought a car?

e. *BREAK DOWN WHO CAR

Intended: *Whose car broke down?*

Clause – initial wh-object

_____whq

f. WHAT JOHN BUY

What did John buy?

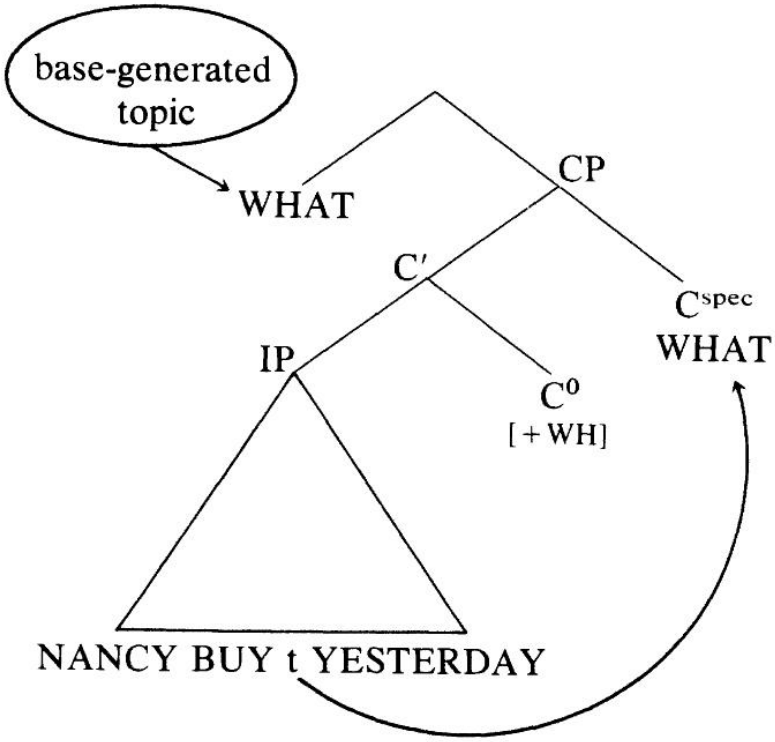
Examples (10a), (10b), (10d) and (10f) illustrate an in situ wh-object, an object in the clause initial-clause final double construction, a clause final wh-subject and a clause-initial wh-object in ASL respectively. Examples in (8c) and (8e) show that clause-final ex-situ wh-objects, regardless of whether they are in a double construction or not, cannot be phrasal in ASL. According to Petronio & Lillo-Martin

(1997), this is because rightward wh-items are base-generated focus doubles in a [+wh, +F] C^0 and leftward wh-items are wh-phrases moved from their base-generated position to a left-branching [spec, CP]. They criticize ABKN's right-branching [CP, spec] in that if the [spec, CP] were actually right-branching in ASL we would expect to find grammatical clause-final wh-phrases, however, in their data this is not the case. See below for the syntactic representation of the interrogative clause in (11) in both leftward (b) and rightward (a) movement analyses:

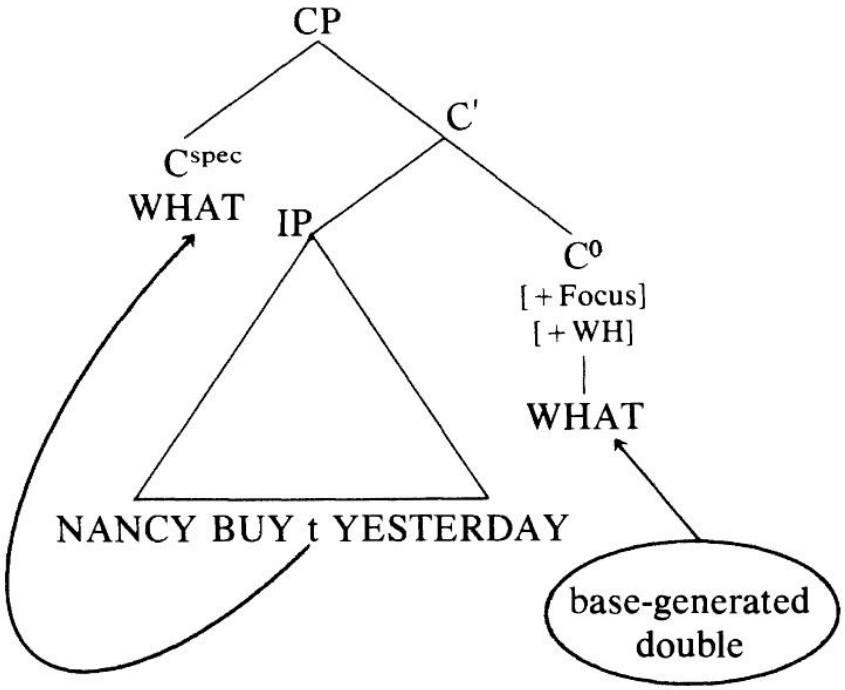
(11) WHAT NANCY BUY YESTERDAY WHAT?

Data and trees taken from Petronio & Lillo-Martin (1997) – ASL

a. Rightward movement analysis (ABKN)



b. Leftward Movement Analysis (Petronio & Lillo-Martin 1997)



According to Petronio and Lillo-Martin's analysis of wh-doubles, wh-movement in ASL patterns with the universal tendency and is leftward (Baker 1970, Bresnan 1970, Bach 1971, Georgopoulos 1991, among others). They criticize the competing rightward movement analysis in three ways. First, if the rightward movement were the case, it would mean that ASL is an exception to the crosslinguistic generalization that specifiers are on the left (Kayne 1994). Second, the rightward wh-movement analysis favors the topicalization of wh-items which is not common and in many cases is subject to strong restrictions (Bach 1971, Bresnan & Mchombo 1987, Epstein 1992) and third, the alleged base-generated wh-topic does not bear the nonmanual marker and the post-prosodic break associated with topics in ASL (Fischer 1974, Liddell 1980).

Petronio and Lillo-Martin (1997) show that other focus-related doubling phenomena take place in the right periphery, too. Therefore, they claim that wh-

items are inherently focused and it is no surprise that their doubles occur where other focused items normally do occur (modals, quantifiers, verbs). Consider the following example:

(12) .....ILLEGAL SLEEP THERE, MUST COMMUTE MUST.

.....(the students) are not permitted to sleep there, (they) MUST commute.

Data adapted from Petronio & Lillo-Martin (1997) ex. (26) – ASL

The clause-final copy of the modal MUST in example (12) is an instance of a more general double construction in ASL whose function is to mark emphatic-focus. Petronio (1993) observes that non–wh focus doubling is subject to a phrase – head asymmetry, too. Phrases cannot be doubled in the clause – final position (13), just like wh-doubles (see example (10c) above):

(13) *ANN CANNOT READ CANNOT READ

Intended: *Ann CANNOT read.*

Data adapted from Petronio & Lillo-Martin (1997) ex. (39b) – ASL

A similar account for rightward wh-items in TİD has been proposed by Makaroğlu (2012) and İşsever & Makaroğlu (2013), which will be addressed in the following subsection.

ASL and LSB constituent interrogatives with respect to the position of the wh-item are not the only sign languages studied so far. Cecchetto (2012, pp. 14-15) reports the following:

> "American Sign Language (ASL)
> Brazilian Sign Language (LSB)
> Wh-*items may occur at the left periphery, at the right periphery and* in situ.
> *The extent to which these options are available in ASL remains controversial.*

Croatian Sign Language (HZJ), cf. Šarac & Wilbur (2006)
Finnish Sign Language (FinSL), cf. Savolainen (2006)
New Zealand Sign Language (NZSL), cf. McKee (2006)
Wh-*items can appear sentence initially, sentence finally or doubled in both positions*

Australian Sign Language (Auslan), cf. Johnston & Schembri (2007)
Wh-*items can appear in situ, in sentence initial position or doubled in sentence initial and in sentence final position.*

Austrian Sign Language (ÖGS), cf. Šarac et al. (2007)
The most 'neutral' position for wh-*items is at the left edge.*

Israeli Sign Language (Israeli SL), cf. Meir (2004)
Sign Language of the Netherlands (*Nederlandse Gebarentaal*, NGT), cf. Aboh and Pfau (2011)
Catalan Sign Language (LSC), cf. Quer et al. (2005)
Spanish Sign Language (LSE), cf. Herrero (2009)
The natural position of wh-*phrases is at the right edge.*

Japanese Sign Language (NS), cf. Morgan (2006)
Wh-*signs are typically, but not necessarily, clause final.* Wh-*phrases can also occur in situ and on the left, in which case placement of a copy at the end of the sentence is not unusual.*

Hong Kong Sign Language (HKSL), cf. Tang (2006).
The wh-*signs for argument questions are either in situ or in clause final position.* Wh-*signs for adjuncts are generally clause final. Movement of the* wh-*sign in clause initial position is not allowed.*

Italian Sign Language (LIS)
Indo-Pakistani Sign Language (IPSL)
Wh-*phrases move to the right periphery, while movement to the left periphery is altogether banned.*"

2.1.3.2 Prosodic properties of constituent interrogatives

Several sign languages have been studied with respect to nonmanual markers that accompany interrogative clauses. Just like interrogatives in spoken languages, sign languages show differing intonational patterns to mark polar interrogatives and constituent interrogatives.

Constituent interrogatives in ASL have been associated with furrowed brows, squint and head shake (Baker & Cokely 1980d; Baker & Padden 1978; Baker-Shenk 1983, 1985) while polar interrogatives are associated with brow raise (Aarons 1994). A similar description of nonmanuals have been put forth for Israeli Sign Language (ISL), too (Meir & Sandler, 2007).

Several linguistic functions of nonmanual markers have been proposed in the literature such as marking the restriction of an operator (Wilbur & Patschke 2009, Wilbur 2011) or its c-command domain (Neidle et al. 2000, Pfau 2002, Wilbur 2011, among others). Under this perspective, the spreading domain of a nonmanual marker that is associated with certain syntactic phenomena and the constituents that are left outside of it provide evidence to support or refute certain assumptions made on syntactic movement.

A typical example to this functionality of nonmanuals would be topic marking in ASL. Aarons (1994) describes three types of topic markers in ASL: tm1, tm2, tm3[16]. According to her analysis, the phonological content of tm1 is "*raised eyebrows and head tilted slightly back and to the side*". It is also crucial to note here that this marking occurs with moved topics, a typical example of nonmanual markers marking syntactic movement. Wilbur (2012) later calls Aarons's tm1 marked constituents cases of contrastive focus:

_____tm1

(14) $JOHN_i$ NOT LIKE JANE. $MARY_j$ IX_i LOVE t_j

John doesn't like Jane. It's Mary he loves.

Data taken from Wilbur (2012) p. 472 ex. (15) – ASL

[16] Topic marker 1, 2, 3. Each item has a different phonological realization and is used for a separate information structural function.

This example illustrates a moved constituent, in this case MARY, to the left edge of the second clause. The moved constituent is marked with tm1. The presence of this marker shows us that this constituent is not base generated where it occurs in the surface order but has moved from its original position for an information structural function. Similar to information structural nonmanual phenomena, wh-movement and wh-in-situ show variation in their nonmanual marking with respect to syntactic operations that may have taken place. For a more detailed description and discussion on the nonmanual marking on ASL wh-questions, see Aarons et al. (1992), Aarons (1994), Neidle et al. (1994a, b), Petronio & Lillo-Martin (1997), Neidle & Maclaughlin (2002).

2.1.4 Constituent interrogatives in Turkish Sign Language

In this subsection, I present the works on the prosody, syntax and information structure of constituent interrogatives and polar interrogatives, as well as the interaction of these three components in TİD.

2.1.4.1 Syntactic properties of constituent interrogatives in Turkish Sign Language

The syntax of TİD simplex[17] constituent questions has been studied by Göksel et al. (2009), Göksel & Kelepir (2011, 2013), Makaroğlu (2012) and İşsever & Makaroğlu (2013). Göksel & Kelepir (2011) propose that in TİD simplex interrogatives, there is a syntactic head which is the location of the interrogative force and that the lexical

[17] By "simplex", I mean sentences made up of a single clause. For embedded wh-items that are interpreted in the root clause in TİD see Göksel & Kelepir (in press).

content of that item is intonation. They call this syntactic head QM[18] (*question mark*, following Higginbotham 1993) and claim that QM is realized as the prosodic contour expressed as HEAD TILT. My analysis here will be centered around their claim.

Makaroğlu (2012) claims that wh-items in TİD simplex questions are licensed in situ and word order variations are motivated by information structural phenomena, following Lillo-Martin & Quadros (2008) and Nunes & Quadros (2006). He argues that the above-TP four-layered information structural model put forth for ASL and LSB in those studies (15), can effectively account for the word order variations in TİD simplex constituent interrogatives.

The Four-Layered Information Structure Model

(15) Topic-CommentP>Informational FocusP>TopicP>Emphatic FocusP[19]

Makaroğlu (2012) observes that there are four configurations in TİD simplex constituent interrogatives in which wh-items can occur: left peripheral wh-item (16a), right peripheral wh-item (16b), in-situ (16c) and the in situ – right periphery double construction (16d). With respect to the structure in (15) above, the configuration in (16a) results from the movement of the wh-item out of the TP to the (left-branching) specifier position of the Informational-FocusP (14a), the configurations (16b) and (16d) are derived identically by means of the movement of the wh-item out of the TP to the (left-branching) specifier position of the Emphatic-FocusP, and the remnant movement (in the sense of Nunes & Quadros 2006) of the TP to TopicP. While configuration in (16d) retains a copy of the wh-item in the TP (14d), the configuration in (16b) deletes it. Makaroğlu (2012) claims that the

[18] Throughout this study, I will refer to Göksel and Kelepir's QM as *Q-morpheme*.
[19] Left-branching specifiers.

configurations in (16b) and (16d) are pragmatically identical, that is, they both function as emphatic focus constructions.

(16) *Left peripheral wh-adjunct:*

a. WHEN$_i$ YOU t_i GO

When will you go?

Right peripheral wh-adjunct:

b. YOU t_i GO WHEN$_i$

When will you go?

In situ wh-adjunct

c. YOU SCHOOL WHEN GO

When will you go to school?

Wh-adjunct in in situ – right perihery double construction

d. YOU WHEN$_i$ GO WHEN$_i$

When will you go?

Data adapted from Makaroğlu (2012) tables (18), (17), (15) and (16) respectively - TİD

In a study that follows Makaroğlu (2012), İşsever & Makaroğlu (2013) argue that the multiple configurations in which wh-items in TİD constituent interrogatives can occur are due to a wh-movement mechanism in TİD where wh-words move to a rightward C^0 while wh-phrases move to a left-branching [spec, CP], because phrasal categories cannot occupy head positions (following Petronio & Lillo-Martin 1997).

According to their analysis wh-phrases can occur in situ (17a) or in the left periphery (17b), while rightward occurrences can only consist of wh-words located in the C^0 (17c, *e, *f) and they may (17d) or may not (17c) co-occur with an in situ phrasal copy, yielding a double construction in the presence of an in situ copy.

(17) *In situ wh-phrase*

a. YOU [WHAT BOOK] READ

Left peripheral wh-phrase (leftward phrasal movement to [spec, CP])

b. [WHAT BOOK]$_i$ YOU t_i READ

Right peripheral wh-head (rightward head movement to C^0)

c. YOU t_i READ WHAT$_i$

In situ wh-phrase – right periphery wh-head double

d. YOU [WHAT BOOK]$_i$ READ WHAT$_i$

**Right peripheral wh-phrase*

e. *YOU t_i READ [WHAT BOOK]$_i$

* *In situ wh-phrase – right periphery wh-phrase double*

f. *YOU [WHAT BOOK]$_i$ READ [WHAT BOOK]$_i$

Data adapted from İşsever & Makaroğlu (2013) ex. (17a), (17b), (14c), (17c), (23b), (23a) respectively - TİD

In short, wh-items in TİD matrix constituent interrogatives are found in four different surface configurations. Further in this study, we shall see that the embedded context allows for two surface positions only: the in situ and the embedded right periphery. After I present my data, I will discuss in Section 6.2 whether these two surface positions correspond to two different syntactic positions and provide evidence in favor of a strictly in situ deep structure wh-configuration for the embedded context in TİD.

2.1.4.2 Prosodic properties of constituent interrogatives in Turkish Sign Language

There are two contradicting observations with respect to the phonological expression of the clause-typer of constituent interrogatives in TİD. Both[20] Makaroğlu (2012) and Göksel & Kelepir (2011, 2013) analyze constituent interrogatives and polar interrogatives in TİD with respect to their prosodic properties in detail, however, the part of these studies that is most related to my analysis here lies in the contradicting observations between the two: while Makaroğlu (2012) claims that HEAD FORWARD distinguishes interrogatives from declaratives[21]. He observes BROW FURROW (18a) on constituent interrogatives and BROW RAISE (18b) in polar interrogatives.

[20] See also Gökgöz (2010a) and Gökgöz & Arık (2011).
[21] Açan (2007) observes HEAD FORWARD with all interrogatives. Gökgöz (2010a) associates HEAD FORWARD with constituent interrogatives. Gökgöz (2010a) and Gökgöz & Arık (2011) claim that NON-NEUTRAL BROW POSITION is the clause-typer of interrogative clauses.

(18) *Constituent interrogative*

a. BROW FURROW

WHEN FINISH?

When will it finish?

Polar interrogative

b. BROW RAISE

YESTERDAY GAME WATCH

Did you watch the game yesterday?

Images taken from Makaroğlu (2012), pictures (18) and (15) – TİD

Göksel & Kelepir (2013) claim it is the overarching nonmanual marker HEAD TILT that distinguishes interrogatives from declaratives. While one of the

phonological expressions of that overarching nonmanual marker, namely HEAD BACKWARD[22], clause-types constituent interrogatives (19a), the other, HEAD FORWARD[23] clause-types polar interrogatives (19b). Göksel & Kelepir (2013) describe the phonetic features of HEAD FORWARD AND HEAD BACKWARD as follows:

> "i. HEAD FORWARD (hf):
> The head is tilted in a forward position. We take the position of the head rather than its movement to the forward position as the identifying property of this feature. The shoulders and the torso are also slightly tilted towards the front. The head may optionally be tilted slightly to the side, and the chin is lowered towards the chest. We add to these characteristics apparent tense muscles of the neck, giving the head the appearance of being relatively stiff in comparison to strings in which there is no head tilt.
>
> ii. HEAD BACKWARD (hb):
> The head is tilted towards the back. ... we consider this a position, and not movement. The shoulders and torso may be tilted towards the front or the back. The chin is up. These features are also accompanied by what appears to be tense neck muscles."

(19) Constituent interrogative

a. HEAD BACKWARD

_____hb

_____hs

----------COUNTRY---------- ----------WHAT----------

What is (his/her) country?

[22] With parasitic HEAD SHAKE on HEAD TILT.
[23] With parasitic HEAD NOD on HEAD TILT.

Polar interrogative

b. HEAD FORWARD

_____hf

_____hn

----------REMEMBER----------

Do you remember?

Images taken from Göksel & Kelepir (2013) ex. (12) and (10).

Göksel & Kelepir (2013) report that NON-NEUTRAL BROW POSITION does not systematically occur in their data and thus according to their observations it cannot be the marker of simplex interrogatives. My analysis of embedded constituent interrogatives provides an observation in favor of Göksel & Kelepir (2013)'s claim regarding the phonological expression of the clause-typer of constituent interrogatives in TİD and therefore contradicts that of Makaroğlu (2012). We shall see further in this thesis that TİD marks wh-complements embedded under ASK-type verbs with Göksel & Kelepir (2013)'s Q-morpheme HEAD BACKWARD, although they are non-information seeking. We shall come to this peculiar behavior of TİD in Chapters 5 and 6.

2.1.5 Embedded interrogatives in other sign languages

Although studies on embedded interrogatives in sign languages are very scarce, there is a number that have studied these constructions in detail. Petronio & Lillo-Martin (1997) provide examples of embedded constituent interrogatives in their study on the position of [spec, CP] in ASL. Nunes & Quadros (2006) study wh-complements in LSB. Caponigro & Davidson (2011) study question – answer clauses (QACs) in ASL where they argue that an interrogative clause occupies the subject position of a predicative sentence and the answer to this sentence is glued to it with a silent copula. The same phenomenon was analyzed with different accounts in Wilbur (1995) for ASL and in Sutton-Spence & Woll (1999) for British Sign Language (BSL). Davidson (2012), Davidson & Caponigro (to appear) study embedded polar interrogatives in ASL.

Meir & Sandler (2008) briefly touch upon embedded interrogatives in Israeli Sign Language (ISL). They observe that the embedded interrogative often comes before the main clause or it might occur between two copies of the main clause.

In the following subsection, I will present studies by Petronio and Lillo-Martin (1997) on ASL embedded constituent interrogatives, and Nunes and Quadros (2006) on LSB on the same matter.

2.1.5.1 Embedded constituent interrogatives

Embedded constituent interrogatives in sign languages have been examined in detail in two insightful lines of research on interrogatives in ASL and LSB. Petronio & Lillo-Martin (1997), in their study on determining the position of [spec, CP], study

wh-complements in order to support their claim that [spec, CP] is situated in the left periphery in ASL, conforming to the universal tendency.

Petronio & Lillo-Martin (1997) observe that the nonmanual marker BROW FURROW, which is associated with matrix constituent interrogatives in ASL, is not present when constituent interrogatives are embedded under verbs such as KNOW or WONDER. Instead, they observe that the lexical nonmanual markers of embedding verbs spread over the entire embedded interrogative and the root clause. Compare the two examples that follow:

(20) *Matrix constituent interrogative:*

_____bf

a. WHO BUY COMPUTER

Who bought a computer?

Embedded constituent interrogative:

_____hn/ponder

b. ANN WONDER [WHO LIKE PHILIP]

Ann wonders who likes Philip.

Data taken from Petronio & Lillo-Martin (1997) ex. (74a) and (78) – ASL

While the matrix interrogative in (20a) is marked with the wh-question intonation (*bf* in the example), that is BROW FURROW, the embedded interrogative in (20b) is marked with the spreading nonmanual marker, *hn/ponder*, associated with the matrix verb WONDER. They attribute this differing nonmanual behavior of interrogatives to a claim that while matrix constituent interrogatives are [+wh, +F], embedded constituent interrogatives are [+wh] only. They support this claim with

their observations on the restrictions on where an embedded wh-item in ASL can occur in contrast with matrix interrogatives (see Section 2.1.3.1). Consider the following examples:

(21) *Embedded clause-initial wh-item:*

_____hs/ponder

a. I DON'T-KNOW [WHAT HE BUY]

I don't know what he bought.

In situ wh-item:

_____hn

b. I KNOW [YOU LIKE WHO]

I know who you like.

**Embedded double construction:*

_____hn

c. *I KNOW [WHO WIN WHO]

Intended: *I know who won.*

**Embedded clause-final wh-item:*

_____hn

d. *BOB KNOW [WON WHO]

Intended: *Bob knows who won.*

Data taken from Petronio & Lillo-Martin (1997) ex.(82a), (83), (81) and (84c) – ASL

As can be seen above, only (21a) and (21b), the clause-initial embedded wh-item and the in situ, are grammatical. Conversely, (21c) and (21d), namely the double construction and the clause-final wh-item are not. Recall from Section 2.1.3.1 that matrix constituent interrogative clauses in ASL do in fact allow for the double construction and the clause-final wh-item construction. However, in the embedded context the two configurations associated with base-generated focus are ungrammatical[24]. Therefore, they claim that the embedded CP in ASL does not contain a focus projection altogether and that in ASL only one focus per sentence is allowed, and it must be a root phenomenon. Their claim regarding the lack of the [+F] feature of wh-complements makes three predictions all of which are borne out: (i) wh-doubles should be prohibited (21c), (ii) ex-situ[25] sentence final wh-items should be ungrammatical (21d) and (iii) question intonation should not be observed in embedded constituent interrogatives (20b; 21a,b). All three phenomena are attested properties of embedded constituent interrogatives in ASL and are attributed to the lack of the [+F] feature. Grammatical constructions in ASL embedded constituent interrogatives, therefore, constitute (i) clause-initial wh-items (21a) and (ii) in situ wh-items (21b).

As for the situation in LSB, Nunes & Quadros (2006) claim that wh-complements in LSB differ from ASL wh-complements in that while LSB wh-complements can bear a focus, those in ASL cannot. They observe that a clause-initial wh-item can be accompanied by a clause-final wh-item in wh-complements (see example (22)), supporting their proposal that wh-complements must also have the option to contain focus, given that duplicated wh-items are there for focus

[24] Ex-situ clause-final wh-items in ASL are base-generated focus doubles positioned in C^0 in Petronio & Lillo-Martin (1997)'s account. By "ex-situ base-generated wh-items" I mean wh-items that semantico-syntactically do not belong to where they occur, such as a clause-final subject. The reader should disregard any movement connotation that comes with the term *ex-situ*.
[25] In situ clause-final wh-items in embedded constituent interrogatives are of course grammatical.

reasons. Therefore, they posit that while ASL can only have one focus per matrix sentence, LSB sentences can have one in the root clause and one in the embedded clause.

(22) I WANT KNOW [WHERE$_i$ JOHN BUY BOOK YESTERDAY WHERE$_i$]

I want to know where exactly John bought the book yesterday.

Data adapted from Nunes & Quadros (2006) ex (28a) – LSB

Further in this thesis, however, we shall see that the grammatical configurations in TİD with respect to the position of the wh-item in the embedded interrogative differ from those in both ASL and LSB. This observation will raise the question whether TİD can have a focus position in wh-complements and more generally in embedded clauses, which will be discussed in Chapter 6.

2.1.6 Semantics of questions

From a semantic point of view, the meaning of an information seeking interrogative clause is a question and the meaning of a declarative is a proposition. A question is defined as the full set of all salient propositions that are possible answers to that interrogative clause (Hamblin 1973, Karttunen 1977). Therefore, the meaning of an information seeking interrogative clause such as "Who killed the cat?" is the set of all propositions that are possible answers to that question. It is necessary to note that salient answers to an interrogative clause are context-dependent. Therefore, in a household where, let's say, Jeremy, Rebecca and Josh are the only residents and it is known for sure that it is one of those residents who killed the cat '*that Laura killed the cat*' is not a salient proposition that can answer that interrogative clause. The

possible answers to the questions “Who killed the cat?” are therefore ‘*that Jeremy killed the cat*’, *‘that Rebecca killed the cat*’ and ‘*that Josh killed the cat’*. In a similar fashion, the answer to a polar question such as “Did the cat die?” are ‘*that the cat died’* and ‘*that the cat didn’t die’*. The last subsection of this chapter is dedicated to presenting the prevailing semantics analyses put forth on interrogative embedding and embedding predicates.

2.2 Complexity

Chomsky (1999) argues that the possibility of having an infinite number of grammatical sentences all of which hold the possibility of having an unbounded grammatical sentence length, stems from recursion in natural language. In other words, recursion is the result of the phenomenon known as embedding in Language. Certain syntactic heads in a sentence can subcategorize for sentential forms of varying typologies. This phenomenon of recursive nature results in complex structures. This section will present previous studies on complexity and the interaction of complexity with embedded interrogatives in spoken and signed languages.

2.2.1 Complexity in spoken languages

2.2.1.1 Indicators of complexity in spoken languages

Complex structures in many spoken languages can easily (see Haspelmath 2004 for a contradicting analysis) be distinguished from simplex sentences or sequences of juxtaposed simplex structures by their utilization of rich morphology and overt complementizers (Noonan 1985). An embedded declarative sentence in English might be overtly marked with the complementizer *that* (23a), while it is not a grammatical means for a matrix sentence to contain a *that* complementizer in its root C^0 (23b).

(23) a. I heard [(*that*) you didn't apply for a Ph.D. program].

b. (**That*) I ate late, thank you.

This shows that English, among other languages, draws a distinction between dependent and independent clauses by implementing an overt complementizer in the former and by prohibiting it in root clauses. Languages like Turkish on the other hand, employ a verbal suffix dedicated to marking sentential embedding (24).

(24) [Bir doktora program-ın-a başvur-ma-*dığ*-ın]-ı

A Ph.D. program-poss-dat apply-NEG-*CMP*-PSS.2SG-acc.

duy-du-m.

hear-past-1sg.

I heard that you didn't apply for a Ph.D. program.

In a similar fashion to the overt complementizer *that* in English, *-DIK* in Turkish cannot be implemented to mark a root clause. Whether a free form or a bound morpheme, spoken languages might employ overt and in most cases obvious morphological means to separately mark complexity. Our awareness of the presence of overt complementizers enables us to distinguish embedded clauses from independent root clauses even in the absence of an overt complementizer (23a).

There are, however, other syntactic tests at the disposal of spoken languages in order to determine whether a clause is subordinated or not. According to Binding Principle B (Chomsky 1980, 1981), a pronoun cannot be bound by an antecedent in the same immediate clause (25b). In this regard, the following examples show us that the clause that contains the pronoun *he$_i$* is not in the same immediate (root) clause that contains its referential antecedent *Jack$_i$*, there is rather a dependency relationship that holds between the two clauses, as evidenced by the presence of that (25a):

(25) a. Jack$_i$ thinks [that he$_i$ killed a man].

b. Jack$_i$ killed him$_{*i/j}$

Although the indicators of complexity are straightforward and transparent in most spoken languages, further in this chapter we shall see that these tests are not applicable to sign languages and that authentic tests peculiar to sign languages have been put forth by various researchers in the field.

2.2.1.2 Embedded constituent interrogatives

As part of the embedding paradigm, embedded interrogatives comprise a large area of research in semantics and syntax. Various aspects of the semantics and syntax of

interrogatives, complexity and interrogative embedding in several languages have been studied in numerous lines of research (Hamblin 1973; Karttunen 1977; Grimshaw 1979; Groenendijk & Stokhof 1982, 1984, 1989; Plann 1985; Berman 1990; Lahiri 1991, 2002; George 2011; Spector & Egré (forthcoming), among others).

Certain predicates can embed interrogative clauses. Both polar and constituent interrogatives can be embedded. Embedded interrogatives differ from matrix interrogatives in a number of ways. The first distinction is that while matrix interrogatives are information-seeking, embedded ones are not[26, 27]. This distinction might be attributed to the presence of an interrogative force that takes scope over the entire matrix clause in matrix interrogatives as opposed to the lack of it in embedded interrogatives. Certain syntactic differences are also present between the two types of interrogatives (see subsection 2.1.1.3). In English, a language where there is obligatory movement of the wh-item to the left periphery, matrix interrogatives require do-support and subject-auxiliary inversion (26) while embedded interrogatives prohibit it (27).

(26) What$_i$ *did* you have t_i for lunch?

(27) *I know what$_i$ *did* you have t_i for lunch.

While these straightforward examples show us a clear paradigmatic boundary between matrix and embedded interrogatives in English, we shall see that in sign languages the surface differences between the two may not be that transparent and

[26] Except cases where indirect questions are pragmatically used to elicit information from the addressee. Such as "**A:** I don't remember **[where I put my keys]**. **B:** They are in the cupboard.". See section 2.1.1.2.

[27] As mentioned earlier in this chapter (see Section 2.1.1.3), embedded wh-items in surface syntax may take matrix scope. Those constructions will not be addressed in this study.

might lead one to believe that embedded interrogatives do not exist in sign languages at all given that sign languages lack the indicators of question embedding that are at the disposal of spoken languages. However, we shall see that sign languages employ distinct means to differentiate between the two types of interrogatives.

2.2.2 Complexity in sign languages

Complexity, just like in any natural language, is also a part of sign languages. The discussion whether clausal complementation is an inherent part of sign languages, too or not finds its roots in studies on ASL. Especially after Thompson (1977)'s claim that ASL does not employ any grammatical means to achieve syntactic embedding and therefore lacks recursion, sign linguists began to look for indicators of subordination other than those that have been put forth for spoken languages such as overt complementizers and verbal morphology.

2.2.2.1 Indicators of complexity in sign languages

In their quest to prove the presence of subordination in ASL, Liddell (1980) and Padden (1988) pointed out the following sign language-peculiar tests: the scope of negation, the spreading domains of nonmanual markers, focus doubling, topicalization and matrix subject pronoun copy. Liddell and Padden's works showed that the manual component of sign languages is rather barren in terms of providing evidence for subordination and that one should shift attention towards the non-manual component in order to better grasp the properties of subordination in sign languages. Their findings paved the way to and supported further research in this

area on other sign languages such as Hong Kong Sign Language (HKSL) (Tang & Lau, 2012), LSB (Nunes & Quadros, 2006), Sign Language of the Netherlands (NGT) (van Gijn, 2004) and TİD (Göksel & Kelepir, in press), among others. I will show some of the tests Göksel and Kelepir used in more depth in the following section where I present the studies on complexity in TİD to this day.

In ASL, the sentence-final copy of a subject pronoun in a complex structure can refer to the subject of the matrix clause (28), whereas the sentence-final copy in a coordinated structure will only refer to the subject of the second clause (29):

Subordination:

(28) IX-1 DECIDE [IX-a SHOULD a-DRIVE-b SEE CHILDREN] **IX-1**

I decided he ought to drive over to see his children, I did.

Coordination:

(29) [IX-a SIT-a] [IX-b STAND-b **IX-*a/b]**

*He sat there and she stood there, she/*he did.*

Data taken from Padden (1988), Ch. 3 – ASL

In a similar fashion, the spreading domain of the nonmanual marker associated with negation is considered to be an indicator of subordination:

_____neg

(30) IX-1 WANT [IX-a GO AWAY]

It's not the case that I wanted him to leave.

Data taken from Padden (1988), Ch. 3 – ASL

Tang & Lau (2012) discuss some tests to distinguish subordination from coordination. For instance, they show that extraction of a constituent from either the first or the second conjunct in topicalization (31) and wh-extraction is prohibited, whereas extraction (32) is allowed in subordination.

Coordination:

_____t

(31) *[COOKING$_i$ FIRST GROUP RESPONSIBLE t_i], [SECOND GROUP RESPONSIBLE DESIGN GAME]

Data taken from Tang & Lau (2012), ex. (12b) – HKSL

Subordination:

(32) [[WHO BOY]$_i$ IX-a [WANT a-VISIT-b t_i]] ?

Who does the boy want to visit?

Data taken from van Gijn (2004), Ch. 6 ex. (3a) – NGT

Other tests include gapping, spread of nonmanuals in sentential complementation and scope of yes/no questions. For more detailed discussions in complexity in sign languages and its indicators see van Gijn (2004), Tang & Lau (2012) and Branchini & Kelepir (to appear).

2.2.2.2 Complexity and matrix word order

Several sign languages have been studied with respect to their underlying word order and what mechanisms are at work behind determining the orders that surface. This

section, however, will only present studies on how complexity affects word order. For discussions on basic word order in sign languages see Leeson & Saeed (2012).

Geraci et al. (2008) claim that center embedded complement clauses (yielding SOV order) in LIS are prohibited[28] even though the basic word order in LIS is SOV (see Geraci & Aristodemo, 2014) and they attribute this restriction to processing difficulties. Even though DP complements can occur in the canonical center embedded position, CP complements must avoid an SOV configuration. However, following Quer (2013)'s work on Catalan Sign Language (LSC), Geraci & Aristodemo (2014) show that center embedding of sentential complements in LIS becomes possible under certain circumstances, i.e. role shift, spatial agreement and use of null pronouns.

The effect on complexity on word order has also been observed in TİD. Although the canonical word order in TİD is claimed to be SOV (Açan 2001; Sevinç 2006; Zeshan 2003, 2005; Kubuş 2008 and Gökgöz 2009 as cited in Göksel & Kelepir, in press) Göksel & Kelepir (in press) have identified complement-verb order asymmetries in TİD, which will be addressed in more detail later in the next section.

2.2.3 Complexity in Turkish Sign Language

Complex structures in Turkish Sign Language have been studied by Kubuş (2011, 2013), Kubuş & Rathmann (2011) and Göksel & Kelepir (in press). These studies have been pivotal sources for my research in demarcating the extent of embedded constituent interrogatives and understanding their nature in Turkish Sign Language.

[28] They observe that control structures are an exception.

Kubuş (2011, 2013) and Kubuş & Rathmann (2011) study relative clauses in Turkish Sign Language, a form of complex structures embedded under a head noun. In contrast, Göksel & Kelepir (in press) study clausal complementation in TİD and provide various tests in order to determine the properties of complex structures in the language. The following subsections are dedicated to presenting these two lines of research in more detail.

2.2.3.1 Relative clauses in Turkish Sign Language

The working definition of relative clauses that Kubuş (2011) uses is that relative clauses are subordinate clauses where there is a direct link between an element in the relative clause and in the matrix (de Vries 2002). According to this definition, what distinguishes relative clause constructions from the other type of subordination such as clausal complementation, is that clausal complements are directly linked to the matrix clause whereas relative clauses require a semantic pivot under which they will be embedded.

Kubuş's findings show that restrictive relative clauses in TİD are optionally marked by a relative pronoun in the form of a pointing that co-occurs with raised eyebrows and might be accompanied with mouthing /o/. As for other nonmanual markings, he notes tensed upper lip and cheeks, and non-neutral brow position. With regards to headedness, 67 restrictive relative clauses out of 79 in his data are internally-headed (as exemplified in (33)) and 12 are free relatives.

Internally-headed relative clause in TİD:

(33) [[$_{NP}$ SECOND THIRD] MARRIED MARRIED SAME] PROREL VISIT CHAT

Second and third woman, both of whom are married, were chatting.

Data adapted from Kubuş (2011) p. 29 – TİD

The form of free relatives in TİD are particularly important to my discussion in that they support my findings with regards to the existence of an authentic interrogative embedding mechanism in TİD (see Section 4.3). Free relatives in some languages such as English superficially resemble interrogative complements (Bresnan & Grimshaw 1978):

(34) I'll buy [$_{NP}$ what [$_{S}$ you are selling [pro]]].

(35) I know [$_{CP}$ what$_i$ [you had t_i for lunch]].

The first example above resembles a wh-complement in that the surface string of constituents match identically with that of the second example. However, while the second example illustrates a CP complement, the first illustrates an NP complement, resulting in different derivational patterns. Although in some cases the nuances between the two complex structures might be difficult to interpret, certain syntactic and semantic tests show the existence of both constructions in human language. The semantics of the verb, *know* in this particular case (35), requires a proposition[29], whereas you cannot *buy* a proposition (34). What you buy has to be an item, an item expressed in the form of a NP with a free relative clause, in this case.

[29] For the sake of the argumentation, I will refer to this wh-complement as *proposition* here.

As for TİD, wh-words are not used as relative pronouns and therefore embedded clauses that contain a wh-word might not readily be identified as free relatives[30].

Wh-complement in TİD:

(36) IX-2 [EXAM PASS WHO] FIND-OUT

Did you find out who passed the exam?

The example in (36) illustrates a constituent interrogative embedded as the complement of the main verb FIND-OUT. FIND-OUT in TİD is an embedding verb which can either take a that-complement or a wh-complement. In this example, which is a matrix polar question, the embedded wh-item WHO is interpreted in the embedded context, yielding a wh-complement. We know that this is probably not a free relative because the use of wh-items for relativization has not been attested in TİD so far. This issue will be addressed in more detail in Chapter 4.

2.2.3.2 Clausal complementation in Turkish Sign Language

A second aspect of complexity in TİD, namely clausal complementation, has been studied by Göksel & Kelepir (in press). According to their analysis TİD clearly exhibits clausal complementation and they show this by utilizing a number of diagnostics:

(i) Verb-complement order asymmetries

(ii) Availability of subject pronoun copy

(iii) Negation

(iv) Embedded question phrases taking matrix scope

(v) Lexical non-manual marker spreading over the complement clause

(vi) A single prosodic marker spreading over the whole complex clause

(vii) Absence of prosodic boundary markers of independent clauses and coordination at the complement clause boundary

In this section, I will highlight their observations that are directly supported by the results of my tests and in return that support my findings (see Chapter 5).

With regards to verb-complement order asymmetries, they observe that TİD embedding verbs fall into two groups with regards to their matrix word order preference and argue that this distinction is one of the indicators of clausal complexity in TİD. Their consultants prefer an SOV order with their WANT-type verbs (37), which is the canonical word order in TİD (See section 2.2.2.2) and do not find the SVO order grammatical (38).

WANT-type verb (SOV order):

(37) ELA_k IX_k [GOOD SCHOOL GO] MUCH WANT

Ela wants to go to a good school very much.

**WANT-type verb (SVO order):*

(38) *ELA_k IX_k WANT [GOOD SCHOOL GO]

Data adapted from Göksel & Kelepir (in press) pp. 3-4, ex. (2a), (3) – TİD

The second group of verbs, which they call KNOW-type verbs[31], show a less strict word order preference, therefore both SVO (39) and SOV (40) orders are found acceptable by different groups of consultants.

KNOW-type verb (SVO order):

(39) HASAN KNOW [ELİF HORSE.RIDE WORK SUCCEED WORK SUCCEED]

Hasan knows that Elif is working and succeeding at horseback riding.

Data adapted from Göksel & Kelepir (in press) p. 4, ex. (6a) – TİD

KNOW-type verb (SOV order):

(40) IX_k TWICE MARRY IX-1 KNOW^NOT

I did not know that she got maried twice.

Data adapted from Göksel & Kelepir (in press) p. 5, ex. (8a) – TİD

Göksel and Kelepir argue that sentences like that in (40) cannot be considered straightforward cases of OV structures. The main verb is preceded by a pronoun co-indexed with the main subject, therefore, the object is separated from the main verb by the (subject) pronoun in the surface order. They conjecture that the clausal complement in cases like this might have topicalized to the clause-initial position.

Another test they use in order to show complexity in TİD is that put forth by Padden (1988), namely *subject pronoun copy*. This is a straightforward test in that it

[31] Apart from the two word orders illustrated in examples (39) and (40), verbs such as KNOW and FORGET are also found in WANT-type constructions (SOV order). The following is adapted from Göksel & Kelepir (in press) p. 4, ex. (7):

[IX1POSS SISTER]k IXk CAR DRIVE KNOW^NOT
My sister does not know how to drive a car.

The verb KNOW above is used to mean "to know how to", therefore, Göksel and Kelepir argue that this use of KNOW, in fact, patterns with that of WANT-type verbs.

clearly shows embedding by the presence of a pronominal index sign that is coreferential with the matrix subject. The important thing to take into consideration here is that the matrix subject and its coreferential pronoun copy are separated by the embedded clause. Nevertheless, the copied pronoun takes its reference from the matrix subject. In Göksel & Kelepir (in press)'s data, subject pronoun copy can occur at the end of WANT-type clauses (41) as opposed to KNOW-type clauses, where sentence final subject pronoun copy is generally found unacceptable (42b) and expected before the matrix verb (42a).

WANT-type verb:

(41) $[IX_{1POSS}$ SON$]_k$ IX_k SWIM MUCH LIKE IX_k

My son likes to swim/swimming very much.

KNOW-type verb:

(42) a. ALİ$_k$ IX_k IX-1 UNIVERSITY WORK IX_k KNOW

b. */? ALİ$_k$ IX_k IX-1 UNIVERSITY WORK KNOW IX_k

Ali knows that I am working at the university

Data taken from Göksel & Kelepir (in press) pp. 5-6, ex. (11d), (12a), (12b) – TİD

Göksel and Kelepir consider the asymmetry in the grammatical positions of the subject pronoun copy an illustration of the differences between WANT-type verbs and KNOW-type verbs in TİD, therefore this asymmetry an indicator of complexity in TİD.

The availability of interpreting embedded question phrases with matrix scope, they argue, is another indication of complexity. Göksel and Kelepir's data show that although wh-phrases in TİD do not obligatorily undergo overt movement to a

designated peripheral matrix node, the possibility to interpret wh-phrases with matrix scope, which are found in situ in complement clauses, indicates complexity, which otherwise could not have been the case if the two consecutive clauses were coordinated.

(43) IX-2 [WHO ELECTION WIN] GUESS IX-2

Who do you guess will win the election?

Data adapted from Göksel & Kelepir (in press) pp.10, ex. (20) – TİD

The wh-item WHO in the clausal complement of the sentence in (43) takes matrix scope. Recall from Section 2.2.2.1 that wh-extraction from one of two adjacent clauses is considered to be an indicator of complexity. Although the wh-item is not overtly extracted to a matrix node, example (43) is an information seeking interrogative, which means that the wh-item is interpreted in the root clause. In my study, I will not discuss matrix scope-taking embedded wh-items but my observations on embedded wh-items that are interpreted in the embedded clause will surely shed some light upon complex constituent interrogatives.

2.2.4 Subcategorizational and selectional properties of embedding predicates

Grimshaw (1979) puts forth a two-variable mechanism for sentential complementation in languages and bases her argumentation on examples from English. Unlike previous analyses where sentential embedding was merely seen as dependent on syntax, i.e. on the subcategorizational features of verbs, Grimshaw's analysis adds a second layer of filtering, i.e. complement selection. According to her

analysis, while syntactic subcategorization filters out an NP or a PP as a potential complement for a verb like *know* and only allows for an S(entence), semantic selection decides whether what *know* will take as an S-complement will be a P(roposition), a Q(uestion) or an E(xclamation). Her insightful argumentation accounts for English sentential embedding data but because it treats the wh-complements that KNOW-type verbs and ASK-type verbs take equally, that is Q, it falls short of explaining semantic asymmetries that emerge between wh-complements of KNOW-type verbs and ASK-type verbs, which I will turn to below.

2.2.5 Semantics of question embedding

Several studies give the center stage to the semantics of interrogative embedding and most of the discussion revolves around the observation that predicates of the KNOW-type such as *realize, forget, tell, guess*, etc. differ from predicates of the ASK-type such as *ask, investigate, wonder*, etc. in semantic and syntactic terms with respect to their interrogative complements. Berman (1990) argues that the interrogative complements of KNOW-type verbs differ from the interrogative complements of ASK-type verbs in that while the former class denotes *propositions*, the latter class denotes *questions*. One evidence for this observation comes from the Quantificational Variability Effect (henceforth QVE) (Hintikka 1976; Berman 1990, 1991).

In Hintikka and Berman's view, embedded interrogatives act as open sentences, in other words, embedded wh-phrases are considered to be variables. Their analyses of embedded interrogatives are in line with the treatment of indefinites in classical Discourse Representation Theory (henceforth DRT) (Lewis

1975, Kamp 1981, Heim 1982). In DRT, indefinites are analyzed as variables because they take their quantificational force from adverbs of quantification (44), if present. In the absence of an overt adverb of quantification (45), however, indefinites will take their quantificational force from the default adverb of quantification, the generic operator.

(44) A mother cat rarely eats its kitten.

Few x [mother cat(x)][x eats x's kitten]

(45) A man provides for his family.

Gen_x[man(x)][x provides for x's family]

Berman (1991) argues that interrogative clauses that are embedded under factive verbs (or others that can be used factively) illustrate the same quantificational variability that indefinites demonstrate. However, non-factive verbs such as *wonder, ask, inquire*, etc. do not show QVE. In order to illustrate the semantic asymmetry between these two types of interrogative complement taking predicates, consider the following examples:

(46) My mother found out, for the most part, who I dated in high school.

most x [I dated x in high school][my mother found out that I dated x in high school]

In the example above, *for the most part* acts as the quantifier, [my mother found out that I dated x in high school] corresponds to the nuclear scope of the tripartite structure, and [I dated x in high school] is the restrictor of the quantificational operator[32]. In simple terms, this sentence means that the mother of

[32] For a more detailed discussion on how the restrictor is derived from *presupposition accommodation* (Stalnaker 1973, Karttunen 1974, Lewis 1979) in the tripartite representation of embedded interrogatives see Berman (1990).

the speaker knows the identity of most of the lovers of the speaker in high school, but not all. If the matrix verb were of ASK-type, Berman claims, the same tripartite structure could not have been derived:

(47) My dad mostly wonders who I dated in high school.

#most x [I dated x in high school][my wonders whether I dated x in high school]

Example (47) is a salient sentence if interpreted correctly, that is, the speaker's father spends most of his time wondering who the speaker dated in high school. However, it cannot mean that most lovers that the speaker dated in high school are such that the speaker's father wonders whether the speaker dated them.

The first example (46) illustrates a constituent interrogative complement embedded under a KNOW-type verb, and the second (47) the same complement embedded under an ASK-type verb. Berman (1991) claims, in order to explain this semantic discrepancy, that the wh-complements of ASK-type verbs are syntactically different from those of KNOW-type verbs in that wh-complements of ASK-type verbs have a phonologically null Q-morpheme in their CP that unselectively binds all free variables in its scope, leaving no variable in the embedded interrogative for the quantifier in the matrix clause to bind, that is, *mostly* in this case:

(48) ... wonder [[Q_i][I dated x_i in high school]]

From this, it follows that the interrogative complements of ASK-type verbs are actually *questions* and not open *propositions*. This discrepancy in the interpretation of these two seemingly identical interrogative complements is therefore attributed to a distinction in the semantic class of the complements these predicates take which is reflected in their syntactic structure as well. For an

alternative account which treats both wh-complements uniformly and claims that the distinction stems from the way sentences containing these two classes of verbs are interpreted, see Lahiri (2002)[33]. In Chapter 6, we shall see that TİD shows QVE with KNOW-type verbs, but not with ASK-type verbs.

The same phenomenon has been studied by Groenendijk & Stokhof (1982, 1984), too. They attribute the semantic and syntactic differences between these two types of verbs to Frege (1892)'s *Sinn und Bedeutung* (Sense and Reference[34]). According to Frege, *reference* is the actual object that a linguistic expression refers to, whereas *sense* is the mode of representation of a referent. Groenendijk and Stokhof, following this discrepancy, postulate that KNOW-type verbs are *extensional*, that is, KNOW-type verbs care only about the answer to the question their wh-complements denote. ASK-type verbs on the other hand are *intensional*, they care about the question itself, the question that their wh-complements express. Further on the topic, Spector & Egré (forthcoming) claim that the wh-complements of KNOW-type verbs do not denote *the* answer to the question but *an* answer, meaning that any answer from the set of possible answers in a given context to the question a wh-complement of a KNOW-type verb denotes will be satisfactory.

Davidson & Caponigro (to appear) study embedded polar interrogatives in ASL and show that these structures show different grammatical patterns with respect to the type of matrix predicate they are embedded under.

We shall see that TİD distinguishes between those two types of wh-complements with regards to their prosodic properties. While wh-complements of

[33] For the purposes of this thesis, I will not discuss whether the distinction between these two types of structures with regards to quantification, stems from a difference in the type of complements or a difference in the type of matrix verbs.
[34] Or Sense and Denotation, or Intension and Extension.

ASK-type verbs are marked with Göksel and Kelepir (2013)'s Q-morpheme (i.e. HEAD BACKWARD), those of KNOW-type verbs are not.

2.3 Agreement verbs in sign languages

A final point regarding the argumentation in Section 5.1.1.3 is agreement verbs in sign languages. Agreement can be realized as single agreement or double agreement depending on the verb type. In simple terms, agreement is a spatial means in the form of a movement path in the signing space to mark entities with regards to their thematic roles or the syntactic positions they occupy depending on the sign language (see Meir 2002 for a more detailed description). The following illustrates a case of agreement in my data TİD:

(49) [GIRL HALE[35]]$_a$ POSS-1 FOR [WHICH HIGH^SCHOOL STUDY] BILGE$_b$
a-ASK-b

Hale asks Bilge which high school I attended.

ASK is a double agreement verb in TİD[36]. The signer signs the verb ASK between two loci (a and b in this case) in the signing space which are established beforehand for entities/persons, so as to indicate who asked the question to whom. In Chapter 5 we shall see that, agreement does not only take place between the asker and the askee but cases of agreement between the asker and the person who the question is about is also present in TİD.

[35] The names of the consultants in the examples have been changed.
[36] Single agreement cases are present, too. In that case, the verb agrees with the indirect object only.

CHAPTER 3

DATA COLLECTION PROCEDURE AND METHODOLOGY

In this chapter, I present the research methods as well as the software and hardware I used in putting together this study. I also introduce the profile of the consultants who provided the data and shared their judgments with respect to the grammaticality of semi-constructed sentences.

3.1 Consultant profiles

In this study, I collected data from, scanned the discourse of and asked for grammaticality judgments from a total of 18 native deaf consultants, 1 native hard of hearing Turkish-TİD bilingual interpreter and 2 native deaf research assistants. The interpreter and the deaf research assistants are female, aged between 26 and 35 during the time of data collection and living in Istanbul, actively involved in the deaf community. As for the consultants, 12 are female, aged between 20 and 55, 6 are male, aged between 22 and 58, all of which are active members of the deaf community, living in Istanbul. All interpreters and consultans acquired TİD before the age of 5.

3.2 Datasets and elicitation methods

There are 3 datasets in this work, the first dataset consists of naturalistic utterances of deaf consultants which were collected during several other data collection sessions by other researchers conducted throughout TÜBİTAK project number 111K314.

(i) Naturalistic Data

I scanned the transcriptions of 7 hours of naturalistic data of 11 consultants from the recordings of a number of other research projects in order to find wh-complements. In this dataset there are constructions that can potentially be considered to contain embedded questions. Consider the following example:

(50) PICTURE$_a$ IX-a WHAT THERE.IS IX-1 KNOW^NOT

I don't know what is in the picture.

This dataset consists mostly of task explanations by interpreters directed at our consultants, recordings of conversations of consultants about their daily life activities such as what they did during holidays, the wedding ceremony of a friend, the difficulties of being a deaf member in the greater community, and discussions on news items. Most of the data that came from scanning these videos and their transcriptions contain verbs such as ASK and TELL whose complements are in direct speech, while some matrix verbs are KNOW, DON'T^KNOW. Therefore, given the restricted pragmatic environment, I designed a task which would help me to elicit data in indirect speech.

(ii) Elicitation of indirect speech

I designed a two-step task which consisted of the interaction of three consultants. During the first step of one such task, a consultant A asked a consultant B personal questions about a third consultant C in his/her absence (51a). Consultant

B was required to answer these questions to the best of his/her knowledge[37] (51b). During the second step, consultant C entered the laboratory and was asked to watch the questions of consultant A about himself/herself one by one and report to our TİD-Turkish bilingual interpreter. Consultants C, in a number of elicitation sessions, reported questions about themselves either in direct speech (51d) or in indirect speech (51e):

(51) a. Cons. A: C WHERE LIVE

Where does C live?

b. Cons. B: KNOW^NOT.

I don't know.

c. Interpreter: A WHAT SAY

What does A say?

d. Cons. C: A $_{A}$ASK$_{B}$ C WHERE LIVE

A asks B: "Where does C live?"

e. Cons C: A IX-1 WHERE LIVE B $_{A}$ASK$_{B}$

A asks B where I live.

The examples above represent a typical indirect wh-complement elicitation session. The third consultant (C) basically watches the pre-recorded videos of consultants A and B while they are asking questions about C and later C is asked by the interpreter to report what C sees in the video. I shall discuss the case of reference shift in the following chapter, but for now suffice it to say that I take cases where reference shift is absent (where the signer refers to himself/herself as IX-1 (50e)

[37] These answers, since they did not contain any wh-item were not related to my research here.

instead of using direct quotation and signing his/her own name (50d)) as genuine embedding of indirect wh-complements.

(iii) Elicitation of wh-complements embedded under verbs of retaining knowledge:

This step consisted of three sub-steps: (i) a set of data depicting wh-complements embedded under verbs of retaining knowledge (KNOW-type verbs) was elicited by giving our 3 bilingual interpreters/research assistants 12 carefully set up contexts that they are familiar with (friends, nannies, spouses and their children) and (ii) these two data sets containing verbs of retaining knowledge (set A) and inquisitive verbs (set B) were adjusted with respect to (a) the relative position of the matrix wh-complement to the matrix V, (b) the presence or absence of a matrix pronoun copy and its position in the sentence with respect to the matrix V and (c) the position of the wh-item in the embedded clause as well as the possibility of duplicating[38] it. (iii) A grammaticality judgment test was conducted with both ASK-type verbs and KNOW-type verbs with the data shuffled and blended with a number of fillers among them. There was a total of 99 sentences including those which were considered ungrammatical by our interpreters. 13 native deaf consultants were asked to rate the sentences on a scale from 1 to 5. The mean is presented throughout the thesis below each example that came as a result of that test. It is crucial to note here that the indirect discourse data elicitation procedure was explained to the consultants who provided their judgment, in order to by pass any problem that might occur if they confused the referents of indexical pronouns.

[38] Refer to Chapter 2 for wh-doubles.

3.3 Hardware and Software

The data was collected using three SONY Handycams, recorded in 1080p HD format and shot from three different perspectives in order to understand their prosodic properties better. The collected data were then transferred to Cloud Storage units, converted into the research-friendly and executable .mov format on Adobe Premiere CS6 and Media Encoder CS6.

The data that were found grammatical by our consultants (all sentences that received a mean between 4.00 and 5.00), were than analyzed on VLC Media Player and Microsoft Word, and some on ELAN in order to document their nonmanual properties. The sequences of images provided throughout the study are cropped and sequenced in Adobe Photoshop CS6.

CHAPTER 4

INQUIRY: HOW TO SEARCH FOR WH-COMPLEMENTS IN TİD?

Before I start to describe wh-complements in the following chapter, here I would like to present evidence in favor of the existence of wh-complements in TİD. I will show that wh-complements are an integral part of the sentential embedding paradigm in the language, that is clauses with alleged wh-complements are indeed complex structures. Since some of the argumentation I will present here actually constitutes the description of wh-complements, they will be addressed in more detail in Chapter 5.

4.1 Complexity in TİD and reference shift

One of the major arguments in determining whether wh-complements are part of the embedding paradigm in TİD comes from the availability of other types of sentential embedding in the language.

Göksel & Kelepir (in press) have shown the existence of complex structures in TİD (see Chapter 2) through a number of tests including subject pronoun copy, matrix object-verb order asymmetries, the spreading domain of certain nonmanual markers and so on. Another type of complex structure, that is relative clause constructions, is also attested in the language (Kubuş (2011, 2013) and Kubuş & Rathmann (2011)). Therefore, TİD has every means to allow and exert its resources in forming complex structures.

However, the major challenge during the first steps of the inquiry in this thesis in determining whether adjacent pairs of verb-interrogative clause are indeed complex structures or not stemmed from a doubt whether those adjacent strings of

utterances were in a subordination relation or not. Most of the data I collected by scanning the transcriptions and recordings I had at hand prior to specific data elicitation tasks were strings of verb of saying-interrogative clause pairs. And most of the time, the pronominal indexicals in interrogative clauses did not reveal much about their complexity status, that is, either the indexicals were missing altogether or they were quoted from the original utterance. Dixon (2006), in his typological work on complementation, indicates that some languages only employ direct speech (52a) in order to report/quote an utterance, while some others may employ indirect speech[39] (52b) as well.

(52) a. John$_i$ promised: "I$_i$'ll go."

b. John$_i$ promised (that) he$_i$ would go.

Examples adapted from Dixon (2006), p. 10

In (52a), the first person pronoun *I* in the quoted utterance does not refer to the speaker who utters the whole sentence, but to John. Therefore the first person pronoun's reference, although it is uttered by the person who reports a sentence of John, has shifted from the typical referent of the first person (i.e. the speaker) to John, the person who the speaker quotes. Conversely, in (52b) the embedded subject pronoun *he* also refers to John, however this time the form of the pronoun overlaps with the the person it refers to, that is, third person singular. In this thesis, I will give the center stage to clausal wh-complements whose embedded subjects lack reference shift, as in the embedded pronoun in (52b).

Dixon (2006) argues that direct speech should not be regarded as a complementation strategy. This implies that quoted utterances are not embedded.

[39] He reports Goemai is an exception in that it only allows indirect speech.

The situation in sign languages with regards to the embedded status of quoted utterances shows differerent accounts depending on researchers. Lillo-Martin (1995) argues that in ASL quoted materials are embedded, that is, they are complements of a verb of communication in their vicinity. She claims that the clausal complement is in the form of an intermediary CP and that CP's specifier hosts a point of view predicate (POV) (for a detailed report on other sign languages see Lillo-Martin (2012)). Kelepir & Göksel (2013) hold the view that in TİD the relation between SAY and its complement may be of a syntactic nature rather than a semantic one. Whether direct quotation is embedded or not still remains a question since such material lacks some of the obvious indicators of embedding. However, I would like to leave this discussion here and the question whether directly quoted material is embedded or not and shift the spotlight on constructions that actually show indicators of embedding. However, I would like to note that in this study I will present my observations on quoted utterances, too.

The first phenomenon that I take as an indicator of question embedding is the possible lack of reference shift in reported interrogative clauses, because the absence of reference shift indicates indirect speech, that is, all indexicals refer to current discourse referents and not to those of the reported discourse. Reference shift and shifted indexicals constitute a broad area of research in both signed and spoken language semantics (Zucchi 2004; Quer 2005, 2011; Lillo-Martin 1995, 2012; Kaplan 1989; Schlenker 2003 and Anand & Nevins 2004 as cited in Göksel & Kelepir (2013)). In signed languages reference shift is often discussed with respect to role shift and reported utterances (for detailed descriptions of role shift and reference shift see Lillo-Martin 1995, 2012; Hermann & Steinbach 2011; Quer & Pfau 2010; Padden 1986 and Lillo-Martin 1995 among others). It is assumed that reference shift

occurs in reported direct speech when the signer/speaker uses 1st and 2nd person pronouns to refer to the actual signer/speaker who utter the reported material and the signer's addressee during the reported utterance. Basically, the signer/speaker assumes the point of view of the signer/speaker of the actual utterance and reports accordingly.

The lack of reference shift, then, must result in indirect speech. That is, while reporting an utterance the signer changes the form of the pronouns to fit the referential requirements of the discourse where reporting takes place. In order to determine whether TİD is capable of indirect discourse with ASK, I designed a task which aimed to elicit such cases. The details of this test can be found in Chapter 3. During one such session, a consultant would watch the recording of a discourse between two other signers where one signer asks the other some personal questions about the signer who would later watch their discourse. This signer, after having watched the conversation between the other two, was asked to report the questions about herself to a fourth signer while being recorded. The signer used both direct and indirect discourse while reporting questions. A typical sequence is as follows:

Stimulus:

(53) a. Hale: AYŞE WHEN BORN?

When was Ayşe born?

Report in indirect speech

b. Ayşe: HALE_a IX-3_a BILGE_b a-ASK-b [IX-1 WHEN BORN]

Hale asks Bilge when I was born.

The stimulus contains an overt proper name, i.e. Ayşe, and Ayşe is the consultant who later watches these series of questions about herself and is asked to report them. Although almost half of her responses were in direct discourse, a few times she systematically changed the overt proper name to the first person pronoun [IX-1], yielding indirect discourse. While this was the case, in rare cases of direct speech she supported directly quoted material with a matrix postpositional phrase to emphasize that the overt proper name refers to herself (55):

Stimulus:

(54) Hale: AYŞE WHICH HIGH^SCHOOL STUDY?

Which high school did Ayşe attend?

Report in direct speech

(55) Ayşe: GIRL^HALE$_a$ **[POSS-1 FOR]** [AYŞE WHICH HIGH^SCHOOL STUDY] BILGE$_b$ a-ASK-b

Lit.: *Hale asks Bilge for me: "Which high school did Ayşe attend?".*

Therefore, TİD does allow for clausal wh-complements in indirect speech as identifiable from the referents of the indexicals in context.

4.2 The syntactic distribution of wh-Items

The second piece of evidence in favor of the existence of embedded constituent interrogatives comes from the asymmetry between the different distributional patterns of wh-items in matrix interrogatives and the alleged embedded interrogatives. I observed certain syntactic restrictions with respect to where wh-

items can occur in embedded constituent interrogatives. My findings differ greatly from the description of matrix interrogative clauses (Makaroğlu 2012, İşsever & Makaroğlu 2013 and Göksel & Kelepir 2013), specifically with regards to the grammatical configurations in which wh-items are distributed. This asymmetry in the surface distribution of wh-items, I claim, is an indication of the subordinate status of these interrogative clauses, that is, matrix interrogatives and embedded interrogatives in TİD are distinguished with regards to syntactic patterns associated with the two contexts (matrix and embedded). Otherwise, there is no explanation to this assumption. The properties of this asymmetry, which I claim is an indirect evidence to the subordinate status of the constituent interrogatives in question, will be described in further detail in Chapter 5 and its theoretical implications in Chapter 6. For the purpose of this chapter, suffice it to say that not all wh-configurations found in simplex matrix interrogatives are found grammatical in embedded interrogatives. Consider the following pair:

(56) IX-2 $WHAT_i$ READ $WHAT_i$?

What did you read?

Example (56) adapted from İşsever & Makaroğlu (2013) p. 165 ex. (1d) – TİD

(57) *IX-2 FORGET [IX-DUAL-1 WHEN MARRY WHEN] FORGET

Intended: *You forgot when the two of us got married.*

M: 1.75

İşsever and Makaroğlu's example in (56) shows the phenomenon known as wh-doubling, a commonly observed property in sign languages (see Chapter 2). While wh-doubles in matrix interrogatives are allowed in TİD, example (57) shows

that they are not grammatical in the embedded context. İşsever & Makaroğlu (2013)'s study shows that an in situ – right periphery wh-double construction is grammatical in TİD[40]. However, my data show that although the wh-double configuration in the embedded interrogative is the same as its matrix counterpart in terms of the positions of the duplicates in the embedded CP, the embedded context does not allow it. See Chapter 5 for the description of how wh-items are distributed in embedded interrogatives and Chapter 6 for further discussion on the implications of these non-aligning patterns of wh-distribution in the matrix and embedded environments.

4.3 Wh-complements or free relatives?

This section is dedicated to shedding some light upon why the alleged wh-complements cannot be considered cases of free relative clauses. Free relative clauses superficially resemble clausal wh-complements in some languages. English is an example to that:

(58) I'll buy [**what**$_i$ [you're selling [pro$_i$]]].

Data adapted from Bresnan & Grimshaw (1978) ex. (1).

Relative clause constructions in TİD have been studied in a number of works by Kubuş (2011, 2013) and Kubuş & Rathmann (2011) (see Chapter 2). The properties of relative clause constructions in TİD clearly show that what I identify as wh-complements cannot be free relatives for at least one major reason: TİD does not employ wh-words for relativization (59), unlike what one might think considering

[40] Moreover, they claim that it is the only wh-double configuration available in the language.

examples from other languages that use wh-words for relativization, such as the English example above in (58).

Free/headless relative clause in TİD:

(59) [ENGLISH KNOW] AWARD WIN

The one who knows English very well won the prize.

Data adapted from Kubuş (2011) – TİD

Wh-complement in TİD:

(60) IX-2 [EXAM PASS **WHO**] FIND-OUT**?**

Did you find out who passed the exam?

As can be seen in example (59) TİD free relatives, that is headless relative clauses, do not employ a wh-word, in this case WHO, as a relativization strategy as opposed to the English example in (58). Conversely, as illustrated in example (60) wh-complements differ from free relatives significantly in that there is a wh-word available in them, which then must be attributed to the interrogative nature of these clauses. Therefore, I would like to point out that the constructions under the spotlight are most probably cases of authentic wh-complements, as opposed to free relative constructions. A second evidence to this might come from the selectional properties of main/potentially embedding verbs. If the main verb FIND-OUT in (60) can only select a sentence and never a noun phrase, this further supports my claim that what we are dealing with here are not headless relatives in a NP. While this would provide robust support to my claim, availability of a NP as the complement of FIND-OUT wouldn't make it weaker. FIND-OUT might as well select either a S or a NP as its complement. However, I do not have an answer to this at this point.

In this chapter, I investigated some of the ways in which one can identify clausal wh-complements in a language such as TİD where there is no readily identifiable indicators of interrogative embedding and discussed that the structures in question are indeed clausal wh-complements and not free relative constructions. I now turn to my findings in the following chapter.

CHAPTER 5

PROPERTIES OF WH-COMPLEMENTS IN TİD

This chapter is dedicated to describing the sytactic and prosodic properties of wh-complements in TİD. It will pave the way to the discussions in the following chapter on the implications of my findings to TİD embedded information structure, the prosodic properties of question formation in TİD and TİD's contribution to the general theory on the differing nature of wh-complements with respect to the verbs that they are embedded under. The main properties of TİD wh-complements to be revealed in this chapter are the following: matrix word order preferences with respect to different embedding verb types and the direct/indirect discourse distinction, availability and the position of matrix subject pronoun copy, a peculiar case of verb agreement between discourse participants, embedded word order, i.e. the position of the wh-item in the wh-complement and the lack of embedded wh-doubling. Then, I will present my observations on embedded prosodic properties related to wh-complements in TİD.

5.1 Syntactic properties

In this section, I present my observations in two subsections: matrix phenomena and embedded phenomena. Matrix syntactic phenomena to be presented consist of the position of the wh-complement with respect to the main verb, the availability of a subject pronoun copy and where it can occur, and the properties of agreeing verbs of saying with respect to discourse participants. Embedded phenomena will look into the grammatical configurations in which wh-items in the embedded clause can occur

and compare my observations to the grammatical wh-configurations in the matrix context.

5.1.1 Matrix phenomena

5.1.1.1 The position of the wh-complement in the matrix clause

Recall from Chapter 4 that the underlying word order in TİD has been claimed to be SOV in a number of studies (Açan 2001; Sevinç 2006; Zeshan 2003, 2005; Kubuş 2008; Gökgöz 2009) although other word orders have also been reported to be possible. Göksel & Kelepir (in press) observe matrix verb-clausal complement order asymmetries with different groups of matrix verbs. They call one type WANT-type verbs and the other KNOW-type verbs. While the former type, they report, strongly yields an SOV order; the latter prefers an SVO order. This dual nature of the position of the sentential complement with respect to the matrix verb has also been attested in Italian Sign Language (LIS). Geraci *et al* (2008) report that while control constructions allow for an SOV order, other constructions cannot afford the processing cost of center embedding[41]. In a study by Kelepir & Göksel (2013) on reported utterances in TİD, it has been observed that while verbs of cognition and control verbs have different distributional patterns with respect to the position of the sentential complement in the matrix clause, verbs of saying are flexible in the syntactic configuration of the matrix verb and the reported material. In my study, I observed such asymmetries between different types of verbs, too. In the following,

[41] Later, Geraci & Aristodemo (2014) report new findings on how LIS sentential complements allow center embedded (SOV) sentential complements under certain circumstances.

we shall see that the preferred position of a wh-complement with respect to a verb of retaining knowledge (KNOW, FIND-OUT, etc.) does not pattern with that of a wh-complement in indirect speech with respect to an inquisitive verb (ASK).

My data is in line with Göksel & Kelepir's (in press) observation in that wh-complements embedded under KNOW-type verbs are grammatical when they occur after the main verb, yielding an SVO order (61) and (62):

KNOW-type verb (SVO):

(61) IX-1 KNOW [GÜNAY$_a$ IX-a AYŞE$_b$ a-CHEAT.ON-b WHO]

I know who Günay is cheating on Ayşe with.

M: 4.50[42]

(62) IX-2 FIND-OUT [WHO EXAM PASS]

Did you find out who passed the exam?

M: 4.75

However contrary to Göksel and Kelepir's observation, SOV[43] order has also been found grammatical with KNOW-type verbs:

KNOW-type verb (SOV):

(63) IX-2 [EXAM PASS WHO] FIND-OUT

Did you find out who passed the exam?

M: 5.00

[42] The arithmetic mean of the judgment of consultants on a scale from 1 to 5 is presented under each example, where available.

[43] Göksel and Kelepir note that a group of informants produced structures where the KNOW-type main verb follows its complement. However, their examples contain a pronominal index sign coreferential with the matrix subject in the immediately preverbal position of the matrix verb, splitting the matrix object and the matrix verb. They conjecture that these might be cases of topicalized objects.

Crucially, a different pattern emerges with wh-complements of ASK: wh-complements in indirect speech have only been observed in the SOV order while such a restriction does not seem to be the case with wh-complements in direct discourse.

ASK (SOV) (wh-complement in indirect speech):

(64) GIRL HALE [IX-POSS-1 MOTHER NAME WHAT] BILGE$_a$ ASK-a

Hale asks Bilge what my mother's name is.

M: 4.50

In (64), the reported material is in indirect discourse. While the stimulus was "What is Ayşe's mother name?", the reported utterance is "what my mother's name is". The possessive sign is in first person, who is the actual daughter of the mother under discussion. The matrix word order is SO(IO[44])V. However, I would like to indicate that this is only an observation made so far. Of all the data I collected through scanning transcriptions and specific data elicitation tasks, the only order I found with wh-complements in indirect speech has been the SO(IO)V order. Now, let us consider quoted interrogatives (direct speech):

ASK (SOV) (quoted interrogative) (uttered by Ayşe):

(65) [GIRL HALE]$_a$ [AYŞE WHAT HIGH.SCHOOL GO] BILGE$_b$ a-ASK-b

Hale asks Bilge: "Which high school did Ayşe attend?"

[44] IO: Indirect object, the askee. I will not discuss the indirect object in this study.

ASK (SVOV) (quoted interrogative) (Uttered by Ayşe):

(66) a. [GIRL HALE]$_a$ BILGE$_b$ a-ASK-b [IX-1 FOR] [WHERE BORN] ASK-b

Lit.: *Hale asks Bilge about me: "Where was (she) born?"*

ASK (SVO) (quoted interrogative in imperative[45] construction):

b. IX-2 2-ASK-3 [BUTTERFLY HOW.MANY THERE.IS]

Ask him/her: "How many butterflies are there?"!

In the case of quoted interrogatives, I observed SOV and SVO(V) strings. In (65), it is obvious from the proper name AYŞE that the material is quoted/in direct speech because the signer refers to herself as AYŞE and not with the first person pronoun. Whether the reported interrogative in (66a) is quoted or not is less transparent. However, the stimulus for this question was exactly [WHERE BORN]. The signer who was asking questions about Ayşe, that is Hale, did not utter Ayşe. It was transparent to Bilge, who is the recipient of questions, that Hale was asking a list of questions about Ayşe and eliciting answers from Bilge. The presence of [IX-1 FOR] in (66a) raises some doubt whether [IX-1 FOR] could be the subject of the reported interrogative, which, then, would mean that the reported interrogative is not quoted but in indirect speech. This would also be problematic to my claim that so far indirect wh-complements are observed in SOV order only. The example in (66b) illustrates a naturalistic piece of data, which was collected from the instructions of another task. The matrix sentence is an instruction sentence with matrix SVO order.

[45] See Özsoy et al. (2013) for command constructions in TİD.

Lastly, KNOW-type verbs are found grammatical when repeated[46][47] with a preceding subject pronoun copy, contrasting with Kelepir & Göksel (2013)'s observations on verbs of cognition:

KNOW-type verb (SVOs[48]V):

(67) IX-1 KNOW [GÜNAY$_a$ IX-$_a$ AYŞE$_b$ WHO a-CHEAT.ON-b] IX-1 KNOW

I know who Günay is cheating on Ayşe with.

M: 4.37

To recapitulate, KNOW-type verbs are observed in SOV, SVO and SVOsV orders, while ASK is observed in SOV order if its complement is in indirect discourse and in SOV and SVO(V) orders if its semantic object is a quoted interrogative.

5.1.1.2 Matrix subject pronoun copy

Subject pronoun copies have been widely observed in a number of sign languages and since they come after the object of the root clause, they are considered to be a diagnostic of embedding in sign languages (Liddell 1980; Padden 1988a,b). In ASL, at the end of a sequence of what seems to be two juxtaposed or independent clauses, there might be an index sign which is coreferential with the subject of the first clause (Sandler & Lillo-Martin 2006) (see Section 2.2.2.1). The verb of the first clause is an

[46] The issue of verb doubling is not a concern of this study and will not be addressed in detail.
[47] Note that I do not make any claims regarding the number of clauses in examples where there are two copies of the matrix verb. These might be monoclausal, that is, a single clause might possess two copies of the matrix verb or they might be two separate clauses.
[48] The lower case 's' stands for subject pronoun copy.

embedding verb, that is, it selects a clausal complement. Therefore, these constructions are considered to be complex, rather than juxtaposed/coordinated.

In TİD verbs of retaining knowledge, we do not find subject pronoun copies separated from the main verb. According to Göksel & Kelepir (in press), they are found either following WANT-type matrix verbs or preceding KNOW-type matrix verbs. My data supports their observation on KNOW-type verbs. When there is a subject pronoun copy, it precedes the KNOW-type verb. Consider the following:

SVOsV:

(68) IX-1 KNOW [GÜNAYa IX-3a AYŞEb WHO a-CHEAT.ON-b] IX-1 KNOW

I know who Günay is cheating on Ayşe with.

M: 4.37

I would like to point out here that subject pronoun copy in my KNOW-type data occurs as two copies of matrix SV (68), that is, the SV is present in both clause-initial and clause-final positions. In Göksel & Kelepir (in press)'s KNOW-type subject pronoun copy data, however, the clause-initial S is not followed by the matrix verb, instead it is immediately followed by the clausal complement yielding SOsV order. Moreover, Göksel & Kelepir observe that with KNOW-type verbs matrix subject pronoun copy cannot follow the verb. This observation is supported in my study by the ungrammaticality of (69):

**SVOVs:*

(69) *IX-2 FIND.OUT **[**EXAM PASS WHO**] FIND.OUT IX-2**?

Intended: Did you find out who passed the exam?

M: 1.75

In my data, subject pronoun copy occurred with KNOW-type verbs only, as opposed to ASK-type verbs. However, I should indicate that KNOW and FIND-OUT are not agreeing verbs, whereas ASK is. The subject and the indirect object might be marked with a movement path incorporated into ASK. This means that agreement in ASK might be in complementary distribution with subject pronoun copy. However, subject agreement in ASK is not obligatory either as evidenced by the grammaticality of examples (64) and (66). In the following section, I turn to a special case of agreement I observed with ASK, which, to my knowledge has not been observed so far.

5.1.1.3 A special case of person agreement

Morphological agreement of the main verb with the matrix subject and the indirect object of verbs such as ASK and SAY is quite common in my data. These examples seem to be cases of regular source (asker) to recipient (askee) agreement (see Chapter 2 for background on agreement). However, a peculiar case of agreement which, to my knowledge, has not been attested in TİD up until now has emerged during my recordings.

Normally, for instance with a verb like ASK, agreement occurs with the asker and the askee, thereby the source and the recipient. However, in TİD I observed a type of agreement between the asker and the person that the asker asks questions about. In other words, a signer C who reports the questions of a signer A about himself/herself(C) to a third signer B, may optionally choose to perform agreement from the asker (A) to himself (C), leaving out signer B who is the actual addressee of signer A's question. Consider the following example:

(70) Gizem: ABDULLAH$_a$ IX-a a-ASK-1 [WHERE BORN].

Gizem: Abdullah asks (about me): "Where was (she) born?"

The signer of the sentence in (70), Gizem, signs Abdullah first (the asker) and establishes a locus for him with an indexical (IX-a) in the signing space. Then, she starts to sign the verb ASK, whose form is a selected hooked index finger, starting from the locus of Abdullah and moving to her chest. This might seem to be ambiguous between the following if it were in isolation:

(71) a. Abdullah asks (about me): "Where was (she) born?"

b. Abdullah asks me: "Where was (x) born?"

However, notice that the reported interrogative [WHERE BORN] does not have a pronominal index sign or an overt proper name (70). This might help to disambiguate who the question is about in isolation.

The agreement option seems to be in complementary distribution with another means of disambiguating which discourse participant the question is about, that is, a postpositional adjunct phrase in the matrix clause, that is [IX-POSS-1 FOR] [49,50], which I mentioned in the previous subsection. Signer C may optionally sign [IX-POSS-1 FOR] if signer A asks questions to signer B about signer C. In this case, the agreement will be between signer A and signer B, in contrast to optional A to C agreement which is only possible in the absence of the postpositional phrase. Consider the following:

[49] This is most probably a syntactic borrowing from Turkish. See Göksel & Taşçı (in press) for TİD borrowings from Turkish.

[50] [IX-1 FOR] has also been attested, the possessive index and the pronominal index seem to be in free variation in this case.

(72) GIRL HALE$_a$ BILGE$_b$ a-ASK-b [$_{PP}$ IX-POSS-1 FOR] [WHERE BORN] ASK-b

Lit: *Hale asks Bilge for me: "Where was she born?"*

This peculiar case of agreement and the postpositional phrase surely deserves more research, however, here I would like to conjecture again (see example (66) and the following argumentation) that the examples in (70) and (72) might actually be cases of indirect discourse, with the second end of the agreement verb ASK or the postpositional phrase [IX-POSS-1 FOR] acting as the shifted subject of the reported interrogative – notice that the reported interrogative does not have a pronominal or an overt proper name. This would mean that I should modify my observations on word order preferences with ASK in indirect discourse. It is too early to make such a claim, however, it would have some interesting implications to discussions on reported speech and indexicals if it were the case.

5.1.2 Embedded phenomena: the position of the wh-item

Recall from Chapter 2 that TİD matrix constituent interrogatives are found in four grammatical wh-configurations (Makaroğlu 2012, İşsever & Makaroğlu 2013, Göksel & Kelepir 2013): wh-in-situ, in the left periphery as a phrase, in the right periphery as a head, and in the in situ-right periphery double construction. Interestingly, my consultants found only two of these grammatical in the embedded context: wh-in-situ and in the right periphery. I will discuss the theoretical implications of this matrix vs. embedded asymmetry between constituent interrogatives further in detail in Chapter 6. Before that, I will present the results of

my inquiry regarding the aspects of embedded interrogatives with respect to the distribution of wh-items.

First of all, I would like to point out that I do not make any claims regarding the base positions of the wh-items in the embedded syntactic tree. The labels of the positions I use refer to their positions in the surface order. Secondly, my findings show that there is no distinction between the wh-complements of KNOW-type verbs and those of ASK-type verbs with regards to the distribution of wh-items in each type.

However, positional asymmetry is not the only criterion to take into consideration if one is to claim that the two verb types take syntactically identical wh-complements. I will bring up this issue again after I present a significant prosodic difference between the wh-complements of the two verb types later in this chapter. For the purposes of this section, we can safely proceed with a uniform account in order to describe the wh-complements of both types of verbs with respect to where wh-items can occur.

Let us now turn to my observations on where the wh-item can occur in a wh-complement. The following examples illustrate the grammatical configurations: wh-in-situ (73) and a wh-adjunct in the clause-final position (74), and the ungrammatical configurations: the double construction (75) and an ex situ wh-object in the left periphery (76). In example (77), I present a sentence where the wh-item might seem to be ex situ in the left periphery – however, it is a grammatical in situ wh-subject, as opposed to the clause-initial ex situ wh-object in (76).

Wh-in-situ:

(73) IX-2 FORGET [IX-DUAL-1 WHEN MARRY] FORGET

You forgot when the two of us got married.

M: 4.25

Clause-final wh-adjunct:

(74) IX-1 KNOW [GÜNAYa IX-3a AYŞE$_b$ a-CHEAT.ON-b WHO]

I know who Günay is cheating on Ayşe with.

M: 4.50

**The in situ-right periphery double contruction:*

(75) *IX-2 FORGET [IX-DUAL-1 WHEN MARRY WHEN] FORGET

You forgot when the two of us got married.

M: 1.75

**Left peripheral wh-object (ex situ):*

(76) *IX-2 KNOW [WHAT IX-1 YESTERDAY EVENING EAT] IX-2 KNOW

You know what I ate yesterday evening.

M: 1.62

Clause-initial wh-subject (in situ)

(77) IX-2 FIND.OUT [WHO EXAM PASS]

Did you find out who passed the exam?

M: 4.75

These examples pretty much delineate the syntactic restrictions on the position of the wh-item in embedded questions. It is, therefore, safe to assume that embedded questions have different syntactic properties than matrix simplex questions. Only two out of four possible configurations with regards to the position of the wh-item in matrix simplex questions observed by Makaroğlu (2012), İşsever & Makaroğlu (2013) and Göksel & Kelepir (2013) are reflected in embedded questions. This raises two questions. Why is the left periphery not available? And more crucially why is it the case while embedded clause-final wh-items are grammatical, while the double construction is not? Recall from Chapter 2, Makaroğlu (2012)'s claim that the right peripheral (clause-final) wh-item and the double construction are identical in terms of interpretation, and in terms of syntactic derivation with a minor difference[51]. If this were the case for the embedded context, we would expect to find both the right-periphery wh-configuration and the double construction grammatical. However, while the right-periphery (or more intuitively, the 'clause-final' position) is available, its so-called identical twin double-construction is not. This distributional asymmetry between the matrix and embedded contexts will be addressed in Chapter 6.

5.2 The prosody of wh-complements

In this section, I present my observations on the prosodic properties of wh-complements in TİD. I will support my findings in the previous section with prosodic differences I observe among different wh-configurations in the embedded. I will compare the nonmanual markers associated with constituent interrogatives in TİD

[51] While in the right peripheral single occurrence the copy of the wh-item in the dislocated TP (to the higher Topic-CommentP) gets deleted, in the double construction it stays.

with the nonmanual markers that systematically occur in embedded constituent interrogatives. I will raise the question whether the direct discourse/indirect discourse distinction makes a difference between clausal wh-complements of verbs of communication in terms of prosody. Another crucial question will be brought up: does TİD exhibit different types of wh-complements? This issue will be discussed in Chapter 6.

5.2.1 Embedded nonmanuals

In this section, I present my observations on the nonmanual markers that are systematically found in wh-complements in my TİD data. Following general practice, the spreading domain of these nonmanual markers will be presented as continuous lines that end with the abbreviation of the related nonmanual marker over the glosses.

I observed three nonmanual markers that systematically occur in wh-complements[52]: BROW RAISE (br), HEAD SHAKE (hs) and HEAD BACKWARD (hb). Of these three, we shall see that HEAD BACKWARD behaves significantly different with respect to the other two. I will come to this later in this chapter and in Chapter 6. Let us consider the following example:

			_____br	
		_____hb		
		_____hn	_____hs	_____hn
(78)	$HALE_a$ IX-a $BILGE_b$	a-ASK-b	[IX-1	WHERE WORK] a-ASK-b

Hale asks Bilge where I work.

[52] HEAD NOD (hn) in the matrix verbs will be addressed in the following subsection.

In the example above, we have a wh-complement embedded under the verb ASK. The complement is in indirect discourse and the wh-item is in situ. What we have here is a case of HEAD SHAKE spreading over the wh-item WHERE only and two other nonmanual markers HEAD BACKWARD, spreading over the entire wh-complement, and BROW RAISE spreading over the entire wh-complement except the overt first person subject pronoun [IX-1]. The spreading domains of the nonmanuals in the wh-complement can be seen in the sequence of images below:

(79)

_____hb

_____br

_____hs

[IX-1 WHERE WORK]

In my data, HEAD SHAKE spreads locally over the wh-item only. In Göksel & Kelepir's (2013) data on matrix constituent interrogatives, the spreading domain of HEAD SHAKE may exclude clause-initial constituents which they conjecture might be topics. Following their observations on the spreading domain of HEAD SHAKE coupled with the presence of HEAD BACKWARD over the entire interrogative, they surmise that while HEAD BACKWARD marks the *interrogative*

mood, HEAD SHAKE marks the scope of the wh-operator, therefore they attribute two functions to two different nonmanual markers. Zeshan (2006) reports that HEAD SHAKE may occur without a wh-word, therefore it cannot be a lexical feature of manual question signs (as reported in Göksel & Kelepir, 2013). Zeshan (2006) reports that HEAD SHAKE in TİD spreads over only the wh-item in 22% of her data. The fact that locally spreading (over the wh-item only) HEAD SHAKE is observed in my data, a non-information seeking environment such as wh-complements, may be taken as an indicator that HEAD SHAKE comes attached with the wh-words from the lexicon as a lexical feature[53]. This observation is repeated in the following example:

_____hb _____rht[54]

_____br

_____hs

(80) [WHEN START BUILD] KNOW^NOT

(I) don't know when (they) will start to build (the bridge).

_____hb _____rht

_____br

_____hs

[WHEN START BUILD] KNOW^NOT

[53] This should not mean that HEAD SHAKE exclusively comes attached with wh-items from the lexicon, that is, that HEAD SHAKE is a lexical property of wh-items.

[54] rht: rightward head tilt. This marker probably marks negation. I assumet that, since there is already a HEAD BACKWARD associated with the interrogative nature of the embedded clause, rht acts as negative head tilt in this example.

Recall from Chapter 2 that HEAD BACKWARD has been associated with constituent interrogative clause-typing by Göksel & Kelepir (2013) and it is observed in both (78) and (80), spreading over the entire wh-complement. BROW RAISE, on the other hand, has been systematically observed with polar questions in Makaroğlu (2012) and Gökgöz & Arık (2011). However, the examples in (78) – (80) are clear examples of (embedded) constituent interrogatives and crucially, we do not observe Makaroğlu (2012)'s constituent interrogative clause-typer BROW FURROW at all. I will not make any claims regarding what information structural function BROW RAISE might serve in my data, however, given its different spreading domains in embedded constituent interrogatives I will speculate that it might be an indicator of new information. Notice that while in example (80) BROW RAISE spreads over the entire wh-complement, in (78) the first person pronoun [IX-1] is not contained in its spreading domain. In Chapter 6, I will discuss what implications this observation might have to the TİD embedded information structure.

Göksel & Kelepir (2013) predict that HEAD BACKWARD should be absent in indirect questions[55]. The presence of HEAD BACKWARD in embedded constituent interrogatives in my data is surprising in that the embedded interrogative clauses in (78) and (80) which display HEAD BACKWARD are neither information seeking, nor quoted. The wh-complement in example (78) is a reported interrogative clause in indirect discourse while the one in (80) has nothing to do with reporting an interrogative at all. I will discuss this unexpected presence of HEAD BACKWARD in the embedded context in Chapter 6 coupled with a significant observation that I made, which I will present in Subsection 5.2.4.

[55] More generally, non-information seeking embedded interrogatives.

5.2.2 Does TİD exhibit construction-specific nonmanual markers?

It has been observed in a number of sign languages, including ASL (Petronio & Lillo-Martin 1997, see Section 2.1.5.1), that complex structures are marked with lexical nonmanual markers, that is, every specific verb or group of verbs have lexical nonmanual markers associated with their semantics that might spread over the embedded wh-complement. For instance, in ASL a complex construction with a matrix verb such as WONDER would have spreading head nod[56] and a pondering look on the signer's face spreading over the entire sentence (81), whereas one with a matrix verb such as KNOW would have a repetitive head nod only (82):

Wh-complement embedded under WONDER:

_____hn/ponder

(81) ANN WONDER [WHO LIKE PHILIP]

Ann wonders who likes Philip.

Wh-complement embedded under KNOW

_____hn

(82) I KNOW [YOU LIKE WHO]

I know who you like.

Data adapted from Petronio & Lillo-Martin (1997) ex. (78) and (83) – ASL

These spreading lexical nonmanual markers might as well have been the case for TİD, however, in my data there is a clear prosodic boundary between the matrix

[56] Petronio and Lillo-Martin calls this "head nods".

verb and its complement, marked with a single HEAD NOD. Consider the following examples in TİD with KNOW (83) and ASK (84):

Wh-complement embedded under KNOW:

(83)

		______hn			
IX-1	KNOW	[GÜNAY$_a$ IX-a	AYŞE$_b$ IX-b		
		_____hs		______hn	
		WHO	a-CHEAT.ON-b] IX-1	KNOW	

I know who Günay is cheating on Ayşe with.

Wh-complement embedded under ASK:

(84)

						_____br	
						_____hs	
				_____hn	_____hb		
HALE$_a$ IX-a	BİLGE$_b$		a-ASK-b	[IX-1	WHERE	WORK]	
		_____hn					
		a-ASK-b					

Hale asks Bilge where I work.

In examples (83) and (84) there is single HEAD NOD[57] on the main verbs ASK and KNOW, and on their copies[58], too. Contrastingly, in ASL examples (81)

[57] Gökgöz & Arık (2011) observe HEAD NOD on the right edge of sentences in 14 of their examples out of 96. I am aware that the presence of HEAD NOD on the first copy of matrix verbs might indicate that what we are dealing with in cases of doubled SV constructions might be cases of two independent clauses, however, I will leave the discussion to further research.

and (82) we see spreading head nod/pondering look and spreading head nod only, respectively. In TİD, however, this is not the case. The wh-complement seems to have its own prosodic domain in that its left edge is marked with a single HEAD NOD on the matrix verb to its left and its right edge overlaps with either the right edge of BROW RAISE in KNOW-type constructions or the right edges of BROW RAISE and HEAD BACKWARD in ASK-type verbs[59].

5.2.3 The spreading domains of embedded nonmanuals

In the previous two sections, I presented the nonmanual markers that I systematically observed in wh-complements in TİD, namely HEAD BACKWARD, HEAD SHAKE and BROW RAISE. In this section, I show the direct effect of the position of the wh-item in the embedded interrogative clause on the spreading domain of BROW RAISE. Let us consider the following example (85) and compare it to example (79) repeated here in (86):

			_____br	
	_____hn		_____hs	_____hn
		_____hb		

(85) HALE$_a$ IX-3a BILGE$_b$ a-ASK-b [IX-1 BORN WHEN] a-ASK-b

Hale asks Bilge when I was born.

[58] See footnote 47 for the status of copies of matrix verbs.
[59] I shall come to this prosodic asymmetry in Section 5.2.4.

_____br

_____hs

_____hn _____hb

(86) HALE$_a$ IX-a BİLGE$_b$ a-ASK-b [IX-1 WHERE WORK]

Hale asks Bilge where I work.

The example in (85) illustrates a clause-final wh-item, which, recall from earlier in this chapter, is one of the two grammatical configurations in which an embedded wh-item can occur. The sequence of images in (87) correspond to only the wh-complement itself in example (85):

(87)

_____br

_____hs

_____hb

[IX-1 BORN WHEN]

In this example, we have the same matrix verb ASK taking a wh-complement in indirect discourse. However, the same nonmanual marker which is present in example (86) namely BROW RAISE, does not overlap with the one in example (85)

with regards to its spreading domain. The only difference between the two examples is that the wh-item in (85) is in the clause-final position whereas in (86) the wh-item is in situ. One could argue that, since BROW RAISE spreads only over the wh-item WHEN in (85), the rest of the material in the embedded interrogative, that is [IX-1] and [BORN], might have undergone movement out of the scope of BROW RAISE to an embedded left peripheral position. The same observation stands for [IX-1] in example (86) – it is not marked with BROW RAISE. An information structural implication of this observation will be presented and discussed in Chapter 6. In the following subsection, I turn to a crucial asymmetry between KNOW-type verbs and ASK-type verbs with regards to the presence of HEAD BACKWARD.

5.2.4 A crucial prosodic asymmetry

A crucial observation in my study is that HEAD BACKWARD is not present in every wh-complement, whereas BROW RAISE and HEAD SHAKE are observed in every wh-complement. Consider the example in (88) and the corresponding images of the wh-complement in (89):

				_____br
		_____hn		_____hs
(88)	IX-1	KNOW [GÜNAY$_a$ IX-a AYŞE$_b$ a-CHEAT.ON-b		WHO]

I know who Günay is cheating on Ayşe with.

(89)

_____br

_____hs

[GÜNAY$_a$ AYŞE$_b$ a-CHEAT.ON-b WHO]

---------- IX-a ----------

The main verb in (88) is KNOW, a verb of retaining knowledge[60]. As can be clearly seen, the wh-complement is not marked with HEAD BACKWARD, the signer's face is rather perpendicular to the camera view. In the previous examples where the main embedding verb is ASK, conversely, the nonmanual HEAD BACKWARD is present (example (78) repeated here in (90) and the wh-complement illustrated in (91)):

_____br

_____hb

_____hn _____hs _____hn

(90) HALE$_a$ IX-3a BILGE$_b$ a-ASK-b [IX-1 WHERE WORK] a-ASK-b

Hale asks Bilge where I work.

[60] An *extensional* verb in Groenendijk & Stokhof (1982, 1984)'s terms, or a *responsive* verb in Lahiri (2002)'s terms.

(91)

_____hb

_____br

_____hs

[IX-1 WHERE WORK]

This, I claim, is a difference stemming from the different semantic classes the verbs in question belong in. ASK is a question-reporting, inquisitive verb[61] whereas KNOW is not related to the questionhood of its complement at all. The wh-complement of KNOW can be substituted with a *that*-complement, whereas no such option is present for ASK:

(92) I know **that** Günay is cheating on Ayşe with Merve.

(93) *I asked **that** Günay is cheating on Ayşe with Merve.

Therefore, I would like to suggest that TİD morphologically distinguishes between two types of wh-complements, although they seem to overlap in terms of the grammatical positions in which wh-items can occur. I will discuss the motivation

[61] An *intensional* verb in Groenendijk & Stokhof (1982, 1984)'s terms, or a *rogative* verb in Lahiri (2002)'s terms.

behind this bifurcation in Chapter 6 and discuss an example which might pose a problem to my claim. Moreover, I will provide a piece of evidence from a semantic asymmetry between the two types of wh-complements. At this point, I can conjecture that wh-complements of ASK-type verbs in TİD retain their questionhood and thus have a Q-morpheme in the embedded CP (in the sense of Berman (1991)), therefore they might display a different syntactic representation than the wh-complements of KNOW-type verbs, which are clearly not of the semantic type *question*.

CHAPTER 6

DISCUSSION

In this chapter, I will discuss the theoretical implications of the findings I presented in the previous chapter. This, being the first work on embedded constituent interrogatives in TİD, is predominantly concerned with the description of the construction. However, the comparison of my findings to research on other areas that have direct relevance to question embedding may shed light upon a number of issues in TİD such as the embedded information structure and the cross-linguistic variation in wh-complements.

6.1 Does TİD distinguish between the two types of wh-complements?

Wh-complements, although seemingly identical in many languages, display varying semantic behaviors in a number of languages. This has been very well documented in a large number of studies (Munsat 1986, Lahiri 1991, 2002, Spector & Egré (forthcoming), George (2011), Groenendijk & Stokhof 1982, 1984, 1989, among others). In this study, we shall see that TİD wh-complements do not only subdivide into two groups with respect to their semantics, but the two groups also differ with regards to their prosody/morphology. While a certain type of wh-complements (embedded under ASK-type) bears Göksel & Kelepir (2013)'s Q-morpheme, namely HEAD BACKWARD, the other type (embedded under KNOW-type) does not.

6.1.1 Question intonation

Question intonation in TİD has been studied in two insightful lines of research (see Section 2.1.4.2 for details). Recall that while Makaroğlu (2012) claims that non-neutral brow position (BROW RAISE for polar interrogatives, BROW FURROW for constituent interrogatives) is the clause-typer for matrix interrogative clauses in TİD, Göksel & Kelepir (2013) report that non-neutral brow position does not come up systematically in their data. Instead, their observations reveal another systematic nonmanual marker (HEAD TILT) which has two morphological realizations: HEAD FORWARD and HEAD BACKWARD[62]. According to their study, matrix constituent interrogatives are marked with a combination of the spreading nonmanual markers HEAD BACKWARD and HEAD SHAKE. HEAD SHAKE's spreading domain might exclude clause-initial topics. HEAD BACKWARD, on the other hand, has an identical spreading domain or a greater spreading domain than HEAD SHAKE, that is, it spreads over the entire matrix constituent interrogative. Therefore Göksel & Kelepir (2013) claim that HEAD BACKWARD is the clause-typer of constituent interrogatives.

In my study, constituent interrogatives embedded under ASK-type verbs, crucially even in indirect discourse[63], display Göksel and Kelepir's HEAD BACKWARD (see Section 5.2.4), while the ones embedded under KNOW-type verbs do not. Moreover, Makaroğlu (2012)'s constituent interrogative clause-typer BROW FURROW does not come up at all anywhere in my data. However, I should

[62] Since the parasitic nonmanual marker HEAD SHAKE associated with constituent interrogatives are not crucial to my argumentation here, that is, HEAD SHAKE is present in both types of wh-complements, I will not discuss it here in detail.
[63] Leaving aside quoted interrogatives.

point out that this would be expected since my data consist of embedded interrogatives while his consist of matrix.

What makes ASK-type verbs special is that their wh-complements are indeed actual questions as opposed to the wh-complements of KNOW-type verbs, which denote open sentences (see Section 2.2.5 for discussions on interrogative clauses embedded under different types of verbs). This asymmetry has two outcomes. First of all, it provides support in favor of Göksel and Kelepir (2013)'s claim that HEAD TILT is the clause-typer of interrogatives as opposed to Makaroğlu (2012)'s non-neutral brow position. And second, the Q-morpheme's presence over the wh-complements of ASK-type verbs as opposed to its absence in KNOW-type verbs shows that TİD displays a clear morphosyntactic distinction between the two types of wh-complements that have been in the center of fervent debate in a number of studies (see Section 2.2.5). Recall from Chapter 2 that Berman (1991) distinguishes between the two types of wh-complements in terms of the presence of a silent Q-morpheme in wh-complements embedded under ASK-type verbs, which dominates the entire embedded interrogative, and the absence of it in KNOW-type constructions. My data shows that in TİD embedded constituent interrogatives Berman (1991)'s Q-morpheme (Göksel & Kelepir (2013)'s HEAD BACKWARD in TİD) is not silent at all.

Compare the following examples from my data in (94) and (96) (repeated from the last chapter). The images in (95) and (97) illustrate the matrix sentences:

_____br

_____hb

_____hn _____hs _____hn

(94) HALE$_a$ IX-3a BILGE$_b$ a-ASK-b [IX-1 WHERE WORK] a-ASK-b

Hale asks Bilge where I work.

(95)

_____hn

HALE$_a$ IX-a BİLGEb a-ASK-b

_____br

_____hb

_____hs

[IX-1 WHERE WORK]

_____hn

a-ASK-b

Notice that in the second sequence of images in (95), that is the wh-complement, there is a clear movement of the signer's head to a backward position which spreads throughout the entire embedded interrogative. Now consider the following example:

_____br

_____hn _____hs

(96) IX-1 KNOW [GÜNAY$_a$ IX-a AYŞE$_b$ a-CHEAT.ON-b WHO]

I know who Günay is cheating on Ayşe with.

(97)

_____hn

IX-1 KNOW

_____br

_____hs

[GÜNAY$_a$ AYŞE$_b$ a-CHEAT.ON-b WHO]

As can be seen clearly in the last sequence of images in (97), the HEAD BACKWARD is absent. The signer's face is rather facing forward in a neutral position, as opposed to the backward tilted position in example (94). It is crucial to note that this distinction is observed as a pattern that distinguishes the verbs such as KNOW and FIND-OUT (24 such examples) from others, such as ASK (14 such examples).

We see a similar pattern with another question embedder, WONDER. It patterns with ASK in that the complement it takes displays HEAD BACKWARD.

Although it does not necessarily report an actual, uttered question like ASK, it shows the mental state of the signer/speaker, that is, it reports a question that the signer/speaker has in mind. Therefore, it is no surprise that question intonation is present in the wh-complement of WONDER, too:

_____hs

_____br

_____hb _____lht[64]

(98) [LH-IX WHAT THERE^IS] WONDER

(I) wonder what is there.

(99)

_____hs

_____br

_____hb _____lht

[WHAT THERE^IS] WONDER

----------LH-IX[65]----------

[64] lht: Leftward head tilt.
[65] LH-IX: Left hand (non-dominant hand for this signer) index sign.

As illustrated in the example above, the signer's head tilts backward while signing the wh-complement [WHAT THERE^IS]. After having signed THERE^IS, she starts to sign WONDER. While her head retains the backward tilted position, it tilts leftwards while signing WONDER, which might be stemming from the need to indicate the lexical nonmanual marker associated with the verb. This slight change in the orientation of her head while signing WONDER, I claim, is because the HEAD BACKWARD in the wh-complement does not stem from a spreading nonmanual marker associated with the matrix verb (in this case, WONDER). The embedded wh-complement has its own prosodic/morphological properties independent of the matrix verb. Regardless of whether the verb is ASK or WONDER (or the peculiar case, KNOW^NOT, which I come to in a brief moment) HEAD BACKWARD is present over the entire embedded constituent interrogative, and it would be farfetched to claim that HEAD BACKWARD is the continuation of a spreading nonmanual marker that is a lexical feature of the matrix verb. Although WONDER displays HEAD BACKWARD, ASK does not – and there is a clear prosodic boundary (leftward head tilt) between WONDER and its wh-complement. I would like to point out that the example in (98) is part of a much larger sequence of utterances. Therefore, I would like to rule out any doubts as to what I analyze as a wh-complement in this example might be a direct interrogative aiming to elicit an answer from the interlocutor immediately. I consider the example a case of subordination, which is also evidenced by the presence of an index sign that stays throughout the entire embedded clause and extends into the root clause, pointing at the computer, which is the topic of her utterance.

Now let us consider the second surprising case of nonmanul marking I mentioned earlier. The following example and images in (100), which came from scanning free speech data, might pose a potential problem for the two patterns I presented above. Notice that although the matrix verb is a KNOW-type verb, HEAD BACKWARD in the wh-complement is present:

_____hb _____rht

_____br

_____hs

(100) [WHEN START BUILD] KNOW^NOT

(I) don't know when (they) will start to build (the bridge).

_____hb

_____br

_____hs

[WHEN START BUILD]

_____rht

KNOW^NOT

Despite the fact that the matrix verb in (100) is KNOW, HEAD BACKWARD is present in the wh-complement. Now recall my observation that HEAD BACKWARD is not present in wh-complements of KNOW-type verbs. This example seems to contradict my observation. However, notice that the matrix verb KNOW in (100) is negated. Negating a verb of retaining knowledge such as *know* changes the mood of the predicate, which apparently in TİD results in a change in the type of wh-complement the verb selects. In Spanish, for instance, negating a verb of doubt will result in a change of mood from subjunctive to indicative in the complement of that verb (Jehle et al., 1995). Consider the examples below:

(101) Dudamos que *salgan* bien.

We doubt they'll do well.

(102) No dudamos que *salen* bien.

We don't doubt they'll do well.

Verbs of doubt in Spanish require the embedded verb to be in the subjunctive mood, *salgan* in this case, in subordinate clauses (101) whereas when they are negated they can only take a subordinate clause whose verb is in the indicative mood (102), *salen*. TİD seems to pattern with this tendency in that when a verb of cognition/certainty such as KNOW is negated, its semantic selection shifts from *proposition* to *question*. This might be a case of realis/irrealis distinction. However, for the purposes of this thesis, suffice it to say that different moods require different constructions and leave the discussion here.

Considering the observations I present above, I'd like to claim that TİD morphosyntactically distinguishes between the wh-complements of KNOW-type verbs and those of ASK-type verbs. This approach is significantly different than some other acccounts put forth for embedded interrogatives (cf. Petronio & Lillo-Martin, 1997) in that it draws a distinction between the two types of wh-complement while in other accounts different lexical non-manual markers that occur over wh-complements are presented as a consequence of different types of matrix verbs (see Section 2.1.5.1). In those cases, the lexical nonmanual markers associated with main verbs spread onto the wh-complement starting from the left edge of the verb, that is, in such a case both the main verb and the wh-complement are under the scope of this nonmanual marker (see Göksel & Kelepir (in press) for TİD declarative complements, and Petronio & Lillo-Martin 1997 for ASL wh-complements).

In my data however, the nonmanual marker HEAD BACKWARD, which I associate with ASK-type verbs, exclusively spreads from the left edge of the embedded interrogative clause to its right edge, whereas BROW RAISE's spreading domain seems to depend on the position of the wh-item and HEAD SHAKE locally spreads over only the wh-item. This is in line with my claim that TİD indeed has two

types of wh-complements independent of any lexical nonmanual markers that might be associated with certain matrix verbs. However, I should emphasize that I do not claim that in TİD complement selection does not depend on the type of the matrix verb[66], on the contrary, it is the different types of matrix verbs that select one of the two different types of wh-complements. My study entertains the existence of two separate wh-complement types, rather than a matrix verb-oriented approach where the type of the matrix verb would dictate the interpretation of a bare[67] wh-complement under different semantic environments. This claim will be supported by a semantic peculiarity in TİD, which I present in the following subsection.

Another question that arises is one that concerns the function of HEAD BACKWARD. Göksel & Kelepir (2013) argue that HEAD BACKWARD's function might be to mark the interrogative mood and predict that it would be absent in embedded interrogatives Conversely, in my study I show that HEAD BACKWARD is present in a certain type of embedded interrogative, the one of the semantic type *question*. It might, therefore, very well be the case that HEAD BACKWARD marks the semantic type *question*, rather than the clause type *interrogative*. If it were to mark the clause type interrogative, we would expect to find HEAD BACKWARD in wh-complements of KNOW-type verbs, too, because they are in the form of an interrogative. However, since KNOW-type verbs are declarative embedders, the absence of HEAD BACKWARD in their wh-complements, which possibly are open sentences, does not come as a surprise. The semantic type *question* should not be taken as equal to *information seeking*. In other words, an embedded Q-morpheme, which takes narrow scope dominating a wh-complement, cannot be information

[66] Such an assumption would overgenerate sentences such as affirmative KNOW-type verbs with HEAD BACKWARD marked wh-complements or ASK-type verbs with wh-complements without HEAD BACKWARD.
[67] By "bare" I mean wh-complements without HEAD BACKWARD embedded under either ASK-type or KNOW-type verbs.

seeking. For a Q-morpheme to express information seeking status of a sentence, it should be interpreted in the root clause. As for KNOW-type verbs, their wh-complements do not possess the Q-morpheme at all. This type of wh-complements, although they are in the form of an interrogative, denote *open sentences* with the wh-item acting as a variable. I turn to the semantic behaviors of wh-complements of KNOW-type verbs and ASK-type verbs in the following section.

There is one final point I would like to make regarding the support my study provides to Göksel & Kelepir (2013)'s claim that HEAD TILT marks the interrogative mood/clause-types interrogatives. Further research on embedded polar interrogatives is required in order to make a more concrete claim regarding the clause-typer status of HEAD TILT. If polar interrogatives embedded under ASK-type verbs retain HEAD FORWARD as opposed to polar interrogatives embedded under KNOW-type verbs, this observation would support both claims that HEAD TILT is the clause-typer of interrogatives/marks the interrogative mood and that TİD does indeed distinguish between the two embedded interrogative types.

6.1.2 Modifying wh-complements with adverbs of quantity

The interpretation of the wh-complement of an ASK-type verb differs greatly from that of a KNOW-type verb. While the former type denotes a question, the latter does not. ASK-type verbs, according to Munsat (1986) are a small group of verbs which bear a [+Q] feature. George (2011) follows Lahiri (2002) in that he classifies question embedding predicates as *responsive* (KNOW-type) and *rogative* (ASK-type) predicates, and denies the universality of Groenendijk & Stokhof (1988)'s classification of extensional and intensional predicates. According to George (2011),

rogative predicates care only about the questions their wh-complements refer to, with no corresponding propositional use while the basic meanings that wh-complements of responsive predicates denote are functions of propositional arguments. In light of these arguments put so far, I argued in the previous subsection that TİD does not only have these two natural classes, but also distinguishes between the two through morphosyntax. Now, I turn to how the two types of wh-complements react to quantificational modification.

Recall from Chapter 2 that wh-complements of matrix ASK-type verbs and those of matrix KNOW-type verbs are different in that while the latter type can be modified with adverbs of quantity and displays quantificational variability effect (QVE), modifying the former will result in nonsense sentences (Section 2.2.5). QVE is valid for TİD KNOW-type wh-complements, too. Consider the following two examples and corresponding images below each sentence:

			_____hs		
			_____br	_____pl	
(103)	[BİLGE	YESTERDAY	WHAT	READ]	KNOW^LITTLE

I know, a little, what Bilge read yesterday.

(104)

BİLGE YESTERDAY WHAT

READ KNOW LITTLE

The matrix verb KNOW in example (103) is modified with an adverb of quantity, LITTLE. Modifying ASK in the same way, however, results in a nonsense sentence:

(105) #[BİLGE YESTERDAY WHAT READ] ASK LITTLE

#I asked, a little, what Bilge read yesterday.

(106)

BİLGE YESTERDAY WHAT

READ ASK LITTLE

While the first example can be interpreted as in (103), there is no corresponding reading for the one in (105):

(107) some x [Ayşe read (x) yesterday] [I know that Ayşe read x yesterday].

(108) #some x [Ayşe read (x)yesterday] [I asked whether Ayşe read x yesterday].

Say, for instance, the signer knows that Bilge read print books and magazines but, at the time of utterance, she did not know that Bilge read an e-book, too. Therefore, the signer does not know every (x) that Bilge read, but only some of them. However, the signer cannot *ask a little* of what Bilge read by uttering '*What did Bilge read?*'. The adverb of quantification, LITTLE, cannot quantify the variable (x)

in (108), but only the matrix verb ASK. This shows that wh-complements of KNOW-type verbs in TİD expresses open sentences with variables, while this is not the case for those of ASK-type verbs. Adverbial quantification of ASK-type verbs will lead to nonsense sentences, uninterpretable questions modified with an adverb of quantity. Berman (1991) claims that this peculiar behavior of ASK-type verbs stems from a *silent* Q-morpheme present in its wh-complements. As is obvious, TİD has an overt Q-morpheme (HEAD BACKWARD). The Q-morpheme, Berman claims, unselectively binds all the variables presented as wh-items in a wh-complement. The availability of quantificational variability in TİD KNOW-type verbs, I claim, is another indicator that TİD displays two types of wh-complements, which are also distinguishable from each other by the presence/absence of an overt Q-morpheme (i.e. HEAD BACKWARD). TİD supports Berman's claim regarding the presence of a Q-morpheme in the wh-complements of ASK-type verbs by actually overtly marking the constructions with Göksel & Kelepir (2013)'s HEAD BACKWARD.

6.2 Two designated positions for the embedded wh-item?

In this section, I will present evidence in favor of an embedded wh-in-situ configuration as the only option for TİD wh-complements, following my observations on the different spreading domains of BROW RAISE which I presented in the previous chapter, and I will discuss the implications that an embedded wh-in-situ mechanism might have on the TİD embedded information structure.

First of all, let us remind ourselves that in TİD in situ and the embedded clause-final position are the two surface positions where wh-items are found grammatical. In these two surface configurations, I observe certain nonmanual

spreading domain differences. While the wh-in-situ yields a spreading domain where BROW RAISE spreads from the wh-item until the end of the wh-complement (109), the clause-final wh-configuration limits the spreading domain of BROW RAISE to the right periphery only, that is only over the wh-item (110):

(109)

_____br

_____hs

_____hb

[IX-1 WHERE WORK]

(110)

_____br

_____hs

_____hb

[IX-1 BORN WHEN]

One could argue, following the constant left edge of the spreading domain of BROW RAISE, that is the left edge of the wh-item, that the wh-item is always in situ and that other constituents that are base-generated in a position to the right of the wh-item might have undergone movement out of the scope of BROW RAISE to an embedded left peripheral position, yielding a clause-final wh-configuration[68]:

(111) $[_{CP}... [_{XP}$ IX-1_i $[_{YP}$ $BORN_k$ $[_{TP}$ t_i WHEN $t_k]]]$ ...]^{69}

This analysis, would answer the question why matrix interrogatives allow for both interpretation-wise identical right peripheral and right periphery – in situ double

[68] Or, as an alternative, one could argue that the material to the left of the wh-item might be base-generated topics located in a Topic-CommentPhrase.

[69] One could argue following the four-layered information structure model of Nunes & Quadros (2006) that the XP in my representation overlaps with their Topic-CommentPhrase, and my YP with their TopicPhrase. One could also argue, following my conjecture that BROW RAISE might be marking new information, that WHEN might have undergone movement to a FocusPhrase. However, this would be a problem to my observation that the embedded context does not allow wh-doubles, a phenomenon attributed to a focus function.

constructions (Makaroğlu 2012), while the embedded context allows for the clause-final construction while prohibiting the embedded double construction.

A straightforward answer to this asymmetry between the matrix and the embedded contexts would be that the matrix right periphery and the embedded right periphery do not have the same derivational patterns, i.e. they are not located in the identical respective matrix and embedded positions. While in İşsever & Makaroğlu (2013)'s account matrix wh-words can undergo head-movement to a right peripheral complementizer position, yielding an emphatic-focus interpretation, in my account embedded the wh-item stays in situ and constituents other than the wh-item undergo movement to an embedded left-peripheral position for, maybe, information structural motivations.

More research is required in order to have a better grasp of this phenomenon. My account implies that TİD embedded interrogatives may not have a focus projection, just like ASL, as put forth by Petronio & Lillo-Martin (1997) and Davidson & Caponigro (to appear) in independent studies on wh-complements and embedded polar interrogatives respectively. Alternatively, embedded focus might be encoded in a dissimilar way to matrix focus.

More research is required to see whether the embedded clause-final position allows for full wh-phrases. This would impart the strength of my claim that constituents other than the wh-item (I would then call it a *wh-phrase*) move to an embedded information structural position, since the matrix right periphery is reserved for wh-words only, that is, heads. An inert, in situ wh-phrase would help to complete this picture.

CHAPTER 7

CONCLUSIONS

In this very first study on the topic, I argued and presented evidence in favor of the presence of clausal wh-complements in Turkish Sign Language (TİD). In doing so, I took asymmetrical matrix and embedded distributional patterns of wh-items and the lack of reference shift in the person indexicals of possible wh-complements of ASK, which indicates that the wh-complement is in indirect discourse, as indicators of a constituent interrogative embedding mechanism in TİD. After having provided my argumentation in favor of the presence of clausal wh-complements in TİD, I argued against and ruled out potential doubts whether the structure in question might be a free relative construction. Then, I presented my observations on matrix word order, matrix subject pronoun copy and the position of the wh-item in the embedded constituent interrogative with respect to two types of interrogative embedders: ASK-type verbs and KNOW-type verbs. Moreover, I presented the nonmanual markers that systematically occur in clausal wh-complements.

My observations clearly show that TİD has genuine cases of embedded constituent interrogatives in complement position and these embedded interrogatives differ significantly from their matrix counterparts in the distribution of wh-items and their prosodic properties. While a matrix constituent interrogative allows for four grammatical wh-configurations (wh-in-situ, wh-phrase in the left periphery, wh-head in the right periphery and in situ-right periphery double construction – see Makaroğlu, 2012; İşsever & Makaroğlu, 2013 and Göksel & Kelepir, 2013), my study shows that an embedded constituent interrogative allows for two surface positions only: wh-in-situ and the clause-final position.

First of all, I found that KNOW-type verbs and ASK-type verbs show variation with respect to matrix word order preferences. While KNOW-type verbs allow for SOV, SVO and SVOV orders, ASK-type verbs if their wh-complement is in indirect discourse, have been observed in an SOV configuration only. As for structures with semantic objects of ASK-type verbs which are in direct discourse, the matrix verb orders I observed are SOV and SVOV. Moreover, my data shows that the copy of a matrix subject pronoun can only precede the sentence final copy of a matrix KNOW-type verb. Cases where the pronoun copy follows the rightward copy of a KNOW-type verb were found ungrammatical. Matrix verb ASK, however, does not come up with matrix subject pronoun copy in my data. I attributed this to ASK's status as an agreement verb. The third observation I made with regards to matrix phenomena is a case of agreement I observe in examples with ASK. While the agreement path of ASK in some signers was between the asker (subject) and the askee (indirect object), some others' was between the asker and the subject of the reported interrogative clause.

Secondly, building on my observations on the nonmanual markers that systematically occur in clausal wh-complements, I presented two crucial findings. The surprising presence of HEAD BACKWARD in wh-complements of ASK-type verbs, as opposed to the lack of it in those of KNOW-type verbs shows that TİD morphologically distinguishes between the two natural classes. I supported this observation with the availability of Hintikka (1976)'s Quantificational Variability Effect (QVE) in KNOW-type verbs and the lack of it in ASK-type verbs. While a matrix adverb of quantity can quantify a variable (the wh-item) in the wh-complement of a KNOW-type verb, Berman (1991)'s Q-morpheme (HEAD BACKWARD in TİD – see Göksel & Kelepir, 2013) unselectively binds all the

variables in the wh-complement of an ASK-type verb, hindering the matrix adverb of quantity from quantifying the embedded variable. Moreover, the surprising presence of HEAD BACKWARD in wh-complements coupled with its absence in KNOW-type verbs is crucial in that it hints at what HEAD BACKWARD actually marks. My observation shows that HEAD BACKWARD is more likely to mark the semantic class *question,* than the clause type *interrogative.*

My second finding with respect to nonmanual markers, namely the spreading domain of BROW RAISE, coupled with my observation on the position of the wh-item shows that embedded wh-items in TİD wh-complements might be always in situ, while the embedded clause-final occurrence of wh-items might be attributed to information-structural movement of other constituents to an embedded left peripheral position. I further conjecture that BROW RAISE might be an indicator of new information, therefore a focus projection might be a part of TİD embedded information structure. If this were the case, one would need to indicate whether the embedded focused constituents are in situ or moved. However, the focus analysis falls short of explaining why the embedded context does not allow for wh-doubles. Makaroğlu (2012) attributes the wh-double construction to emphatic-focus. BROW RAISE marked embedded constituents might be informational-focused items, a different type of focus. TİD embedded information structure surely requires more research. This study, being the first on clausal wh-complements in TİD, aims to pave the way to further research on a number of issues related to interrogatives and embedding in Turkish Sign Language. An immediate area of research to study would be embedded polar interrogatives in order to test the validity of the claims made here regarding the morphological content of the Q-morpheme in TİD and the bifurcating nature of embedded interrogatives with regards to different embedding verbs.

Topicalization and focus movement are two other areas of research that require immediate attention in order to grasp a better understanding of the syntax of TİD. The concrete identification of the prosodic markers of these information structural phenomena and their spreading domains would help to alleviate the difficulty of identifying syntactic phenomena in TİD. Doing so will pave the way to a more complete picture of several surrounding areas of research.

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