Three Signs, One Common Trait: 'All'
A study on universal quantifiers in Turkish Sign Language

Being one of the very first studies in this topic, this paper aims to report our observations regarding three signs in Turkish Sign Language (TİD) that express universal quantification: (i) ALL_1 is a straightforward universal quantifier; (ii) The function of ALL_2 is less straightforward. We argue that it is a complex pointing sign including the universal quantifier 'all' and a demonstrative plural pronoun, resulting in the meaning 'all these/those'; and (iii) ALL^SAME involves incorporation of the movement of ALL_2 and the handshape of SAME.

ALL_1: This is a two-handed sign. The dominant hand (DH) has the thumb finger-handshape ✍ and the non-dominant hand (NDH) has the flat-handshape ✌. The DH moves on the palm of the NDH with a sweeping straight movement, as in Figure 1 below.

Figure 1. ALL_1

<u>Distribution</u>: It can occur with both uncountable (1a) and countable (1b) nouns, it can follow the noun (1a and b), and it can take narrow scope with respect to negation, (1b).
(1) a. SOUP ALL_1 EAT.   b. STUDENT MANY(pl.) ALL_1 COME.NOT.
   'I ate all the soup.'   'Not all students came.'

It can be used as a pronominal (2):
(2) ALL_1 GLASSES (WEAR) NOT.
  'Not all are wearing glasses.'

ALL_2: This is a one-handed sign. The sign is articulated with the 5-handshape 🖐 and an arc movement, as shown in Figure 2 below.

Figure 2. ALL_2

<u>Distribution</u>: Similar to ALL_1, ALL_2 can also come after the noun it quantifies over, (3), it can occur with both countable (3) and uncountable nouns (4) and can function as a pronominal.

However, it differs from ALL_1 in two respects. First, even though ALL_1 is usually signed in central space, ALL_2 is frequently signed pointing to the loci of the entities it quantifies over, i.e. the loci of the entities in the signing space determine the orientation of the sign. Second, when ALL_1 is accompanied by mouthing, the accompanying mouthing is of the Turkish word *hepsi* 'all' whereas the mouthing that accompanies ALL_2 is either the Turkish word *hepsi* 'all' or of the Turkish plural suffix [ler] / [lar]. However, since when signers are asked to translate ALL_2 to Turkish, they translate it as *hepsi* 'all', we glossed it as ALL_2 rather than as PLURAL. The mouthing and translation issues raise a question regarding the true nature of ALL_2.

We argue that this complex sign contains the morphemes discussed in (i) and (ii):

(i) A universal quantifier: ALL_2 interacts with negation scopally in two ways as in the example below shows:
(3) STUDENT ALL_2 COME NOT. UNIVERSITY ALL_2 COME.
   HIGH SCHOOL ALL_2 COME.NOT.
   'Not all of the students came. University students all came but none of the high school students came.'
(4) SOUP ALL_2 EAT NOT. MOTHER FOR HALF LEAVE.
 'I didn't eat all the soup. I left half of it for my mother'

If this were a simple plural marker, we would not get the two scopal relations since plurality does not interact with negation in such a way.

(ii) A (demonstrative) plural determiner: ALL_2 cannot cooccur with the plural pronoun. If this were a simple universal quantifier, it would be able to occur with, for example, the 3rd person plural pronoun (IX3$_{pl}$) but it cannot (5).
(5) *IX3$_{pl}$ ALL_2 LIST EXIST.
Intended: 'All those are in the list'

These two different morphemes can be partially identified in the articulation of this complex sign: pronouns (also pointing signs) in TİD, as in most sign languages, are articulated with an index-finger handshape and point to the loci of the entities they refer to in the signing space. In the handshape of ALL_2 all five fingers are spread, (5-handshape,) and also point to the loci of the entities it quantifies over. The meaning 'all' is represented by a movement. While in ALL_1 this is a straight sweeping movement, in ALL_2 it is an arc movement.

ALL^SAME: This is a one-handed sign and it involves incorporation of the handshape of the sign SAME and the movement of the sign ALL_2. ALL^SAME is used when the entities quantified over have a property that they commonly share, and when these entitites are physically situated with respect to each other in a certain arrangement such as in a line or forming a circle. As it is an incorporation of two signs meaning 'same' and 'all', the resulting meaning is 'All those are the same.' For instance, when a signer is describing a picture where the entities are situated in a line and share some features, signers produce ALL^SAME by moving the hand in a straight line and if the entities are situated in a circle and share some features, then ALL^SAME is signed with a semi-circular movement as in the second set of pictures in the example below:

WOMAN   ALL_1   WHITE   (WEAR)DRESS

ALL^SAME   EXIST…..

Figure 3. 'All women wear white dresses, all those are the same…'

To conclude, we show in this paper that TİD has at least three ways of expressing universal quantification. ALL_1 is a straightforward universal quantifier. ALL_2 and ALL^SAME are morphologically complex signs and what we propose in this paper for their morphological make-up contribute new data and a new perspective on the morphology of sign languages. ALL_2 is a pointing sign that also expresses universal quantification. ALL^SAME

is a kind of incorporation which has not been previously reported in sign languages before. So far it has been observed in the literature that signs with incorporation in sign languages involve mostly numerals (Cormier 2002). This paper shows further that in addition to numerals, other signs such as ALL^SAME which contains a predicative adjective and a universal quantifier can be formed as a result of incorporation.

References: Cormier, K. (2002). *Grammaticization of indexic signs: How American Sign Language expresses numerosity* (Doctoral dissertation, University of Texas at Austin).