

# John Benjamins Publishing Company



This is a contribution from *Morphological Complexity within and across Boundaries*.  
*In honour of Aslı Göksel.*

Edited by Aslı Gürer, Dilek Uygun Gökmen and Balkız Öztürk.

© 2020. John Benjamins Publishing Company

This electronic file may not be altered in any way.

The author(s) of this article is/are permitted to use this PDF file to generate printed copies to be used by way of offprints, for their personal use only.

Permission is granted by the publishers to post this file on a closed server which is accessible to members (students and staff) only of the author's/s' institute, it is not permitted to post this PDF on the open internet.

For any other use of this material prior written permission should be obtained from the publishers or through the Copyright Clearance Center (for USA: [www.copyright.com](http://www.copyright.com)).

Please contact [rights@benjamins.nl](mailto:rights@benjamins.nl) or consult our website: [www.benjamins.com](http://www.benjamins.com)

Tables of Contents, abstracts and guidelines are available at [www.benjamins.com](http://www.benjamins.com)

PART IV

## **Morphological complexity in Sign Languages**



# Aspects of clause structure and morphology in Turkish Sign Language

Kadir Gökgöz & Hande Sevgi

Boğaziçi University / Harvard University

We highlight some aspects of the clause structure of Turkish Sign Language (TİD). There are zero to three-argument predicates in TİD. We divide the paper into chapters according to the number of arguments, but morphological categorization of predicates is instrumental in understanding different members of these groups. Zero-place weather predicates, unaccusatives, unergatives, and transitives can belong to the morphologically plain predicates group. However, there are no plain ditransitive predicates. On the other hand, except for weather predicates which lack an argument to start with, locus and classifier agreement apply to some members of all the predicate groups. Lastly, we show that there is no one-to-one relation between a classifier type and a transitive argument structure.

**Keywords:** Turkish Sign Language, TİD, argument structure, morpho-syntax, classifiers, agreement

## 1. Introduction

We describe some aspects of Turkish Sign Language (Türk İşaret Dili–TİD) clause structure and its relation to morphology. We can define a clause as a propositional unit, and the most significant element in this unit is the predicate (Kroeger 2005). Each predicate requires a certain number of arguments that can be overtly expressed or recovered through morphology. Thus, the syntactic realization of argument structure involves at least these two dimensions. For this reason, although we divide the paper according to the number of arguments a predicate requires, we also describe in detail how the clause structure of TİD interacts with morphology.

Sign Languages (SLs) use both the hands, i.e., manual markers, and the articulators other than the hands, for instance, the body positions and the articulators on the head, i.e., nonmanual markers. Similar to other SLs, TİD morphology exploits both of these channels for morphological marking, as we will observe.

There are zero-argument predicates in TİD, namely weather predicates, which consist of only a predicate without any required arguments. These predicates seem to belong to the group of morphologically plain predicates. We describe them in Section 3. Intransitive predicates require one obligatory argument. We refer to intransitive predicates as unaccusatives if their single argument has a theme theta role and unergatives if their single argument has an agent theta role (Perlmutter 1978; Burzio 1986). Some intransitive predicates belong to the morphological group of plain predicates while some belong to the groups of locus or classifier agreement predicates.

Furthermore, we will show that in TİD, the unaccusative-unergative distinction exists. We substantiate this grouping with evidence from two environments: argument expression patterns and morphological lower level nonmanual marking with the mouth, cheeks, and the tongue. We will describe unaccusative predicates in Section 4.1, unergative predicates in Section 4.2, and the two diagnostic environments in Sections 4.3 and 4.4. Transitive predicates require two arguments. Predicates that have different morphological characteristics belong to the transitive class: plain, agreeing, and classifier predicates can be transitive. Among the classifier-taking group of predicates, a handling classifier usually occurs in a transitive sentence while a body part and a whole entity classifier tend to occur in intransitive sentences. However, we will document that there is no one-to-one relation between a classifier type and a transitive argument structure since not only handling classifiers but also body part and whole entity classifiers occur in transitive clauses in TİD (Gökgöz in preparation). We discuss these issues in the subsections of Section 5. Ditransitive predicates require three arguments. Parallel to cross-linguistic findings from other sign languages (Padden 1983; Cormier, Wechsler & Meier 1999; Costello 2016), all ditransitive predicates involve locus agreement in TİD. Some ditransitive predicates involve locus agreement with the subject and the indirect object, and some involve locus agreement with the locative arguments source and goal. Both types of ditransitives may also display a classifier agreement. We discuss ditransitive predicates in Section 6. In Section 7, we conclude the paper.

Before we proceed to the rest of the paper, in Section 2, we will first describe morphological predicate categorization, referential loci, and classifiers so that the rest of the paper is accessible to the readers who are not familiar with these phenomena.

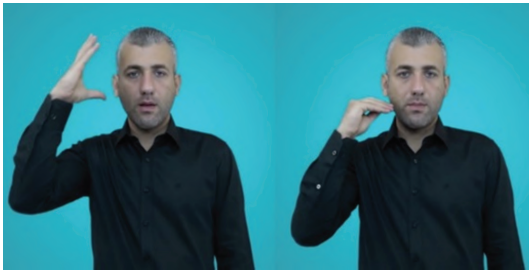
## 2. Morphological categorization of predicates, referential loci, and classifiers

One needs to keep track of discourse referents, and agreement is one of the grammatical mechanisms that are instrumental in this task. Usually, in spoken

languages, agreement operates with what is called phi-features: person, gender, and number. If a language displays agreement, it employs different combinations of these features to mark agreement between one or more arguments in a clause and a predicate or the head of an extended projection of a predicate such as an auxiliary (Baker 2008; den Dikken 2011). Sign Languages make use of space to keep track of referents. When one introduces a referent in a sign language discourse, one assigns it to a locus in signing space (Lillo-Martin & Klima 1990). This locus is then used to pick up the referent assigned to it. Usually, signers use ipsilateral (the dominant hand side of a signer) and contralateral sides of the signing space for a third person referent.<sup>1</sup> We will follow the view that the referential locus of the first person is the chest of the signer and the referential locus of the second person is the locus of the addressee (Bellugi & Fischer 1972; Baker-Shenk & Cokely 1991; Berenz & Ferreira-Brito 1990; Berenz 2002; Alibašić & Wilbur 2006). These referential loci are bound morphemes, and they occur with both pronouns and predicates which involve locus agreement.<sup>2</sup>

Since the seminal work of Padden (1983), researchers have divided predicates in SLs into three morphological groups: plain, agreeing, and spatial. To mark agreement, agreeing and spatial predicates use referential loci. In contrast, plain predicates do not inflect for such loci agreement. UNDERSTAND is a plain predicate in TİD (1):<sup>3</sup>

(1) Morphologically plain predicate UNDERSTAND in TİD



<<http://tidsozluk.net/en/Anlamak?d=0012>>

Time code: the citation form on the top

1. Signers can subdivide these areas if they need to mention more than two third-person referents in discourse (Steinbach & Onea 2015).

2. In this paper, we remain neutral to the debate whether sign language locus agreement is syntactic (Neidle et al. 2000; de Quadros & Lillo-Martin 2010; Costello 2016; Lourenço & Wilbur 2018; Pfau et al. 2018) or semantic (Meier 2002; Steinbach & Onea 2015; Gökgöz 2013, 2017; Bos 2017). Our main goal is to describe the clausal structure concerning the number of arguments and the morphological components of agreement.

3. The examples with a link underneath are from tidsozluk.net (Makaroğlu & Dikyuva, 2017). The other examples are from the Boğaziçi University Sign Language Linguistics database, which keeps the copyright of the stills.

No matter where one establishes the subject or the object, one signs UNDERSTAND by the side of the forehead and the cheek. As a plain predicate, it does not show a locus agreement. On the other hand, a spatial predicate displays locus agreement with its locative argument(s). For instance, FLY in (2) displays locus agreement with its source and goal, CAGE, and TREE, respectively.

- (2) a. A referential locus established for the source, CAGE



GARDEN

BIRD

CAGE-a

OPEN

'In the garden, there is a cage and it is open.'

- b. A referential locus established for the goal, TREE, and the locus agreement with the source and the goal on FLY



BIRD

FLY[manner]-a

TREE-b

FLY.BPCL[path].

LAND.BPCL-b

'A bird flies from this cage to a tree.'

In (2a), the signer articulates the CAGE in the contralateral side of the signing space. Articulating the CAGE in this area assigns a referential locus to it. We gloss this referential locus with an index, here 'a' starting with the first letter of the alphabet. In (2b), the signer articulates the TREE in the ipsilateral side. We gloss this referential locus with the next index, 'b'. The predicate FLY includes a manner morpheme, which is the second frame in (2b). This manner morpheme is signed in the referential locus established for the source, CAGE. Therefore, we put an 'a' index on FLY[manner]. Then, in the last frame in (2b), the path morpheme of FLY is articulated. This part of the predicate moves towards the referential locus established for the goal, TREE. Therefore, we put the 'b' index on FLY[path].LAND. Thus, the spatial predicate FLY starts from the referential locus of the source argument and moves to the referential locus of the goal argument, exhibiting spatial agreement marked by loci morphemes.

Articulating a sign itself in a specific locus is not the only means of assigning referential locus to a referent. One can articulate a discourse referent in front of the signer, i.e., neutral space, or at a place of articulation on the body as well. In these cases, an accompanying pointing sign establishes referential locus. We provide an example in (3). The signer articulates the MAN on the chin and uses a pointing sign to establish a referential locus.

(3) Referential locus for MAN established by a pointing sign



MAN

point-a

‘The man is here.’ or ‘The man on this referential locus ...’

Some predicates agree with their subject and object by using referential loci. These predicates are called agreement predicates (Padden 1983). Morphologically, such agreement surfaces in several ways. First, with predicates that have a phonological path movement (a movement resulting from the elbow joint (Brentari 1998)), the hand moves towards the referential locus of the object, as we see in (4). The predicate SCOLD starts near the mouth. Therefore, the subject agreement is not expressed.<sup>4</sup> However, the signer expresses the object agreement with the predicate by moving it towards the referential locus of the object on the contralateral side.

---

4. Subject agreement in such verbs is usually optional, and we do not observe it in signs which start with a place of articulation that involves contact or a close relation with a place of articulation such as the mouth or the head (Meier 1982; Padden 1983; Janis 1992; Meier 1998b). Despite this constraint, Costello (2016) observes that some locus agreement predicates which have a phonological contact feature still allow agreement in Spanish Sign Language (Lengua de Signos Española, LSE). Therefore, for T1D, one needs to exhaustively check all the agreement markers which involve a phonological contact feature to fully understand if the overriding effect of contact on the morphological expression of locus agreement applies to a subset of locus agreement predicates or if it applies across the board. We mention SEE in footnote six as a continuation of this footnote.

## (4) Object agreement through a referential locus morpheme on SCOLD



MOTHER-a

CHILD-b

point-b

SCOLD-b

'A mother scolds a child.'

Some predicates do not involve a phonological path movement, but instead, they include an orientation change. In such predicates, the use of orientation of the fingertips towards the referential locus of the object expresses object agreement, and the facing of the back of the hand expresses subject agreement (Meier 2002, see TEASE (29) in 5.2).

Lastly, a group of predicates combines with classifier handshapes to show agreement. Classifier handshapes classify entities based on their shape, size, extension, inherent body parts, and the ways one holds, touches, or manipulates them (Supalla 1982; Engberg-Pedersen 1993; Zwitserlood 2003; Benedicto & Brentari 2004; Sandler & Lillo-Martin 2006; Kimmelman et al. 2019a, b). These morphological handshapes cross-cut spatial predicates and agreement predicates as they attach to both these groups. They occur with intransitive predicates too. We will mainly see three types of classifiers in this paper. The first type is whole entity classifiers. These classifiers agree with an entity as a whole. In (5a), we provide two whole entity classifiers and what they can agree with. The second group is body part classifiers. These classifiers agree with the body part of a referent. In (5b), we provide two body part classifiers and what they can agree with. Lastly, a handling classifier agrees with the size and shape of a theme, as well as how an agent holds, touches, or manipulates that theme. In (5c), we show three handling classifiers and what they can agree with.

## (5) a. Two whole entity classifiers in TĪD



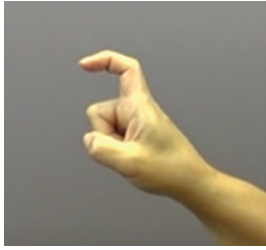
long thin entities,  
human beings



flat entities, surfaces,  
vehicles, and rectangular static entities

(Gökgöz in prep.)

b. Two body part classifiers in TİD



beak



curved legs

(Gökgöz in prep.)

c. Three handling classifiers in TİD

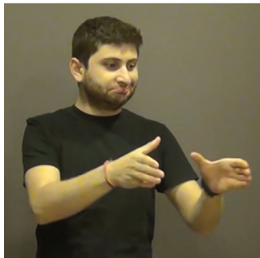
Entities

Agents



entities with a thin handle

human beings



bulky entities

human beings



medium size flat entities

human beings

(Gökgöz in prep.)

In (2b) above, the signer uses two body part classifiers, one in the second frame and the other in the fourth frame. The first body part classifier agrees with the wings of the bird and the second with the legs of the bird. These are instances where classifier morphemes are used with spatial predicates to show agreement (see also Section 6.2). In (6b), the signer uses a handling classifier handshape on a locus agreement predicate.

- (6) a. Referential loci ‘a-b-c’ established for TREE PERSON CHILD, ‘three children’



THREE PERSON CHILD PERSON.EXIST.WECL-a-b-c

‘There are three children.’

- b. The subject and indirect object agreement through referential loci and the direct object agreement through a classifier handshape



BALL c-THROW.HCL-a a-THROW.HCL-C

c-THROW.HCL-a

‘They are throwing a ball to each other.’

(Sevgi 2019: 14)

In (6a), the signer establishes the referential loci ‘a-b-c’ for three children. In (6b), the signer uses these referential loci on the predicate THROW, so the predicate moves to show the loci agreement with the subject and the indirect object.<sup>5</sup> Additionally, the predicate occurs with a handling classifier handshape that marks agreement between the predicate and the direct object BALL as well as the subject who throws it.

After this background on the morphological machinery that we will use in the paper, now we can proceed to the rest of the paper, which we organize according to the number of arguments a predicate requires.

### 3. Weather Predicates

Kimmelman (2018) observes that weather predicates are zero-place predicates in Russian Sign Language. They do not involve an expletive subject. Similarly, some

5. Here, the repetition of the predicate marks reciprocal agreement (Kubus 2008).

sentences with weather predicates in TİD do not have a syntactic argument. They consist of only the predicate. RAIN, BE.SUNNY, and BREEZE are zero-argument weather predicates in TİD.<sup>6</sup> In the discourse in (7), all these weather predicates occur.

- (7) THREE MONTHS AT.ALL RAIN-NEG. ALWAYS BE.SUNNY[aspect: repetitive]. IX-1 SWELTER. TOMORROW HOPEFULLY RAIN[adverb: intensive]. BREEZE. IX-1 RELAX.

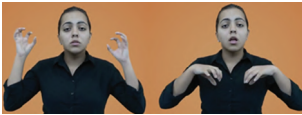
‘It has not rained at all for three months. It has always been sunny. I am sweltering. Tomorrow, I hope it will rain a lot. There will be a breeze. I will relax.’

<<http://tidsozluk.net/tr/Ya%C4%9Fmur?d=0586>>

Time code: the first video example; RAIN 2:29, BE.SUNNY 3:94, BREEZE 8.86

We illustrate these predicates in (8). The first frame indicates the phonological beginning location, and the second frame indicates the phonological ending location of each predicate.

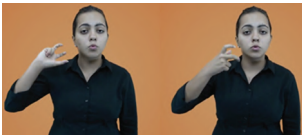
- (8) Stills of the weather predicates in (7)



RAIN

<<http://tidsozluk.net/tr/Ya%C4%9Fmur?d=0586>>

Time code: the first video example; 2:59



BE.SUNNY

<<http://tidsozluk.net/tr/Ya%C4%9Fmur?d=0586>>

Time code: the first video example; 3:94

6. One of the reviewers pointed out that BE.SUNNY is the same as the sign for the noun SUN. S/he asks whether it is possible to interpret this structure as the existential sentence SUN.IS or SUN EXISTS which is in turn interpreted as IS SUNNY. Although there is no existential predicate in this sentence, elsewhere in [tidsozluk.net](http://tidsozluk.net), <<http://tidsozluk.net/en/G%C3%BCne%C5%9F?d=1038>> (the second video example; 3:60), this sign is also used with the existential THERE.IS. At this point, one can argue that both a core predicate use and a [noun + existential] use are possible in TİD. We will leave a discussion of how they differ to future research.



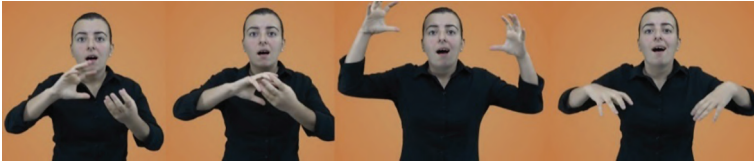
BREEZE

<<http://tidsozluk.net/tr/Ya%C4%9Fmur?d=0586>>

Time code: the first video example; 8:86

In contrast to RAIN, the weather predicate for ‘to snow’ seems to be a one-place predicate, i.e., it takes an argument. In (9), the signer expresses the weather condition as SNOW FALL.DOWN.

- (9) A one place weather predicate, SNOW



SNOW

FALL.DOWN

‘It snowed.’

<<http://tidsozluk.net/en/Kar?d=1169>>

Time code: the second video example; 10:01

Kimmelman (2018) notes that weather predicates are plain predicates in Russian Sign Language. More detailed research will show the morphological type of these predicates in TİD. However, it seems that some of these weather predicates might have been derived from classifier handshapes. It is especially evident for BE.SUNNY, which has a handshape which indicates the shape of the sun. It is not as evident for RAIN and BREEZE whether a classifier handshape is involved or not.

This section showed that there are zero-argument weather predicates in TİD, but not every weather predicate is so. Next, we describe single-argument clauses and a grammatical distinction based on the thematic role of the single-argument in such clauses.

#### 4. Intransitive predicates

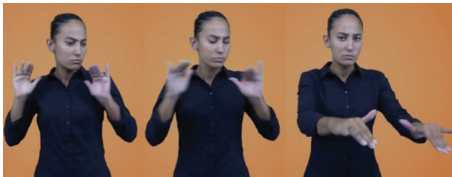
Intransitive predicates take only a single obligatory argument. Although this single argument is always the grammatical subject of a sentence, thematically, it can be a theme or an agent. Intransitive predicates with a theme argument are known as unaccusatives, and intransitive predicates with an agent argument are known as

unergatives (Perlmutter 1978; Burzio 1986). After describing these two categories in Sections 4.1 and 4.2, we provide two novel environments that distinguish these types of predicates in Sections 4.3 and 4.4.

#### 4.1 Unaccusative predicates

The thematic role of the single argument in an intransitive unaccusative clause is the theme. This single argument can undergo an action or hold a state rather than acting as an agent. FALL in (10) is an unaccusative predicate since one does not usually fall intentionally.

(10)



FALL

IX-1 MALE CHILD VERY NAUGHTY. FALL.

'My son is very naughty. He fell.'

<<http://tidsozluk.net/tr/D%C3%BC%C5%9Fmek?d=0285>>

Time code: the first video example; 2:80

In (11), we provide some other unaccusative predicates in TİD:

(11) Some other unaccusative predicates in TİD

DISAPPEAR

<<http://tidsozluk.net/en/Kaybolmak?d=1797>>

Time code: the first video example; 5:29

BREAK.DOWN

<<http://tidsozluk.net/tr/Bozulmak%20?d=0879>>

Time code: the second video example; 4:01

BURN

<<http://tidsozluk.net/tr/Yanmak%20?d=0826>>

Time code: the first video example; 4:24

CRACK

<<http://tidsozluk.net/tr/%C3%87atlamak?d=1958>>

Time code: the citation video

DIE

<<http://tidsozluk.net/en/%C3%96lmek?d=0168>>

Time code: the third video example; 4:94

FEEL.DIZZY

<<http://tidsozluk.net/tr/Hava?d=0304>>

Time code: the first video example; 1:92

LEAK

<<http://tidsozluk.net/tr/Akmak?d=0722>>

Time code: the first video example; 5.29

SINK

<<http://tidsozluk.net/tr/Batmak?d=1217>>

Time code: the first video example; 2.21

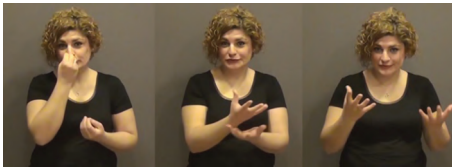
NOT.FEEL.LIKE.DOING.SOMETHING

<<http://tidsozluk.net/tr/Hava?d=0304>>

Time code: the second video example; 3:65

While some unaccusative predicates are members of the so-called plain predicates group (Padden 1983), namely, they do not show locus or classifier agreement, some unaccusative predicates do (Benedicto & Brentari 2004). In (12), the signer uses the predicate *EXTEND* with an extension classifier, which agrees with the subject, flowers, in showing how they extend as a bulk.

- (12) Extension classifier morpheme with an unaccusative predicate



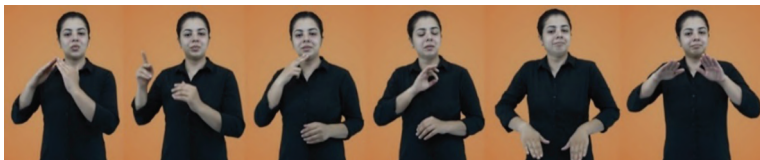
FLOWER      EXTEND[pl].EXTCL

'A bunch of flowers extends.'

<<http://tidsozluk.net/en/%C3%96lmek?d=0168>>

Unaccusative predicates can also agree with the referential locus of the single argument if the phonology of the predicate allows it (Meier 1998b; Sevinç 2006; Costello 2016). The unaccusative predicate *DIE* agrees with the referential locus of the single argument below. The signer introduces the antecedent of the silent argument of the unaccusative predicate *DIE* by using a pointing sign in the ipsilateral side in the first clause in (13a). In the last clause, she signs the unaccusative predicate *DIE* on the same side of the signing space.

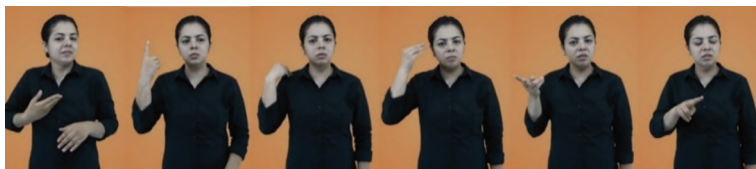
- (13) a. Referential locus established for the silent argument of the unaccusative predicate *DIE* in (13b)



NEIGHBOR point-a GIRL      AT.ALL      GROW.UP[dual].

'My neighbor's daughter and I grew up together.'

## b. Locus agreement on the unaccusative predicate DIE



LIKE. YESTERDAY NEW LEARN. DIE-a.

'I liked her. Yesterday, I learned she died.'

<<http://tidsozluk.net/en/%C3%96lmek?d=0168>>

Time code: the first video example; 4:93

## 4.2 Unergative predicates

The single argument of an intransitive unergative clause is the agent. It is the doer of an action. In (14), GO.AROUND is an unergative predicate:

(14)



EVENING GO.AROUND SKY-a IX-1 LOOK.AT-a

'I looked at the sky while I was going around in the evening.'

<<http://tidsozluk.net/tr/Hava?d=0304>>

Time code: the fourth video example; 0:82

We provide some other unergative predicates in (15).

(15) Some other unergative predicates in TİD

SIGN.COMFORTABLY

<<http://tidsozluk.net/tr/Dalga%20ge%C3%A7mek?d=1423>>

Time code: the video example; 7:41

JUMP

<<http://tidsozluk.net/en/Atlamak?d=0724>>

Time code: the third video; 6:46

SWIM

<<http://tidsozluk.net/en/Y%C3%BCzmek?d=0251>>

Time code: the first video example; 1:43

RUN

<<http://tidsozluk.net/en/Ko%C5%9Fmak?d=0380>>

Time code: the video example; 4:01

FLEE

<<http://tidsozluk.net/en/Ka%C3%A7mak?d=0338>>

Time code: the first video example; 3:97

WALK

<<http://tidsozluk.net/en/Atlamak?d=0724>>

Time code: the first video example; 3:30

PRACTICE

<<http://tidsozluk.net/en/Dans%20etmek?d=1534>>

Time code: the video example; 4:16

ACT.A.ROLE

<<http://tidsozluk.net/en/Oynamak?d=0156>>

Time code: the third video example; 3:09

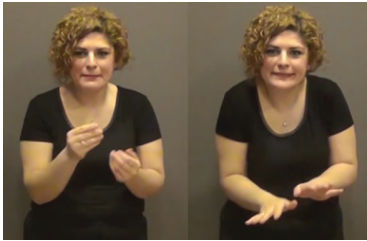
THINK

<<http://tidsozluk.net/en/D%C3%BC%C5%9F%C3%BCnmek?d=0079>>

Time code: the third example; 4:50

Some unergative predicates are members of the plain predicates group. They do not show locus or classifier agreement with an argument. However, some unergative predicates display a classifier agreement (Benedicto and Brentari, 2004). In (16), the signer uses the predicate CRAWL with a body part classifier that cross-references the hands of the subject.

(16)



BABY

CRAWL.BPCL

'The baby is crawling.'

(Sevgi 2019: 13)

Unergative predicates can also display locus agreement as (17) shows. The signer establishes a referential locus for the ROBOT in the first clause, and then she signs the unergative predicate at this referential locus in the second clause, thus marking locus agreement on this predicate.

(17) Locus agreement on the unergative predicate JUMP



JUMP.BPCL.a

ROBOT EXIST.WECL-a INDEX-a CIRCLE.TRACING. JUMP.BPCL.a.

'There is a round robot. (It) is jumping'

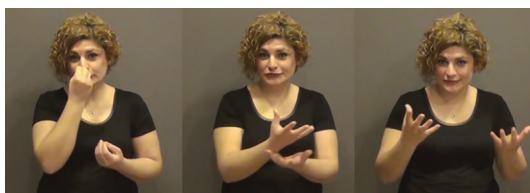
So, like some members of unaccusative predicates, some members of unergative predicates can be plain and some can display locus and classifier agreement. Therefore, the manual morphological agreement cannot distinguish between these two groups. Also, as there is cross-linguistic variation for a meaning-based distinction (Zaenen 1988; Sorace 2000), one should never take the meaning as the only criteria for an unaccusative-unergative split in intransitive predicates. Therefore, we will now document two environments, other than meaning, for distinguishing between unaccusative and unergative predicates in TİD.<sup>7</sup>

### 4.3 Intransitive predicates and argument realization

Durie (1988) found that Acehnese distinguishes themes from agents by the realization of the single argument in an intransitive clause. He reports that Acehnese speakers drop the agent argument of an intransitive sentence for 81% of the time while they drop the theme argument in 34% of the time.

Similarly, Sevgi (2019) observes that signers tend to express the subject of an unaccusative sentence overtly more frequently than the subject of an unergative sentence. She reports data from 4 native signers who drop the agent in an unergative clause for 61% of the time on average while they drop the theme argument of an unaccusative predicate for 19% of the time on average. In the following sentence, repeated here as (18), the signer overtly expresses the single argument of the unaccusative predicate *EXTEND*.

(18)



FLOWER

EXTEND[PL].EXTCL

'A bunch of flowers extends.'

On the other hand, in (19), the signer leaves the agent of the unergative clause at the end silent after she introduces the antecedent in the preceding transitive clause.

7. Sevinç (2006) applies a coordination test, which shows that TİD displays the unergative-unaccusative distinction. However, Sevgi (2019) was not able to replicate Sevinç's (2006) results. The interested reader is referred to the original studies to make a comparison for themselves. We will not deal with this issue in the current paper.

(19)



BABY

WALK.BPCL

KNOW-NEG

CRAWL.BPCL

‘The baby does not know how to walk. (She) is crawling.’ (Sevgi 2019: 13)

Thus, in an intransitive clause, we observe that whether one overtly expresses the single argument or not is sensitive to the thematic role of that argument. Next, we will show that nonmanual morphology is sensitive to this distinction, too.

#### 4.4 Intransitive predicates and nonmanual morphology

It is known that the mouth and other lower-level nonmanual markers, such as the cheeks and the tongue, contribute to the grammar of sign language SLs (Liddell 1980; Brentari & Crossley 2002; Grose & Schalber 2008; Crasborn et al. 2008; Kayabaşı 2019). For instance, researchers argued that specific mouth shapes function as adverbial modifiers in American Sign Language (ASL) being sensitive to the structural hierarchy (Liddell 1980; Grose & Schalber 2008). In (20), the nonmanual adverbial glossed as ‘mm’ accompanies the sign FISH[repeat], and it is articulated with the lips together as well as the protrusion of the bottom lip. It means “with relaxation and enjoyment” (Liddell 1980: 42). In this sense, it seems to be an agent sensitive nonmanual marker; hence, it is part of ASL nonmanual morphology functioning as an autosegmental bound morpheme.

- (20) a. MAN FISH[repeat]  
 ‘The man is fishing.’  
 \_\_\_\_\_  
 mm  
 b. MAN FISH[repeat]  
 ‘The man is fishing with relaxation and enjoyment.’ (Liddell 1980: 42)

As for TĪD, we observe that, usually, an unergative predicate tends to have a different morphological nonmanual marker than an unaccusative predicate. The former includes active involvement of the corners of the lips, whereas the latter includes active involvement of the cheeks.

A nonmanual morphological marker that tends to attach to an unaccusative predicate is the puffed check(s). Another nonmanual marker is the tongue protrusion. The stills in (21) show these morphological nonmanual markers.

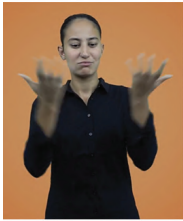
(21) Nonmanual morphological markers for unaccusative predicates



DISAPPEAR



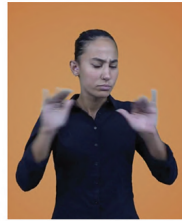
BREAK.DOWN



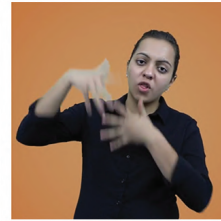
BURN



CRACK



FALL



LEAK



DIE



SINK



FEEL.DIZZY

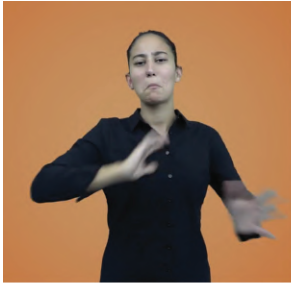


NOT.FEEL.LIKE.DOING.SOMETHING

(From tidsozluk.net. See (10) and (11) for the links.)

Signers tend to pull one or both corners of the mouth aside in unergative predicates. The stills in (22) show these morphological nonmanual markers.

## (22) Nonmanual morphological markers for unergative predicates



SIGN.COMFORTABLY



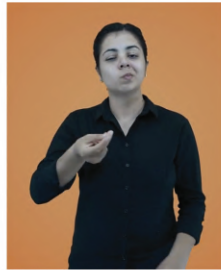
JUMP



SWIM



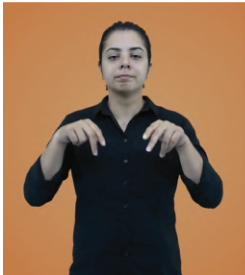
RUN



FLEE



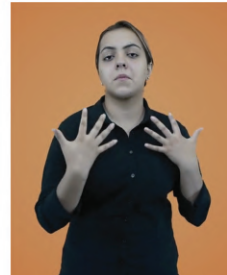
THINK



WALK



PRACTICE



ACT.A.ROLE

(From tidsozluk.net. See (15) for the links.)

Lexical or prosodic information expressed through the lower level nonmanual markers may override/compete with morphological marking. Thus, one may not observe the morphological markers mentioned above all the time. For instance, the potentially unergative predicate *STUDY* lexically involves a rounded-lips mouth-shape, and thus, we did not observe the expected pulled-corners nonmanual marker with this predicate. Nonetheless, it is possible to say that the morphology of TİD is sensitive to the thematic distinction between unaccusatives and unergatives to the extent that the relevant nonmanual markers survive competition with other components of the grammar that make use of the same articulators.

## 5. Transitive predicates

Transitive predicates in TİD belong to different morphological classes, including plain (Section 4.1), agreeing (Section 4.2), and classifier predicates (Section 4.3).<sup>8</sup>

### 5.1 Transitive sentences with plain predicates

Transitive predicates take two obligatory arguments. These two arguments may prototypically be an agent, which is the controller, instigator, or performer of an event and a theme, which is the affected participant, as exemplified in (23). The agent of the transitive clause is the silent argument [pro]-i which is co-referential with IX-1-i, the first-person pronoun in the first clause. The theme of the transitive clause is FOOD, which is what is swallowed thus affected by the event. The morphological form of the predicate does not display any classifier or locus agreement. Thus, SWALLOW behaves as a plain predicate in (23).

(23)



SWALLOW

IX-1-i THROAT ACHE. [pro]-i FOOD SWALLOW CANNOT.

'I have a throat-ache, so I cannot swallow food.'

<<http://tidsozluk.net/tr/Yutmak?d=1677>>

Time code: the video example; 1:94

A transitive predicate may have an experiencer-subject and a causer-object. An experiencer is a participant who undergoes a feeling or a state of mind. A causer argument is the source of the sensation that the experiencer undergoes. In (24), the first-person pronoun is the experiencer participant who experiences the affection while ANIMAL KIND ALL, 'all kinds of animals', is the causer/stimulus of the experience. Again, the transitive predicate LOVE is a plain predicate which does not display locus or classifier agreement.

---

8. See Hakgüder (2015) and Göksel and Keleşir (2016) for transitive predicates that take a clausal argument.

(24)



LOVE

IX-1 ANIMAL KIND ALL LOVE

'I like all kinds of animals.'

<<http://tidsozluk.net/tr/Sevmek?d=0046>>

Time code: the first video example; 2:27

## 5.2 Transitive sentences with locus agreement predicates

### 5.2.1 Transitive sentences with single locus agreement predicates

A locus agreement predicate can be transitive, such as NOTICE in (25). Semantically, notice is a perception predicate. The subject has the thematic role of a perceiver, and the object is a theme. The ending location of the agreeing predicate NOTICE in (25) agrees with the referential locus of the grammatical object, which is the first-person. The phonology of the predicate NOTICE allows only the object agreement since its beginning location includes a phonological contact feature which overrides the potential for morphological subject agreement in this case (Meier 1998b).<sup>9</sup> Therefore, no locus agreement surfaces on the predicate for the referential locus of the subject, TEACHER.

(25)



NOTICE-1

TEACHER IX-1 NOTICE-1 NOT

'The teacher does not notice me.'

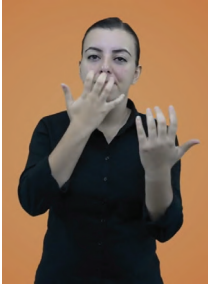
<<http://tidsozluk.net/tr/G%C3%B6rmek?d=0026>>

Time code: the fifth video example; 2:00

9. Our initial observation is that SAY, which includes contact, shows a subject agreement as well. This predicate has an index finger selected handshape and a contact on the chin. If there is a first-person object, the predicate starts with the referential locus of the second or the third person subject, then make contact with the chin and finally move to the chest. A first-person subject starts with the chin and moves to the referential locus of the object. If the subject is second or third person and the object is again second or the third person, the verb starts at the chin and first moves to the referential locus established for the subject and then to the referential locus established for the object.

LOOK.AFTER is another single agreement transitive predicate in TİD (28).

(26)



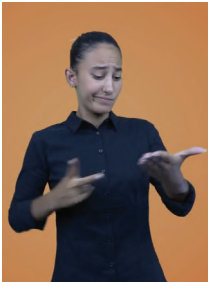
LOOK.AFTER-a

<<http://tidsozluk.net/tr/Deli?d=0527>>

Time code: the first video example; 4:44

CUT, READ, and CLOSE take an inanimate object. They also display a single locus agreement. These data show that locus agreement does not apply only to persons (cf. Padden 1983), but it can also apply to inanimate object arguments (See also Makaroğlu & İşsever 2018).

(27)



CUT-a

<<http://tidsozluk.net/en/Kesmek?d=0170>>

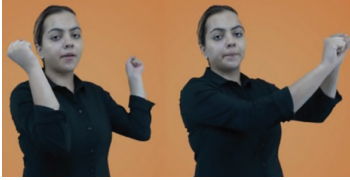
Time code: the first video example; 5:36



READ-a

<<http://tidsozluk.net/tr/Anlatmak?d=0075>>

Time code: the second video example; 0:82



CLOSE-a

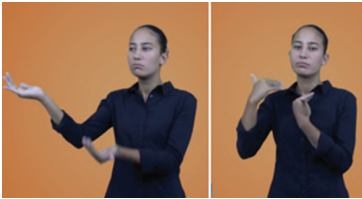
<<http://tidsozluk.net/en/Kapatmak%20?d=0241>>

Time code: the first video example; 5:93

### 5.2.2 Transitive sentences with double locus agreement predicates

When a transitive locus agreement predicate does not have a phonological contact feature, it agrees with both the subject and the object. These predicates are called double agreement predicates. SUPPORT in (28) is such a predicate. The beginning location of the predicate agrees with the referential locus of the subject, and the ending location of it agrees with the referential locus of the first person object, i.e., the hand goes towards the chest of the signer.

(28)



a-SUPPORT-1

IX-1 SCHOOL GO WANT. MONEY THERE.IS.NOT. STATE-a a-SUPPORT-1

'I wanted to go to school but I didn't have any money. The state supported me.'

<<http://tidsozluk.net/tr/Desteklemek?d=0345>>

Time code: the first video example; 2:91

We provide some other double-agreement predicates in (29). Note that we glossed the stills according to the agreement inflection that each predicate shows.

(29) Some other double agreement predicates in TİD



a-TEASE-1

<<http://tidsozluk.net/en/Alay?d=1399>>

Time code: the first video example; 4:15



a[p].LOOK.AT-1

<<http://tidsozluk.net/tr/Ba%C4%9F%C4%B1rmak%20?d=0238>>

Time code: the first video example; 2:68



a-SCOLD-b

<<http://tidsozluk.net/tr/Ba%C4%9F%C4%B1rmak%20?d=0238>>

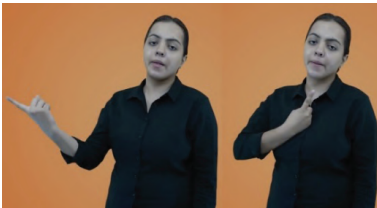
Time code: the second video example; 4:19



YELL.AT (citation form)

<<http://tidsozluk.net/tr/Ba%C4%9F%C4%B1rmak%20?d=0238>>

Time code: the third citation video



a-ORDER-1

<<http://tidsozluk.net/en/Kapatmak%20?d=0241>>

Time code: the first video example; 4:54

### 5.2.3 Transitive sentences with backwards locus agreement predicates

A transitive locus agreement predicate may start with the referential locus of the object and end with the referential locus of the subject. Such predicates are called

backwards verbs (Meier 1998a, 2002; Sevinç 2006; Quadros & Quer 2008; Kubus 2008; Makaroğlu & İşsever 2018). The ‘b’ index at the beginning of CHOOSE in (30) marks agreement with the locus of the object, PINK WATCH.<sup>10</sup> The subject is the first-person.

- (30) Locus agreement for third person object and first-person subject



a-CHOOSE-1

PINK WATCH-a THERE.IS. IX-1 1-SEE-a LIKE(2)-a. a-CHOOSE-1  
 ‘There was a pink watch. I saw it and liked it. I chose it.’  
 <<http://tidsozluk.net/en/Se%C3%A7mek?d=0281>>  
 Time code: the first video example; 6:22

(31) shows that when the object of the predicate CHOOSE is the first-person, the predicate starts at the referential locus of the signer, i.e., her chest, and ends at the referential locus of a third person subject.

- (31) Locus agreement for first-person object and third person subject



1-CHOOSE-a

<<http://tidsozluk.net/en/Se%C3%A7mek?d=0281>>  
 Time code: the third video example; 3:50

10. One of the reviewers asks whether CHOOSE is a double backwards agreement predicate or a regular single agreement predicate. This predicate changes its ending location according to the referential locus of the subject and its starting location according to the referential locus of the object, which are the litmus criteria for backwards predicates (Meier 1998b, 2002; Sevinç 2006; Kubus 2008; Quadros & Quer 2008; Makaroğlu & İşsever 2018). One may drop the subject agreement on a backwards predicate. However, even in those cases, the beginning location of the predicate still agrees with the referential locus of the object. Therefore, we treat CHOOSE as a backwards agreement predicate.

We provide some other backwards agreeing transitive predicates in (32). See also Sevinç (2006), Kubus (2008), and Makaroğlu and İşsever (2018).

(32)



a-INFLUENCE-1

<<http://tidsozluk.net/tr/Etkilemek?d=1326>>

Time code: the first video example; 2:95



a-TAKE-1

<<http://tidsozluk.net/en/Almak?d=0044>>

Time code: the first video example; 2:63



a-BUY-1

<<http://tidsozluk.net/en/Almak?d=0044>>

Time code: the second video example; 4:05



a-FIND-1

<<http://tidsozluk.net/en/Bulmak?d=0179>>

Time code: the second video example; 3:65



- (35) A body part and a whole entity classifier in a transitive clause



H1: EAT.WECL

mouth: EAT.BPCL

H1: IX-3-a MAN-a SPAGHETTI EAT.WECL.

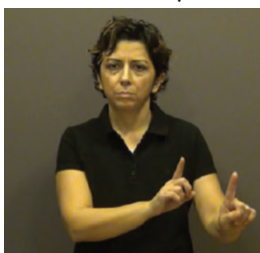
MOUTH: EAT.BPCL.

‘The man is eating spaghetti.’

(Gökgöz in preparation)

In (36), the signer uses two whole entity classifiers to express a transitive argument structure. As in (35), these classifiers mark agreement with the subject and the object separately. The classifier on the left hand marks agreement with the object, and the classifier on the right hand marks agreement with the subject.

- (36) Two whole entity classifiers in a transitive clause



FOLLOW.WECL

H1: MAN WOMAN FOLLOW.WECL.

H2: FOLLOW.WECL.

‘A man is following a woman.’

(Gökgöz in preparation)

In (37), the signer uses two whole entity classifiers to express a transitive argument structure. Again, these classifiers agree with the subject and the object separately. The classifier on the left hand agrees with the object, and the classifier on the right hand agrees with the subject.

(37) Two whole entity classifiers used in a transitive clause



H1: HIT.WECL

H2: STAND.WECL

H1: TREE STAND.WECL. CAR HIT.WECL.

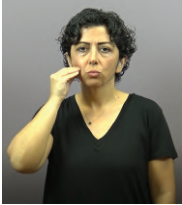
H2: TREE.....STAND.WECL.

‘A tree stands. A car hits it.’

(Gökgöz in preparation)

Lastly, Example (38) shows that one can obtain a transitive argument structure by using two body part classifiers. The body part classifier on the right hand marks agreement with the part of the body of the subject, which is involved in kissing, i.e., the mouth and the use of the cheek as a body part marks agreement with the object.

(38) Two body part classifiers used in a transitive clause



H1: KISS.BPCL

H1: WOMAN MAN KISS.BPCL.

CHEEK: EXIST.BPCL.

‘A woman kisses a man on the cheek.’

(Gökgöz in preparation)

These examples illustrate that there is no one-to-one match between transitive argument structures and handling classifiers since signers can use other types of classifiers in transitive argument structures.

## 6. Ditransitives predicates

### 6.1 Ditransitives predicates which agree with the referential locus of the subject and the indirect object

A ditransitive sentence is composed of three obligatory arguments. In (39), the ditransitive predicate GIVE takes an agent subject, a theme direct object, and a

recipient indirect object. The theme object is FIVE (PENCIL); the indirect object, which is the recipient, is IX-1 SIBLING-a, ‘my sibling.’ The agent subject is the first-person. In the third clause, the signer expresses agreement with the silent subject, and the indirect object through referential loci on the predicate as the predicate moves from the referential locus of the subject to the referential locus of the indirect object, 1-GIVE-a.

(39)



1-GIVE-a

IX-1 SIBLING-a PENCIL GET-LOST-a. ANYWAYS FIVE b-GET-1.

1-GIVE-a.

‘My sibling’s pencil got lost. Anyways, I bought five and gave those to him/her.’

<<http://tidsozluk.net/tr/Vermek?d=0018>>

Time code: the first video example; 4:59

We provide three other ditransitive predicates in (40). They are glossed according to how they are inflected.<sup>11</sup>

(40)



a-SEND-1

<<http://tidsozluk.net/tr/G%C3%B6ndermek,%20Yollamak?d=0234>>

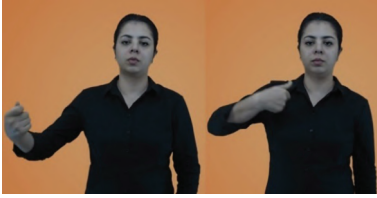
Time code: the first video example; 3:87

11. Makaroğlu and İşsever (2018) observe that locus agreement is not limited to the referential loci established for persons. It can occur with referential loci of an inanimate argument. In (i), the backwards predicate COPY ordinarily agrees with a person subject and a person object. However, in its ditransitive use, this predicate can display loci agreement with inanimate participants. The hand moves from the source-object, COMPUTER-b, to the goal-object, HARD-DISK-c.

(i) IX-1-a DATA ALL COMPUTER-b HARD-DISK-c b-COPY-c.

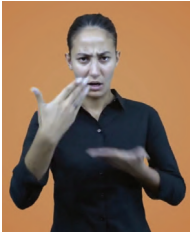
‘I copied all the data from the computer to the hard disk.’

(Makaroğlu &amp; İşsever 2018: 57)



a-PAY-1

<<http://tidsozluk.net/tr/%C3%96demek?d=0178>>  
Time code: the second video example; 4:66



1-TELL-2

<<http://tidsozluk.net/tr/Anlatmak?d=0075>>  
Time code: the second video example; 1:97

Classifier agreement can accompany locus agreement as the sentence in (41) shows (see also example (6) in Section 2). The hand moves from the referential locus of the subject, IX-3-a, ‘she’, to the referential locus of the indirect object, IX-2-c, ‘you’, and a handling classifier marks agreement with the theme direct object.

- (41) Locus agreement for subject and indirect object and classifier agreement for direct object



a-GIVE.HCL-2

BURCU IX-3-a BOOK THIN.EXTCL a-GIVE.HCL-2.  
‘Burcu gave you the thin book.’

## 6.2 Ditransitives predicates which agree with the referential locus of the source and goal

Classifier agreement can also accompany locus agreement for the source, and the goal argument as (38) shows. In (42a), the signer first establishes a referential locus for the goal, TABLE. Then, he establishes a referential locus for the source where

the theme **THREE BEER** is. Later, in (42b), the signer articulates the predicate **MOVE** which starts from the referential locus of the source and moves towards the referential locus of the goal. He also produces a handling classifier handshape that marks agreement with the theme.

- (42) a. Referential loci established for **TABLE** and **THREE BEER**



TABLE-b

BEER

THREE

EXIST-a.

‘There is a table. There are three beers.’

- b. Locus agreement for the source and the goal, and classifier agreement for the theme



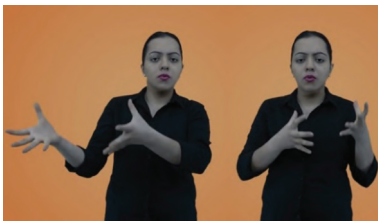
ONE

a-MOVE.HCL-b.

‘(He) moves one (beer) to the table.’

(43) exemplifies another instance of a three-way agreement with the source, the goal, and the theme – this time with the predicate **BRING**.

- (43)



a-BRING-b

<<http://tidsozluk.net/en/Almak?d=0044>>

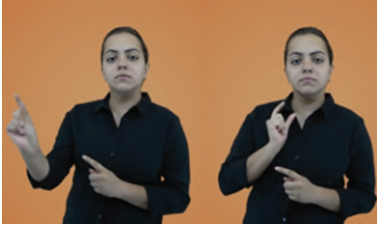
Time code: the eighth video example; 8:64

### 6.3 Ditransitives predicates with an incorporated theme

As Makaroğlu and İşsever (2018) also observe, three more ditransitive predicates in TİD show locus agreement. These are **WARN**, *uyarmak*, **ANSWER**, *cevap vermek*,

and *ASK,soru sormak*. The internal argument in these predicates incorporates into the stem with a handshape that is the initial letter of the corresponding noun in Turkish: *u*, *c*, and *s*. There is no extra overt internal argument apart from the incorporated theme in such predicates. (44) is an example with the predicate *ANSWER*.

(44)



a-ANSWER-1

IX-1 MOTHER TOGETHER BANK GO. BANKER MOTHER LONG TALK[reciprocal].  
THEN SHORT a-ANSWER-1. IX-1 CONFUSED.

'I went to the bank with my mother. The banker talked with my mother for a long time. Then, s/he gave a short answer to me. I got confused.'

<<http://tidsozluk.net/en/Konu%C5%9Fmak?d=0019>>

Time code: the first video example; 7:65

## 7. Conclusions

In this paper, we highlighted some aspects of the clause structure of Turkish Sign Language. We noted that there are zero to three-argument predicates in this language. Some weather predicates are zero-place arguments. As for intransitives, we documented that the unaccusative-unergative distinction exists in TİD. We based this distinction on two environments, argument realization, and nonmanual morphology.

Although we divided the paper into chapters according to the number of arguments that a predicate takes, morphological categorization of predicates was instrumental in understanding different members of these groups. We have seen that weather predicates, unaccusatives, unergatives, and transitives can belong to the morphologically plain predicates group, which does not show locus or classifier agreement. However, there are no plain ditransitive predicates, which supports the recent theorizing about these predicates as being presuppositional, thus implying a transfer or existence meaning (Meier, 2002; Gökgöz 2013; Napoli et al. 2017). Except for weather predicates which lack an argument to start with, locus and classifier agreement apply to some members of all the predicate groups which have one or more arguments.

Lastly, we noted that there is no one-to-one relation between a classifier type and a transitive argument structure since not only handling classifiers, but also body part and whole entity classifiers occur in transitive clauses. This finding is against proposals which claim a correspondence between classifier type and argument structure (Zwitserslood 2003; Benedicto & Brentari 2004).

## Glossing conventions

SMALL CAPS	used to gloss the meaning of a sign
a, b, c ...	the letters of the alphabet are used to gloss referential locus
a-VERB-b	the predicate starts with the referential locus 'a' and goes or oriented to the referential locus 'b'
VERB-a	single locus agreement predicate, directed to the referential locus 'a'
NOUN-a	a noun with a referential locus
point-a:	a pointing sign establishing or picking up the referential locus of a referent
IX-1	first person pronoun
IX-2	second person pronoun
VERB[manner], VERB[path]	the relevant parts of a complex event are shown in square brackets
BPCL	body part classifier
WECL	whole entity classifier
HCL	handling classifier
CCL	contact classifier
EXTCL	extension classifier
VERB.BPCL	classifier handshake morpheme articulated at the same time with a verbal stem which is the movement or hold of a predicate. The classifier and the verbal stem are infused; they are articulated simultaneously
b-VERB.HCL-a	a verb which shows loci and classifier agreement
SIGN.SIGN	a single sign which is translatable with two words
VERB [aspect: repetitive]	the verb root is reduplicated to show repetitive aspect
VERB [adverb: intensive]	the verb root is reduplicated and the base has phonological emphasis at the beginning of its articulation
VERB[pl]	the verb is inflected for plural agreement
VERB[dual]	the verb is inflected for dual agreement
VERB[reciprocal]	the verb is inflected for reciprocal agreement

-NEG	negation; usually a clitic but also occasionally a free form
<u>  </u> X VERB	a verb which is signed with the nonmanual marker x
i, j, k	these indexes are used to show co-reference between a silent argument and its antecedent
H1	the dominant hand of a signer
H2	the nondominant hand of a signer
H1	SIGN SIGN SIGN
H2	SIGN..... shows the extend of the sign. Here the sign on the non-dominant hand starts with the first sign on the dominant hand and it is held until the end of the third sign
CHEEK	cheek used as an articulator

## Acknowledgements

We would like to thank Demet Kayabaşı and Semra Özdemir for their useful discussions and the two anonymous reviewers for their comments and suggestions which improved the paper to a great extent. We would also like to express our enormous gratitude to Aslı Göksel who has been a unique teacher and great mentor to both of us and a wonderful colleague and friend to the first author. This work has been supported by ‘Supporting Sign Language Development of Deaf Children with Hearing Parents Through Linguistically-Informed Preschool Stories’, Boğaziçi University, Bilimsel Araştırma Projeleri (BAP), Start-up Project, #14458, 2018-2020 and the ‘Sign-Hub Project: Preserving, Researching and Fostering the Linguistic, Historical and Cultural Heritage of European Deaf Signing Communities with an Integral Resource’, Horizon 2020, European Union Funding for Research and Innovation, Project Coordinator: Josep Quer, Spain, Turkey Coordinator: Meltem Keleşir, #69334, 2016-2020.

## References

- Alibašić Ciciliani, Tamara A. & Wilbur, Ronnie B. 2006. Pronominal system in Croatian Sign Language. *Sign Language & Linguistics* 9(1): 95–132. <https://doi.org/10.1075/sll.9.1-2.07ali>
- Baker-Shenk, Charlotte Lee & Cokely, Dennis. 1991. *American Sign Language: A Teacher's Resource Text on Grammar and Culture*. Washington DC: Gallaudet University Press.
- Baker, Mark C. 2008. *The Syntax of Agreement and Concord*. Cambridge: CUP. <https://doi.org/10.1017/CBO9780511619830>
- Bellugi, Ursula & Fischer, Susan. 1972. A comparison of sign language and spoken language. *Cognition* 1(2–3): 173–200. [https://doi.org/10.1016/0010-0277\(72\)90018-2](https://doi.org/10.1016/0010-0277(72)90018-2)
- Benedicto, Elena & Brentari, Diane. 2004. Where did all the arguments go? Argument changing properties of classifiers in ASL. *Natural Language & Linguistic Theory* 22(4): 743–810. <https://doi.org/10.1007/s11049-003-4698-2>

- Berenz, Norine. 2002. Insights into person deixis. *Sign Language & Linguistics* 5(2): 203–227. <https://doi.org/10.1075/sll.5.2.o6ber>
- Berenz, Norine & Ferreira-Brito, Lucinda. 1990. Pronouns in BCSL and ASL. In *Papers from the Fourth International Symposium on Sign Language Research*, William H. Edmondson & Fred Karlson (eds), 26–36. Hamburg: Signum.
- Brentari, Diane. 1998. *A Prosodic Model of Sign Language Phonology*. Cambridge MA: The MIT Press.
- Brentari, Diane & Crossley, Laurinda. 2002. Prosody on the hands and face: Evidence from American Sign Language. *Sign Language & Linguistics* 5(2): 105–130. <https://doi.org/10.1075/sll.5.2.o3bre>
- Bos, Heleen F. 2017. An analysis of main verb agreement and auxiliary agreement in NGT within the theory of Conceptual Semantics (Jackendoff 1990). *Sign Language & Linguistics* 20(2): 228–252. <https://doi.org/10.1075/sll.o0003.bos>
- Burzio, Luigi. 1986. *Italian Syntax: A Government-Binding Approach*. Dordrecht: Reidel. <https://doi.org/10.1007/978-94-009-4522-7>
- Cormier, Kearsy, Wechsler, Stephen & Meier, Richard P. 1999. Locus agreement in American Sign Language. In *Lexical and Constructional Aspects of Linguistic Explanation*, Gert Webelhuth, Jean-Pierre Koenig & Andreas Kathol (eds), 215–229. Stanford CA: CSLI.
- Costello, Brendan D. N. 2016. *Language and Modality: Effects of the Use of Space in the Agreement System of Lengua de Signos Española (Spanish Sign Language)*. Utrecht: LOT. <https://doi.org/10.1075/sll.19.2.o6cos>
- Crasborn, Onno A., van der Kooij, Els, Waters, Dafydd, Woll, Bencie & Mesch, Johanna. 2008. Frequency distribution and spreading behavior of different types of mouth actions in three sign languages. *Sign Language & Linguistics* 11(1): 45–67. <https://doi.org/10.1075/sll.11.1.o4cra>
- de Quadros, Ronice Müller & Quer, Josep. 2008. Back to back (wards) and moving on: On agreement, auxiliaries and verb classes in sign languages. In *Proceedings of the Theoretical Issues in Sign Language Research Conference 9, Florianopolis, Brazil 2006*, Ronice Müller de Quadros (ed.), 530–551. Petropolis: Editora Arara Azul.
- de Quadros, Ronice Müller & Lillo-Martin, Diane. 2010. Clause structure. In *Sign languages*, Diane Brentari (ed.), 225–251. Cambridge: CUP. <https://doi.org/10.1017/CBO9780511712203.012>
- den Dikken, Marcel. 2011. Phi-feature inflection and agreement: An introduction. *Natural Language & Linguistic Theory* 29(4): 857–874. <https://doi.org/10.1007/s11049-011-9156-y>
- Durie, Mark. 1988. Preferred argument structure in an active language: Arguments against the category ‘intransitive subject’. *Lingua* 74(1): 1–25. [https://doi.org/10.1016/0024-3841\(88\)90046-0](https://doi.org/10.1016/0024-3841(88)90046-0)
- Engberg-Pedersen, Elisabeth. 1993. *Space in Danish Sign Language: The Semantics and Morphosyntax of the Use of Space in a Visual Language*. Hamburg: Signum.
- Gökgöz, Kadir. In preparation. A syntactic typology of verbal classifiers across two modalities.
- Gökgöz, Kadir. 2017. Commentary on Bos (1998). *Sign Language & Linguistics* 20(2): 270–278. <https://doi.org/10.1075/sll.o0004.gok>
- Gökgöz, Kadir. 2013. *The Nature of Object Marking in American Sign Language*, PhD dissertation, Purdue University, Indiana.
- Göksel, Aslı & Keleş, Meltem. 2016. Observations on clausal complementation in Turkish Sign Language. In *A Matter of Complexity: Subordination in Sign Languages*, Roland Pfau, Markus Steinbach & Annika Hermann (eds), 65–94. Berlin: De Gruyter. <https://doi.org/10.1515/9781501503238-005>

- Grose, Donovan & Schalber, Katharina. 2008. The semantics, syntax, and phonology of event-related nonmanuals in ÖGS and ASL. In *Proceedings of the Theoretical Issues in Sign Language Research Conference 9, Florianopolis, Brazil, 2006*, Ronice Müller de Quadros (ed.). Petropolis: Editora Arara Azul.
- Hakgüder, Emre. 2015. Complex Clauses with Embedded Constituent Interrogatives in Turkish Sign Language. MA thesis, Boğaziçi University, İstanbul.
- He, Jia & Tang, Gladys. 2018. Causativity and transitivity in classifier predicates in Tianjin Sign Language. Presented at Formal and Experimental Advances in Sign Language Theory, FEAST 2018, June 18–20, Ca' Foscari University, Venice.
- Janis, Wynne. 1992. Morphosyntax of the ASL Verb Phrase. PhD dissertation, State University of New York, Buffalo, NY.
- Kayabaşı, Demet. 2019. Türk İşaret Dilinde Alt-Yüz El-Dışı İşaretlerinin Üretiminde Edinim Yaşının Etkileri (Effects of age of acquisition on the production of lower face non-manuals). Presented at 33. Ulusal Dilbilim Kurultayı, 9–10 May 2019, Mersin, Turkey.
- Kayabaşı, Demet & Gökgöz, Kadir. 2019. Causative-inchoative alternation in Turkish Sign Language. Poster presented at the Theoretical Issues in Sign Language Research – TISLR 13, 26–28 September, Hamburg University.
- Kimmelman, Vadim. 2018. Basic argument structure in Russian Sign Language. *Glossa: A Journal of General Linguistics* 3(1): 116. <https://doi.org/10.5334/gjgl.494>
- Kimmelman, Vadim, Pfau, Roland & Aboh, Enoch O. 2019a. Argument structure of classifier predicates in Russian Sign. *Natural Language & Linguistic Theory* Online First, 3 April 2019. <https://doi.org/10.1007/s11049-019-09448-9>
- Kimmelman, Vadim, de Lint, Vanja, de Vos, Connie, Oomen, Marloes, Pfau, Roland, Vink, Lianne, & Aboh, Enoch O. 2019b. Argument structure of classifier predicates: Canonical and non-canonical mappings in four sign languages. *Open Linguistics* 5(1): 332–353.
- Kroeger, Paul R. 2005. *Analysing Grammar: An Introduction*. Cambridge: CUP. <https://doi.org/10.1017/CBO9780511801679>
- Kubus, Okan. 2008. An Analysis of Turkish Sign Language (TİD) Phonology and Morphology. MA thesis, Middle East Technical University, Ankara, Turkey.
- Liddell, Scott K. 1980. *American Sign Language Syntax*. The Hague: Mouton.
- Lillo-Martin, Diane & Klima, Edward. 1990. Pointing out differences: ASL pronouns in syntactic theory. In *Theoretical Issues in Sign Language Research, Vol. 1: Linguistics*, Susan D. Fischer & Patricia Siple (eds), 191–210. Chicago IL: University of Chicago Press.
- Lourenço, Guilherme & Wilbur, Ronnie B. 2018. Are plain verbs really plain? Co-localization as the agreement marker in sign languages. *FEAST. Formal and Experimental Advances in Sign Language Theory* 2: 68–81.
- Makaroğlu, Bahtiyar & Dikyuva, Hasan (eds). 2017. *The Contemporary Turkish Sign Language Dictionary*. Ankara: The Turkish Ministry of Family and Social Policy. <<http://tidsozluk.net>> (4 January 2020).
- Makaroğlu, Bahtiyar & İşsever, Selçuk. 2018. Agreement verbs in Turkish Sign Language (TİD) from the perspective of templatic morphology. *Dilbilim Araştırmaları Dergisi* 29(1): 51–86.
- Meier, Richard Paul. 1982. Icons, Analogues, and Morphemes: The Acquisition of Verb Agreement in American Sign Language. PhD dissertation, University of California, San Diego.
- Meir, Irit. 2002. A cross-modality perspective on verb agreement. *Natural Language & Linguistic Theory* 20(2): 413–450. <https://doi.org/10.1023/A:1015041113514>

- Meir, Irit. 1998a. Syntactic-semantic interaction in Israeli Sign Language verbs: The case of backwards verbs. *Sign Language & Linguistics* 1(1): 3–37. <https://doi.org/10.1075/sll.1.1.03mei>
- Meir, Irit. 1998b. Thematic Structure and Verb Agreement in Israeli Sign Language. PhD dissertation, Hebrew University of Jerusalem.
- Napoli, Donna Jo, Spence, Rachel Sutton & de Quadros, Ronice Müller. 2017. Influence of predicate sense on word order in sign languages: Intensional and extensional verbs. *Language* 93(3): 641–670. <https://doi.org/10.1353/lan.2017.0039>
- Neidle, Carol J., Kegl, Judy, MacLaughlin, Dawn, Bahan, Benjamin & Lee, Robert G. 2000. *The Syntax of American Sign Language: Functional Categories and Hierarchical Structure*. Cambridge MA: The MIT press.
- Padden, Carol A. 1983. Interaction of Morphology and Syntax in American Sign Language. PhD dissertation, University of California, San Diego.
- Perlmutter, David M. 1978. Impersonal passives and the Unaccusative Hypothesis. In *Proceedings of the Fourth Annual Meeting of the Berkeley Linguistics Society*, Jeri J. Jaeger (ed.), 157–189. Berkeley CA: BLS.
- Pfau, Roland, Salzmann, Martin & Steinbach, Markus. 2018. The syntax of sign language agreement: Common ingredients, but unusual recipe. *Glossa: A Journal of General Linguistics* 3(1): 107. <https://doi.org/10.5334/gjgl.511>
- Sandler, Wendy & Lillo-Martin, Diane. 2006. *Sign Language and Linguistic Universals*. Cambridge: CUP. <https://doi.org/10.1017/CBO9781139163910>
- Sevgi, Hande. 2019. Effects of Age of Acquisition on Morphosyntactic Structures in Turkish Sign Language: Evidence from Classifiers. MA thesis, Boğaziçi University, İstanbul, Turkey.
- Sevinç, Ayça Müge. 2006. Grammatical Relations and Word Order in Turkish Sign Language (TİD). MA thesis, Middle East Technical University, Ankara, Turkey.
- Sorace, Antonella. 2000. Gradients in auxiliary selection with intransitive verbs. *Language* 76(4): 859–890. <https://doi.org/10.2307/417202>
- Steinbach, Markus & Onea, Edgar. 2015. A DRT analysis of discourse referents and anaphora resolution in sign language. *Journal of Semantics* 33(3): 409–448. <https://doi.org/10.1093/jos/ffv002>
- Supalla, Ted R. 1982. Structures and Acquisition of the Verbs of Motion and Location in American Sign Language. PhD dissertation, University of California, San Diego.
- Zaenen, Annie. 1988. Unaccusative verbs in Dutch and the syntax-semantics interface. *CSLI Reports* 88–123.
- Zwitsersloot, Inge E. P. 2003. Classifying Hand Configurations in Nederlandse Gebarentaal (Sign Language of the Netherlands). PhD dissertation, University of Utrecht.

