

Reduplication revisited: verbal plurality and exhaustivity in the visual-gestural modality

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ABSTRACT

From the very early stages of sign language research (Klima & Bellugi, 1979 for ASL) and in subsequent descriptions of unrelated sign languages, a reduplicative morpheme in verbal morphology has been identified as encoding exhaustive distribution over a plural argument in agreement verbs. It consists in a sideward reduplication of the verb sign on the horizontal plane, where the repeated endpoints match the referential locus of a plural argument. It is often labelled as [+distributive/exhaustive] and considered a mark of plural argument agreement. However, in Klima & Bellugi (1979, p. 284) it was called “distributional aspect”, highlighting the link to inflectional aspectual properties. On the basis of Catalan Sign Language (LSC) data, this paper reconsiders the status of the alleged [+distributive/exhaustive] morpheme under the light of verbal plurality marking and argues for a broader analysis of reduplication in the verbal domain built on the category of *pluractionality*, in line with Kuhn & Aristodemo (2017). This change in vantage point allows for a better understanding of reduplication in sign languages as a grammatical marker of plurality cutting across the parameters of event participants, event times and event locations.

Keywords: reduplication, pluractionality, plurality, Catalan Sign Language

1. Plurality across categories

The morphological category of number has traditionally received most attention in the nominal domain, where languages distinguish not only singular and plural, but can also establish additional number distinctions such as dual, trial or paucal. However, there exists a lot of typological and descriptive research documenting and studying the expression of verbal plurality. This phenomenon is not unusual from a typological point of view, since it is common in American Languages, in the four major language families in Africa, and in various Asian and Australian languages (Corbett 2000). In contrast, it is almost absent in European languages, which somehow explains the bias towards its exclusion in the study of number.

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The phenomenon we will focus on in this paper is known as *pluractionality* or *pluractional verbs* (Newman 1980), and it consists in the expression of a plurality of events through dedicated overt markers in verbal morphology. But what does it mean for a verb to be marked for pluractionality? The general meaning found in pluractional verbs is that of a plurality of events, which can imply a plurality of participants in the event, of times the event takes place or of locations where the event unfolds. An instance of this can be found in the following example from Klamath (from Barker 1964: 11, *apud* Lasersohn 1995: 257-260): without pluractional marker on the verb, the reading that obtains for a sentence like (1a) is that of collective action of the women as a group; in contrast, (1b) and (1c), whose predicate is marked for pluractionality (PA in the gloss), convey distributive action over participants. With the plural subject in (1b) the participant-based reading is made prominent ('these women individually grind their own camas'), while with a singular subject in (1c) either the temporal reading arises ('this woman grinds her camas on repeated occasions') or the distributive reading over the object does ('this woman grinds each of her camas') (these readings are independent of the presence of the quantified adverbial phrase "every day"). The marker of pluractionality in Klamath gets realized as the reduplication of the following C(C)V sequence in the verb, in this case as the prefix *ga-*.

- (1)
- a. na:nok waytas ge: we:wans ga:ma boqs.
every day DEM women grind camas
'Every day these women grind camas.'
 - b. na:nok waytas ge: we:wans ga-ga:ma mna-lam boqs.
every day DEM women PA-grind own-OBJ camas
'Every day these women grind their own camas.'
 - c. na:nok waytas ge: sne:wets ga-ga:ma mna boqs.
every day DEM woman PA-grind own camas
'Every day this woman grinds her camas.'

The interpretation that the pluractional marker triggers is in principle undetermined, as we can observe in example (2) from Hausa, where distribution can be over participants (i) or locations (ii):

- (2) Mutàanee sun *fir*-fitoo
people 3pl.perf RED-get
'Many people got out of their homes ((i) one by one/in small groups or (ii) out of different houses).'

(Hausa, Součková 2011: 41)

Reduplication is the most common morphological exponent of pluractionality, although different means such as other affixes and stem change are also attested crosslinguistically. However, the expression of pluractionality is not confined to morphology. For instance, Laca (2006) identifies the periphrases *andar/ir* 'go' + gerund in as pluractional constructions in Spanish, as exemplified in (3).

- (3) María fue/anduvo leyendo *Guerra y Paz* (*de un tirón).
María went/walked reading War and Peace in one go
'María read *War and Peace* [little by little/from time to time] (*in one go).'

From this brief presentation it becomes clear that pluractional marking in verbs is a rather common strategy to denote a multiplicity of events across spoken languages of the world. Next, we will briefly address the expression of plurality in sign languages both in the nominal and verbal domains.

2. Plurality in sign languages

When it comes to the marking of number in sign languages, it is clear that the category has been studied mostly in the nominal domain. From very early on in sign language research, it is well known that certain nouns can carry plural marking by means of reduplication. The morphophonological properties of the noun are those that determine whether a noun can be marked for plural through this strategy. Steinbach (2012) summarizes the options in the following way: (i) body anchored signs and signs with a complex movement are only compatible with zero marking, that is, no overt modification of the sign in its default (singular) form; (ii) signs lexically specified for a simple movement can take two forms of plural marking, depending on whether they are articulated in a midsagittal place of articulation (i.e., in front of the torso of the signer) or in a lateral place of articulation (i.e., the ipsilateral side of the signer, that of her/his dominant hand). Those articulated in a midsagittal location mark plural with a simple reduplication, as illustrated in Figure 1 for the DGS (German Sign Language) sign BOOK (forms marked with an asterisk are ill-formed). By contrast, signs articulated in a lateral location encode plurality by a combination of reduplication and sideward movement, as exemplified in Figure 2 for the DGS sign CHILD.

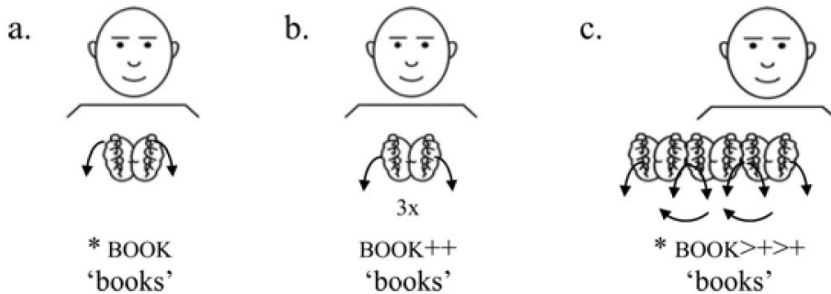


Figure 1. Plural marking with the midsagittal noun BOOK in DGS. Copyright © 2005 by Buske Verlag. Reprinted with permission.

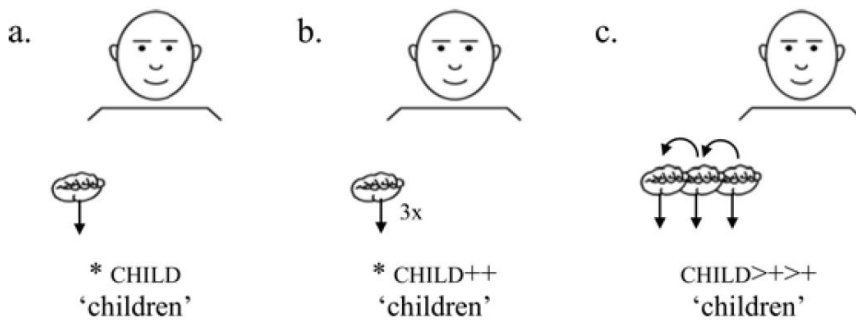


Figure 2. Plural marking with the lateral noun CHILD in DGS. Copyright © 2005 by Buske Verlag. Reprinted with permission.

Next to lexical means like the use of numerals and quantifiers, another common strategy to express plurality of entities in sign languages is the use of reduplication with classifier constructions, where the displacement of the hand can add the topographical dimension of spatial arrangement of those referents. In the LSC example in Figure 3, the reduplication of the classifier not only denotes that there were several bikes, but also that they were arranged in a row next to each other.



Figure 3. Plural entity classifier for a bikes or motorbikes in a row in LSC.

The marking of plurality in the verbal domain received attention already early on in sign language research. Klima and Bellugi (1979) established a clear connection between plural morphology on the verb and the category of aspect, where the plurality can be linked to individuals or to events depending on the type of marking. The morpheme identified as exhaustive in ASL is characterized as denoting “actions distributed to each individual in a group—the actions viewed as a single event” (p. 284), as opposed to other markings that denote different events. The form of the exhaustive marking consists in a reduplicated form of the verb along a sideward arc-movement of the hand. The reduplications tend to be three (or more) and the punctuated repetitions are executed towards the area where the plural object referent has been established. The representation of this form for the verb GIVE in LSC can be observed in Figure 4.



Figure 4. Exhaustive marking of the object of the verb give in LSC.

Despite this early characterization of verbal reduplication as plurality in different dimensions, no direct connection was established with pluractional marking in spoken languages in that work. The first extensive treatment of pluractionality in sign languages has been carried out by Kuhn & Aristodemo (2017) for French Sign Language (LSF), which is reported about in the next section.

3. Pluractional marking in sign languages

Kuhn & Aristodemo (2017) identify the following two pluractional markers in LSF:

- (a) /rep/: exact repetition of the sign (Figure 5);²
- (b) /alt/: alternating two-handed repetition of the sign (Figure 6).

² Here I will gloss over the distinction between the notions of reduplication and repetition (for a recent discussion in connection with Russian Sign Language, see Kimmelman 2018; cf. references therein as well). I will adopt Kuhn & Aristodemo's terminology (/rep/) for ease of presentation, and assume that reduplicative morphology in pluractionals involves particular reduplicative morphemes that give rise to morphologically complex units, and not simple repetitions of full signs.



Figure 5. FORGET marked for /rep/ in LSF. Copyright © Jeremy Kuhn and Valentina Aristodemo. Reprinted with permission.



Figure 6. FORGET marked for /alt/ in LSF. Copyright © Jeremy Kuhn and Valentina Aristodemo. Reprinted with permission.

Figures 5 and 6 show the realization of the two types of repetition for the LSF sign FORGET. The basic divide in the interpretations that obtain from these two kinds of marking are that /rep/ implies that subevents with the same participants are distributed over time, while /alt/ implies that subevents are distributed across participants. According to this study, /rep/ imposes variation in the temporal domain for this marking to be used felicitously, and in this sense, it yields a type of aspectual meaning. It can also denote variation over participants, but that is not sufficient to license its use (for instance, by having a plural argument) and it always requires a plurality of events, as reflected in the available and unavailable readings of the LSF sentence in (4).

- (4) MY FRIENDS CL:plural FORGET-rep BRING CAMERA.
 ‘My friends repeatedly forgot to bring a camera.’

a. \sqrt several occasions on which all members of the group forgot

- b. √ for each individual, several occasions on which he or she forgot
- c. * for each individual, a single occasion on which he or she forgot (but several occasions overall)
- d. *a single occasion on which all members of the group forgot

On the other hand, marking with /alt/ yields a reading where variation is across participants. For the reading to arise felicitously, one argument must be plural, as in (5).

- (5) GROUP PEOPLE BOOK GIVE-1-alt.
 'A group of people gave me books.'³

If this requirement is not met, the result is ungrammatical, as in (6):

- (6) *JEAN ARRIVE-alt
 (Intended: Jean arrived.)

An obvious question to ask is whether trying to accommodate a reading with temporal variation can rescue a sentence with singular arguments and /alt/ marking. The answer is negative, though, as reflected in (7):

- (7) *OFTEN ONE PERSON FORGET-alt ONE WORD.
 (Intended: 'One person often forgot one word (on different occasions).')

From this type of evidence Kuhn & Aristodemo (2017) conclude that /rep/ and /alt/ are pluractional markers in LSF, parallel to the ones that have been described for spoken languages and referred to in Section 1.

In the remainder of this paper it will be shown that Catalan Sign Language (LSC) displays a very similar pattern in the encoding of pluractionality, although some differences will be noted as well.

4. Pluractional marking in LSC

³ An anonymous reviewer remarks that “in order to be fully convinced that /alt/ yields variation across participants, I would like to be shown that that /alt/ is incompatible with a collective reading.” At least in ASL (Petronio 1995) and LSC, such a reading is incompatible with /alt/ and in a counterpart to (5) it should be encoded by a single movement from the subject to the object location.

In this section we will provide the empirical characterization of pluractional encoding in LSC. This language also has the markers /rep/ and /alt/, and in addition we will consider /rep-arc/ as well, which combines /rep/ with a sideward arc movement.

The reduplicative morpheme /alt/ has essentially the same interpretation as in LSF: the plurality denoted relies on the variation of participants in the event described. Sentence (8), for instance, is interpreted as describing plurality of students having forgotten to bring their books on the same day.

- (8) STUDENT OWN IX3-pl BOOK BRING FORGET-alt
 ‘My students forgot to bring their books.’

In turn, the counterpart of this sentence with /rep/ applied to the verb yields a reading where plurality depends on variation over time. Example (9), for instance, can mean that the group of students forget to bring their books on Thursdays.

- (9) STUDENT OWN IX3-pl BOOK BRING FORGET-rep
 ‘The students forget to bring their books (regularly).’

Unlike LSF, though, LSC seems to be able to accommodate the interpretation of /alt/ occurring with singular arguments. In an example like (10) the accommodation can take place through variation in the spatial dimension (next to the temporal one):

- (10) JUAN PASSWORD FORGET-alt
 ‘Juan forgot the password (in different places).’

In this respect, LSC seems to be more flexible with respect the parameters against which the /alt/ pluractional marker can be interpreted.

When examining pluractionality markers in LSC, the combination of /rep/ with a sideward arc movement was also taken into consideration. With a verb of motion, /rep-arc/ yields a reading of plural spatial locations, which subsidiarily licenses a reading of plurality of times as well. This is illustrated in example (11). Note that /rep/ without the arc movement yields the expected temporal reading (‘The supervisor went to the school several times’).

- (11) SUPERVISOR SCHOOL GO-rep-arc
 ‘The supervisor went to several schools.’

Similarly to LSF, the LSC pluractional morphology does not multiply the distribution over the object argument in the presence of an overt distributive marker. Thus, in an example like (12) the forgotten word can be one (if the object gets scope over ‘every

day’) or it can be different every time (if the object remains within the scope of ‘every day’). The important observation is that the reading where different words are forgotten on one day every day is excluded. The /rep/ marker seems to be fulfilling a sort of concord with the quantificational meaning of the distributive temporal adjunct ‘every day’.

- (12) **EVERY-DAY JUAN WORD ONE FORGET-rep**
 ‘Juan forgot one word every day.’

This type of evidence makes clear that reduplicative morphology does not introduce distributivity into the structure by itself. In view of this, two types of approaches have been formulated, which are analyzed in Kuhn & Aristodemo (2017). One possible interpretation is put forth by Kimmelman (2015), who views pluractional marking as morphological agreement with a distributive operator. An alternative view is represented by Kuhn & Aristodemo (2017): they interpret pluractional marking as a predicate that takes scope over the distributive operator that licenses it, and it filters the plurality interpretation of a predicate of events, but it is not a distributive operator by itself.

In connection with this characterization of pluractional markers in LSC, it is important to remember that /rep-arc/ has been often characterized in different sign languages as “distributive/exhaustive” (see Section 2). If the hypotheses just mentioned are correct in claiming that reduplicative morphology does not encode distributivity on its own, one must assume that in cases where a distributive reading is attested, the distributive operator is covert. From this perspective, one should also try to ascertain whether the exhaustivity that these morphemes are claimed to trigger is inherent or rather derivative or determined contextually. At least in LSC, /rep-arc/ marking does not impose an exhaustive reading, as the addition of the coda in (13) makes clear. The exhaustive interpretation requires the cooccurrence of quantificational signs like ALL or EACH-ONE.

- (13) **SUPERVISOR SCHOOL GO-rep-arc, OTHER/SOME NOT**
 ‘The supervisor went to some schools, to others he didn’t.’

From this we can conclude that what we had labelled as [distributive/exhaustive] marker is simply a pluractional marker that can also receive distributive or exhaustive interpretations under certain conditions. It remains to explore whether the same type of morphology shows crosslinguistic variation in its interpretation with respect to these notions. One thread worth exploring is the possible contribution of nonmanual marking to the exhaustive interpretation of /rep-arc/. Exhaustive readings could arise with furrowed eyebrows and squint coarticulated with the verbal sign marked for

/rep-arc/, but it is unclear at this point whether that simply conveys high numerosity. Further research is required on this aspect.

5. Associated meanings

In the literature on pluractionals, intensification often appears as an associated meaning of this type of marking. In an example like (2) above from Hausa, repeated here as (14) for convenience, the pluractional not only yields a plurality of events reading, but it also implies that the number of subevents is high, and there is a sense of intensification which is absent if the pluractional marker is not used.

- (14) Mutàanee sun *fir*-fitoo
people 3pl.perf RED-get
'Many people got out of their homes.'

(Hausa, Součková 2011: 41)

As Součková (2011) reports, there exist different views on the relation between pluractionality and intensification, that is, between plural readings and degree readings. While some consider them to be distinct readings of the same pluractional markers, others take them to be related. For details, see Součková (2011).

The interesting fact to be noted in this discussion is that pluractional markers in sign languages can also trigger this type of interpretation, as in examples (15) and (16) from LSC:

- (15) SATURDAY NIGHT JOAN DRINK-rep
'Saturday night Joan drank a lot.'
- (16) RESTAURANT BUFET JOAN EAT-alt
'At the restaurant buffet, Joan ate a lot.'

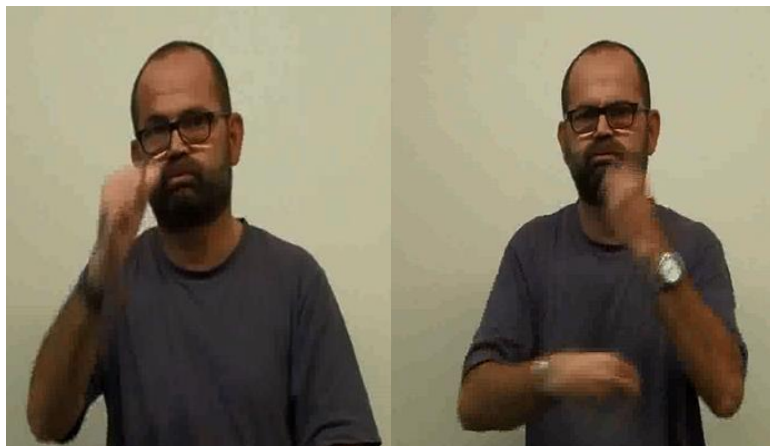


Figure 7. Stills corresponding to drink-*rep* and eat-*alt* in (15) and (16), respectively.

Interestingly, these intensive readings of the pluractional marker are flagged by a clear non-manual marker: furrowed eyebrows and puffed cheeks, as can be seen in Figure 7. From this perspective, it seems warranted to conclude that the intensity layer of meaning in these cases is independent of the pluractional marker as such. This cannot be observed in the spoken languages that display intensive readings of pluractionals, due to the unavailability of simultaneous articulations to convey them.

This brief discussion of intensive readings of verbal reduplicative morphemes such as /*rep*/ and /*alt*/ provide a further argument for their pluractional nature in LSC, and arguably in other sign languages.

6. Conclusion

This paper has explored the category of pluractionality as encoding of verbal plurality in LSC with reduplicative morphemes, building up on previous work on LSF by Kuhn and Aristodemo (2017). Both languages display very similar behaviors of /*alt*/ and /*rep*/, although some differences have been noted as well. From this perspective, the paper has reexamined the distributive/exhaustive marker in LSC (/*rep-arc*/) as an instance of pluractional marker, and it has shown that it actually does not involve an exhaustive reading. The fact that pluractional markers also take intensification readings (degree-like) provides a further argument for their analysis as pluractionals, since this connection has also been documented for pluractionals in spoken languages. The broader set of reduplicative verbal forms in LSC (and beyond) remains to be studied, but the preliminary results reported here open a promising perspective

on the relation of marking of verbal plurality and aspect that needs to be pursued in future work.

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REFERENCES

- Barker, M.A.R. (1964). *Klamath grammar*. Berkeley: University of California Press.
- Corbett, G. G. (2000). *Number*. Cambridge: Cambridge University Press.
- Kimmelman, V. (2015). Distributive quantification in Russian Sign Language. Presentation at *Formal and Experimental Advances in Sign Language Theory*. Barcelona, Spain.
- Klima, E. & Bellugi, U. (1979). *The signs of language*. Cambridge, MA: Harvard University Press.
- Kuhn, J. & Aristodemo, V. (2017). Pluractionality, iconicity, and scope in French Sign Language. *Semantics and Pragmatics* 10(6). <http://dx.doi.org/10.3765/sp.10.6>.
- Laca, B. (2006). Indefinites, quantifiers, and pluractionals. What scope effects tell us about event pluralities. In L. Tasmowski & S. Vogeleer (eds.), *Non-definiteness and plurality*, 191-217. Amsterdam : Benjamins.
- Lasersohn, P. (1995). *Plurality, conjunction and events*. Springer. Dordrecht: Kluwer Academic Publishers.
- Newman, P. (2000). *The Hausa language: An encyclopedic reference grammar*. New Haven: Yale University Press.
- Petronio, K. (1995). Bare noun phrases, verbs and quantification in ASL. In E. Bach et al. (eds.), *Quantification in natural languages*, 603-618. Dordrecht: Kluwer.
- Pfau, R. & Steinbach, M. (2005). Plural Formation in German Sign Language: Constraints and Strategies. In H. Leuninger, & D. Happ (eds.), *Gebardensprache. Struktur, Erwerb, Verwendung (Linguistische Berichte Special Issue 13)*, 111-144. Hamburg: Helmut Buske Verlag.
- Součková, K. (2011). Pluractionality in Hausa. Leiden: University of Leiden PhD dissertation.
- Steinbach, M. (2012). Plurality. In Roland Pfau, Markus Steinbach and Bencie Woll (eds.), *Sign Language. Handbooks of Linguistics and Communication Science (HSK)*, 112-136. Berlin: Mouton de Gruyter.