

NUMBER IN ESTONIAN SIGN LANGUAGE

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Abstract. The article presents an exploratory analysis of the grammatical category of number in Estonian Sign Language (ESL). The manifestation of number in ESL is described from the cross-linguistic perspective proposed by Corbett (2000), and focuses on the meaning distinctions of the ESL number system, as well as on the morphological operations which are employed to express these. It is shown that the notion of number in a sign language diverges from the more straightforward accounts of number in spoken languages, as it is not only the distinction between singular and plural that is obligatorily shown, but also such specific information as the locus and arrangement of the referents of the marked sign.

1. Introduction

The objective of this paper is to give an account of the manifestation of number in Estonian Sign Language (ESL). The category of number is ‘the most underestimated of grammatical categories’, as Corbett (2000:1) notes with respect to spoken languages. This applies also to sign languages, as number usually deserves a footnote in sign linguistics. The reason is obviously the fact that number is often considered as elementary as “two and two are four”, although the wide-ranging cross-linguistic data presents substantial counterevidence (see, e.g., Corbett 2000). Moreover, as it is shown in the paper, number in ESL, and by implication in all sign languages, challenges the traditional view of the category.

It is often assumed by the speakers of Indo-European languages that number is a universal category which is realized in all languages. A cursory view at Chinese, for example, will definitely confute this belief, since Chinese is one of the languages which copes without this grammatical category and makes use of numerals, or other expressions of quantity if plurality has to be expressed. Nor is it uncommon that number is considered a mere instance of binary opposition between singular and plural, though languages with richer systems could be found which systematically distinguish dual and trial. The cross-linguistic data on the category shows that number is not always marked on all nouns, as in the more familiar Germanic languages, but a distinction may be drawn between noun classes that undergo number marking, and those that do not. This phenomenon is generally explained in

terms of animacy hierarchy in spoken languages. In sign languages, however, completely different factors are at work, as is pointed out in the paper.

Despite the fact that number is predominantly a nominal category (Greenberg 1990), Corbett (2000) argues that it can also be a verbal category as, for instance, in Rapanui. According to Corbett, if number is marked either on the noun phrase, or on the noun phrase and the verb (agreement), then it is an instance of nominal number. If, however, the plural marker occurs only on the verb, it qualifies as verbal number. Yet the notion of verbal number appears to be controversial in the literature, and it is often interpreted as aspect; the same is suggested in this paper with regard to ESL.

The body of the paper presents an exploratory description of number in ESL in the framework of Greville Corbett's (2000) typology to the category of number in the world languages. An approach like this would contribute to a better understanding of this category cross-linguistically, and illustrate what aspects of number are manifested in ESL. It should be noted that although ESL has been of some interest to its non-native users for about twenty years by now (see e.g. Laipea 1992, Toom 1989, 1990), still not much is known about the systematic deployment of morpho-syntax, and about the means and processes which are typically used to express particular grammatical information by native signers. Considering the fact that sign languages are realized in a mode where they are perceived visually, one might naturally wonder how an entity, two entities, three entities or many entities are referred to in such a mode; whether there is any subject-verb agreement; and, most importantly, whether there can be observed any influence by the language of the majority in a given society, in this case, by Estonian.

Section 2.3 in this paper focuses on the manifestation of such semantic distinctions in ESL as count distinctions, count and mass, distributivity, and collectivity. Also, the morphological and syntactic means of marking these distinctions in ESL are described. Section 3 discusses the findings on number in ESL against the background of the cross-linguistic data on the category in both signed and spoken languages. The primary concern of this paper is the synthetic expression of number, as opposed to analytic realization. Hence numerals and quantifiers remain outside the scope of the present study, as well as the expression of number in personal pronouns.

2. Case study: Number in Estonian Sign Language

2.1. Some general remarks about Estonian Sign Language

Estonian Sign Language (ESL) is the first language of about 2000 deaf people living in Estonia. In addition to this, there are about 2000 more people who use ESL as their mother tongue, as a second language or as a foreign language (for more statistics and facts, see Sutrop 2000).

ESL, like any other sign language (or alternatively, signed language) is perceived through the visual mode. Its forms consist of sequences of movements and configurations of the hands and arms, face and upper torso. Signs are articulated with one hand or two hands, and they form only one component of a sign language, as facial expressions such as eyebrow and lip/mouth movement play also a crucial role

in conveying grammatical information. Hence a series of signs may vary in meaning according to the facial expression which accompanies it. (For a full discussion of non-manual markers see, e.g., Baker-Shenk 1985, Ebbinghaus & Hessmann 1996, Engberg-Pedersen 1990, Vogt-Svendsen 1990).

Structurally, ESL qualifies as a topic-oriented language (see Laiapea 1992) similarly to all signed languages studied so far. That is, the order of signs is relatively free, and determined by the topic of the message. In general terms, the default order is SVO.

2.2. Data and methods

The data for this study come from videotaped recordings of the deaf native signers of ESL between the ages of 15 and 35 who are reporting some past event or experience, recounting their favourite book or film, or signing a fairy-tale to a deaf audience. Some of these recordings originate from the period of 1990–1994; others were recorded at the Sign Language Centre of the Tallinn School for the Deaf in 2000–2002.

The tapes have been glossed in Estonian with the help of a sign language informant. Estonian glosses of the signs of ESL are determined by the most frequently associated Estonian words. In this paper, Estonian glosses are given in English according to the convention outlined in Sutton-Spence & Woll (2002). Signs requiring more than one English word in their gloss have hyphens between the English words. It should be emphasized that glosses are provided with the level of detail required for the present analysis, and not in their full complexity (e.g., eye gaze, head tilt, etc. are not indicated, unless carrying relevant information). Other indications pertaining specific grammatical information will be explained within the body of the text.

2.3. Results

2.3.1. Meaning distinctions in the ESL number system

The data analysed in this study show that the expression of number is obligatory in ESL. This means that the distinction between singular and plural meaning should be expressed in ESL, and leaving the number of referents unspecified yields ungrammaticality. Thus, the ESL number system clearly resembles the systems in more familiar Indo-European languages, and differs from those where the expression of singular-plural opposition is usually irrelevant, e.g., the Cushitic language Bayso. The latter has a separate form of the noun which denotes ‘general number’ (Corbett 2000: 10), and it is used to express general meaning which is numerically neutral, e.g., *lúban* ‘lion’ refers to a type of animal without indicating how many of these animals there are.¹ If required, other forms can be used for specifying either singular or plural meaning (Corbett 2000:10).

¹ Various terms have been used for this phenomenon, e.g., Jespersen referred to it as the ‘lack of a common number form (i.e., a form that disregards the distinction between singular and plural)’;

The number system of ESL, which obligatorily marks the distinction between singular and plural, involves such ‘determinate’ (Corbett 2000:39) number values in its system as singular, dual, trial, quadral and plural. The singular form is morphologically unmarked, and it is normally used to refer to exactly one entity, as example (1) and Illustration 1 demonstrate:

- (1) hands: BIG ROAST PLATE
 mouth: *suur prae taldrik*
 ‘A big plate’

In (1), the singular meaning is conveyed by the unmarked form, and the accompanying spoken component, which represents the mouth patterns of the Estonian nouns *suur* ‘big’, *prae* ‘roast’, and *taldrik* ‘plate’, also indicate singular.

Dual refers to two members of the class identified by the noun. If the number system comprises dual², plural has a different meaning and is used for referring to three or more real world entities. In example (2), the distinction for dual is shown by two hands, which have classifier handshape and stand for the number ‘two’ (marked by the symbol *cl-*).

- (2) hands: SMALL ROAST PLATE *cl-TWO-NEXT-TO-EACH-OTHER*
 mouth: *väike prae taldrik*
 ‘There are two small plates next to each other.’

Another way of marking dual in ESL is given in (3) below. A sign for ‘DRAWER’ is articulated with both hands (in the gloss henceforth symbolized by ‘x’ in the line of ‘hand 2’ if a one-handed sign is articulated with two hands), being an instance of reduplication of handshape (see Illustration 2).



Illustration 1. Singular: the sign for ‘plate’.



Illustration 2. Dual: ‘The desk with two sets of drawers’.

Hayward took the term ‘unit reference’ into use; in the German tradition the term ‘transnumeral’ is preferred (Corbett 2000:10).

² Plank (1996) notes that dual is possessed by up to half of the world’s languages.

Since the reduplicated handshape is further modified by reduplication of movement with a shift of location downwards on the vertical plane, it is indicated that the desk has not two drawers, but two sets of drawers instead. (The symbol '+' marks repetition; the number of these symbols does not correspond to the number of repetitions.)

- (3) hand 1: TABLE DRAWER + + +
 hand 2: xxxxxxxxxxxx
 'The desk with two sets of drawers'.

Trial is used to refer to three real world entities. Illustration 3 below shows the hand configuration and face countenance that may be used to express trial, in this case, three bowls which are placed inside one another on the table.

As shown in Illustration 3, two cupped hands palms facing inside articulate distinctly thrice along the vertical plane. Trial may also be indicated along the horizontal plane by articulating the same sign explicitly thrice from the left to the right in signing space in front of the signer. Likewise, expression of quadral is accomplished in the same way by establishing specific locations or points in signing space.

Plural is normally used to refer to more than two real world entities in ESL, sometimes to more than three entities. It is worth comparing Illustrations 3 and 4. While Illustration 3 shows one of the ways of expressing trial, Illustration 4 shows one of the ways of expressing plural. In the latter, a classifier flat hand palm oriented downwards articulates several repetitions upwards along the vertical plane, and the accompanying "indifferent"³ face countenance indicates that there are many bowls placed inside one another, more than three and the exact number is irrelevant.



Illustration 3. Trial: 'Three bowls placed inside one another'.



Illustration 4. Plural: 'Many bowls placed inside one another'.

³ That is, the eyes do not focus on several distinct points in signing space, as in Illustration 3, but eye gaze simply follows the movement of the hands on the vertical plane; lips are relaxed and slightly protruding.

2.3.2. *Facultative number in ESL*

Number systems also vary with regard to the fact whether the use of particular number value is obligatory or facultative. That is, even though the overall expression of number is obligatory in a language, there may be a value which can be replaced by some other value. In ESL, if two entities are referred to, then dual is normally used to mark it explicitly; it is hardly ever replaced by plural in ESL according to the data of the present study.

The use of trial in ESL, however, shows a tendency of being facultative. Occasionally the specification for trial may be omitted and expressed by (covert) plural. In an experiment where the signer was shown three glasses in a row in gradation from the biggest glass on the left to the smallest one on the right, the signer depicted them by signing 'GLASS'⁴ first and then articulated the sign for 'GLASSES' (formed by C hand; see Appendix) by the shift from the front-left to the front-right in signing space indicating the gradation in size (see Illustrations 5a and 5b). In this case, number was expressed covertly by the implication that a row consists of more than one entity.



Illustration 5a. The beginning of the sign for 'glasses in a row'.



Illustration 5b. The completion of the sign for 'glasses in a row'.

It is open to a discussion whether the determining factor for expressing plural instead of trial in this particular example was the fact that the gradation in size appears more salient. When the signer was shown three jars in a row where the biggest one was on the left and the smallest on the right, she signed exactly three jars, and incorporated the approximate size of each jar into the signs. The sign for 'jar' is articulated with two hands in a way that allows incorporation (Illustration 6). Obviously, here trial was more salient than the gradation in size.

⁴ This is a sign for glass as material.



Illustration 6. The sign for 'a jar'.

The expression of bigger values such as quadral is facultative in ESL and plural is often the preferred alternative.

2.3.3. *Count and mass*

In this section, the count-mass distinction is briefly discussed. This distinction has turned out to be rather problematic and complex, deserving a substantial amount of literature (see e.g. Allan 1980, Bloomfield 1933, Gleason 1970, Palmer 1971, Wierzbicka 1996). Nevertheless, I will confine myself only to some basic notions.

The main difference between count and mass nouns⁵ is whether or not the entities they refer to can be counted. As Allan (1980:565) puts it, “that which is countable is denumerable”. Thus, in simplistic terms, count nouns denote entities with a well-defined shape that are separate and distinct from one another. They typically refer to an entity which can individually be seen or heard, e.g. *table*, *word*, *book*. A mass noun, conversely, refers to a substance that is homogenous and undifferentiable. It is often used to refer to abstractions and has occasionally a collective meaning, e.g., *furniture*, *education*, *water*. Still, a noun is not always hundred per cent mass or count, rather ‘typically mass’, or ‘typically count’ instead, as Mönnink (2002) notes. Thus, while being a linguistic category, countability tends to correlate with perception (for a detailed, intriguing discussion, see Wierzbicka 1996:379–401).

The approach to ‘mass’ and ‘count’ given above clearly represents the (conceptual-)semantic view or level of handling these concepts. However, Allan (1980) sees the count-mass distinction as a multilevel phenomenon by adapting contextual and semantic approach. He (1980: 546) claims that “countability is **not** in fact a characteristic of nouns per se, but of NPs; thus it is associated with nouns

⁵ There are various terms in use, e.g. Jackendoff (1991) uses the terms ‘bounded’ vs. ‘unbounded’, respectively.

in syntagmata, not with nouns as lexical entries”. Most nouns can be treated as either countable or uncountable, depending on the context (Allan 1980). The latter is understood as ‘reategorization’ (Corbett 2000: 81ff), e.g. *Would you like coffee, or tea?* vs. *Three coffees, please.*

In ESL, uncountability or the distinction for mass is primarily expressed by classifier predicates. The choice of a classifier predicate depends on how the undifferentiated unity is perceived in reality. For instance, if flour is spread on the table, the flat hand palm downwards, fingers *together*, is used to depict this in an iconic way; or, if flour is in a pile on the table, a cupped hand palm downwards, fingers *together*, is utilized to represent it.

Countability, by contrast, is marked either morphologically, or syntactically, or by a number word, or by a classifier predicate that shows distinct entities. Unlike the examples above, gingerbread moulds on the table are usually signed in a way that first the sign for ‘GINGERBREAD’ is formed, and then O hand (see Appendix) for ‘MOULD’, performs several repetitions clearly distinguishing entities with a well-defined shape that are separate and distinct from one another. This is followed by the sign for ‘IN A PILE, or IN THE MUDDLE’, as shown in (4) below:

- (4) GINGERBREAD MOULD + + + IN-PILE
 ‘There are gingerbread moulds in a pile [on the table].’

It is interesting to note that unlike in spoken languages, in ESL rice is a crop that can be counted. There are several examples in the data in which the view of everything covered with rice was regularly expressed with two *spread* hands fingertips in motion depicting rice grains that were covering various surfaces in a room.

2.3.4. *Distributives and collectives*

This section focuses on the two opposing meanings that languages may manifest, the distributive and collective meaning. Both of these can be expressed either by morphological markers or lexically. It is the morphological markers that are under discussion here.

2.3.4.1. *Distributives*

Distributives signify *distribution* of items, i.e., one apiece. They express how entities, qualities, or locations are distributed, shared or divided. Each entity is regarded distinct in space, sort or time. Distributives can be either nominal or verbal category. Nominal distributives primarily fulfil two main functions, as noted by Corbett (2000:112): they may either refer to entities distributed over various locations, or perform the function of marking the separation over various sorts or types. Estonian displays one more function, temporal distribution, which is expressed by an adverbial suffix *-ti* if attached to a noun that conveys the concept of time, as in *õhtu-ti* ‘every evening/in the evenings’.

Estonian Sign Language, like probably all signed languages, is very meticulous in denoting whether the entities referred to are distributed or not. Distributivity in ESL primarily fulfils the function of marking the distribution of entities over space, or various locations by forming relative locations in the signing space. In the case of relative locations, the signer establishes points in the signing space to create an image of some other location.

Distributive meaning is marked on verbs, nouns, or classifier predicates in ESL. The latter also depict the size and shape of an entity, as well as its position with regard to some other entity, as example (5) illustrates. In (5), the sign for ‘KNEELING’ is repeated in distinct locations in a semicircle in front of the signer:

- (5) WOMAN KNEEL+ + + (-IN-SEMICIRCLE)
 ‘Women are kneeling in a semicircle’

The locations established in the signing space form a semicircle in (5). The sign for ‘WOMAN’ is in singular form and the only indication of number is expressed in the verb itself which shows how more than one person is positioned in a room. Thus, through distributivity plurality is implied.

Another example of the distributive marking on the verb is given in (6) where the verb for ‘go’ is articulated with repetition indicating distinct locations in signing space, and then further modified by the signs for these various places. It should be noted that the exact number of the repetitions of the verb neither agrees with nor expresses the number of the places mentioned.

- (6) ALWAYS FAMILY TOGETHER WAS
 GO+ + +(VARIOUS-LOCATIONS) EXHIBITION CINEMA THEATRE
 ‘always the whole family went to the exhibitions, cinema, or theatre’

Similarly to Estonian, ESL also marks temporal distribution. It is highly probable that, in essence, this kind of marking is transferred into ESL from Estonian. As in the latter, in ESL the sign for ‘constantly’ (Illustration 7) is attached to the sign for ‘MONDAY’, or ‘TUESDAY’, etc., to render the meaning ‘on Mondays/each Monday’, or ‘on Tuesdays/each Tuesday’.

Temporal distribution may also be expressed by an intense repetition of the stem in ESL, if formational properties of the sign allow reduplicating it.



Illustration 7. The sign for ‘constantly’.



Illustration 8. The sign for 'group'.

2.3.4.2. *Collectives*

The term 'collective' refers to a group of items that are conceived as a unit, or spatially contiguous in this paper. For instance, in Estonian the collective meaning is expressed by the suffix *-stik*⁶, as in *nimi* 'name' > *nimestik* 'a list of names', *mägi* 'mountain' > *mäestik* 'a mountain chain'.

In ESL, there is a sign for 'GROUP' (Illustration 8) which seems to have two functions.

As a lexical sign, 'GROUP' is a noun that conveys the meaning of an 'assemblage of entities regarded as a unit', as in (7) (the hyphenation stands for finger-spelling):

- (7) DRAMA TEACHER M-A-T-I K-A-R-T-U-S CHOOSE+ + + GROUP ME
 AIVO MERLIN THREE TRAVEL CZECH THERE LAND
 'The drama teacher Marti Kartus chose a group of three people: me, Aivo, and Merlin who went to Czech Republic'.

As a grammatical sign, 'GROUP' has the function of the collectivity marker. It is articulated with two cupped hands facing side-ways forming a circle and thus iconically representing entities, which belong to some sort of coherent set. For instance, the English noun 'coffee set' (the Estonian counterpart is *kohviserviis*) is expressed in ESL as a string of two signs: COFFEE and GROUP, where the sign 'group' stands for the coffee jug and a set of coffee cups.

Another way to indicate collectivity that refers to spatially contiguous entities is by means of classifier predicates. In (8) below, the hand configuration of the form of O hand articulates a semicircle along the vertical plane as a continuous line from the front-left in signing space to the front-right; it depicts the whole set of medals arranged as a semicircle on the wall:

- (8) HOME TWENTY-EIGHT MEDAL *cl*-IN-SEMICIRCLE-ON-WALL
 'At home there are twenty-eight medals on the wall'.

In addition, there is a certain set of verbs that undergo collective marking in ESL. For instance, the sign for 'TO GIVE' can be articulated so that collectivity of the entities is delivered by a *sweeping* movement across the horizontal plane:

- (9) PAPER SHEET I-GIVE-YOU-ALL
 'I will give you all a sheet of paper'.

In general, verbs that allow collective marking also undergo distributive marking. Thus the idea of 'I give you each' can be expressed by *individuated*

⁶ However, this is not the only function of the suffix, for more details, see Erelt et al. (1995:515–519).

repetitions along the horizontal plane as opposed to the sweeping movement that expresses distributivity.

2.3.5. The expression of number

This section is concerned with the various means of expressing number in ESL. It presents types of ESL number marking in the framework of the typology proposed by Corbett (2000)⁷, and focuses on syntax, morphology and lexical items.

2.3.5.1. Syntax

Syntactic number marking is realized through agreement. Agreement tends to co-occur with other morphological means of number expression, as shown in (10):

(10) These students are sitting in the exam.

In (10) above, the controller of the agreement, the head noun *students*, carries the inflection for number, *-s*. The same number property is also marked on two agreement targets, on the demonstrative *these* and on the verb *are sitting*. However, number may be expressed only by agreement as well, as in (11):

(11) a. This sheep is black.
b. These sheep are black.

In (11), the noun *sheep* is irregular in terms of number marking, but regular in terms of agreement. The demonstrative *this* and verb *be* agree with the noun *sheep* in singular and plural: *this sheep* versus *these sheep*, and *is* versus *are*, respectively.

Agreement in number occurs also in ESL. For instance, in (12) plural is marked on the head PEOPLE that is the controller of the agreement, and by agreement on the agreement target OWN, which carries the meaning of ‘s/he has’:

(12) PERSON+ + + OWN+ + + OPINION DIFFERENT
‘Each person has their opinion’.

In (12), the sign for ‘PERSON’ is repeated several times in signing space, and the sign for ‘OWN’ follows the same path of the previous sign with about the same number of repetitions. It would be incorrect, according to the informant, to sign the sign for ‘OWN’ without number specification.

ESL marks agreement in number also between a noun and the modifying adjective. In (13), the repetition of the modifying adjective TALL is employed to show the number of referents of the controller ‘BOY’. The sign for ‘BOY’ cannot be reduplicated for plurality, because the formation of the sign already involves a repetition. Yet, the verb ‘TO COME’ agrees with the subject ‘a group of big boys’ in number:

⁷ Corbett (2000:133) notes that although there are many grammars that describe the expression of number in individual languages, no typology has been offered so far.

- (13) hands: BOY TALL+ + + BOY GROUP MANY-COME

mouth: *poisid*
boy-Nom.Pl

‘The big boys, the group of big boys, came’.

In (14) below, in comparison, the agreement target ‘TALL’, being an adjectival predicate, carries the morphological number marker for plural. The unmarked form of the sign for ‘TALL’, singular, would be ungrammatical in this context and yield a semantically/visually odd combination of signs. (The symbol ‘q’ marks interrogative sentence.)

- (14) face: _____q

hands: CHILD + + + TALL + + +

‘Are your children already grown-up?’

An instance of subject-verb agreement in dual is given in (15). In (15), the number of the subject, two people, is expressed by conjoining the signs for ‘MOTHER’ and ‘FATHER’. The sign for ‘TO WANDER’, which has the default form of H hand (see Appendix) in ESL, is articulated with V hand in this context in order to show that two individuals were participating in the event by incorporating the number ‘two’ into the sign.

- (15) WALL MOTHER FATHER LONG-AGO GO-OUT TWO-WANDER

WAS PHOTOGRAPH REMEMBRANCE ON-WALL

‘On the wall there is a photograph of my mother and father from the period when they were going out’.

Agreement with quantified expressions in ESL appears to be rather irregular. One possibility is that numerals or quantifiers express the number of entities, and therefore no further marking is made on the noun itself. As an illustration, in the following examples the default singular form of the sign occurs with the numeral:

- (16) TWO DESSERT GIVE-TO-ME

‘Give me two desserts.’

- (17) APPLE BIG FOUR BROTHER YOU-GIVE-HIM⁸

‘Give to your brother four big apples.’

Another possibility is that the sign itself is also marked for plural in addition to the analytic expression of plural by numerals or quantifiers:

- (18) CUP+ + + FOUR

‘I have [won] four cups’

- (19) I MARRIED THREE CHILD+ + +

‘I am married and have three children’.

⁸ The signs ‘GIVE-TO-ME’ and ‘YOU-GIVE-HIM’ are represented here lexically, without indices, to facilitate the reading.

2.3.5.2. *Morphology*

This section deals with number marking by inflection and stem modification. Modification is a morphological process, which yields alteration within a root or stem. First the focus is on number marking by inflection in ESL, and then stem modification is described.

In ESL, as noted above, the singular form is unmarked, since no separate inflection occurs to signal singularity. In terms of number marking by inflection, plural is expressed by a simultaneous mouth pattern showing the nominative plural form of the Estonian noun, as shown in (20).

- (20) hands: INTEREST HOBBY SCATTER
 mouth: *huvid hobid*
 interest-Nom.Pl hobby-Nom.Pl
 '[they have their] interests and hobbies, and spend less time at home'

In (20) above, the string of signs itself does not carry any distinction for number. Only the mouth pattern of the signer shows the plural forms of the Estonian nouns *huvid* 'interests' and *hobid* 'hobbies'.

It is not only the mouth pattern of nominal plural that is used in ESL, but also of genitive plural, as illustrated in (21) and (22). The sign for 'DEAF' is in both cases accompanied by the mouth pattern which shows the genitive plural form of the Estonian noun *kurt* 'deaf'.

- (21) hands: DEAF REST HOME
 mouth: *kurtide*
 deaf-Gen.Pl
 'the recreation house of the deaf'
- (22) hands: DEAF SCHOOL HERE
 mouth: *kurtide*
 deaf-Gen.Pl
 'the school for the deaf here [in Porkuni]'

Although mouth pattern is often the only marker of plural in the ESL data of the present study, it may occur together with other markers as well. For instance, in (23) the verb expresses plurality of the subject, while mouth pattern shows plural in the preceding noun.

- (23) hand 1: MARCH MONTH PARENT MANY-GATHER
 hand 2: XXXXXXXXXXXXXXXXXXXX
 mouth: *lapsevanemad*
 parent-Nom.Pl
 'in March parents came to meet one another'.

As has become apparent from the examples above, one of the common means to express number in ESL is repetition of the sign. Either reduplication of movement, or reduplication of handshape may be employed for distinguishing number.

Reduplication of movement involves the repetition of movement with a slight shift of location for each repetition. The number of repetitions, however, is attributable to individual signing styles, and not for expressing certain number value. For instance, the ESL signs for ‘CHILD’, ‘PERSON’, ‘TALL’ in the examples above are modified in that way. Yet, if a sign is repeated with a distinct emphasis on each repetition displaced in signing space, the number of the repetitions stands for a certain number value, dual, or trial, as noted in 2.3.1 above. Reduplication of movement may also occur without the shift of location, e.g., the sign for ‘CUP’ in (18) above. However, the use of a shift of location is often visually motivated, i.e., depends on how the real world entities are situated. That is, in the case of one sign a shift may conventionally be used but need not, whereas some signs are never reduplicated with the shift of location, e.g. the signs for ‘SAME’ and ‘STAY’.

Although reduplication of movement typically involves a whole sign, it may affect only a part of the stem in some cases. For instance, the sign for ‘PARTY’ is a two-handed sign articulated with palms twice in contact, and during reduplication only the first component of the sign is re-produced.

The second type of reduplication, reduplication of handshape, involves articulation of a one-handed sign with both hands, i.e. the non-dominant hand simultaneously repeats the sign which is formed by the dominant hand. This is usually employed to indicate dual, as noted in 2.3.1 above.

2.3.5.3. *Lexical means*

One of the ways to express number distinction in a language is by lexical means. That is, the number distinction is specified for each noun separately with a maximum irregularity instead of a regular marking. This process is, in essence, an instance of suppletion, or ‘total modification’ (Matthews 1991) whereby one stem is replaced by another which shows no significant phonological resemblance to it. As an illustration, the English *person* vs. *people* is an obvious example, as well as the Russian *čelovek* ‘person’ vs. *ljudi* ‘people’.

In ESL, an equivalent for the phenomenon of suppletion is, in essence, the case where one sign is replaced by another to express the number of referents. For instance, number is lexically marked for the sign ‘(HUMAN-)STAND’ (Illustration 9).

As shown in Illustration 9 below, the singular form of the sign is articulated as an upside down V hand, which depicts one human standing on his or her two feet. The same sign cannot be used to express the notion of many individuals standing. Hence a different sign should be employed, and this shows not only the plurality of individuals but also how they are standing with respect to one another (for this reason the sign also qualifies as classifier predicate). Illustration 10 below presents a sign for ‘HUMANS-STAND-IN-LINE’ that is articulated with two spread hands fingers extended and upwards; extended fingers depict many individuals.

In some cases, signs do not undergo full modification for the number distinction but only partial. As a result, the singular and plural forms of a sign bear some resemblance to each other. The ESL signs that mark number by a partial



Illustration 9. The sign for 'one human stands'.



Illustration 10. The sign for 'humans stand in line'.

modification are, e.g., 'COME' and 'SEE/WATCH'. In Illustration 11 below, the singular form of the sign for 'COME' is shown; it is a one-handed sign, and articulated with the extended index finger. In comparison, Illustration 12 presents a plural form of the sign, which consists of the same movement articulated with two hands that have the spread fingers standing for multiple subjects.

Since ESL also marks dual, lexical means are used for number specification if and only if more than two entities are involved.

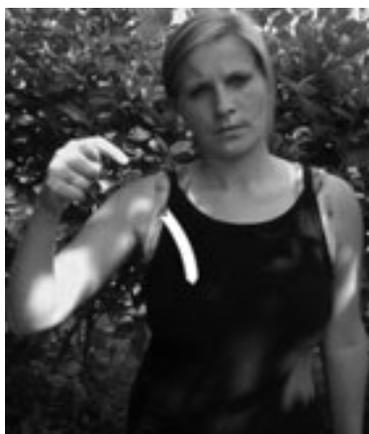


Illustration 11. The sign for 'come'. Singular.



Illustration 12. The sign for 'come'. Plural.

2.3.6. *Locus of number expression*

In spoken languages, the marker of nominal number (i.e., the number of the subject and the object) tends to occur either on the noun phrase, or on the noun phrase and the verb. The latter type shows agreement in number between the

subject and the verb. In addition, nominal number may be expressed only on the verb (see Corbett 2000:179).

In general terms, ESL corresponds to the type in which the verb must agree in number with its arguments. However, sometimes the arguments as controllers of the agreement carry no specification for number, and it is the verb on which the number marker occurs. Likewise, not all verbs in ESL can be modified for number distinction; hence number must be expressed on some other lexical item.

Another locus where number is frequently expressed in ESL is a classifier predicate. Yet, as noted above, classifiers provide information not only about number, but also about shape, location, orientation, movement, etc. For instance, in (24), a flat hand palm facing downwards (Illustration 13) shows how plates should be laid on the table, as well as plurality by the repetition of movement.

- (24) TABLE PLATE *cl*-LAY-ON-TABLE+ + +
 ‘Lay the plates on the table’

In (25) below, the same classifier flat hand, but the palm facing side-ways (Illustration 14), shows a different position of the plates, as well as a different location, which is higher up on the vertical plane. Repetition of movement of this classifier predicate expresses plurality, i.e., placing plates on the plate rack.

- (25) hands: PLATE DRY *cl*-PUT-ON-PLATE-RACK+ + +
 mouth: *taldrikkuivatama*
 ‘Put the plates on the plate rack’



Illustration 13. The locus of number expression: classifier predicate. ‘Lay the plates on the table.’



Illustration 14. The locus of number expression: classifier predicate. ‘Put the plates on the plate rack.’

Adjectives may sometimes serve as a single locus for a number marker in an ESL sentence. In (26), the formation of the sign for ‘CREATE’ involves repetition, therefore either some other type of number marker, or other locus should be used for showing plural. In addition, the sign for ‘GAME’ consists of a repeated movement and thus the signer expresses number on the adjective ‘NEW’, and

accompanies it by the mouth picture, which shows the Estonian nominative plural form of the noun *mäng* ‘game’.

- (26) hands: ... WORK-ON-COMPUTER CREATE GAME NEW+ + +
 mouth: *mängu[d]*
 game[-Nom.Pl]
 ‘...have to create new games on the computer’

Several instances of the adverbial as a locus of number marker can be found in ESL. For example, in (27) the iterated event of coming home late every night is expressed on the adverb ‘LATE’ by repetition, and by a separate adverb ‘ALWAYS’.

- (27) EARLY MORNING I GO WORK EVENING COME LATE+ + + ALWAYS
 ‘I always go to work early in the morning and come home late in the evening’

In sum, ESL provides us with the case in which nominal number, i.e., the number of the subject and the object, is expressed. Yet plurality in nouns is not always marked on the noun, but also on the verb. If the latter is not possible, then often semantically the most relevant item that can undergo morphological modification tends to be chosen.

3. Discussion

The findings of this exploratory analysis on the category of number in ESL align well with the wide-ranging, typological description of number across languages. The same semantic distinctions which are manifested in the world’s languages are also made in ESL. Also, ESL employs essentially the same type of morphological processes as can be found in spoken languages, e.g. reduplication. On the other hand, the data on the manifestation of number in ESL diverges greatly from the more straightforward accounts of this grammatical category in spoken languages.

ESL appears to have a complex number system where a system of five number values are distinguished: singular, dual, trial, quadral, and plural. The first three values and exhaustive, which equals to plural meaning ‘more than three’, are stated to occur in British Sign Language (BSL) (Sutton-Spence & Woll 2002). In American Sign Language (ASL), singular, dual, trial, and multiplicity, i.e., plural, are shown (Klima & Bellugi 1979). This suggests that a system of four number values, singular-dual-trial-plural, is present in the majority of signed languages.

In terms of synthetic number marking in ESL, there are two main types of reduplication employed. One of these, reduplication of movement, has many subtypes: reduplication of the whole stem/sign, which involves repetition of movement with or without a shift of location for each repetition either along the horizontal or the vertical plane; displacement of the whole sign in signing space; or partial reduplication of the stem. The trajectory of the repeated movement is visually motivated. The other type of reduplication is reduplication of handshape,

which serves as a dual marker in a one-handed sign. The profusion of various types of repetitions for expressing number contrast in ESL boils down to a morphological modification that stands for an *iconic reduplication*. Morpho-syntactic number marking in ESL is essentially an iconic way to express the actual count of the referents of the marked sign.

The morphological processes described in Section 2.3.5 attest to the fact that number is not an inflectional category in ESL. This conforms to the findings of Stavans (1996) on Israeli Sign Language, which is another more extensive description of number in signed languages so far. In spoken languages, conversely, number tends to be an inflectional category. Yet, as noted above, the accompanying mouth pattern that indicates the appropriate plural form of Estonian nouns is an obvious instance of inflectional morphology, which has insinuated itself into ESL, and provides the means by which signs can be pluralized. This appears to be the only case of really *productive* morphological process in ESL, since the plural marker /te/ of Estonian can virtually be applied to any sign.

Reduplication, by contrast, is of highly restricted productivity. Hence the forms derived by reduplication will have to be individually recorded, and the overall expression of number by reduplication is unpredictable. This is so, as noted above, because of the formational properties of the sign. That is, signs which are produced in contact with the body (i.e., body-anchored signs) or include a reduplication as a component of the sign cannot be reduplicated for expressing morphosyntactic properties. Thus the constraints which operate on morphotactic strategy of number marking in ESL (and by implication in all signed languages) are not related to animacy, as in spoken languages, but rather to the formational properties of the sign.

Establishing the sets of signs that are likely to undergo morphological processes for number marking and/or verb agreement presupposes a comprehensive study at the lexical level. What is more, one cannot ignore the fact that ESL is produced in a mode which is perceived visually. This means that an important factor in number manifestation in a sign language is the way in which real world entities are perceived and, ultimately, how the signer chooses to represent them. This in turn determines the variety of the means of number expression, as well as the unpredictability of their employment.

Nevertheless, some systematic tendencies of number expression do emerge from the present data. Firstly, ESL conveys systematically nominal number (i.e., the number of subject and object participants) either on the verb or on the classifier predicate through agreement, whereas on the noun it is shown optionally. The reverse appears also to hold: if the subject carries a number marker, the form of the following verb, or the classifier predicate usually agrees in number with the preceding subject but not always. Secondly, agreement in quantified phrases occurs only if signs can be reduplicated for number expression, e.g. examples (18) and (19) above, as opposed to (16) and (17), where it is only a numeral that specifies number. Thirdly, ESL systematically expresses the contrast between count and mass. In 2.3.3 above, the mass-count contrast in classifier predicates is rendered by the hold of fingers, i.e. non-spread fingers mark uncountability. In comparison, Stavans 1996

remarks on Israeli Sign Language (ISL) that '[a]t this point it is not certain that such distinctions [mass vs. count] exist in ISL'.

It has been maintained throughout this paper that ESL expresses nominal number which is frequently marked only on the verb or classifier predicate, and optionally omitted on the noun. Nevertheless it has been unambiguous that what is expressed is the count distinctions of the subject or object. The less unambiguous instances of number expression can also be found in ESL, namely, if iterated events are expressed in inherently intransitive verbs, e.g., a sign for 'GO', as in (28) and (29).

(28) PÄRNU ONE FAMILY GO+ + + ACTIVE
'One family from Pärnu attends actively [the sign language courses]

(29) THIS PÄRNU THIS FAMILY ACTIVE FOLK DANCE GO+ + + ACTIVE
'This family from Pärnu takes actively part in folk dance courses'

In (28) and (29), the sign for 'GO' is marked for plural by repetition thus iconically showing the multiplicity of the event, i.e., attending a language course or practicing folk dance, respectively. Moreover, the repetition is performed with intensity unlike in the cases when repetition expresses the number of the subject or object. It occurs in construction with a particular lexical item, a sign for 'ACTIVE' thus yielding the meaning 'to go often', 'to attend'. At this point of study, I am inclined to think that this is a type of verbal aspect (repeated vs. non-repeated action) in ESL, rather than an instance of verbal number. This standpoint is substantiated by the fact that in British Sign Language aspectual information may also be expressed by repetition of movement on the verb in construction with a separate adverb OFTEN or FREQUENTLY (Sutton-Spence & Woll 2002:120–121). In addition, it should be noted that the expression of distributivity on the verb (see 2.3.4.1 above) does not support the interpretation of this kind of repeated forms of the verb as verbal number, since, as Corbett (2000:117) concludes, 'though there are similarities between distributives and number values, distributives are not part of the number system'.

To conclude, despite the fact that ESL employs a variety of means and loci to express number, yielding an overall impression of the expression of plurality irregular and unpredictable, it is still justified to argue for the grammatical category of number in ESL. What has to be borne in mind is the fact that in a sign language not only the opposition of 'one' vs. 'more than one' is expressed by inflectional processes but also information about how the referents are arranged and located.

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Appendix

Manual alphabet of Estonian Sign Language

