CHAPTER ELEVEN

EXPRESSION OF MULTIPLE ENTITIES IN TURKISH SIGN LANGUAGE (TİD)

INGE ZWITSERLOOD¹, PAMELA PERNISS²
AND ASLI ÖZYÜREK¹,³
¹Radboud University Nijmegen
²Deafness, Cognition and Language Research Centre, University College London
³Max Planck Institute for Psycholinguistics, Nijmegen

Abstract

This paper reports on an exploration of the ways in which multiple entities are expressed in Turkish Sign Language (TİD). The descriptive and quantitative analyses provided are based on a corpus of both spontaneous data and specifically elicited data in order to provide as comprehensive an account as possible. We have found several devices in TİD for expression of multiple entities, in particular localization, spatial plural predicate inflection, and a specific form used to express multiple entities that are side by side in the same configuration (not reported for any other sign language to date), as well as numerals and quantifiers. In contrast to some other signed languages, TİD does not appear to have a productive system of plural reduplication. We argue that none of the devices encountered in the TİD data is a genuine plural marking device and that the plural interpretation of multiple entity localizations and plural predicate inflections is a by-product of the use of space to indicate the existence or the involvement in an event of multiple entities.
Chapter Eleven

11.1. Introduction

How to express the presence of multiple entities of a kind has been the topic of many studies on spoken languages. Spoken languages have been found to employ a wide variety of devices, often marking on the referent noun, for example, plural affixation, change of the noun stem, and reduplication (see Corbett, 2000; Dryer, 2011), and/or marking of plurality through affixation to a verb or an adverb (Corbett, 2000). In comparison, the expression of entity plurality in signed languages has been much less studied. Indeed, there are very few studies specifically targeting plural expression (e.g., Pfau & Steinbach, 2006, in German Sign Language (DGS); Nijhof & Zwitserlood, 1998, in Sign Language of the Netherlands (NGT); Heyerick et al., 2011; Heyerick, Vermeerbergen, & Van Herreweghe, in prep., in Flemish Sign Language (VGT), with most observations on the topic occurring as part of a general grammar overview (e.g., Namir & Schlesinger, 1978, of Israeli Sign Language (ISL); Schmaling, 2000, of Hause Sign Language (HSL); Zeshan, 2000, of Indo-Pakistani Sign Language (IPSL)). In this paper, we explicitly focus on expression of multiple entities in Turkish Sign Language (TİD), a sign language that is not historically or geographically related to any of the sign languages for which this topic has been studied. We will survey the devices employed by this language, and see to what extent these are similar to or different from the devices used for expression of plural entities in other sign languages.

In many sign languages studied thus far, reduplication of the referent noun has been observed as a plural marking strategy. Plural noun reduplication can take place in situ or with lateral displacement (‘sideward reduplication’). Both of these types of reduplication, along with the basic singular form of the noun, are illustrated in (1): (1a) is an example of reduplication in situ in DGS (Pfau & Steinbach, 2006, p.146-147), (1b) an example of sideward reduplication in Italian Sign Language (LIS; Pizzuto & Corazza, 1996, p.176). Plural reduplication is also reported for American Sign Language (ASL; Wilbur, 1987), HSL (Schmaling, 2000), ISL (Namir & Schlesinger, 1978; Stavans, 1996), and VGT (Heyerick et al., 2011; Heyerick et al., in prep.). The process of plural formation by reduplication is subject to phonological constraints, however, and not all referent noun signs can be reduplicated (e.g., Pfau & Steinbach, 2006).
In a few sign languages, for instance British Sign Language (BSL, Kyle & Woll, 1985) and VGT (Heyerick et al., 2011; Heyerick et al., in prep.), it has also been observed that a plural referent, in particular two referents, can be expressed by double articulation of the plural referent noun, i.e., two-handed articulation of a sign that is normally articulated with one hand. Furthermore, Pizutto & Corazza (1996, p.182) suggest that plurality in LIS can be expressed by a repeated, displaced head nod during articulation of a noun.

Sign languages may also express multiple referents in the pronominal system (see McBurney, 2002; Cormier, 2012); by localizing classifier predicates, as illustrated in the third picture in (2) from NGT (Nijhof & Zwisserlood, 1999, p.69) where a classifier for a flat entity (expressed by a flat hand) is repeatedly placed in space to encode the locations of multiple bicycles; and by plural spatial inflection, as in the second and third still in (3) (BSL; Sutton-Spence & Woll, 1999, p. 201,142), in which the involvement of multiple referents in the giving event is indicated through incorporating their various loci in the articulation of the predicate.

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1 A classifier predicate in many signed languages expresses an event (usually one of motion) or state (location and/or position) of a referent entity. The classifier represents the entity and is expressed simultaneously with the predicate, typically by a particular shape of the hand, that reflects a salient characteristic of the entity (e.g., shape or animacy). See Zwisserlood (2012) on classifiers in signed languages, in general; see Arık (2009, 2010, this volume), Kubuṣ (2008), and Özyürek, Zwisserlood, & Perniss (2010) on classifiers in TİD.

2 The term ‘predicate’ is used in this chapter to mean a linguistic element that assigns a property to a referent or expresses an event in which a referent is involved. We use this general term because it is still very difficult to distinguish more fine-grained grammatical categories such as ‘verb’, ‘adjective’, and ‘adverbial’ in sign languages, lacking morphological and syntactic clues such as case markers, copulas, and articles (e.g., Erlenkamp, 2000; Johnston, Vermeerbergen, Schembri, & Leeson, 2007).
Finally, like spoken languages, sign languages have sets of numerals and quantifiers, which are not plural markers in the strict sense of the term, as they indicate a particular quantity of entities. In some sign languages, numerals can even be incorporated in the referent noun, but this process is constrained phonologically (as we will see in more detail later in this chapter) and semantically, i.e., to referents that are generally referred to as measured items, such as time units (Frishberg & Gough, 2000). Numeral incorporation is illustrated with an example from ASL (Fernald & Napoli, 2000, p. 15) in (4), where the number of fingers indicates the number of days.
Turning to TİD, a first study of TİD morphology (Kuboş, 2008) indicates that TİD uses reduplication to express entity plurality, displaying both reduplication in situ and sideward reduplication. However, plural reduplication occurs only sporadically in Kuboş’s data set, appearing to be subject to severe phonological restrictions, as for example in DGS. More frequent strategies are plural expression through quantifying expressions (i.e., numerals and quantifiers), modifying expressions (e.g., different adjectives modifying a noun, thus indicating multiple entities), and locative reduplication of classifiers. Kuboş (2008), following Zeshan (2002), also indicates that TİD distinguishes singular, dual, paucal (i.e., countable plural), and plural.

The current study expands on Kuboş’s work, presenting a qualitative and quantitative description of the devices for expression of entity plurality in TİD that occur in a large data corpus, comprising two different data genres (elicited and spontaneous). In addition, we provide linguistic analyses of our findings and suggest a reinterpretation of previous analyses of expressions of multiple entities in TİD, some of which may also hold for other signed languages.

11.1. Methodology

The two data sets in our study are elicited picture descriptions of concrete objects and spontaneous narratives. Data were collected from a total of 20 deaf adult native TİD signers from the region of İzmir (12 male, 8 female, aged 20-49, mean age 29). Twelve participants were involved in the elicitation task. They were asked to describe photographs containing one, two, three or four, or many static animate (birds and cows) and

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3 In this study, five native and early TİD signers from the region of Ankara performed an elicitation task, describing photographs of varying numbers of entities.
inanimate (boats, cups, paintings, pens, and plates) entities in typical contexts, for example boats on the water and pictures on walls, as illustrated in Fig. 11-1. Besides these ‘focal’ objects, the pictures also contained different numbers of other, ‘non-focal’ objects that happened to be also in the photographs (chairs, trees, and tiles).

Fig. 11-1 Examples of stimulus materials

The photographs were presented in random order on a laptop screen. Participants described the photographs to another deaf signer, who selected the described photograph from a set of 24 thumbnail photographs. In total, 366 descriptions were elicited, of which 273 were for multiple entities. Some of these descriptions were quite elaborate, and signers often used different strategies to indicate plurality of the entities in a single description. A total of 645 expressions of multiple entities occurred in the data and form the basis of the analysis presented here.

The spontaneous narratives consisted of monologues by fifteen participants, who introduced themselves and/or described one or more memorable events from their own lives to another deaf participant. (Seven signers participated in both tasks). The resulting data set amounted to 28:35 minutes of signing, which contained a total of 712 entity references, including NPs as well as null predicate arguments. Of these, 219 had a plural interpretation.

All sessions were recorded from three different angles: front views of signer and addressee, and a top view encompassing both signer and addressee. Combined, the front and top views approach a three-dimensional view of the signing, facilitating recognition of the signs and interpretation of the use of space. The data were coded in ELAN. Descriptive tiers for each hand identified the signs (represented by Turkish and English ID-glosses), sign repetitions, classifiers, and use of loci in sign space. Analytical tiers identified the devices used for expression of entity plurality. The Turkish glosses were provided by a native bilingual Turkish-TID assistant. Coding was done by a trained linguist in

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4 ELAN is a sophisticated multimedia annotation tool, developed at the Max Planck Institute for Psycholinguistics, The Language Archive, Nijmegen, The Netherlands (Wittenburg, Brugman, Russel, Klassmann, & Sloetjes, 2006).
cooperation with a fluent TİD signer. In the data sets, every instance of plural entity interpretation was identified (unproblematic in the elicited data, but more challenging in the spontaneous data), and subsequently it was established by which device(s) plurality was expressed.

11.2. Results

We report on the results of both tasks together. Based on the sign language literature (in particular Kubuș, 2008), we expected the picture descriptions of multiple entities to contain noun reduplication, locative classifier predicates, and other locative devices. In addition to plural expression on the noun, we expected the spontaneous data, with its focus on human (inter)action, to contain plural predicate inflection. Furthermore, we were attentive to yet other systematic ways of expressing multiple entities not reported for TİD, for example non-manual devices.

11.2.1. Expression of entity plurality on nouns

In contrast to our expectations, noun reduplication did not occur in either data set. As stated before, severe restrictions have been reported on plural reduplication. First, plural reduplication is blocked in DGS and LIS by phonological specification for a body location (Pfau & Steinbach, 2006; Pizzuto & Corazza, 1996). Second, signs that are specified for inherent repetition are unable to exhibit plural reduplication in DGS, ASL, and LIS (Pfau & Steinbach, 2006; Pizzuto & Corazza, 1996; Wilbur, 1987). Since TİD phonology has only been preliminarily studied (Kubuș, 2008), we first established the phonological structure of the signs occurring in plural contexts, by comparing their forms in isolation with the forms occurring in singular and plural contexts. This comparison served particularly to filter out observed repetitions in sign occurrences resulting from the phonetic/prosodic context. Signs at prosodic boundaries are reported to attract prosodic weight, manifested in, for instance, repetition of the movement (e.g., Perlmutter, 1992; Crasborn & Van der Kooij, 2012). This is particularly the case in signs that end in contact with the other hand or the body (Van der Kooij, 1997). Thus, repetition in a sign articulated in isolation may be solely due to its occurrence at a prosodic boundary. When repetition is not systematically present when the sign is

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5 The term ‘reduplication’ is, in this paper, reserved for sign repetitions with a grammatical function, casu quo plural marking. We use ‘repetition’ for forms where repetition does not have such a function, for instance phonologically specified repetitions or phonetic/prosodic repetitions (following Wilbur, 2005).
used in different contexts, we can assume that it is not phonologically specified for repetition. In this way, we selected 18 nouns in the elicited data and nine nouns in the spontaneous data with a non-repeated movement, for example the TİD signs for ‘tree’, ‘boat’, and ‘day’ in (5). These signs were likely candidates for plural reduplication.

(5)

TREE  BOAT  DAY

A third restriction on plural reduplication is the presence of a numeral or quantifier in the noun phrase (DGS; Pfau & Steinbach, 2006). Although the reported restrictions do not necessarily apply in TİD, the possibility that they might do so was taken into account in our study.

While we observed a few instances of repetition of nouns in plural contexts, we argue that these should not be considered plural reduplication forms. First, the repetitions were not systematically related to object plurality: similar repetitions also occurred in nouns in singular contexts. Second, even the signs that were the phonologically most likely candidates for showing plural reduplication did not display systematic articulation differences in singular and plural contexts. Third, this lack of systematic noun reduplication in plural contexts was not related to the presence or absence of numerals and quantifiers in the noun phrase, or even to other strategies for expressing entity plurality, such as localization and predicate inflection. Indeed, no systematic plural reduplication was found in the spontaneous data set, where the presence of multiple entities was expressed by at most one strategy. The only exception was one of the TİD signs for ‘child’: in all five occurrences of reference to two children, the sign was repeated, next to the first articulation. (In all cases the numeral for ‘two’ was explicitly mentioned.) We consider this sole example of reduplication to constitute a lexical plural (see Zeshan, 2000, for the same phenomenon in Indo-Pakistani Sign Language [IPSL]). Our findings are in line with Kubuš’s (2008) observation that plural reduplication is very infrequent in TİD. In fact, cases of reduplication observed in his data may be prosodically/phonetically motivated rather than exhibiting a morphological plural strategy.
We did observe numeral incorporation, another strategy of expressing multiple entities on the noun, although only sporadically, and only in the spontaneous data. The signs that underwent a process of numeral incorporation typically referred to entities that are usually measured or counted, for example the signs for ‘hundred’, ‘in x weeks’, and the sign for ‘grade’, of which various incorporated forms are illustrated in (6). This corroborates findings by Zeshan (2002), whose data show numeral incorporation also in the signs for ‘hour’ and ‘year’.

(6)

We propose to analyze the numeral incorporation process in TİD as a simultaneous combination of phonologically underspecified lexemes (see Liddell, 1996). Typically, it is only numerals, specified for hand configuration alone, and nouns not specified for hand configuration features which occur in such combinations. Thus, the TİD sign for ‘grade’ is only specified for end contact on the upper arm. As such, it can combine with the numerals ‘one’ through ‘six’ (which have only hand configuration specifications). Under this analysis, even the signs referring to one entity, for example those for ‘(one) hundred’ and ‘in (one) week’, are numeral incorporated forms. This is in contrast to analyses (e.g., Mathur & Rathmann, 2009, for ASL and DGS) that assume that numeral incorporation applies to signs that have full phonological specifications for all parameters, but is restricted to signs with unmarked hand configurations, in particular ‘extended index finger’. However, such an analysis would incorrectly predict TİD signs with an unmarked hand configuration, one of which is ‘extended index finger’ in TİD according to Kubuṣ (2008, p.48), to show numeral incorporation. For example, the TİD sign for ‘second’ (time unit), with this same hand configuration, cannot show numeral incorporation, as confirmed by two fluent TİD signers (one of whom is hearing).

Some instances of simultaneous expression of a numeral and a noun in our spontaneous data are arguably not numeral incorporated forms, but rather reflect a different phenomenon: hand configuration assimilation.
(Instances of this phenomenon have also been reported by Kubuș (2008, p.22), although they are analysed there as ‘slips of the hands’.) The crucial difference between these and true numeral incorporated forms is the presence of a numeral adjacent to the noun. This is exemplified in (7): the hand configuration in the numeral for ‘two’ is specified for two extended fingers. This hand configuration is retained during the articulation of the following noun for ‘year’, which has one extended finger. Signs with one extended finger specification are prone to undergo assimilation processes in ASL (Liddell & Johnson, 1986; Sandler, 1996) and this seems to be the case in TİD, as well. Besides in the sign for ‘year’, hand configuration assimilation was also observed in the sign for ‘month’ in our data (previously subsumed under the numeral incorporated forms, Zeshan, 2002).

(7) a.  

![Image of hand position]

YEAR

b.  

![Sequence of hand positions]

TWO YEAR LATER

‘Two years later ...’

In sum, from neither the elicited data nor the spontaneous data can it be deduced that TİD, uses noun reduplication to express multiple entities, in contrast to some other signed languages, such as ASL, DGS, LIS, and VGT. TİD shares a process of numeral incorporation with other signed languages, but severely restricted phonologically and semantically, and the resulting forms expressing not so much entity plurality but rather exact numbers of entities. No further strategies of expression of multiple entities
on the noun were observed in either data set. Therefore, we conclude that TİD does not employ productive morphological strategies for multiple entity expression.

11.2.2. Numerals, quantifiers, pronouns

Moving to a larger domain than the noun, we find that TİD, like other (sign) languages, employs numerals, to indicate exact numbers of entities, and quantifiers, for less exact indications of quantity (e.g., signs expressing ‘some’ and ‘many’). Since the stimuli used in the elicited data sessions contained exact numbers of focal objects (one, two, and three or four), these numerals occurred quite often in the descriptions (see (8a)). Numerals were also used in the spontaneous data, but less frequently. In descriptions of stimuli containing many entities, a quantifier was typically used: most frequent were the sign for ‘many’ and the sign for ‘a lot’, as in (8b). Quantifiers occurred in both data sets, although less frequently in the spontaneous data than in the elicited data.

(8a).

RH: TWO
LH: BLACK CROW BIRD

‘There are two black crows - birds.’
Numerals and quantifiers had several functions in the data. In addition to modifying the noun within the noun phrase, as in (8a), they sometimes had a predicative function (comparable to ‘of pictures, there are two’), or functioned as subjects of a following predicate (comparable to ‘of ducks, four are side by side’). Numerals in the noun-modifying function occurred both before and after the noun. In the non-modifying functions, numerals always appeared after the noun in our data, often after a prosodic break, for example a head nod and/or eye blink, as illustrated in (9a). Quantifiers rarely occurred in a position preceding the noun. (See Arif (2006) for a first overview of order within the NP in relation to non-manual markers in TİD).

(9a.)

‘Of cups, there are two.’
b. [Images of sign language gestures]

COW        FOUR        4-SIDE.BY.SIDE-BE.AT

‘Of cows, four are side-by-side.’

In the spontaneous data, pointing signs were sometimes used to indicate referent plurality. In all instances, reference was to multiple discourse participants, suggesting that these signs function as plural pronouns. We observed plural pronouns including the signer and one or more non-first persons, using the loci in space where they were conceptualized and/or had been previously localized, as well as non-first person plural pronouns (points to loci of non-first person referents). The forms observed are similar to the forms generally described for pronouns in the sign language literature (e.g., Cormier, 2012). Besides pointing to separate locations, individuating the referents (as in (10a)), participant locations were also indicated by means of a single ‘sweeping’ movement of the hand, indicating the referents as a group (see (10b)). Furthermore, we observed a few instances of numeral incorporation in pronominal reference, as in (10c).

(10) [Images of sign language gestures]

THEY (each of them)    THEY (all of them)    WE-THREE

11.2.3. Multiple entity expression through localization

We now turn to localization, a strategy for expression of multiple entities that occurred frequently in the elicited data, because the focal
objects in the pictures occurred in particular spatial configurations with respect to each other and to other objects. In their personal narratives, signers focused more on describing people in different states and involved in various actions, and were concerned much less with clarifying spatial relations. Localization strategies were thus hardly observed in the spontaneous data.

Expression of multiple entities in spatial configurations occurred with various forms in TİD: classifiers, nouns, size and shape specifiers (SASS) (see Supalla, 1982), as well as a form expressing a side-by-side configuration. All of these forms are characterized by the use of loci in space, and we analyse them as instances of a basic predicative root that is articulated simultaneously with a referential device. Simultaneous combination is possible because the root is phonologically underspecified for hand configuration and orientation features. Conversely, combination is restricted to referential devices that are underspecified for location features, a restriction similar to that on the process of numeral incorporation described earlier.

The best-known combinations of localization predicates with referential devices are classifiers, although localization of noun signs is also observed in sign languages. Our data confirm Kubuš’s (2008) findings that classifier-locative predicate combinations are frequently used to express the existence of multiple entities at several locations, since they were used by all participants in our study, and occur in more than half of all elicited plural entity descriptions. In general, for smaller numbers of objects, the participants would replicate the exact number of objects and their relative positions in space in their localizations, as in the localizations of two cups in (11). The orientation of the hands usually reflects the orientation of the object in these constructions. When there were two entities, signers often, though not always, used a simultaneous bimanual classifier construction (see Perniss, Zwitserlood, & Özyürek, 2011 for a more detailed account of simultaneous expression in TİD and DGS spatial language). Kubuš (2008), following Zeshan (2002), analyzes such constructions as ‘dual classifiers’.
‘There is a situation in which there are cups, two of them, a green and a white one, one is here, one is here.’

For more than two easily countable objects, signers used either a repeated one-handed localization (a ‘paucal classifier’ in Kubuṣ, 2008), or, particularly for many objects, signers localized objects with an alternating movement of the two hands, as in (12a). In the descriptions of many objects, the localizations did not reflect the exact locations of objects nor their exact number, although object orientation (i.e., upright vs. horizontal/flat) was accurately conveyed. In addition to the repeated alternating localizations signers also used a ‘sweeping’ motion of the hands covering the general area where the objects were being located. A straight line indicated a linear configuration of objects, a circular motion indicated a surface covered with objects. The latter is illustrated in (12b). Both types are also described in Kubuṣ (2008), referred to as ‘plural classifiers’.
Finally, signers sometimes localized numeral-incorporated classifiers. This occurred in descriptions of stimuli containing two and four pens. The classifier for pens (and other long objects) is expressed by an extended index finger form (♀️), and the numeral incorporated forms featured two or four extended fingers, respectively. (See Supalla, 1982, 1986; Schmaling, 2000 for similar forms in ASL and HSL).
Besides localized classifiers, we also encountered localized nouns in the data, i.e., nouns articulated at different locations in space reflecting the number and spatial relation of the entities. As stated before, this is restricted to nouns without phonological location specifications, which are articulated in front of the signer’s body in citation form. An example is in (13), where the sign for ‘boat’ is made twice, at two locations next to each other that reflect the relative position of the boats in the stimulus item.

(13)

`BOAT-BE.AT_{sea}_A`  `BOAT-BE.AT_{sea}_B`

‘There’s a boat here and a boat here (at the sea).’

Similar forms were also observed by Kubuș (2008). Following Pfau & Steinbach (2006), Kubuș analyses these forms as locative noun reduplications, i.e., special cases of noun reduplication in which, in contrast to reduplication in situ and sideward reduplication, the positions of the referents in space are reflected. However, as TİD does not appear to employ productive noun reduplication, positing a special type of noun reduplication to account for localized noun signs would not be parsimonious. Alternatively, our analysis of these constructions as combinations of nouns and localization predicates accurately captures the similarity in form, meaning, and morphological complexity of these constructions with classifier-localization predicate combinations. Moreover, this analysis also covers combinations of yet other forms with localization predicates, i.e., SASSes and a side-by-side numeral incorporated sign, both described below.

It must be noted that it was sometimes difficult to determine whether a localization predicate was combined with a classifier or a noun: some
noun signs in our data set do not have phonological location specifications, for example two of the signs for ‘glass/cup’ (see (12a), first still), and the signs for ‘plate’ (see (19a), first still) and ‘tile’. In such cases, the distinction was made on the basis of (i) presence of a referent introduction sign preceding the localization predicate, in which case we assumed that the localization predicate was combined with a classifier, and/or (ii) accompaniment of the (localized) sign with mouthing of the Turkish word (e.g., bardak ‘glass’) for the referent. When localizations were accompanied by such mouthings, and in particular, in the absence of a separate referent introduction sign, we assumed the localization predicate to be combined with a lexical noun sign.

Size and shape specifiers (SASSes), i.e., signs tracing the shape of an object, can, like classifiers, be localized. Combinations of SASSes and localization predicates also occurred in the expression of multiple entities in the elicited data, and mostly in descriptions of easily countable objects. These constructions indicated the location, number, and shape of the objects. This is illustrated in (14): the signer simultaneously localizes two paintings next to each other by tracing their rectangular forms in the appropriate places (on a previously localized wall).

Another strategy used to express exact numbers of localized entities, occurring only in the elicited data set, was a construction that we analyze
as a numeral incorporated side-by-side form. This form was only used to
describe an exact number of entities that were next to each other and in the
same orientation, i.e., all upright or all horizontal, with approximately the
same distance between each other. Like numeral-incorporated classifiers,
these constructions indicate the orientation of the entities, but unlike
numeral-incorporated classifiers, they do not provide information about
entity characteristics, such as shape. See (15) for examples. The signer in
(15c) explicitly indicates her perception of the four boats as two boat pairs
in different orientations.

(15)a. b.

`FOUR-SIDE.BY.SIDE- BE.AT_table`

`THREE-SIDE.BY.SIDE- BE.AT_table`

‘Four (cups) are next to each other
each other
(on the table).’

‘Four (plates) are next to (on the table).’
c.

LH: TWO-SIDE.BY.SIDE- BE.AT\textsubscript{water} A
RH: TWO-SIDE.BY.SIDE- BE.AT\textsubscript{water} B

‘Two (boats) facing me and two (boats) facing away from me are next to each other (on the water).’

Summarizing, various strategies using spatial localization occurred in our data to indicate multiple entities: localizations (i.e., predicate roots that consist of a short movement towards the locus, Supalla 1982), combining with classifiers, nouns, SASSes, and numeral incorporated side-by-side signs. Such strategies were mostly found in the elicited data and only sporadically in the spontaneous data. This difference is not surprising given that the stimuli provided contexts where descriptions of the spatial relationships between objects was felicitous, in contrast to the spontaneous data.

11.2.4. Multiple entity expression through spatial predicate inflection

Besides localizations, our data also contained instances of spatial predicate inflection to indicate that more than one referent was involved in the event expressed. In these predicates, the location, or the begin and end locations reflect the spatial loci that are connected to the predicate argument(s).\textsuperscript{6} For example, the signer in (16), in a continuation of (14), articulates the predicates for ‘dark’ and ‘light’ at the loci where she has previously localized the two pictures she is describing, thus indicating that the one localized to the left is dark, and the one on the right is light.

\textsuperscript{6} We do not distinguish person inflection from spatial inflection, since these frequently overlap, which suggests that these are not firmly distinctive categories in sign languages (see also Lillo-Martin & Klima (1990), Meir (2002), and Van Gijn & Zwitserlood (2006)).
Similarly, the signer in (17), after having explained that she was hired to entertain children but was unsure if she would be able to do so, being deaf, expresses her happy surprise that the children (localized in front of her) followed her lead, imitating her movements.

The inflected predicates for plural referents seem similar to a subset of structures in Kubus’ (2008) study that he analyzes as ‘adjectives with plural property’, i.e., signs that provide information about entities (such as colors), and are articulated at different spatial locations. Since, as far as can be seen from the examples provided, there is no (other) predication over the referents, these structures may be similar to those in (16)-(17) and reinterpreted as inflected predicates.

Inflected predicates showing plural reference occurred both in the elicited data (in particular for the animate entities) and in the spontaneous data. The higher frequency of these devices in the spontaneous data set is due to the greater opportunity for participants to describe a variety of states and actions, in particular involving human beings, compared to the
static photographs containing mostly inanimate entities. Predicate inflection is thus another important way in which entity plurality can be expressed in TİD. Still, in TİD, like in other sign languages, only a subset of predicates shows spatial inflection (Sevinç, 2006), which may be a reason why this strategy did not occur more often in plural contexts.

Finally, in the spontaneous data, we encountered classifier predicates expressing path motions of multiple referents. An example is in (18), where the two hands with extended fingers form a classifier representing many people going to the (previously localized) aqua park.

(18)

\[
\text{CLF(many)-MOVE}_{\text{aqua park}}
\]

‘(Many people) went (to the aqua park).’

11.2.5. Other ways of providing plural interpretation

Besides the devices reported above, we encountered another means for inference of a plural entity interpretation, i.e., signs with an inherent plural interpretation in the context of the noun for the plural referent. These could be predicates, such as the TİD signs for ‘spread out’, ‘mixed’, and ‘in a bunch’. (These were also mentioned in Kubuș, 2008, analyzed as adjectives.) Such signs were used in a couple of cases, in both the elicited and spontaneous data. An example in which the signer uses ‘mixed’ to describe the disarray of plates on a table is in the second still in (19):
Sometimes a plural interpretation ensued from a non-predicative sign, for example the sign for ‘together’, and the sign for ‘(the) other’, used in a description of an object following a description of a similar object, illustrated in (20).
In some cases, the plural interpretation had to be inferred from the discourse when no morphological, lexical, or syntactic means expressing singular or plural reference of a noun was present. For example, when introducing himself a signer signed that he used to live in İzmir with his father, mother, and sibling(s). Only when he provided more information about his brother and sister the plural reference of the sign for ‘sibling’ could be understood. Of all multiple reference cases in the spontaneous data, more than a quarter were inferred from the linguistic context alone. In contrast, the elicited data always contained at least one morphological, lexical and/or syntactic indication of entity plurality.

11.3. Summary and conclusions

In this chapter, we have provided a descriptive and analytic account of expression of multiple entities in TİD. The two data sets used in this study resulted in a large number of expressions of multiple entities. Various strategies were used in our TİD data, some of which have been reported to exist in other sign languages as well, such as numerals and quantifiers (lexical strategies), numeral incorporation (a morphological strategy), and morphosyntactic strategies in the form of spatial predicate modification. A form that had not been observed previously in TİD or in any other sign
language is the side-by-side sign, which expresses the exact number of (same type) entities in a side-by-side configuration. Unfortunately, this device was only used for two, three, and four entities in our data. Thus, whether it can also be used for more than four entities needs further study. Interestingly, TİD does not appear to mark plural by noun reduplication, a strategy that has been reported for other sign languages, such as DGS (Pfau & Steinbach, 2006), ASL (Wilbur, 1987), VGT (Heyerrick et al., 2011; Heyerrick, Vermeerbergen, & Van Herreweghe, in prep.), and LIS (Pizutto & Corazza, 1996). The absence of noun reduplication cannot be ascribed to phonological or semantic restrictions that are known to block noun reduplication in these sign languages. We found no other strategies for expression of multiple entities, for instance, by way of non-manual marking or affixation.

Due to the different nature of the two data sets, the elicited data set focusing on the spatial relations between single and multiple entities, and the spontaneous data set containing mainly descriptions of states and actions of humans, we find different distributions of these devices, as can be seen in Fig. 11-2 and 11-3 below. (The percentages for numeral incorporation for expression of plural entities were too small to be included.) Note that in 16% of all 712 entity references in the spontaneous data it remained unclear whether the entity was singular/generic or plural.

![Distribution of types of expression of multiple entities in the elicited data (N=645) (percentages of all expressions of multiple entities)](image_url)
Fig. 11-3 Distribution of types of expression of multiple entities in the spontaneous data (N=219) (percentages of all expressions of multiple entities)

From these distributions as well as from the fact that entity plurality was often only inferred from the context, it appears that none of the multiple entity expression devices we observed is obligatory. We go even further, claiming that the primary function of the devices observed in the data is not that of plural marking. Rather, localization primarily indicates topographic entity locations and predicate inflection primarily functions to indicate predicate arguments, by articulating predicates at or moving them between spatial referential loci. When more than one entity is involved, localization or articulation of the predicate at/between the referential loci automatically provides a plural entity interpretation. Thus, the plural interpretation is a side effect of the primary function of these devices. Since they do not function as genuine plural markings, there is no need to distinguish different types of plural marking (i.e., dual, paucal, and plural) in TİD, in contrast to suggestions by Zeshan (2002) and Kubuş (2008).

Our study is still limited in that only a small set of nouns was studied, all referring to concrete, countable entities. Also, the linguistic environments of these nouns was not studied in detail. Thus, future study of expression of multiple entities in TİD, as well as other signed languages, would do well by including more factors, i.e., definiteness, animacy, syntactic function (subjects vs. objects), information structure (topic vs. focus) of the referents, since they appear to play a role in the presence vs. absence of plural marking in many spoken languages.
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