CHAPTER SEVEN
WH-MOVEMENT IN TURKISH SIGN LANGUAGE

SELÇUK İŞSEVER
AND BAHTİYAR MAKAROĞLU
ANKARA UNIVERSITY

Abstract

The fact that wh-elements can occur in a right peripheral position in most sign languages casts doubt on the universality of the assumption that wh-movement always targets a leftward Spec,CP. Bearing on this issue, this study scrutinizes wh-movement facts in Turkish Sign Language (TİD), which has been hardly examined in the literature. We show that TİD illustrates a language where both leftward and rightward wh-movements are possible. To account for this dual nature of movement, we propose that TİD wh-phrases undergo movement to Spec,CP which is on the left, while wh-words move and adjoin to C⁰ on the right. Thus, as to the question in the literature whether universal grammar has a Spec position at the right edge of the sentence to host wh-elements, the TİD wh-movement data explored in this study favor for an analysis where rightward wh-movement is possible but the only Spec position dedicated to wh-phrases is on the left.

Keywords: Wh-movement, Wh-duplication, Linearization, Turkish Sign Language.

7.1. Introduction

The literature on the syntax of wh-questions has revealed that wh-movement targets a left peripheral position in overwhelming majority of spoken languages, although there are some minor exceptions noted in the literature where right peripheral wh-phrases are also possible (for references, see Cecchetto, Geraci, & Zucchi, 2009, ft. 1). This fact has led
researchers to assume that the target site of wh-movement is a left peripheral Spec of CP in natural languages. However, the universality of this assumption has been scrutinized in sign language (SL) literature because in SLs the preferred landing site of wh-phrases is in the right periphery, though they may occur in leftward and in situ positions as well. For some linguists this is robust evidence for the fact that universal grammar allows $C^0$ to project also a rightward Spec position for wh-phrases to occur (see Cecchetto & Zucci, 2004; Cecchetto et al., 2009 for Italian Sign Language (LIS); Neidle, 2002; Neidle, Kegl, Bahan, Aarons, & MacLaughlin, 1997; Neidle, Kegl, MacLaughlin, Bahan, & Lee, 2000 for American Sign Language (ASL); Pfau & Quer, 2003 for German and Catalan Sign Languages (DGS and LSC respectively), among others). On the other hand, according to another view, the rightward occurrence of wh-phrases is only apparent and must be analyzed on a par with spoken languages, namely as movement to a leftward Spec,CP (see Nunes & Quadros, 2006; Petronio & Lillo-Martin, 1997; Quadros, 1999; Wilbur, 1997 for ASL and Brazilian Sign Language (LSB), among others).

In this study we discuss wh-movement phenomena in Turkish Sign Language (TİD), which has been hardly examined in the literature, aiming to contribute to the debate on the direction of wh-movement in SLs briefly sketched above. TİD is a head-final Subject-Object-Verb (SOV) language (Gökgöz, 2010; Gökgöz & Arık, 2011; Sevinç, 2006, among others) where wh-phrases can occur in a variety of surface positions to form a wh-question. For instance, a wh-question with an object wh-phrase can be formed by one of the structures shown in (1a-d).

---

1 In SLs, nonmanual markers (NMM) like brow and head movements play a crucial role in marking certain aspects of functional structure of the sentence such as negation, tense, interrogation and the like. In TİD, NMMs used to mark a wh-construction include brow lowering (Makaroğlu, this volume) or, according to another view, head shake plus head backward (Göksel & Kelepir, 2011) spreading over the whole sentence (Göksel & Kelepir, 2011; Makaroğlu, this volume;) while in other SLs a different (combination of) NMM(s) may be chosen to mark the same construction. Although NMMs are an integral part of any SL, our analysis merely focuses on manual signs leaving the role of NMMs in TİD wh-movement phenomena for further study. Yet, for the sake of integrity of the data, NMMs used in the examples of both TİD and other SLs are indicated throughout the paper by the gloss “____wh”. Please note that the absence of NMMs in some examples taken from the literature is due to their lack in the original text.
Wh-movement in Turkish Sign Language

(1) a. $\text{INDEX}_2 \text{ WHAT READ}$  

b. $\text{WHAT}_i \text{ INDEX}_2 \text{  } \text{ Read}$

c. $\text{INDEX}_2 \text{  } \text{ Read} \text{ WHAT}_i$

d. $\text{INDEX}_2 \text{ WHAT}_i \text{ Read} \text{ WHAT}_i$

e. * $\text{WHAT}_i \text{ INDEX}_2 \text{ WHAT}_i \text{ Read}$

‘What did you read?’
(1) shows that wh-phrases in TİD may remain in situ (1a) or undergo movement to either the left (1b) or right (1c) edges of the sentence, with the option of doubling the wh-phrase when movement targets a position on the right (1d), but not on the left (1e). As is the case with other SLs, the immediate question is how we can account for the existence of both leftward and rightward movements of wh-phrases in TİD. The duplication structure seen in (1d) provokes another question as to how two copies of a wh-phrase can surface in a wh-question. Furthermore, the grammaticality contrast between (1d) and (1e) calls for an explanation as well.

To account for the data in (1), we propose that leftward and rightward wh-movements are both possible in TİD, although the two options are structurally different. We show that wh-phrases are allowed only at the left edge of the sentence whereas wh-words can occur only at the right edge. TİD wh-duplication data also support our proposal in that, as seen in the contrast between (1d) and (1e), only rightward wh-elements can duplicate. In line with Nunes & Quadros (2006), we argue that this is because rightward wh-duplicates are invisible to Chain Reduction (Nunes, 2004) due to morphological fusion with $C^0$, which allows them to linearize along with the lower wh-copy. Leftward wh-elements, on the other hand, do not have this option because (i) they are phrasal, and (ii) Spec,CP that they occupy is at the left edge while $C^0$ is positioned on the right.

In this study, three male informants between ages 25-31 helped us to make judgments on various TİD sentences. All the informants are native signers and exposed to TİD during the critical period of language acquisition. TİD is the primary language in their daily lives. At minimum, they are all graduates of high school. They were born deaf and all but one of the informants has deaf parents.

The organization of the paper is as follows. In section 7.2, we briefly summarize the positions that wh-phrases can occur in SLs as well as leftward and rightward analyses of wh-movement in SL literature. In section 7.3, where the proposal of the study is spelled out, we analyze the structure of CP in TİD with respect to positions of Spec,CP and $C^0$. In this section we show that wh-phrases target Spec,CP on the left while wh-words undergo adjunction to $C^0$ which is on the right. Section 7.4 concludes the study.
7.2. Background

7.2.1. Surface positions of wh-elements in SLs

In SLs, wh-questions may be formed by movement of wh-phrases to either left or right peripheral positions or by leaving them in their in situ positions. What is significant is the fact that most SLs can make use of more than one of these strategies interchangeably to form a single wh-question.² For example, in both ASL and LSB, which are both SVO languages, wh-phrases may appear in situ as in (2) or in a rightward position as seen in (3). LSC, an SOV language, is another SL where wh-phrases are allowed to occur in these positions as well (see 4).

(2) a. \textit{JOHN BUY WHAT YESTERDAY} \ [ASL]
   \textquote{What did John buy yesterday?}'

b. \textit{WHO LIKE NANCY}
   \textquote{Who likes Nancy?’}

c. \textit{JOHN BUY WHAT}
   \textquote{What did John buy?’} (Petronio & Lillo-Martin, 1997, p. 26)

d. \textit{JOHN SEE WHO YESTERDAY} \ [ASL/LSB]
   \textquote{Who did John see yesterday?’} (Lillo-Martin & Quadros, 2006, p. 196)

(3) a. \textit{BUY COFFEE WHERE} \ [ASL/LSB]
   \textquote{Where did (you) buy coffee?’}

b. \textit{JOHN SEE YESTERDAY WHO}
   \textquote{Who did John see yesterday?’}

c. \textit{BUY CAR (YESTERDAY) WHO}
   \textquote{Who bought a car (yesterday)?’} (Lillo-Martin & Quadros, 2006, p. 196)

(4) a. \textit{JOAN ROBAR QUÊ} \ [LSC]
   Joan steal what

² See Cecchetto et al. (2009, p. 279) for a summary of positions that wh-phrases may occur in several SLs.
b. JOAN QUÈ ROBAR
   Joan what steal
   ‘What did John steal?’                              (Alba de la Torre, 2011, p. 19)

Leftward wh-phrases can also be found across SLs. For instance, in addition to right and in situ positions, wh-phrases in LSC may surface in the left periphery as well (5a). As seen in (5b-c), leftward wh-phrases are also attested in New Zealand Sign Language (NZSL) and Israeli Sign Language (ISL).

(5) a. QUÈ JOAN ROBAR [LSC]
   what Joan steal
   ‘What did John steal?’                              (Alba de la Torre, 2011, p. 20)

b. WHEN YOUR BIRTHDAY [NZSL]
   ‘When is your birthday?’                           (Wallingford, 2008, p. 28)

c. WHAT INDEX₃ SAY [ISL]
   ‘What did he say?’                                 (Meir, 2004, p. 103)

According to Lillo-Martin & Quadros (2006) and Petronio & Lillo-Martin (1997) leftward wh-phrases are also possible in both ASL and LSB as in (6), although Churng (2009) and Niedle et al. (2000) state that native signers of ASL they consulted did not find this structure grammatical. On the other hand, there is agreement between researchers about the existence of leftward wh-phrases in ASL when they occur in a wh-duplication structure as shown in (9a) below.

(6) a. WHAT JOHN BUY [ASL/LSB]
   ‘What did John buy?’

b. WHERE YOU BUY COFFEE
   ‘Where did you buy coffee?’                     (Lillo-Martin & Quadros, 2006, p. 197)

In some SLs, on the other hand, wh-phrases are mostly restricted to a specific position in the sentence. For instance, as shown in (7), in Indo-Pakistani Sign Language (IPSL) the only position that is allowed for wh-phrases is a right peripheral one (Aboh & Pfau, 2011; Pfau, 2006; Pfau &
Zeshan, 2003). Cecchetto et al. (2009, p. 278) report that wh-phrases must occur at the right edge of the sentence in LIS too (see 8), except for a restricted set of cases in which they can remain in situ.

(7) a. KAL PITA: MILNA KYA: [IPSL]
tomorrow father meet wh
‘Who will (my) father meet tomorrow?’
b. * KAL PITA: KYA: MILNA:
c. * KYA: KAL BA:P MILNA:
d. * KAL PITA: KYA: MILNA: KYA:
e. * KYA: KAL PITA: KYA: MILNA:

(8) a. GIANNI BUY WHAT [LIS]
‘What did Gianni buy?’

Another characteristic feature of SLs is that wh-duplication is allowed in most of them. Although the positions of wh-duplicates can vary depending on the language, we can find duplicated wh-elements in left, right or in situ positions as seen in (9) and (10). The most common configuration seems to be the one illustrated by the sentences in (9) where one of the wh-elements occurs at the left edge of the sentence while the other one occupies the right edge.

(9) a. WHAT NANCY BUY YESTERDAY WHAT [ASL]
‘What did Nancy buy yesterday?’ (Petronio & Lillo-Martin, 1997, p. 27)
b. WHO JOHN SEE YESTERDAY WHO [LSB]
‘Who exactly did John see yesterday?’ (Nunes & Quadros, 2006, p. 1)

3 The wh-sign KYA: seen in the IPSL examples in (7) is a general wh-sign, which expresses meanings of whole question words in other languages (Pfau & Zeshan, 2003). See also ft. 4.
Having briefly seen that wh-elements can occupy a variety of surface positions in SLs, let us turn to the debate on the direction of wh-movement and see how rightward occurrences of wh-elements are accounted for in SL literature.

**7.2.2. Rightward and leftward analyses**

As mentioned in the introduction, the fact that wh-phrases may surface in a right peripheral position in most SLs casts doubt on the universality of the assumption that wh-movement must target a Spec position in the left periphery of the sentence. To account for this, some researchers argue that the assumption on the direction of wh-movement should be relaxed so that universal grammar can allow movement of wh-phrases to a right peripheral position as well. However, another group of researchers propose to stick with the leftward wh-movement assumption claiming that rightward occurrence of wh-phrases in these languages is only apparent. In this section we outline both approaches addressing main proposals put forth by their proponents, although there is a much more detailed discussion between the two groups in the literature.

According to rightward analysis, wh-phrases undergo movement to a Spec,CP position on the right. Neidle et al. (1997; 2000) suggest that rightward movement of wh-phrases in ASL is triggered by [+focus] feature and argue for a right-branching CP structure shown in (11a) where the rightward Spec is the landing site for [+focus] feature checking wh-phrases. As seen in (11b), Neidle (2002) modifies this proposal claiming
that focused wh-phrases first stop at Spec,FP to check the [+focus] feature of $F^0$ (step 1) before moving to Spec,CP (step 2).

\[(11)\]

Under the leftward movement approach, on the other hand, the Spec position where wh-elements land is in the left periphery. Extending the left-branching analysis of ASL in previous studies such as Petronio (1993), Petronio & Lillo-Martin (1997) argue for a CP structure where $C^0$ is on the right and its Spec is on the left. According to this analysis, ASL rightward wh-elements are base-generated interrogative complementizers while leftward wh-elements are wh-phrases undergoing movement to Spec,CP (see 12). Under this analysis, $C^0$’s [+focus] and [+wh] features must be checked by the element occupying Spec,CP, which may either be a wh-phrase or an empty operator moved from within an in situ wh-phrase.

\[(12)\]

There is yet another view which argues for a remnant-movement analysis (Abot & Pfau, 2011; Abot, Pfau, & Zeshan, 2006; Nunes & Quadros, 2006). According to this analysis, the derivation of wh-
constructions with rightward wh-elements includes (at least) two instances of leftward movement as seen in (13a-b) adopted from Cecchetto et al. (2009):

\[(13)\]

In the first step of the derivation, the wh-element undergoes standard wh-movement to a dedicated left peripheral position (13a), and in the second step, the remnant, i.e., the constituent out of which the wh-element has moved, moves to a position to its left (13b). With this remnant movement the wh-element gets linearized in the rightmost position of the sentence, making the illusion that the structure is a result of rightward wh-movement.

### 7.3. Wh-movement in TİD

#### 7.3.1. The position of Spec,CP

In light of the preceding discussion, let us see in this section how TİD wh-movement data can be accounted for. As we saw in (1a-c), repeated below in (14), wh-phrases are allowed to occur in in situ, leftward or rightward positions in TİD. (15) and (16) further show that in all of these positions adjunct wh-phrases are also allowed.

\[(14)\]

\[
\begin{align*}
\text{a. } & \text{INDEX}_2 \text{ WHAT READ} & \text{[TİD]} \\
\text{b. } & \text{WHAT}_i\text{ INDEX}_2 \text{ t}_{i} \text{ READ} \\
\text{c. } & \text{INDEX}_2 \text{ t}_{i} \text{ READ WHAT}_i \\
\end{align*}
\]
(15) a. INDEX2 WHERE BOOK READ [TİD]
   ________________wh
   WHERE, INDEX2 t, BOOK READ
   ________________wh
   ‘Where did you read the book?’
   ________________wh
b. WHERE, INDEX2 t, BOOK READ
   ________________wh
   ‘Where did you read the book?’
   ________________wh
c. INDEX2 t, BOOK READ WHERE
   ________________wh
   ‘Where did you read the book?’

The data in (14)-(16) seem to support rightward movement analyses which, as briefly discussed in the previous section, advocate the idea that universal grammar should allow $C^0$ to project also a rightward Spec for wh-phrases to occur. However, although it is true that TİD wh-elements can surface at the right edge of the sentence, we cannot tell from the data above whether they occupy a Spec position. To decide, we need to show that wh-elements at the right edge have phrasal status since a Spec position hosts phrasal elements. Thus, if complex wh-phrases are allowed to occur at the right edge we would have a reason to believe that TİD has a rightward Spec,CP. Consider the examples in (17):

(16) a. INDEX2 WHEN BOOK READ [TİD]
   ________________wh
   WHEN, INDEX2 t, BOOK READ
   ________________wh
   ‘When did you read the book?’
   ________________wh
b. WHEN, INDEX2 t, BOOK READ
   ________________wh
   ‘When did you read the book?’
   ________________wh
c. INDEX2 t, BOOK READ WHEN
   ________________wh
   ‘When did you read the book?’

(17) a. INDEX2 [WHAT BOOK] READ [TİD]
   ________________wh
   [WHAT BOOK], INDEX2 t, READ
   ________________wh
   ‘Which book did you read?’
   ________________wh
b. [WHAT BOOK], INDEX2 t, READ
   ________________wh
   ‘Which book did you read?’
   ________________wh
c. * INDEX2 t, READ [WHAT BOOK],
   ‘Which book did you read?’

In these examples the wh-determiner and its restrictor NP BOOK together form a complex wh-phrase. The contrast between (17b) and (17c), then, makes it clear that in the right periphery no phrasal wh-element can occur though such a phrase is allowed on the left. From this, we can conclude that if a wh-phrase (as opposed to a wh-word) undergoes movement in TİD, it must move to the left edge of the sentence because TİD obviously does not have a dedicated position in the right periphery to host a wh-phrase. In this respect, TİD patterns with both LSB (see 18) and ASL (see 19), two languages with leftward Spec,CP as suggested by

(18) a. JOHN BUY WHICH BOOK YESTERDAY [WHICH] [LSB]
   b. *JOHN BUY WHICH BOOK YESTERDAY [WHICH BOOK]
      ‘Which book exactly did John buy yesterday?’
      (Nunes & Quadros, 2006, p. 6)

(19) a. WHICH COMPUTER JOHN BUY [WHICH] [ASL]
   b. *WHICH COMPUTER JOHN BUY [WHICH COMPUTER]
      ‘Which computer did John buy?’
      (Petonio & Lillo-Martin, 1997, p. 33)

As seen in (18) and (19), in wh-duplication structures of both LSB and ASL the duplicated element that occurs on the right must be a wh-word; no duplication of the whole wh-phrase is allowed.

In contrast to LSB and ASL, LIS and IPSL are argued to both have rightward Spec,CP (Cecchetto et al., 2009 for LIS; Pfau & Zeshan, 2003 for IPSL). This predicts that phrasal wh-elements may be found in right peripheral positions in both. As seen in (20) and (21), this prediction is borne out (our brackets in (20a-b)): 4

(20) a. PAOLO STEAL [BOOK WHICH] [LIS]
      ‘Which book did Paolo steal?’

   b. ?BOY BOOK STEAL [BOY WHICH]
      ‘Which boy stole the book?’ (Cecchetto et al., 2009, p. 285)

(21) a. VAH₃ tᵢ PU:CHNA: [%AKAL KYA:]ᵢ [IPSL]
      s/he ask face wh
      ‘Who did s/he ask?’

   b. VAH₃ [%AKAL tᵢ] PU:CHNA: KYAᵢ
      s/he face ask wh

---

4 In IPSL, all wh-words are formed by the general wh-sign “KYA:” and it may combine with another non-interrogative sign to express a more specific wh-word such as “$AKAL ‘FACE’ + KYA:” ‘WHO’ and “NAMBAR ‘NUMBER’ + KYA:” ‘HOW MANY’ seen in (21) (Pfau & Zeshan, 2003). Pfau and Zeshan (2003) states that the fact that these composite wh-words can undergo wh-split as shown in (21b) and (21d) supports the assumption that these are phrasal and not compounds.
c. VAH₃ ti LENA: [KITA:B NAMBAR KYA:],
   index take book number wh
   ‘How many books did s/he take?’

d. VAH₁ KITA:B [NAMBAR ti] LENA: KYA₄:
   index book number take wh (Pfau & Zeshan, 2003, pp. 6-7)

Thus, in contrast to LIS and IPSL but patternning with LSB and ASL, TİD does not have a rightward Spec dedicated to phrasal wh-elements, whereas such a position on the left is attested. In regards to wh-words, on the other hand, the (c) examples in (14)-(16) clearly show that TİD does allow them to surface at the right edge. This left/right contrast in TİD data, then, leads to the following generalization:

(22) Generalization on TİD wh-movement
    In a wh-movement construction, TİD wh-phrases move to a left peripheral position while wh-words target a position in the right periphery.

This generalization is also supported by the wh-duplication data in (23), where we see that, as in both LSB and ASL seen above, not the whole wh-phrase but only the wh-word is allowed to duplicate (see 23a vs. 23b) and the duplicated wh-word must occur at the right, but not at the left, edge (see 23a vs. 23c):

(23) a. INDEX₂ WHAT BOOK READ [WHAT]                       [TİD]
    b. * INDEX₂ WHAT BOOK READ [WHAT BOOK]
    c. *[WHAT] INDEX₂ WHAT BOOK READ
       ‘Which book did you read?’

7.3.2. The position of C⁰ and the structure of CP

Having seen that C⁰ projects a leftward Spec to host wh-phrases, we need to ask in what position rightward wh-elements occur in TİD. Considering our finding that right-hand wh-elements are heads instead of phrases, the most reasonable assumption would be that they occur in a head position, which is plausibly C⁰. In fact, as we saw in (18a) and (19a) this option is in use in some SLs such as LSB and ASL. As discussed in 7.2.2, Petronio & Lillo-Martin (1997) argue that rightward wh-elements in ASL are in fact base-generated interrogative complementizers. Likewise, Nunes & Quadros (2006) suggest that rightward wh-elements in LSB are
wh-heads adjoined to $C^0$ although unlike Petronio & Lillo-Martin (1997) they derive this structure as a result of movement. On the other hand, each study makes different assumptions on the position of $C^0$. For Petronio & Lillo-Martin (1997) it is on the right (see 12), while Nunes & Quadros (2006) analyze it as being on the left (see 13). As we summarized each proposal in 7.2.2, let us move on to discuss in which direction $C^0$ is positioned in TÍD.

The examples given in (1d-e) have shown that duplicates of wh-words can occur in a right, but not in a left, peripheral position in TÍD. These examples are repeated in (24) for convenience (see also 23a vs. 23c). Again, it is seen in (25a) and (26a) that this structure is grammatical with wh-adjuncts as well:

(24) a. $\text{INDEX}_2 \text{WHAT READ}[\text{WHAT}]$ \hfill [TÍD]
    b. $[\text{WHAT}] \text{INDEX}_2 \text{WHAT READ}$
      ‘What did you read?’

(25) a. $\text{INDEX}_2 \text{WHERE BOOK READ}[\text{WHERE}]$ \hfill [TÍD]
    b. $[\text{WHERE}] \text{INDEX}_2 \text{WHERE BOOK READ}$
      ‘Where did you read the book?’

(26) a. $\text{INDEX}_2 \text{WHEN BOOK READ}[\text{WHEN}]$ \hfill [TÍD]
    b. $[\text{WHEN}] \text{YOU WHEN BOOK READ}$
      ‘When did you read the book?’

Along the lines of Nunes & Quadros (2006), we argue that the grammaticality contrast between the (a) and (b) examples in (24)-(26) is due to reasons of linearization. Recall that in LSB, ASL, and TÍD only wh-words, and not wh-phrases, can surface at the right edge of the sentence. Following Nunes & Quadros (2006), we maintain that this has something to do with the phenomenon of morphological fusion as follows. According to Nunes & Quadros (2006), wh-duplication is sensitive to wh-word/wh-phrase distinction in that only wh-words that are morphologically fused with $C^0$ can be duplicated (see 18a). Under their analysis, a wh-word adjoined to $C^0$ may optionally fuse with it so that the fused copy will be invisible to Chain Reduction (Nunes, 2004) whose function is to delete the lower copy of a moved item since nondistinct copies cannot be tolerated due to linearization considerations. Thus, there is no duplication of phrasal categories, i.e., wh-phrases in our case, for the simple reason that they cannot adjoin to, and so, morphologically fuse with $C^0$ (see 18b). If this is on the right track, the grammaticality of the (a) examples in (24)-(26) can
be attributed to the fact that in all of these examples rightward wh-elements are wh-heads fusing with C^0. In the (b) examples, on the other hand, no fusion operation can take place for leftward wh-copies, i.e., wh-phrases, hence the ungrammaticality.

This story seems to suggest a rightward C^0 for TİD. However, recall that according to remnant-movement analyses rightward occurrence of wh-elements is illusory. So, let us first assume a remnant-movement analysis such as proposed by Nunes & Quadros (2006), which suggests, following LCA of Kayne (1994), that C^0 is universally on the left. Under such an analysis, (24a), for example, would have the following derivation:

(27) 1. \[[\text{CP WHAT}_{i}+C^0} [\text{TP INDEX}_2 \text{WHAT}, \text{READ}]\]
    2. \[[\text{XP [TP INDEX}_2 \text{WHAT}, \text{READ}]_{j} [X^0 [\text{CP WHAT}_{i}+C^0} [\text{TP INDEX}_2 \text{WHAT}, \text{READ}]_{j}] \]]
    3. \[[\text{XP [TP INDEX}_2 \text{WHAT}, \text{READ}]_{j} [X^0 \{\text{WHAT}_{i}+C^0\} [\text{TP INDEX}_2 \text{WHAT}, \text{READ}]_{j}] \]]
    4. \[[\text{XP [TP INDEX}_2 \text{WHAT}, \text{READ}]_{j} [X^0 \{\text{WHAT}_{i}+C^0\} [\text{TP INDEX}_2 \text{WHAT}, \text{READ}]_{j}] \]]

In the first step of the derivation in (27), the wh-word WHAT undergoes movement to C^0 and adjoins to it, checking its [+wh] feature. In the second step, the remnant TP moves to the Spec of a higher projection, XP, which is generally assumed in SL literature to be a topic position although this is not uncontroversial (As it does not directly concern our analysis, we remain agnostic about this issue here). In the next step, the higher copy of the wh-chain, namely the one adjoined to C^0, undergoes morphological fusion with C^0, rendering it invisible to LCA so that it can escape from Chain Reduction. As a result, both copies of the wh-word survive the Chain Reduction since it can see only the lower copy of the wh-chain. However, the lower wh-copy gets deleted in the final step when Chain Reduction deletes the lower copy of the whole remnant TP as it is a nondistinct copy of the moved TP occupying Spec,XP.

Thus, the remnant-movement analysis can account for (24a) without stipulating a rightward Spec,CP as well as rightward C^0. Obviously, the advantage of this analysis is to assume a uniform leftward movement for both rightward and leftward occurrences of wh-elements, which is suggested to be the only option of movement in universal grammar by Kayne (1994) and his followers. Although attractive, this analysis cannot account for (24b) in a feasible way simply because in both (24a) and (24b) the wh-word should potentially have had the same option to morphologically fuse with C^0 but obviously it did not in the latter case.
More specifically, as depicted in (28), if TID had leftward C⁰ the sentence in (24b) should have been an acceptable result of standard leftward wh-movement (step 1) plus morphological fusion (step 2), contrary to fact:

(28) 1. *[CP WHAT₁+C⁰ [TP INDEX₂ WHAT; READ]]
     2. *[CP {WHAT₁+C⁰} [TP INDEX₂ WHAT; READ]]

For the LSB counterpart of (24b) seen in (29), Nunes & Quadros (2006) argue that the unacceptability can be attributed to lack of fusion between the leftward wh-element and C⁰ since in this case the wh-element is a phrase, not a wh-word, undergoing movement to Spec,CP. They note that this is expected because wh-words are minimal maximal projections (Chomsky, 1995), which are in principle free to undergo either head movement or phrasal movement.

(29) *[WHAT] JOHN BUY WHAT YESTERDAY [LSB]
     ‘What did John buy yesterday?’ (Nunes & Quadros 2006, p. 9, our brackets)

Considering the explicit parallelism between (29) and (24b), we think that the option of morphological fusion could in principle be possible in (29) too. Hence, assuming the remnant-movement analysis of Nunes & Quadros (2006) is correct for LSB, the unacceptability of (29) may be derived from somewhere else, but as wh-movement in LSB is beyond the limits of this study we leave this issue open here.

Turning to TID, what we have seen above is that it does not make sense to analyze structures such as (24b) as having C⁰ on the left side. Rather, we suggest that such examples support the existence of rightward C⁰, which is also compatible with the head-final character of the language. The ungrammaticality of this structure can then be derived from linearization considerations: As the leftward copy of the wh-element is a wh-phrase which occupies Spec,CP, both copies are visible to Chain

---

⁵ Although properties of TID with respect to head-parameter have not been discussed in detail in the literature, following characteristics of TID can be taken to support the view that it is a head-final language: (i) the unmarked word order is SOV, which is well attested in the literature (Gökgöz, 2010; Gökgöz & Arik, 2011; especially see the discussion in Sevinç, 2006); (ii) the manual negative marker, Negation head, follows the verb and must occur in the clause final position from where it dominates Tense and Aspect heads (Gökgöz, 2010; Gökgöz & Arik, 2011); (iii) the head noun must follow its complement as seen in the following example: [DOOR HANDLE] vs. *[HANDLE DOOR] ‘door handle’ (Hasan Dikyuva, p.c.).
Reduction so they both cannot survive. Hence, we argue for a CP structure for TİD where \( C^0 \) is positioned on the right and its Spec is on the left. In compliance with the generalization on wh-movement in (22), TİD wh-phrases undergo movement to the left, i.e., Spec,CP, while wh-words need to occur on the right, adjoined to and optionally fused with \( C^0 \). Thus, regarding wh-movement, we suggest that the [+wh] feature of \( C^0 \) can be checked in either one of the CP configurations depicted below:

(30)

(30a-b) can account for TİD wh-movement facts we have seen so far. For example, in (14b)-(17b) wh-elements are all wh-phrases undergoing movement to Spec,CP, representing the configuration in (30a). On the other hand, sentences in (14c)-(16c) have the CP configuration seen in (30b), which includes adjunction of rightward moved wh-words to \( C^0 \). Wh-duplication data seen in the remaining examples of TİD can also be accounted for by (30a-b). In these examples we saw that no duplication on the left is allowed (see 23c, 24b-26b) because due to linearization facts just discussed duplication must include fusion with \( C^0 \), which is possible only for rightward moved wh-elements (see 23a-26a).

Finally, let us consider another wh-duplication structure which includes simultaneous occurrence of wh-elements at both edges of the sentence. As we saw in (9), this structure is possible in some SLs such as LSB, ASL, DGS, and ISL. We repeat LSB and ASL examples in (31) (our brackets):

(31) a. [WHO] JOHN SEE YESTERDAY [WHO] [LSB]
   ‘Who exactly did John see yesterday?’
   (Nunes & Quadros, 2006, p. 6)

b. [WHAT] NANCY BUY YESTERDAY [WHAT] [ASL]
   ‘What did Nancy buy yesterday?’
   (Petronio & Lillo-Martin, 1997, p. 27)
As depicted in (32), Nunes & Quadros (2006) propose a remnant-movement analysis for the LSB structure in (31a). According to this analysis, this structure is a result of successive leftward movements which include fusion of the sentence-final wh-word WHO with a leftward E(mphatic)-Foc\(^0\) (C\(^0\) in our analysis) (step 1), movement of remnant TP to a higher Spec position, i.e., Spec,TopP (step 2), and further movement of WHO from within the remnant TP in Spec,TopP to Spec,ForceP in order to check the strong [+wh] feature of Force\(^0\) (step 3). When Chain Reduction applies to the structure, the first and the third copies of the wh-word WHO (i.e., WHO\(^1\) and WHO\(^3\)) as well as the lowest copy of the remnant TP undergo deletion for the structure to linearize as in (31a).

(32) The derivation of (31a)

On the other hand, as we saw in (12) above, Petronio & Lillo-Martin (1997) argue that rightward wh-words are base-generated interrogative complementizers in ASL. Under this analysis, in (31b) the sentence-final wh-word WHAT is the base-generated C\(^0\) itself and the leftward wh-phrase has moved to Spec,CP to check the [+wh] as well as the [+focus] feature of it:
(33) The derivation of (31b)

As for TĬD, (34) shows that simultaneous occurrence of wh-elements at both edges can never take place in this language:

(34) *[WHAT], INDEX2 i, READ [WHAT], [TĬD]

The lack of this wh-duplication structure suggests that neither remnant-movement nor base-generation analyses can be applied to TĬD wh-constructions. Based on our proposal presented in (30), we analyze (34) as shown below:

(35) The derivation of (34)

Although the CP-structure that we propose for TĬD looks like what Petronio & Lillo-Martin (1997) propose for ASL, it is evidenced by the ungrammaticality of (34) that TĬD rightward wh-words are not base-generated interrogative complementizers whose [+wh] feature needs to be checked by another wh-element occupying Spec,CP. Rather, they are wh-words undergoing rightward movement in order to check the [+wh] feature that belongs to null C⁰. Thus, (34) supports our claim that in TĬD the [+wh] feature of C⁰ can be checked either by a wh-phrase occupying
Spec,CP (see 30a) or by a wh-word adjoined to C⁰ (see 30b). Once C⁰’s [+wh] feature is checked by either one of these wh-elements, i.e., the wh-head [N⁰ WHAT] or the whole wh-phrase [NP WHAT] in (34), it cannot trigger movement of another wh-element for the same checking reason, hence the ungrammaticality of the sentence in (34) illustrated in (35).

7.4. Conclusion

In this study we have investigated wh-movement phenomena in TİD in the context of the ongoing debate on the direction of wh-movement and the syntactic positions that wh-elements can target in SLs. Having shown that TİD illustrates a language where wh-elements may move to either leftward or rightward edge positions, we proposed that in a wh-movement construction TİD wh-phrases undergo movement to Spec,CP which is on the left, while wh-words move and adjoin to C⁰ on the right. In line with Nunes & Quadros (2006), we have shown that TİD wh-words that adjoin to C⁰ may optionally fuse with it due to linearization reasons, accounting for TİD wh-duplication data where only wh-words can be duplicated and wh-duplicates can occur only at the right edge of the sentence. Thus, as part of a more general question as to whether universal grammar has a rightward Spec,CP, the TİD wh-movement data explored in this study favor for an analysis where rightward wh-movement is possible but the only Spec position dedicated to wh-phrases is on the left.

Acknowledgements

We would like to thank our informants Hasan Dikyuva, Mesut Öztürk, Serhat Öztürk and two anonymous reviewers for their useful comments. Needless to say, we assume full responsibility for any possible shortcomings.

References


