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Null arguments in Turkish Sign Language

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This paper argues that phonologically null arguments in Turkish Sign Language (henceforth, TİD) are licensed as discourse topic(s). We observe that both null subjects and objects are licensed by both plain and agreeing verbs as well as classifiers. Moreover, we show that null arguments of both plain and agreeing verbs behave the same in syntactic environments, i.e. islands, across-the-board extractions and long distance topicalization constructions. We suggest that phonologically null arguments of plain verbs are licensed by a null topic operator co-indexed with the discourse topic(s) at the syntax-discourse interface level and the phonologically null arguments of agreement verbs are licensed by the agreement morphology that functions as an overt topic operator in TİD.

Keywords: Turkish Sign Language, null subject, null object, agreement, discourse topic, variable licensing

1. Introduction

This paper investigates the conditions under which Turkish Sign Language (TİD) licenses null arguments. It is well known that many languages (spoken and sign) license phonologically null arguments in their syntactic structures. With respect to spoken languages, null arguments have been argued to be associated with rich agreement morphology on the verb. Languages such as Spanish, Italian, and Turkish (Rizzi 1986; Enc 1986; Öztürk 2001), for example, mark person and number agreement for the subject on the verb in a tensed clause. These languages also license null subjects.¹ Languages which have rich subject agreement in their verbal system have nevertheless been noted to vary with respect to the extent to which they license null arguments (Camacho 2013). Finnish and Hebrew (Vainikka & Levy 1999), Russian (Bizarri 2015), Icelandic (Sigurðsson et al. 2007), Marathi

1. See Öztürk (2001) for an alternative analysis of the null subject construction in Turkish. Öztürk holds that Turkish is not a pro-drop language.

(Holmberg et al. 2009) as well as Brazilian Portuguese (Barbosa et al. 2005), for example, show partial pro-drop in which 1st and 2nd person pronouns can be unexpressed while 3rd person pronouns can typically not be phonologically null.

Languages have also been reported to vary with respect to the nature of the phonologically null arguments they license. Italian and Spanish, for example, which do not have object agreement, license only null subjects but not objects, while Turkish, which also does not mark the verb for object agreement, licenses both subject (Özsoy 1987) and object (Azaryad 2000) arguments to be null. Languages which identify the referent of the null argument by means of verbal agreement morphology have been argued to employ a licensing strategy based on coindexation with agreement. Within the generative literature, null arguments that are licensed by agreement have been labeled as *pro* and languages which license such empty categories as *pro-drop* languages (Chomsky 1982). As such, null arguments have been argued to be covert arguments that exist in the syntactic structure coindexed with the morphosyntactic features of agreement on the verb, but not phonologically realized.

It is also the case that languages which do not have agreement nevertheless license null arguments (Huang 1984). Huang analyzed such languages, among them Chinese, as discourse-oriented languages, in contrast to sentence-oriented languages which employ agreement to license null arguments. In discourse-oriented languages, null arguments are licensed by a null discourse topic. Within the generative terminology, null arguments in discourse-oriented languages are variables which are coindexed with the null topic. Arguments to the effect that null objects in Turkish, a language which has subject but no object agreement, are variables were put forth by Azaryad (2000).

Further investigations into the properties of null objects in spoken languages revealed that languages also exhibit variation in the conditions under which object drop is licensed. Research on the semantic properties of null objects showed that one parameter that affects licensing of null objects is (in)definiteness. It has been noted that European and Brazilian Portuguese (Farrell 1990; Raposo 1984; Suñer & Yépez 1988) license null objects only for definite NPs, others license object drop only for indefinite NPs (European Spanish Campos 1986; Modern Greek Dimitriadis 1994a, b; Giannakidou & Merchant 1997; Bulgarian Dimitriadis 1994a).

The following examples from Italian and Turkish illustrate licensing of an empty category *e* as subject null argument in (1a) respectively and of phonologically null subject and object variables \emptyset (b):

- (1) a. Gianni_i ha detto che e_{i/k} ha telefonato.
 Gianni has said that \emptyset has telephoned
 'Gianni_i said that (he_{i/k}) called.' (Italian; Sato & Kim 2012)

- b. $\emptyset_i \emptyset_j$ Oku-du-m_i. (Turkish)
 read-PAST-1SG
 'I read (it).'

With respect to their compatibility with null arguments, spoken languages have thus been shown to exhibit parametric variation as follows:

- i. Pro-drop
- ii. Partial pro-drop
- iii. Discourse pro-drop (Radical pro-drop)

Similar to spoken languages, it has been recorded that sign languages too license null arguments, among them American Sign Language (ASL- Lillo-Martin 1986, 1991; Sandler & Lillo-Martin 2005; Bahan, Kegl, Lee, MacLaughlin & Neidle 2000; Neidle et al. 2000), Australian Sign Language (AUSLAN) and New Zealand Sign Language (NZL-McKee, Schembri, McKee & Johnston 2012), Catalan Sign Language (LSC- Quer 2013), German Sign Language (DGS- Glück & Pfau 1998), Sign Language of the Netherlands (NGT- van Gijn & Zwitserlood 2006), Russian Sign Language (RSL-Kimmelman 2018). In her influential work on null arguments in ASL, Lillo-Martin (1986, 1991) distinguished between two types of null arguments in ASL: those that are the output of (i) *pro-drop* licensed by agreement morphology on the verb where agreement is defined as 'directionality', and of (ii) discourse *pro-drop* licensed by discourse topic (Pfau et al. 2012; Quer et al. 2019).

Agreement in sign language is analyzed as expressing association of the locus assigned to an argument with the verb sign where the initial locus of the verb movement marks the location of the subject argument and the end point of the movement marks the object (Liddell 1995; Lillo-Martin 1986; Meir 2002, 2012; Lillo-Martin & Meier 2011). In a limited number of verbs, labeled backwards agreement verbs, the path between the locus of the subject-object or source-goal arguments is reversed in that the movement of these verbs starts at the locus of the object and moves towards that of the subject (Kubuş 2008; Costello 2015). *ALMAK* 'to take' is such a verb in TİD. Based on the categorization initially proposed by Padden (1983, 1988), verbs in sign languages are classified into three classes: (i) agreeing verbs, (ii) plain verbs, (iii) spatial verbs. Plain verbs are not marked for person or number agreement. Agreeing verbs mark agreement with the \emptyset -features of their arguments where the nature and expression of agreement features are modality specific. All agreement verbs agree with the object (single agreement), some verbs agree also with the subject (double agreement). Spatial verbs mark the starting and end points of the path of the action expressed by the verb.

The extent to which agreement plays a role in allowing/licensing null arguments has been the subject of extensive investigation in sign language literature. In her seminal work, Lillo-Martin (1986) argued that the null argument *pro* of

agreeing verbs is associated with the agreement morphology on the verb and is licensed by the AGR-feature on INFL. The verbal morphology that allows omission of arguments in agreement verbs is directionality. For Lillo-Martin, null arguments of plain verbs are licensed by coindexation of the phonologically null arguments with the topic of discourse, as has been proposed for languages like Chinese by Huang (1984). Morphological agreement AGR is generated in the lexicon and agreement-marked elements are freely inserted at D-structure. Filters at PF eliminate any sentences in which the morphological features of co-indexed items do not match. Lillo-Martin holds that ASL has the restriction that only AGR with phonetic matrices can be strong where ‘strong’ is defined as ‘syntactic agreements that can identify null pronouns’ (Lillo-Martin 1986: 441).

Arguments against Lillo-Martin’s approach to null arguments of plain verbs as variables coindexed by discourse topic were presented by Koulidobrova (2017). Distinguishing between ‘surface anaphora’ and ‘deep anaphora’ in the sense of Hankamer and Sag (1976), Koulidobrova argued that null arguments are instances of NP-ellipsis, not argument omission. Koulidobrova further argued that the index IX in ASL is not a definite article, but a demonstrative and hence the nominal construction is a NP, not a DP. Based on the distinction between branching and non-branching arguments, Koulidobrova considers bare arguments to be NPs and phonologically null arguments to be instances of elided bare NPs.

The nature of agreement in sign language has been the subject of extensive investigation in sign language research. As Costello (2015: 136) points out, agreement in sign languages can be sporadic in that only some of the verbs show agreement, and optional, i.e. agreement may or may not appear. Pfau, Salzman & Steinbach (2018) classify the approaches to agreement as those accounts which take agreement to be

- i. a combination of morphological and gestural elements,
- ii. a syntax-semantics interface phenomenon where agreement is held to be hybrid in nature with the surface form of the verb being determined by thematic roles and grammatical functions,
- iii. agreement markers to be clitics.

A purely syntactic account of agreement within the assumptions of Minimalist syntax is proposed by Pfau et al. (2018). Recent research into the properties of agreement has further revealed that some sign languages employ devices other than directionality in establishing agreement, with implications for the analysis of licensing of null arguments. Classifier predicates in German Sign Language (DGS), for example, have been argued to mark agreement by means of handshape change (Glück & Pfau 1998). van Gijn and Zwitserlood (2006) showed that the relevant

\emptyset -features in Sign Language of the Netherlands (NGT) are gender and location. Van Gijn and Zwitserlood hence concluded that directionality, which corresponds to 'location' in their terminology, cannot be the only device to recover the content of null arguments. In a recent analysis of pro-drop in Russian Sign Language (RSL), Kimmelman (2018) proposed that in RSL role-shift plays a crucial role in licensing null arguments.

Sevinç (2006) was the first to establish that TİD too licenses null arguments. Adhering to the three-class categorization of verbs in sign languages initially proposed by Padden (1983), Sevinç claimed that there is a restriction on the distribution of null arguments in TİD where she argued that agentive subjects of single agreement verbs cannot be dropped and null arguments are incompatible with plain transitive verbs. In a more recent study, Kayabaşı (2018) showed that Sevinç's restriction on the distribution of null subjects is in fact too strict for TİD. Kayabaşı observed that TİD licenses null subjects of both agreement and plain verbs. Our findings also conform to those of Kayabaşı's. TİD licenses the omission of the subjects and objects of both types of verbs, i.e. subjects and objects of plain verbs as well as agreeing verbs can be realized as empty categories in TİD, as illustrated in (2) and (3)–(4).

(2) Agreeing verb

KADIN_a ADAM_b GÖRMEK_b, \emptyset_a \emptyset_b _aSORMAK_b.
WOMAN MAN SEE ASK

'The woman saw the man. (S/he) (him/her) Asked a question.'

(3) Plain verb

_____ y/n
A: ÇOCUK_a SENİN DEFTER_b KİRLETMEK
BOY 2-POSS NOTEBOOK DIRTY Q

'Did the boy dirty your notebook?'

B: EVET, \emptyset_a \emptyset_b KİRLETMEK.
YES DIRTY

'Yes, he dirtied (it).'

(4) GÜL_a GEÇEN HAFTA BODRUM GİTMEK. \emptyset_a
GÜL LAST WEEK BODRUM GO

BOL_BOL YÜZMEK.
A.LOT SWIM

'Gül went to Bodrum last week. (She) swam a lot.'

(2)–(4) illustrate that TİD allows not only omission of subjects of both agreeing and plain transitive verbs but also of their objects.

This paper analyzes null argument constructions such as those exemplified in (2)–(4) and holds that, contra Sevinç (2006) and in line with Kayabaşı (2018),

agentive subjects of agreeing² (single as well as double) verbs can be phonologically null in a sentence in TİD, given the appropriate licensing conditions. It is shown that null arguments are compatible with all classes – transitive and intransitive – agreement and plain verbs. This holds with agreement verbs where agreement is expressed in terms of directionality as well as whole-entity classifier predicates where agreement is expressed by the handshake. As will be shown below, whole-entity classifier predicates behave as agreement verbs in TİD, allowing phonologically null arguments, in a manner similar to DGS (cf. Glück & Pfau 1998).

The paper investigates the licensing conditions of the phonologically null arguments in TİD in a number of syntactic contexts with the aim of determining whether there is a syntactic difference between the two types of phonologically null arguments – *pro/copy* and *topic variable* – with respect to their behavior. The presence of a difference vis-à-vis the same syntactic phenomena may potentially be evidence of a difference in their nature while the absence of a difference will be an indication that they are instances of the same phenomenon. The presence or absence of such a difference will in turn have implications with respect to the formalization of their licensing strategies.

In the literature, it has been stated that null arguments function as topic continuity devices (cf. Givón 1983). The investigation of the properties of the phonologically null arguments in TİD will provide an insight into whether they function as topic continuity devices, and, as such, are a syntax-pragmatics interface phenomenon in TİD. As such, the investigation might yield some evidence as to whether TİD is a discourse-oriented or a sentence-oriented language, subject to universal syntactic constraints/principles.

The organization of the paper is as follows. In Section 2, we briefly discuss the methodology we followed in data collection. The conditions that sanction null arguments in a TİD sentence are investigated in Section 3. Section 4 investigates the properties of topicalization constructions in relation to null arguments. Section 5 analyzes the effect of localization on the interpretation of null arguments. Section 6 is the conclusion.

2. For this categorization of verbs in TİD, we follow Sevinç (2006) and Kubuş (2008) who assume the categorization of sign language verbs proposed by Padden (1983) and hold that TİD verbs are categorized into three classes: (i) agreement verbs, (ii) plain verbs, (iii) spatial verbs and classifier verbs. A discussion of the TİD verb categories can also be found in Dikyuva et al. (2007).

2. A word on methodology

Our analysis is based on data obtained from our deaf consultant and five adult native TİD participants. The participants were 25–50 years of age, four male, one female. The data presented to the participants were video-recorded by our deaf consultant in the sign language laboratory.

We used two different sources for our data: (i) elicitation tasks, and (ii) natural story telling texts. The natural story telling data came from three selected YouTube videos narrated by a deaf native signer.³ The videos were downloaded and annotated in ELAN software. Annotated utterances were marked with regards to whether they include null arguments and their referents. The annotations were checked and corrected by our deaf consultant.

Three types of elicitation tasks were developed: (i) grammaticality judgment, (ii) sentence repetition, and (iii) picture selection. The grammaticality judgment task consisted of 40 sentences (excluding the fillers), 14 of which were in the canonical word order (SOV) with overt arguments. The remaining 26 sentences were their topicalized counterparts in the OSV order.⁴ Our consultant produced the topicalized constructions by using one or more of four different strategies of argument realization in place of the topicalized argument: (i) null category, (ii) overt NP, (iii) index, and (iv) buoy. These are respectively illustrated in Figure 1 (null category), Figure 2 (overt NP), Figure 3 (index), and Figure 4 (buoy).

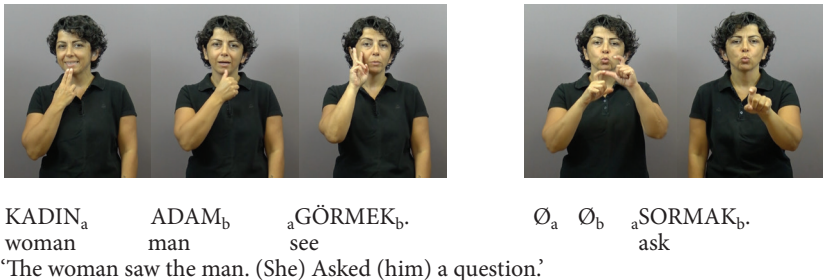
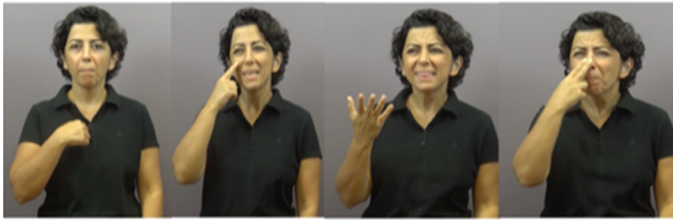


Figure 1. Null Argument

3. The Youtube channel in question is named “Özgür The Travel”. The selected three videos are called “Çizgili Pijamalı Çocuk” (The Boy in Striped Pajamas), “The Impossible (Kıyamet Günü)” and “3096 Gün” (3096 Days).

4. One of the reviewers raised the question as to why it is that we label the constructions with OSV order as ‘topic’ structures and not ‘focus’. We thank the reviewer for the comment. However, given the fact that no study on focus in TİD exists in the literature, we follow the general analysis of the left periphery as being related to topic.

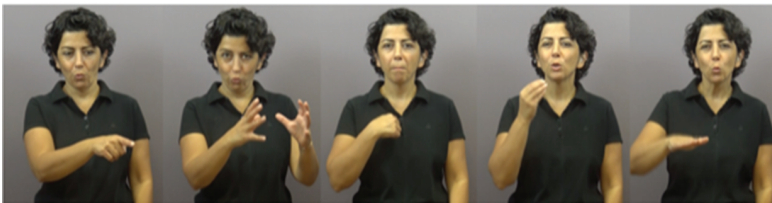


BEN [DEMET NE BEĞENMEK]
 1sg DEMET WHAT LIKE



BİLMEK.DEĞİL
 KNOW.NEG
 'I don't know what Demet likes.'

Figure 2. Overt NP/DP

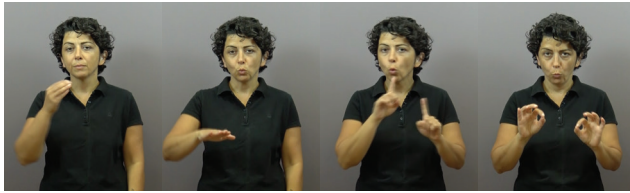


*IX TOP_i BEN [ÇOCUK_a
 THAT BAL 1-SG MALE CHILD



NE_ZAMAN IX_i ALMAK_a] BİLMEK. DEĞİL
 WHAT TIME (IT) TAKE KNOW.NEG
 'That ball, I don't know when the boy took (it).'

Figure 3. Index (IX)



ÇOCUK
BOY

DOĞUMGÜNÜ.
BIRTHDAY



ÇOCUK_b _____
MALECHILD

BABA_a
FATHER

HEDİYE_a VERMEK_b,
PRESENT GIVE



AMA
BUT

ABLA_c
SISTER

Ç VERMEK.DEĞİL_b
GIVE.NEG

'It is the boy's birthday. To the boy, the father is giving (him) presents, but not the sister.'

Figure 4. BUOY

The sentences appeared on the screen in randomized order via Open Sesame Software. The participants were asked to grade them on a scale from 1 to 5 (5 = grammatical, 1 = ungrammatical). The results were converted into excel files for the ease of evaluation. Our deaf consultant provided the initial grammaticality judgment of the data set.

The repetition task involved production of the set of sentences involving canonical word order and their topicalized counterparts. The participants were asked to repeat what they saw on the video. The aim was to test the degree of convergence between their responses to the grammaticality judgment task and their production. Our rationale in giving the production task was that in view of the

subjectivity of the grammaticality judgment task which potentially can reflect the individual differences among participants, the production task would provide us an objective indication not only of their evaluation of the constructions but, more importantly, also of their interpretation of the constructions. A potential difference between their subjective evaluation of the grammaticality of the constructions and the objective evidence provided by the repetition task, particularly of the topicalized constructions, would be significant in verifying the results of the grammaticality judgment task as well as in explaining the potential cases in which the judgments of the informants did not confer with each other and/or with those of our consultant. We interpreted the standardization of signing as evidence that the participants were able to process the topicalized constructions, but the fact that they produced the constructions in the canonical order rather than in the inverted order to mean that the noncanonical order was in fact ungrammatical.

For the picture selection task, 11 sentences or sentence pairs with null arguments were constructed and recorded along with the corresponding question “Who [VERB]ed?”. The sentences, with their corresponding questions and pictures, were projected on the screen in a randomized order via Open Sesame Software. The participants were asked to select the appropriate picture of the picture pairs. The results were then converted into excel files for the ease of evaluation. What was significant in the data was that no locus was assigned to the arguments in the first sentence as our consultant recorded the sentences. This meant that the initial and final positions of the agreement verbs of the second sentence were open to the participants’ interpretation as to which referent was assigned to which of the two loci.

3. Null arguments and verb categories

As illustrated in (2)–(4), repeated here for convenience’ sake, TİD licenses null arguments, i.e. arguments of a verb do not need to be overtly expressed within a clause in TİD. This holds for the subject as well as the object of agreement verbs, as in (2).

- (2) Agreement verbs
 KADIN_a ADAM_b GÖRMEK_b. Ø_a Ø_b SORMAK_b.
 WOMAN MAN SEE ASK
 ‘The woman saw the man. (She) Asked (him) a question.’

As Examples (3) and (4) illustrate, null arguments can also occur in the absence of agreement on the verb. The verbs in (3) and (4) are plain verbs which are not marked for agreement.

Plain verbs

- (3) GÜL_i GEÇEN HAFTA BODRUM GİTMEK. \emptyset_i BOL BOL YÜZMEK.
 GÜL LAST WEEK BODRUM GO A.LOT SWIM
 ‘Gül went to Bodrum last week. (She) swam a lot.’

- (4) A: _____y/n
 ÇOCUK_i SENİN DEFTER_j KİRLETMEK
 BOY 2POSS NOTEBOOK DIRTY Q
 ‘Did the boy dirty your notebook?’

- B: EVET, \emptyset_i \emptyset_j KİRLETMEK.
 Yes dirty
 ‘Yes, he dirtied (it).’

(2) is a sequence of two monoclausal sentences. The verb of the first sentence is the transitive agreement verb GÖRMEK ‘see’ which agrees with its subject and object.⁵ Both of the nominal arguments of the verb GÖRMEK ‘see’ are present in the structure. The verb of the second sentence SORMAK ‘ask’ is also a double agreement verb which agrees with its subject and object. Agreement with the two arguments of SORMAK ‘ask’ is marked by directionality of the hand movement where the initial locus of the hand in signing space at the point the movement of the verb starts marks the subject and the final location of the hand marks the indirect object. The grammaticality of the sentence indicates that both of the arguments of the verb SORMAK ‘ask’ can be phonologically null.

In (3) and (4) respectively, on the other hand, the verbs YÜZMEK ‘swim’ and KİRLETMEK ‘dirty’ are plain verbs. The subjects of both the intransitive verb YÜZMEK ‘swim’ in (3) and of the transitive verb KİRLETMEK ‘dirty’ as well as the object SENİN DEFTER ‘your notebook’ of the latter in (4) are phonologically null, evincing that omission of subject and object arguments is allowed not only with agreeing verbs but also the null arguments of plain verbs are licensed in TİD. Significantly, while in (3) and (4) there is no overt copy of the argument with which the phonologically null argument(s) can be coindexed, the phonologically null arguments in (2) are coindexed with the agreement markers on the double agreement verb SORMAK ‘ask’ in (2) and as such behave as phonologically null copies of the arguments. The phonologically null element in the former two, i.e.

5. As a body-anchored verb GÖRMEK can behave as a double agreement verb in that the movement of the hand starts on the body of the signer to express the verb. The sign is produced with the index and middle fingers extended as a V shape, initially touching the face just below the eye and moving in the direction of the object. In the case the subject is not first person, the hand can first move away from the body of the signer to the location of the subject and from there to the location of the object. In this instance however our informant produced it as a single agreement verb.

(3) and (4), is coindexed with the topic of discourse introduced in the preceding context, and, as such, is a variable.

As illustrated in the visuals in Section Two, TİD, similar to other sign languages, exhibits the full array of means of establishing association of the arguments of the verb with a referent – overt nominals, overt pronouns, null pronouns, and agreement morphology. The null arguments of SORMAK ‘to ask’ in (2) seem to conform to the licensing conditions of phonologically null arguments of an agreeing verb as proposed in Lillo-Martin (1986, 1991). As null arguments of the double-agreeing verb SORMAK ‘to ask’, the two phonologically null arguments are coindexed with the agreement morphemes on the verb, and as such, are associated with their respective referents. In other words, the null arguments in (2) are instances of the null copy co-indexed with the agreement morphology on the verb SORMAK ‘ask’.

(3) and (4), on the other hand, show that agreement morphology is not necessary for the occurrence of null arguments in TİD. The verbs YÜZMEK ‘swim’ in (3) and KİRLETMEK ‘to dirty’ in (4) are plain verbs which are not marked for agreement. The subjects of (3) and (4) as well as the object of (4) are phonologically null, showing that null arguments can occur in constructions with plain verbs as well in TİD.

With respect to the null arguments of plain verbs, on the other hand, we hold that they are licensed by the topic of discourse, as initially proposed by Huang (1984, 2010) for Chinese. Similar to example (2), in example (3) too, the first sentence sets GÜL as the topic of discourse. The discourse is about the activities of GÜL, who is the subject of the first sentence. The referent of the phonologically null subject of the verb YÜZMEK ‘swim’ in the second sentence is unambiguously interpreted to be GÜL. In this sense, we hold that the null argument in (3) is a variable, associated with the topic of discourse and licensed by topic feature at “the LF’ module of grammar following LF” (Huang 2010: 250).

Similarly, in the absence of agreement morphology on the verb KİRLETMEK ‘to dirty’ in (4B) too, the licensing strategy of the null arguments of a plain verb differs from that of the null arguments of an agreeing verb like SORMAK ‘ask’ in (2). Following the analysis of null arguments of plain verbs offered by Lillo-Martin (1986, 1991) for the phonologically null arguments in ASL, we hold that the null subject and object arguments of the plain verb KİRLETMEK ‘to dirty’ in (4B) are coindexed by the antecedents mentioned in the preceding question, i.e. ÇOCUK ‘boy’ and SENİN DEFTER ‘your notebook’ respectively. As such, the null arguments of the plain verb KİRLETMEK ‘to dirty’ behave as discourse variable x , licensed by discourse topic.

The examples (2)–(4) seem to lead to the analysis where TİD distinguishes between two types of null arguments: the phonologically null copy \emptyset of the

argument of an agreement verb which is coindexed with verbal agreement and phonologically null argument \emptyset of a plain verb which is coindexed with discourse topic, i.e. variable x . As such, TİD appears to possess phonologically null arguments which conform to the principles of sentence grammar while (3) and (4) on the other hand indicate that TİD also has phonologically null arguments licensed by the appropriate mechanism that applies at the syntax-discourse interface. The licensing conditions of the null arguments of the different classes of verbs hence seemingly differ significantly from each other.

Given that the licensing conditions of the phonologically null subject and object of the plain verbs like KİRLETMEK ‘to dirty’ and the subject of the verb YÜZMEK ‘swim’ involve coindexation with the topic of discourse in the preceding context in contrast to the phonologically null arguments of agreement verbs which involve agreement, the two classes of phonologically null arguments are predicted to behave differently from each other with respect to contexts which induce intervention effects. Whether this prediction holds or not will have a significant effect on the nature of the phonologically null arguments of the two classes.

3.1 Handshape as agreement


As mentioned earlier, properties other than directionality have been shown to mark agreement in other sign languages. Changes in hand configurations have been analyzed as markers of agreement in DGS (Glück & Pfau 1998) and NGT (van Gijn & Zwitserlood 2006). Drawing a parallelism between the semantics of the genders and the assignment of noun referents to the genders in the gender agreement system of Bantu languages and that of hand configurations as agreement markers, van Gijn and Zwitserlood treat such markers as gender markers in sign languages.

(5B) below illustrates that TİD employs an agreement strategy besides directionality. The predicate of the following question-answer pair is the agreeing verb VERMEK ‘give’.

- _____y/n
- (5) A: ADAM_a KADIN_b MEKTUP_c VERMEK_b
 MAN WOMAN LETTER GIVE
 ‘Did the man give a letter to the woman?’
- B: EVET, \emptyset_a \emptyset_b \emptyset_c VERMEK_b.
 YES GIVE
 ‘Yes, he gave (it) (to her).’

VERMEK ‘give’ is a double agreeing verb. The question in (5A) has the full range of arguments overtly present in the structure. In the reply in (5B), on the other

hand, the subject and the object of the agreeing verb VERMEK ‘give’ are phonologically null. This is predicted given that the two respective argument nominals of the verb VERMEK ‘give’ are encoded in the verb through directionality, thus licensing the omission of their overt expression as a full nominal.

(5B) however illustrates yet another agreement strategy TİD employs in addition to directionality. VERMEK ‘give’ is a three-place classifier predicate (cf. Kubuş 2008). As such, B’s reply in (5B) to the preceding question encodes a third silent argument- the phonologically empty category that refers to the direct object MEKTUP ‘letter’. VERMEK ‘give’ as a classifier predicate encodes the object being transferred by the shape of the hand in forming the verb sign  flat-O shape with fingers bent against the thumb.⁶ We hence hold that, in addition to the subject and indirect object agreement on the verb VERMEK ‘give’ in the form of initial and end loci of the verb movement, the shape of the hand also marks agreement in the classifier predicate. VERMEK ‘give’. The phonologically null direct object in (5B) is an instantiation of *pro* coindexed with the handshape in agreement with the object MEKTUP ‘letter’. The null argument referring to the direct object, *pro*, is licensed by AGR on INFLECTION which is marked in the handshape of the classifier verb.

(5B) thus illustrates that TİD classifier predicates too show that agreement can be shown by properties other than directionality. Thus, similar to sign languages like DGS and NGT, TİD employs different strategies in marking coreferentiality between the null arguments of agreeing verbs and their referents. In addition to the agreement morphology on the verb sign marked by the location of the hand at the initial and end positions of the verb as proposed by Lillo-Martin (1986, 1991) for ASL, the shape of the hand in the classifier predicate VERMEK ‘give’ also functions as an agreement marker, allowing the omission of the nominal argument.

4. Constraints on null arguments

The discussion in the preceding section seems to lead to the conclusion that the phonologically null arguments in TİD behave in a manner similar to those observed in better described sign languages such as ASL, DGS, NGT. Null arguments are allowed by agreeing, classifier and plain verbs. The null arguments of the former two classes, i.e. agreeing and classifier verbs, are coindexed with the agreement morphemes on the verb. In line with the assumptions of the Minimalist Program (Chomsky 1995, 2000, 2001), we hold that the object agreement is valued, thereby licensed, by the AGR(eement) feature on v^0 and subject agreement

6. See Kubuş (2008) for the range of hand shapes that function as classifiers in TİD.

by AGR feature on T-head. The null arguments of plain verbs are variables that are licensed by discourse topic, licensed by a coindexation process that applies at the syntax discourse interface level at “the LF’ module of grammar following LF” (Huang 2010: 250).

However, further investigation into other syntactic properties of the two classes of null arguments reveals that they behave in a similar manner with respect to the syntactic contexts in which they can(not) occur. In other words, the two classes do not in fact differ from each other in relation to certain syntactic phenomena. This is unpredicted if the phonologically null arguments of agreeing and plain verbs are in fact different elements, licensed by different mechanisms. In the absence of evidence to the contrary, the simplest explanation of similar behavior will be to assume that the two sets of null arguments are not instances of two distinct entities but the same entity. If the latter, then the apparent difference in the licensing strategies of the two respective types of null arguments discussed above needs to be reconsidered.

The omission of the subject and the object of an agreeing and plain verb in TİD seems to be subject to the same constraints, as the following evidence from topicalization constructions shows.

4.1 Topicalization

The canonical order of constituents in a clause in TİD is SOV (Sevinç 2006; Kubuş 2008). TİD nevertheless licenses constructions in which the VP-internal constituent of a clause occurs in a position other than its canonical position, specifically in sentence initial position. We label such constructions in which the VP-internal argument occurs in sentence initial position as sentential topicalization constructions.⁷ Topicalization seems to apply to a relatively limited degree in TİD with a rather strict semantic constraint on the topicalized nominal. Also significant is the fact that the nominal that occurs in sentence initial position in such constructions does not seem to be marked by any distinctive nonmanuals in TİD.⁸ The canonical position of the ‘displaced’ constituent is occupied by one of the following elements: a phonologically null \emptyset , an index or a buoy.

7. We are not necessarily assuming that topicalization constructions are the output of a movement operation in TİD. Whether such constructions do in fact involve movement is for further research.

8. We hypothesize that it is the absence of any nonmanuals associated with topicalization that imposes a semantic restriction on the topicalized constituents, allowing topicalization of only inanimate entities.

The following illustrate the animacy constraint on topicalization. Only nominals whose referents are inherently inanimate can undergo topicalization.

- (6) a. IX KİTAP_i BÜTÜN ÖĞRENCİ Ø_i OKUMAK
 IX BOOK ALL STUDENT READ
 ‘That book, all students read.’
- b. ?*KEDİ_i ÇOCUK Ø_i ÇOK SEVMEK,
 CAT MALECHILD VERY LOVE
 KÖPEK SEVMEK.DEĞİL
 DOG LOVE.NOT
 ‘Cats, the boy loves very much, dogs he does not.’
- c. *GÜL_i SAMET_j Ø_i GÖRMEK_i
 GÜL_i SAMET_j Ø_i SEE_i
 ‘Gül, Samet saw (her)./It was Gül that Samet saw.’

(6a–c) illustrate the animacy constraint on the topicalized argument.⁹ Only nominals which refer to inherently inanimate entities can be topicalized. Those that have animate entities as referents do not topicalize, but occur in the canonical position of the argument in the sentence. This is observable in the grammaticality judgments (6a–c) received. (6a), in which the object O KİTAP ‘that book’ appears in sentence initial position, is grammatical. However, the degree of grammaticality of the topicalization construction deteriorates as the referent of the topicalized nominal gets higher on the animacy scale. In (6b), the animate object KEDİ ‘cat’ has been topicalized; the sentence is marginally grammatical. In (6c) topicalization of the human object ÇOCUK ‘boy’ has resulted in ungrammaticality¹⁰ showing that topicalization in the matrix clause is licensed to a relatively restricted degree in TİD.

What is also significant is the fact that the null object in (6a) is licensed by a classifier verb, potentially another instance of coindexation of the null argument with agreement on the verb morphology. The verb OKUMAK ‘read’ is a classifier

9. In their analysis of the gapping constructions in TİD, Sevinç and Bozşahin (2010) note that there is a strong animacy constraint on the order of constituents of both plain and agreement verbs: animate patients cannot precede agents in sentences with plain and agreement verbs. The order of constituents has been noted to be sensitive to animacy in a number of sign languages (Napoli et al. 2017).

10. The results of our repetition task provided strong evidence in favor of this analysis. It was significant that participants did not repeat the topicalized constructions projected on the screen (with the exception of (6a) which was ‘correctly’ repeated by one of the participants and the ones with overt resumptive pronouns as IX and buoy, as will be discussed in 4.2) but produced the sentences in their canonical constituent order, i.e. their non-topicalized counterparts, as SOV.

verb in TİD where the flat non-dominant hand with extended fingers is held in neutral space while the extended index and middle fingers of the dominant hand move in a zigzag motion downwards starting from a location slightly above the non-dominant hand. As a classifier predicate, the flat non-dominant hand with extended fingers in OKUMAK ‘read’ represents the book being read and the action of the dominant hand enacts the action of the eyes as they move across the pages during reading. The null argument is coindexed with the hand that agrees in shape with the referent KİTAP ‘book’.

TİD also has discourse topic constructions in which the topic is introduced in a predication preceding the one that contains the null argument. The following sections investigate the behavior of phonologically null arguments of both agreement and plain verbs in the two types of ‘topic’ constructions.

4.2 Island effects

(7a–b) contain embedded wh-questions. In (7b), topicalization has applied to the subject of the embedded wh-clause whose predicate is a plain verb – BEĞENMEK ‘like’. The structure has resulted in ungrammaticality.

- (7) a. BEN [DEMET NE BEĞENMEK] BİLMEK.DEĞİL
 1-SG DEMET WHAT LIKE KNOW.NEG
 ‘I don’t know what Demet likes.’
- b. *DEMET_i BEN [Ø_i NE BEĞENMEK] BİLMEK.DEĞİL
 DEMET 1-SG WHAT LIKE KNOW.NEG
 ‘Demet, I don’t know what (she) likes.’

There are two possible sources for the ungrammaticality of (7b). One is that the ungrammaticality might be due to the violation of animacy constraint. The other is that the antecedent cannot bind the phonologically null copy Ø in the embedded clause. Given that there is no agreement to bind Ø in its own clause, Ø is not licensed, hence the ungrammaticality of the construction.

Note that animacy constraint being the only source of ungrammaticality in (7b) is ruled out by the contrast between (8a) versus (8b) in which the ‘topicalized’ constituent is inanimate, i.e. TOP ‘ball’. (8b) is ungrammatical although the animacy constraint is satisfied. In contrast, (8a) in which the constituents occur in their canonical order is grammatical. In (8a–b) the verb of the embedded clause is the double (backward) agreement verb ALMAK ‘take’.

- (8) a. BEN [IX ÇOCUK_a TOP_b NE ZAMAN
 1-SG THAT BOY BALL WHAT TIME
_bALMAK_a] BİLMEK.DEĞİL
 TAKE KNOW.NEG
 ‘I do not know when that boy took the ball.’

- b. *IX TOP_b BEN [ÇOCUK_a Ø_b NE ZAMAN
 IX BALL_b 1-SG BOY_a Ø_b WHAT TIME
_bALMAK_a] BİLMEK.DEĞİL
_bTAKE_a KNOW.NEG
 ‘That ball, I don’t know when the boy took (it).’

In (8a–b), although the animacy constraint has been satisfied and the predicate is the agreement verb ALMAK ‘take’, the ungrammaticality of (8b) shows that a phonologically null Ø of an embedded wh-clause cannot be coindexed with a nominal referring to an inanimate entity either.

Significantly, as (9) and (10) show, a construction in which a sentence initial constituent of an embedded wh-clause cannot be saved by the overt resumptive pronoun strategy either. (9) below whose predicate is the plain verb BEĞENMEK ‘to like’ is a variant of (7b) and (10) is a variant of (8b) in which the subject and object constituents of the embedded wh-clauses are respectively topicalized with an overt resumptive pronoun in the embedded wh-clause. Neither (9) with the plain verb BEĞENMEK ‘like’ nor (10) with the agreeing verb ALMAK ‘take’ as the verb of the embedded wh-clause is grammatical.

- (9) *DEMET_i BEN [IX_i NE BEĞENMEK] BİLMEK.DEĞİL
 DEMET 1SG IX SHE WHAT LIKE KNOW.NEG
 ‘I don’t know what Demet likes.’
- (10) *IX TOP_i BEN [ÇOCUK NE ZAMAN IX_i
 IX BALL 1-SG BOY WHAT TIME IX
_iALMAK] BİLMEK.DEĞİL
 TAKE KNOW.NEG
 ‘That ball, I don’t know when the boy took (it).’

The ungrammaticality of (9) and (10) shows that the class of the embedded verb is not the crucial factor in the ungrammaticality of (7b) and (8b). In (10a–b) there is an overt pronoun, a resumptive pronoun in the embedded clause. The verb of the embedded clause in (9) is the plain verb BEĞENMEK ‘like’ and in (10) it is the agreement verb ALMAK ‘take’. Neither in (9) nor in (10) can the overt pronoun in the embedded clause be coindexed with the antecedent in sentence initial position. As such, the resumptive pronoun strategy has not repaired the ungrammaticality in neither of the constructions in (9) and (10). The ungrammaticality of (7)–(10) seems to indicate that topicalization obeys wh-island constraint in TİD. Arguments cannot topicalize out of a wh-island. We therefore hold that examples (7b) and (8b) show that topicalization is sensitive to the wh-island constraint. Sensitivity to wh-island constraint can further be argued to show that topicalization involves movement in TİD.

4.3 Null arguments and ATB constructions

That null arguments of agreement and plain verbs behave similarly syntactically is also observed in across-the-board extraction constructions. TİD does not license across-the-board extractions.

- (11) a. ÇOCUK DOĞUMGÜNÜ. HERKES_a ÇOCUK_b
 BOY BIRTHDAY EVERYONE BOY
 HEDİYE_a VERMEK_b
 PRESENT GIVE
 ‘It is the boy’s birthday. Everyone is giving the boy presents.’
- b. *ÇOCUK DOĞUMGÜNÜ. ÇOCUK_b BABA_a ø_b HEDİYE_i
 BOY BIRTHDAY BOY FATHER PRESENT
_a VERMEK_b, AMA ABLA_c ø_b ø_i _c VERMEK.DEĞİL_b
 GIVE BUT SISTER GIVE.NEG
 ‘It is the boy’s birthday. To the boy, the father is giving (him) presents, but the sister does not give.’

(11b) is an instance of across-the-board extraction. Extracting ÇOCUK ‘boy’ out of both conjuncts has resulted in ungrammaticality. The verb of the construction is the classifier verb VERMEK ‘give’ which typically agrees with the subject and the indirect object. (11b) is nevertheless not licensed. The ungrammaticality of (11b) might be argued to be due to the violation of the semantic constraint that restricts topicalization in TİD- a nominal referring to an animate entity cannot cross over another nominal referring to an animate entity in the sentence. Note however that the constraint that outlaws (11) is not merely due to a violation of the animacy constraint on ‘extraction.’ (12) in which the nominal extracted from both conjuncts – IX TOP ‘that ball’ – has an inanimate referent. The sentence is also judged to be ungrammatical.

- (12) *IX TOP_i ERKEK ÇOCUK ø_i GÖRMEK_i AMA KIZ ÇOCUK
 IX BALL MALE CHILD SEE BUT GIRL CHILD
 ø_i _i ALMAK
 GET

‘The ball, the boy saw (it) but the girl got (it).’

Significantly, the verbs in the two conjuncts are respectively the agreeing verbs GÖRMEK ‘to see’ and ALMAK ‘to take’ in (12), yet the construction in which the nominal IX TOP ‘that ball’ is overtly extracted from both conjuncts is not licensed.

On the other hand, constructions in which null arguments occur in the two conjunct clauses but no nominal is overtly extracted are licensed. (13) is an example of discourse topic construction. The potential antecedent of the phonologically

null arguments of the two conjunct clauses of the second sentence is introduced in the preceding predication. The verb of the two conjunct clauses is the body-anchored verb ÖPMEK ‘to kiss’. In (13), the arguments of ÖPMEK ‘to kiss’ in the two conjuncts are phonologically null.

- (13) ÇOCUK_i DOĞUM GÜNÜ. ANNE \emptyset_i ÖPMEK AMA ABLA
 BOY BIRTH DAY MOTHER KISS BUT SISTER
 \emptyset_i ÖPMEK.DEĞİL¹¹
 KISS-NEG

‘It is the boy’s birthday. The mother kissed but the sister did not.’

Interestingly, the absence of an overt object in the two conjuncts in (13) is judged to be grammatical. This is in contrast to example (12) where across-the-board extraction resulted in ungrammaticality in the presence of the overt nominal in sentence initial position. In (13), the referent of the null arguments is interpreted to be ÇOCUK ‘boy’, which is introduced in the preceding context ÇOCUK DOĞUM GÜNÜ ‘It is the boy’s birthday’. The context sets ÇOCUK ‘the boy’ as the topic of discourse. The null arguments of the two conjuncts are coindexed with the topic of the discourse, i.e. ÇOCUK ‘boy’, by the mechanism that coindexes constituents with the discourse topic. In other words, the null arguments in the conjoined sentence in (13) are associated with the topic of the discourse.

Significantly, overt extraction of the object ÇOCUK ‘boy’ from both of the conjuncts yields an ungrammatical sentence, in contrast to the grammaticality of constructions such as (13) in which no overt extraction has applied. (14) differs from (11) in that despite the presence of a topic introducing predication, sentence internal topicalization has also applied with an overt nominal in sentence initial position in the second predication whose predicate is the plain verb ÖPMEK ‘kiss’. In (14), across-the-board topicalization (ATB) has resulted in ungrammaticality.

- (14) *ÇOCUK DOĞUM GÜNÜ. ÇOCUK_i ANNE \emptyset_i ÖPMEK AMA
 BOY BIRTH DAY BOY MOTHER KISS BUT
 ABLA \emptyset_i ÖPMEK.DEĞİL
 SISTER KISS-NEG

‘It is the boy’s birthday. The child, the mother kisses but the sister did not.’

11. This sentence is also significant in that the missing argument of the body-anchored verb ÖPMEK ‘to kiss’ is the object, not the subject. It has been claimed that the lexicon of sign languages “identifies the lexicalization pattern of ‘body as subject’ as basic strategy (Meir et al. 2007). If the analysis of TİD put forth in this study is on the correct path, (13) is an example of the extent to which discourse considerations can override lexical properties. In (13), the omitted argument of the body-anchored verb ÖPMEK ‘to kiss’ is the object, rather than the subject.

Similar effect is observed in (15) as well in which across-the-board topicalization has attempted to apply out of the two conjuncts of a conjoined sentence with an agreement verb. The verb in (15) is the agreement verb GÖRMEK ‘see’.

- (15) *HERKES ÇOCUK ARAMAK. ÇOCUK_a ANNE Ø_a
 EVERYONE BOY SEARCH BOY MOTHER
 GÖRMEK_a AMA BABA Ø_a GÖRMEK.DEĞİL_i
 SEE BUT FATHER SEE.NEG

‘Everyone is looking for the boy. The boy, the mother sees (him), but the father does not see (him).’

Although the verb is the agreement verb GÖRMEK ‘see’ in (15), ATB extraction of the object ÇOCUK ‘boy’ has resulted in an ungrammatical sentence.

However, ATB constructions are judged to be grammatical with an overt resumptive pronoun strategy where an index IX or BUOY occurs in the two conjuncts. The two strategies are exemplified in (16a–b) respectively. In (16a), the index IX in the first conjunct is retained until the end of the second conjunct, i.e. it spreads over both of the conjunct clauses in a manner similar to a buoy. In (16b), the index sign is produced in the two conjuncts.

- (16) a. ÇOCUK DOĞUMGÜNÜ. ÇOCUK_b IX_b BABA_a HEDİYE
 BOY BIRTHDAY BOY IX_b FATHER PRESENT
_aVERMEK_b, AMA ABLA_c VERMEK.DEĞİL_b
_aGIVE_b BUT SISTER GIVE.NEG

‘It is the boy’s birthday. To that boy, the father is giving (him) presents, but not the sister.’

- b. ÇOCUK DOĞUMGÜNÜ. ÇOCUK_b _____ BABA_a IX_b
 BOY BIRTHDAY BOY FATHER IX_b
 HEDİYE _aVERMEK_b, AMA ABLA_c IX_b _cVERMEK.DEĞİL_b
 PRESENT GIVE BUT SISTER IX_b GIVE.NEG

‘It is the boy’s birthday. To the boy, the father is giving him presents, but the sister did not give it to him.’

(16a–b) also evince that the overt resumptive pronoun strategy overrides the animacy constraint in such constructions.

As (17a–b) illustrate, an antecedent in the first conjunct clause can license neither a phonologically null argument nor an overt pronoun in the second conjunct clause.

- (17) a. *ERKEK ÇOCUK TOP_j GÖRMEK_i AMA KIZ ÇOCUK_a
 MALE CHILD BALL SEE BUT GIRL CHILD
 Ø_i ALMAK_a
 TAKE

‘The boy saw the ball but the girl took (it).’

- b. *ERKEK ÇOCUK TOP_i GÖRMEK_i AMA KIZ ÇOCUK_a
 MALE CHILD BALL SEE BUT GIRL CHILD
 IX_i ALMAK_a
 IX_i TAKE
 ‘The boy saw the ball but the girl took it.’

In (18a–d), there is a buoy and/or an index in both of the conjunct clauses of a conjoined sentence with a ‘topicalized’ shared object constituent. The presence of an overt element in (18b and d) saves the construction with the agreement verbs GÖRMEK ‘see’ and ALMAK ‘take’ as the verbs of the two conjunct clauses respectively where the absence of an overt element as IX or buoy in the conjunct clauses in (18a and c) leads to ungrammaticality.

- (18) a. *IX TOP_i ERKEK ÇOCUK GÖRMEK_i] AMA KIZ
 TOP_i _____
 IX BALL_i MALE CHILD Ø_i SEE BUT GIRL
 ÇOCUK_b Ø_i ALMAK_b
 CHILD_b Ø_i TAKE_b
 ‘The ball, the boy saw (it) but the girl took (it).’
- b. TOP_i IX_i ERKEK ÇOCUK GÖRMEK_i AMA KIZ ÇOCUK_b
 IX_i _____
 BALL IX_i MALE CHILD SEE_i BUT GIRL CHILD_b
 TOP IX_i ALMAK_b
 TOP IX_i _____
 BALL IX_i TAKE
 ‘The ball, the boy saw it but the girl took it.’
- c. *IX TOP_i ERKEK ÇOCUK Ø_i GÖRMEK_i AMA KIZ ÇOCUK
 IX BALL_i MALE CHILD Ø_i SEE_i BUT GIRL CHILD
 Ø_i ALMAK_b
 Ø_i TAKE
 ‘The ball, the boy saw (it) but the girl took (it).’
- d. TOP_i ERKEK ÇOCUK GÖRMEK_i AMA KIZ ÇOCUK
 TOP_i _____
 BALL_i MALE CHILD SEE BUT GIRL CHILD
 IX_i ALMAK_b
 IX_i TAKE
 ‘The ball, the boy saw it but the girl took it.’

In (18a) and (18c), one or both of the conjunct clauses do(es) not contain an overt copy of the ‘topicalized’ constituent TOP ‘ball’. In (18a), the buoy TOP spreads

over the first but not the second conjunct clause which contains a null argument. As predicted, this is a violation of the Coordinate Structure Constraint and the structure is ungrammatical. In (18c), neither of the conjunct clauses contains an overt copy of the ‘topicalized’ constituent TOP ‘ball’. Both sentences are ungrammatical. (18b) and (18d), on the other hand, both contain an overt copy of the ‘topicalized’ argument in both of the conjunct clauses. In (18b), each of the two conjunct clauses contains an instance of IX spread over the respective clause. (18d) is an instance in which the first clause contains a buoy which spreads over its containing clause where the second clause contains IX. The buoy/index in (18b) and (18d) function as resumptive pronouns, providing evidence that TİD does not license phonologically null arguments in conjoined constructions.

As the grammaticality patterns of across-the board extraction constructions in agreeing verbs and plain verbs show, the verbs behave similarly with respect to licensing the extraction of a constituent out of the conjunct clauses regardless of their verb category. In both contexts, the presence of an overt element, i.e. IX or a buoy, saves the construction. We take this as evidence that the agreement morphology on the agreeing verbs in TİD behaves differently from that of a language like ASL in which it has been argued to function as a pronoun (cf. Lillo-Martin 1986, 1991). In TİD, agreement morphemes in agreeing verbs do not seem to function as pronouns, as the ungrammaticality of constructions without overt resumptive pronouns shows. This raises the question regarding the nature and function of agreement morphemes in the language. Moreover, the ungrammaticality of sentences like (14) and (15) also show that null pronouns in TİD, unlike their counterparts in ASL (cf. Lillo-Martin 1986), do not behave as resumptive pronouns.

4.4 Null arguments and complement clauses

With respect to the licensing of phonologically null arguments in embedded clauses, similar patterns emerge as in the case of embedded wh-constructions and ATB structures. In (19) and (20), the objects IX KADIN ‘the woman’ and GARSON ‘waiter’ of the respective embedded clauses occur in sentence initial position at the matrix clause level. In (19), the embedded verb is the plain verb TANIMAK ‘to know’, and in (20) it is the agreeing (classifier) verb VERMEK ‘give’. Neither structure is grammatical. Neither of the sentences contains an overt pronominal element in the respective embedded clause that is coindexed with the ‘topicalized’ constituent.

- (19) a. ADAM [KARISI IX KADIN TANIMAK.DEĞİL]
 MAN WIFE THAT WOMAN KNOW.NEG
 BANA_c SÖYLEMEK
 I TELL
 ‘The man told me that his wife does not know that woman.’

- b. *IX KADIN_i ADAM [KARISI \emptyset _i TANIMAK.DEĞİL]
 THAT WOMAN MAN WIFE KNOW.NEG
 BANA_c SÖYLEMEK_c
 I TELL
 ‘That woman, the man told me that his wife does not know (her).’
- (20) a. ÇOCUK [BABA_a GARSON_b PARA_a VERMEK_b]
 BOY FATHER WAITER MONEY GIVE
 BANA_c SÖYLEMEK_c
 ME SAY
 ‘The boy told me the father gave the money to the waiter.’
- b. *GARSON_i ÇOCUK [BABA \emptyset _i PARA_a VERMEK_i]
 WAITER BOY FATHER MONEY GIVE
 BANA_c SÖYLEMEK_c
 ME SAY
 ‘To the waiter, the boy told me the father gave the money.’

That the ungrammaticality of the (b) sentences in (19) and (20) is due not to the fact that the verb of the embedded clause is a plain verb is ascertained by the fact that (20b) whose embedded verb is an agreeing verb is also ungrammatical. The ungrammaticality of both constructions shows that the phonologically null argument in the embedded clause is not licensed.

That the ungrammaticality of the (b) sentences in (19) and (20) is also not due to the violation of the Animacy Constraint on topicalization either can be observed in the ungrammaticality of (21) and (22) where the objects topicalized out of their containing clauses are nominals referring to inanimate entities, O MAÇ ‘that game’ and IX BİLGİSAYAR ‘that computer’ respectively.

- (21) a. *IX MAÇ_i IX_j ADAM KADIN_b [PRO_b \emptyset _i
 THAT GAME MAN WOMAN
 İZLEMEK] İKNA.ETMEK
 WATCH PERSUADE.DO
 ‘That game, the man persuaded the woman to watch.’
- b. *IX MAÇ_i ADAM KADIN_b [PRO_b IX_i
 THAT GAME MAN WOMAN [PRO_b IX_i
 İZLEMEK] İKNA ETMEK
 WATCH] PERSUADE.DO
 ‘That game, the man persuaded the woman to watch.’

- (22) a. KARDEŞİM BABAM_a [PRO IX BİLGİSAYAR_i
 BROTHER-1POSS FATHER-1POSS IX COMPUTER
_iALMAK_a] İKNA ETMEK
 BUY PERSUADE DO
 ‘My brother persuaded my father to buy that computer.’
- b. *IX BİLGİSAYAR_i KARDEŞ-İM BABAM_a [PRO \emptyset _i
 IX COMPUTER BROTHER-1POSS FATHER-1POSS [PRO \emptyset _i
_iALMAK_a] İKNA ETMEK¹²
 BUY PERSUADE.DO
 ‘That computer, my brother persuaded my father to buy.’

Both (21a–b) and (22a–b) are control constructions (cf. Göksel & Keleşir, 2016). The verb of the embedded clause in (21a–b) is a plain verb, while it is an agreement verb in (22a–b). (21a–b) are both instances of ‘topicalized’ constructions where the (a) and (b) sentences differ from each other with respect to the presence versus absence of an overt element in the embedded clause coindexed with the ‘topicalized’ constituent IX MAÇ ‘that game’. Significantly, the examples illustrate that the presence of the overt IX in (21b), similar to the phonologically null element in the (a) sentence, is also not licensed. In other words, the overt IX and the phonologically null \emptyset behave in a similar manner with respect to being licensed in a construction with the potentially coindexed AGR. (22a–b) illustrate that the presence of the phonologically null \emptyset is also not licensed in an embedded clause whose predicate is an agreement verb. In this sense, complement clauses seem to behave as syntactic islands with respect to licensing phonologically null arguments in TİD. Within the analysis of topicalization as a movement operation, the examples also seem to provide evidence that complement clauses behave as syntactic islands in not allowing topicalization of a constituent out of their domain.

12. Topicalization of the object out of the embedded clause seems to be licensed when the embedded clause is complement of a postposition.

- c. O BİLGİSAYAR_i KARDEŞ-İM BABA_b [PRO_b \emptyset _i
 IX COMPUTER BROTHER-1POSS FATHER BUY
_iALMAK_b İÇİN] İKNA ETMEK
 FOR PERSUADE DO
 ‘That computer, my brother persuaded my father to buy.’

As to why this structure is licensed, whether a restructuring operation applies in the presence of the postposition whereby the clause undergoes nominalization thereby licensing the extraction of the object out of PP and what the nature of that restructuring is need to be determined. We leave this issue for further research.

5. Null arguments and localization

As the discussion in the previous sections revealed, null arguments of both agreeing and plain verbs in TİD, unlike their counterparts in other languages like ASL, are subject to the same syntactic constraints. Nominals that are candidates for ‘extraction’ in both verb categories are subject to the same semantic constraints on the nature of the ‘displaced’ nominal. Like their counterparts in ASL, null arguments in TİD obey island constraints. However, unlike their ASL counterparts, TİD null arguments of agreeing and plain verbs do not exhibit any differences with respect to a number of other syntactic phenomena which have been shown to be sensitive to verb categorization in other sign languages. Null arguments of both verb categories are banned from ‘long distance extraction’ constructions, and ATB extraction.

In the literature on null arguments in sign languages, the licensing of the phonologically null elements has been shown to be sensitive to verb agreement (Lillo-Martin 1986, 1991; Glück & Pfau 1998; van Gijn & Zwitserlood 2006). Verb agreement is discussed in terms of directionality encoded in the verb sign which in turn has been argued to be crucially related to localization of the argument nominals within the signing space (Padden 1981; Liddell 1995; Lillo-Martin 1986, 1991; Lillo-Martin & Meier 2011). The relation between agreement and localization transmitted through directionality raises the question of whether in the absence of localization of a nominal within a context there is any correlation between the nature of the nominal identified as the referent of the null argument of a verb and the syntactic properties of the sentence such as the order of the constituents and/or the syntactic function of the nominals in the preceding context that is functional in recovery of the referent. The establishment of such a correlation would lead to the conclusion that association of a null argument with a potential referent is a syntactically principled operation mediated through some syntactic means. This would indicate that TİD is a sentence-oriented language. The reverse would indicate that referent assignment involves pragmatic, i.e. discourse, considerations and that TİD is a discourse-oriented language.

To determine the nature of the factor(s) governing referent assignment to null arguments in the absence of localization, i.e. in instances in which the nominal referents introduced in the sentence preceding the one containing null arguments were not assigned a locus, and to see if association with a referent is based on a syntactically defined parameter, we tested the degree of consensus among the deaf participants in identifying the referent to the question ‘Who Verb-ed?’ in a series of picture identification tasks where the participants were asked to pick the picture out of two pictures they thought was the correct answer. The task items involved short contexts projected on the screen in each of which two individuals were introduced

as the possible answer to the question ‘Who Verb?’. Crucially, no locus in the signing space was assigned to the nominal arguments of the verb in the first sentence (with the exception of two of the items and in one item the verb of the first sentence is the agreement verb GÖRMEK ‘see’ which marks the object through directionality). The absence of localization of the nominals meant that in their response to the question ‘Who VERB?’ the participants had to resolve the vagueness in the potential referents of the null arguments and decide which of the arguments of the first sentence is the appropriate answer – the subject or the object of the verb. The non-convergence of the replies among the participants, particularly in the case of agreement verbs, in identifying the referent would potentially lead to the conclusion that syntactic considerations are not crucial in determining referent identification, but that association with a referent is carried out according to pragmatic considerations.

Three of the contexts were designed with a plain verb, the others with agreement verbs as the matrix verb of the question KİM EYLEM? ‘Who VERB-ed?’. The examples with an agreeing verb as the ‘main’ verb, i.e. the verb whose argument is questioned in the task, are given below. (The R line in the examples below indicates the interpretation of the consultant (in parentheses) and of the participants where W = woman, M=man,mother (in the corresponding examples), B = brother.).

- (23) A: ADAM_a KADIN_b BULUŞMAK. Ø Ø
 MAN WOMAN MEET
 HEDİYE_{a/b} VERMEK_{a/b}
 PRESENT GIVE
 ‘The man met the woman. (S/he) gave (him/her) a present.’
 _____wh
 Q: KİM Ø HEDİYE_{a/b} VERMEK_{a/b}
 WHO PRESENT GIVE
 ‘Who gave (whom) a present?’
 R: (M) W,W,M,W,W
- (24) A: ÇOCUK ANNE ÇAĞIRMAK. Ø Ø SU VERMEK.
 BOY MOTHER CALL WATER GIVE
 ‘The boy called the mother. (S/he) gave (him/her) water.’
 _____wh
 Q: KİM SU VERMEK
 WHO WATER GIVE
 R: (W) W,W,W,W,B
- (25) KADIN ADAM GÖRMEK. Ø Ø SORMAK.
 WOMAN MAN SEE ASK
 ‘The woman saw the man. (S/he) (him/her) Asked a question.’

- _____wh
 Q: KİM SORDU?
 WHO ASKED?
 R: (W) M,M,M,W,W

In (23)–(25), the questions were interpreted to be asking for the source by our consultant. What was significant is that in (23) and (24), in both of which the verb is the classifier verb VERMEK ‘to give’, the responses of the participants differed significantly among themselves as well as from that of the consultant. In (23), while only one participant agreed with the consultant in selecting the picture ‘man’ as the answer to the question KİM HEDİYE VERMEK ‘who gave present?’, in (24) four of the participants converged in their replies to the question KİM SU VERMEK ‘who gave water?’ and selected the picture ‘woman’. The participants’ reply also agreed with that of the consultant’s.

Interestingly, the discordance in the replies of the participants is even at a higher degree both among themselves as well as with that of the consultant in (25). As the answer to the question KİM SORU SORMAK ‘who asked the question?’, only two participants replied ‘woman’ and in doing so converged with the consultant in their answer. The other three participants on the other hand selected the ‘goal’.

With respect to contexts in which the verbs questioned were the plain verbs, i.e. SEVİNMEK ‘be pleased’, HATIRLAMAK ‘to remember’, TEMİZLEMEK ‘to clean’, our consultant’s answer in all cases was ‘source’. The examples with plain verbs are as follows:

- (26) A: ADAM KADIN ARAMAK. Ø SEVİNMEK.
 MAN WOMAN LOOK.FOR PLEASED
 ‘The man looked for the woman. Ø was pleased.’
 B: KİM SEVİNMEK?
 WHO PLEASED
 ‘Who was pleased?’
 R: W W,M,W,W,W
- _____y/n
 (27) A: ADAM [KADIN MEKTUP VERMEK] HATIRLAMAK
 MAN WOMAN LETTER GIVE REMEMBER
 ‘Did the man remember that he gave the letter to the woman?’
 B: EVET, Ø Ø MEKTUP VERMEK HATIRLAMAK.
 YES LETTER GIVE REMEMBER
 ‘Yes, (s/he) remembered that (s/he) gave the letter (to her).’

- _____ wh
 Q: KİM HATIRLAMAK?
 WHO REMEMBER
 ‘Who remembered (that (s/he) gave the letter (to her/him)).’
 R: (W) W,M,W,M,W
- (28) A: KARDEŞİM ANNE BAĞIRMAK IX(KARDEŞ)
 BROTHER-1POSS MOTHER SHOUT
 BIKTI. Ø Ø O ODA TEMİZLEMEK SÖYLEMEK.
 GOT.TIRED ROOM CLEAN SAY
 ‘My brother is tired of mother shouting. (She) told (him) to clean the room.’
 Q: KİM ODA TEMİZLEMEK?
 WHO ROOM CLEAN
 ‘Who will clean the room?’
 R: (B) B,B,B,B,M

Significantly, the replies to the questions with the plain verbs KİM EYLEM? ‘WHO VERB-ED?’ were convergent with those of the consultant’s, as in the case of replies given to questions with agreement verbs. The results confirmed that there is convergence among the participants regarding the identification of the referent of the null argument – a fact which we interpret as identifying the topic of the discourse in the absence of agreement morphology on the verb.

Further evidence to the claim that null arguments are topic continuity devices in a discourse is provided by the following excerpt from “Çizgili Pijamalı Çocuk”¹ (The Boy in Striped Pyjamas).

- (29) KIZ ÇOCUK₁ EVDE. ARKADAŞLAR DIŞARIDA. Ø₁ OYNUYOR.
 GIRL CHILD HOME FRIENDS OUTSIDE PLAY
 ‘The girl is at home. The friends are outside. She is playing.’

In (29), the KIZ ÇOCUK ‘girl’ is introduced as the subject of the first sentence. The subject of the second sentence is ARKADAŞLAR ‘friends’. The third sentence in the text has a null argument as the subject whose referent is interpreted to be the subject of the first sentence KIZ ÇOCUK ‘girl’.

That pragmatic considerations are at play in the interpretation of null arguments is evident in contexts where there is no potential antecedent in the previous discourse but the referent is pragmatically recoverable from the context. The following examples from Kayabaşı (2018) illustrate the interpretation of null arguments which lack an overt antecedent in the preceding context.

- (30) a. Context: *The signer A is signing as a response to what the signer B has just mentioned, to let her know that he does not know the sign that she just used during the conversation* (30.04.2014)

BİL DEĞİL [IX1sG is null]
 KNOW NOT
 'I don't know.'

- b. Context: *Signer A is responding to a wish the signer B has expressed during the conversation* (18.04.2013)

GİT YAP BEKLE NE [null IX2sG]
 GO DO WAIT WHAT
 'Go do (it), what are (you) waiting for?' (Kayabaşı 2018: 10a–b)

In (30a), the referent of the null subject of BİL 'know' is the signer and in (30b) the subjects of the verbs GİT 'go', YAP 'do' and BEKLE 'wait' are the addressee. Given the absence of overt expression of referents in the immediately preceding context, it is the pragmatic context which makes the referents of the null subjects, 'I' and 'you (sg.)' transparent in these structures.¹³

6. Conclusion

Regarding the issue of interpreting null arguments in terms of assigning referents, the account of null arguments in the literature has generally been in terms of verb categorization. Null arguments of agreeing verbs are assumed to be coindexed with the agreement morphology on the verb and licensed by the AGR feature on

13. In the following example in which the embedded verb is the plain verb İZLEMEK 'to watch' and the matrix verb is the agreeing verb İKNA ETMEK 'to persuade', the participants' replies to the question KİM MAÇ İZLEMEK 'who watched the game' were the embedded subject KADIN 'woman' and/or both ADAM 'man' and KADIN 'woman':

- (i) A: ADAM KADIN_i [IX MAÇI İZLEMEK] İKNA ETMEK_i
 MAN WOMAN THAT GAME WATCH PERSUADE
 'The man persuaded the woman to watch the game.'
 B: KİM MAÇ İZLEMEK?
 WHO GAME WATCH
 (M&W or W) M&W, W, W, M&W, W

The above example is an the absence of any apparent syntactic factor in 'recovering' the referent of the null argument in the picture selection task, we conclude that pragmatic but not syntactic considerations are at play in assigning an antecedent to the null argument. We hold that the pragmatic consideration is 'topicality' of the referent. Null arguments refer to the topic of discourse and as such they are topic continuity devices in a discourse.

INFL; null arguments of plain verbs are licensed by topic. However, as the above discussion on the properties of TĪD constructions with null arguments reveals, a purely syntactic account in terms of verb categorization will not be able to successfully explain the phenomenon. As has been shown, null arguments of both agreeing and plain verbs behave in a similar manner with respect to observing island constraints, not licensing across-the-board extraction with an overt nominal, and not being licensed in long distance topicalization constructions. In turn, null arguments are licensed in the environment of both categories of verbs (as well as classifier verbs) as long as the above conditions are satisfied. Given that their distribution with respect to their syntactic environment does not seem to play a role in differentiating between the null arguments occurring in the two environments, the question then arises as to why it is that null arguments behave in a similar manner regardless of their syntactic environment. In other words, the question is how are phonologically null arguments licensed in TĪD.

In line with the general discussion in the literature, we hold that phonologically null arguments of plain verbs in TĪD are licensed by the null topic operator co-indexed with the discourse topic(s) by means of a coindexation process that applies at the syntax-discourse interface level, i.e. “the LF” module of grammar following LF” (Huang 2010: 250), and that, as such, null arguments function as topic continuity devices in the sense of Givón (1983). With respect to the phonologically null arguments of agreement verbs on the other hand we hold that the agreement morphology functions as overt topic operator in TĪD, licensing the phonologically null arguments, and as such, coindexing their phonologically null arguments with the topic of discourse. In this sense, TĪD exhibits the properties of a discourse-oriented language while still employing the syntactic mechanisms of a sentence oriented strategies in the sense of Huang (2010).

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