IX Encuentro de Gramática Generativa

Sign Language Classifiers: A Phonological Approach

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1 Introduction

Most sign languages exhibit hand configurations called ***classifiers***. Generally, they are taken to conform a ***morphological category***, i.e., they are loosely defined as ***morphemes*** of a certain kind.

> "*Classifiers are generally considered to be **morphemes** with a non-specific meaning, which are expressed by particular configurations of the manual articulator (or: hands) and which represent entities by denoting salient characteristics.*"
>
> (Zwitserlood 2012: 158)

> "*Classification is a **morphological process** in which a **bound morpheme** reflects particular semantic or form characteristics of a noun, for instance, characteristics like animate, edible, liquid, or flat. Classification appears to occur, to varying degrees, in most sign languages studied so far.*"
>
> (Pfau 2016: 221)

> "*Classifiers are **morphological categories** that denote entities (both animate and inanimate) by depicting some salient iconic aspect of these entities by manual articulation, in particular, handshape.*"
>
> (Quer et al. 2017: 250)

Classifiers as a morphological class encode semantic information about referents, such as shape, size, animacy, and handling method. This criterion is commonly used to distinguish subtypes of classifiers (e.g., Brentari 1998: 32).

(1) a. OBJECT CLASSIFIERS: handshapes referring to a whole entity or part of an entity
   i. *Semantic classifiers* – classes of objects (e.g., *vehicles*; *upright beings*)
   ii. *Whole entity classifiers* – whole objects (e.g., *book*, *coin*)
   iii. *Instrumental classifiers* – whole instruments (e.g., *toothbrush*, *scissors*)
   iv. *Descriptive classifiers* – whole or parts of objects defined primarily by their shape

b. HANDLING CLASSIFIERS: handshapes referring to the way that objects or instruments are held or manipulated

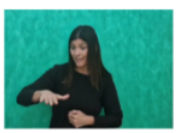
c. BODYPART CLASSIFIERS: handshape refers to a part of the body of an animal or human (e.g., *head*, *legs*, *teeth*)

Consider the classic ASL example in (2), from Liddell (1980: 93). The signer produces the lexical item FENCE, then follows it with a classifier (4-CL) that depicts the fence itself. While doing this, the left hand signs CAT. To show that the cat is on the fence, a second classifier (V-CL) is placed on top of the fence classifier.

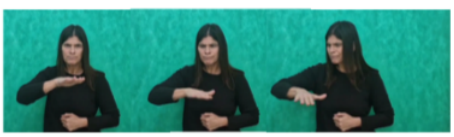
(2) 'A cat is lying on the fence.'

Today we will focus on classifiers from Argentinian Sign Language (LSA). In particular, we will use examples of plural nouns, which in many cases are formed with classifiers, e.g., (4) and (5).

(3)



CHILDsg
Child.



CHILDpl
Children.

(4)

CARsg
Car.

Car CL-pl
Cars (side by side).

(5)

FRUITsg
Fruit.

FRUIT CL-pl
Fruit (on the cake).

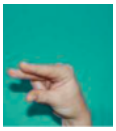
Following the standard wisdom, the classifier (6a) is used to refer to (a plurality of) cars in (6b), while the classifier (7a) allows to refer to (a plurality of) fruits in (7b).

(6) a.

b.

CAR-CL
Car.

(7) a.



b.

FRUIT-CL
Fuit.

In this presentation, we advance a different way of thinking about the classifier class.

✔ Classifiers in LSA display behaviors suggesting they are ***phonological units***.

Our argument is based on two simple premises:

① In LSA, there are contexts in which classifiers function as epenthetic elements at the phonological level (Boria & Muñoz Pérez 2023).

② The epenthesis operation can apply to any of the elements that the literature on LSA considers classifiers (Boria & Banfi 2021), which establishes a classificatory and unifying criterion for the class.

In other words, there is a ***phonological*** criterion that allows to group together all LSA classifiers, which indicates they are a ***phonological category***. This leads to one of two potential "big picture" conclusions.

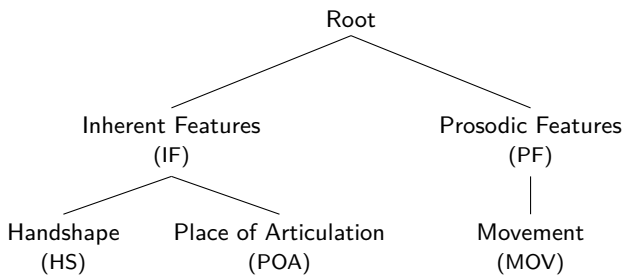
➥ Either classifiers are not morphological units, and their alleged meaning is due to gestural pragmatics, or

➥ the articulation between morphology and phonology is richer than assumed within current generative grammar, at least for sign languages.

2 Classifiers as epenthetic handshapes

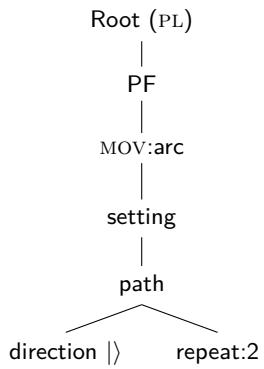
Brentari (1998) argues that a *root*, roughly a sign language syllable, has three main components: a ***handshape*** and a ***place of articulation*** on one side, and also ***prosodic features*** describing a certain movement.

(8)



Boria & Muñoz Pérez (2023) contend that there is only one plural morpheme in LSA. This element is an affix whose exponent consists on prosodic features (PF) only.

(9)

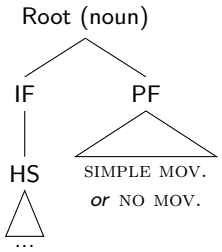


Since the plural affix lacks a handshape, it requires the nominal base to provide it. There are three conditions that nominal bases must satisfy to do so.

(10) a. The nominal base has a handshape.
b. The nominal base has a free place of articulation.
c. The nominal base lacks movement or has a simple movement (i.e., underspecified prosodic features).

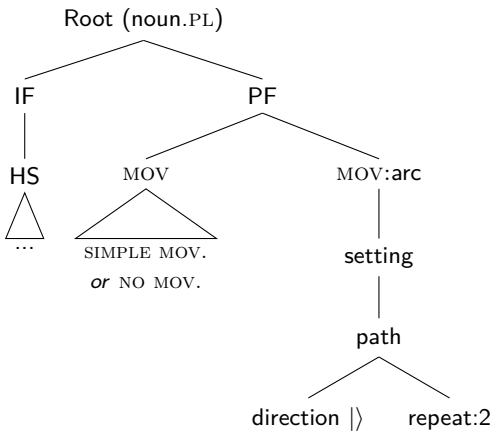
These requirements are captured in the phonological representation in (11).

(11)



If these conditions are met, the affix can attach to the nominal base. As a consequence, a monosyllabic phonological representation is formed.

(12)



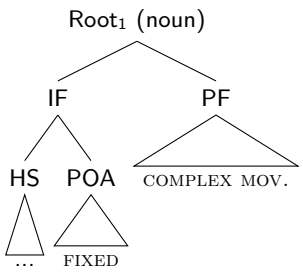
KEY OBSERVATION: according to this account, the exponent of the plural morpheme consists only on what is commonly described as "movement". The hand configuration is not part of its phonological composition, but is provided by the nominal base.

The phonological representation in (12) corresponds to a plural noun such as CHILDREN in (3).

- ➥ CHILD is a noun with the phonological structure shown in (11), as it has underspecified or simple prosodic features.
- ➥ CHILDREN is formed by directly attaching the plural affix to CHILD, which forms the structure in (12).
- ➥ In the literature, the result of this phonological process is often designated as (***sidewards***) ***reduplication*** (e.g., Pfau & Steinbach 2005), since it is visually salient that the same handshape is "repeated".

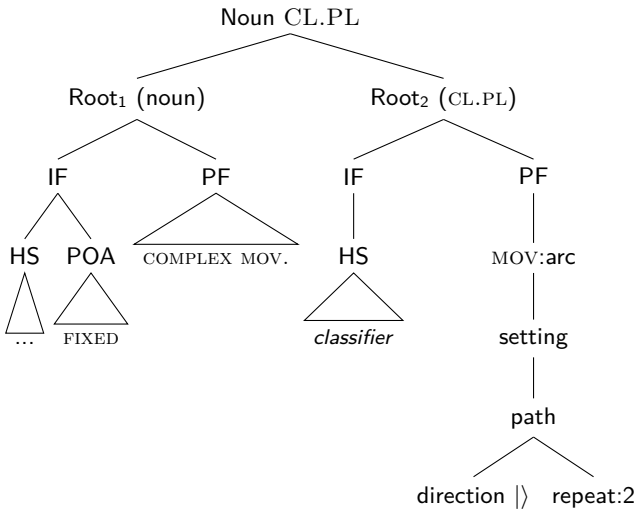
The requirements in (10) are not met if (i) the nominal base has a ***fixed place of articulation*** or (ii) it already has prosodic features describing a ***complex movement***.

(13)



In these cases, Boria & Muñoz Pérez (2023) propose that an epenthetic mechanism of ***handshape insertion*** introduces a classifier in the phonological representation to host the exponent of the plural affix. Since the nominal base is a phonological root by itself, the whole plural noun is externalized as a bisyllabic structure.

(14)



> KEY OBSERVATION: ***handshape insertion*** is a phonological operation triggered by phonological conditions; classifiers being a morphological category play no role in the system proposed by Boria & Muñoz Pérez (2023). It is simply about forming full roots (≈ syllables) in which movement applies over a handshape.

The phonological representation in (14) corresponds to a plural noun such as CARS in (4).

- ➥ CAR is a noun with a phonological structure akin to (13), i.e., it comprises a handshape (fist in both hands), place of articulation (in front of the chest), and a complex movement (alternating curved movement).
- ➥ Since the plural affix cannot directly combine to it, a handshape is inserted to provide a hand configuration for its prosodic features. This forms the structure in (14).
- ➥ According to this analysis, the term ***classifier*** applied to the sign in (4) describes nothing but an ***epenthetic handshape***.
- ➥ No "classifier morpheme" participates in the process. Epenthesis targets phonological units.

3 The inventory of epenthetic units

We adopt the definition of ***handshape*** in (15).

(15) HANDSHAPE (Quer et al. 2017: 23)
A phonetic realization of a bundle of articulatory features, a concrete realization that is always depicted in terms of the configuration of the whole hand.

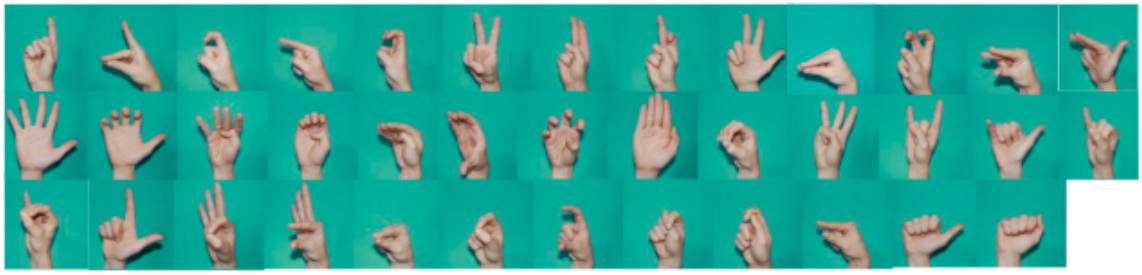
We take it that ***handshape insertion*** only handles phonological units from a closed inventory that is a proper subset of all handshapes in LSA.

- ✔ Our thesis is that this set corresponds to the elements known as ***classifiers***.
- ✔ In other words, we claim that the ***classifier*** class in LSA (a morphological category) is formed by ***epenthetic handshapes*** (a phonological criterion).

Boria & Banfi (2021), based on Valassina (1997) and the general typological framework outlined by the *Sign Hub Project* , propose that the inventory of lexical handshapes in LSA comprises 26 distinct items, as illustrated in (16), while the classifier system includes 38 distinct items, as shown in (17).[1]

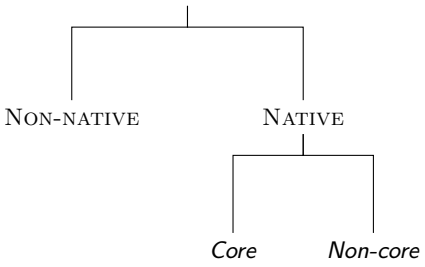
(16)

(17)



This distinction mirrors the one commonly made between the ***core lexicon*** and ***non-core lexicon*** (e.g., Brentari 2019).

(18)



a. Non-native lexicon: elements that are derived from, or influenced by, the words or signs of another language

b. Core lexicon: refers to conventional lexical items; signs used to express lexemes

c. Non-core lexicon: phoneme-like elements (handshapes, locations, movements, etc.) combining to form expressions that do not constitute discrete lexical items

Broadly speaking, the list of handshapes in (16) belongs to the ***core lexicon***, whereas the list of classifiers in (17) is part of the ***non-core lexicon***.

➥ All handshapes, including classifiers, share the same phonetic properties: they are instantiated through features associated with hand configuration.

4 Dataset of noun plurals realized with classifiers

To test our hypothesis, we collected a small dataset of plural nouns formed with classifiers in LSA.

➥ We found examples for every single one of the 38 handshapes in (17), i.e., all classifiers exhibit epenthetic behavior as part of some plural noun.

> The data presented in this study were obtained in collaboration with a linguistic and cultural consultant of LSA. The methodological framework followed the guidelines proposed by Quer et al. (2017) and Quer & Steinbach (2019), and aligns with the recommendations of the Deaf community. The consultant, Carolina Galvez, granted explicit permission for her image to be used in the materials presented.

Our corpus is accessible via the QR codes provided below: (19) links to a table with plural nouns, glosses, and links to each LSA example in video; (20) links to a raw list of videos.

[1] The set of handshapes in LSA has been documented in a limited number of linguistic studies, but is has been described in pedagogical materials produced by Deaf organizations for sign language instruction. It is plausible that the taxonomy proposed here may be further refined and expanded as more systematic descriptions become available.

(19)

LSA table with glosses and video-links

(20)

LSA video data

Below we offer some representative examples taken from the database [2].

(21)

INTERNET BOX-CL CL-PL

Modems.

(22)

BICYCLE CL-PL

Bicyles.

(23)

FOLDER IX CL-PL

Folders.

(24)

MAP CL-PL

Maps.

(25)

PAPER DRAW CL-PL

Papers with drawings.

Our data suggest that all elements identified as classifiers in LSA may exhibit epenthetic behaviour. Therefore, their phonological behavior may be taken to be a common denominator for the whole class.

5 Consequences for linguistic theorizing

In sign language phonology, ***movement*** is usually considered the nucleus of the syllable, much in the same way as vowels are in spoken languages (e.g., Perlmutter 1992, Brentari 1998, Sandler 2012).

➥ This equates ***handshape insertion*** with consonantal epenthesis.

In grammatical architectures following a realizational version of the T-model, ***epenthesis*** is a surface operation that takes place after morphological processes applying on abstract morphemes have concluded, e.g., after *Vocabulary Insertion* in DM.

✗ This is at odds with the claim that ***classifiers*** are morphemic units: if their insertion is triggered due to phonetic reasons, then they should have no meaning.

[2] These examples correspond to the following references in the table:(21)-2; (22)-9; (23)-10; (24)-23; (25)-29.

We believe there are two logical alternatives to deal with this issue.

OPTION A Classifiers are not morphemes; they convey meaning through non-grammatical mechanisms.

OPTION B Classifiers are morphemes; the T-model does not capture the interplay between phonology and morphology in sign languages.

5.1 Option A: classifiers are not morphemes

According to Schlenker et al. (2024, 2025), sign language combines the inferential capacities of both speech and gesture within a single modality. They argue that classifiers are "mixed" in nature in precisely this sense:

- ➥ Their ***handshape*** is *conventional* (i.e., lexically stored).
- ➥ Their movement, position, orientation, and trajectory of the hands are ***iconically*** motivated: they resemble the physical characteristics or actions of the referents.

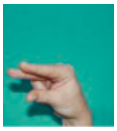
If classifiers are not morphemes, selection of a classifier handshape must rely entirely on ***gestural pragmatics*** and ***iconicity*** applying over a closed inventory of phonological elements, i.e., the handshapes in (17).

- ✔ Gestures operate within Grice's maxims of ***Quantity*** and ***Manner***, i.e., they should not "over- or under-tell" or confuse the listener (e.g., Cienki 2017, Kampa & Papafragou 2023).

Thus, in (2), the classifier 4-CL would not establish a lexical relation with the noun FENCE, but an iconic relation.

- ➥ This is supported by the variety of uses that this classifier receives: it applies to hair-styles, curtains, rows or lines of people, lines on a surface, eye-lashes, among others.[3]
- ➥ Many of these interpretations and uses are also available for LSA speakers, which strongly suggests that they derive from iconicity.

Similar examples can be drawn on LSA data. For instance, the classifier employed in (5) is the handshape (26), but this plural noun could alternatively employ the classifier in (27) if the fruit was roundish.

(26) 

(27) 

A potential puzzle for this approach comes from the behavior of the plural noun APPLES. As a noun, APPLE is expressed with a *curved* handshape (29). Since APPLE has a fixed place of articulation (POA), its plural is realized with a classifier.

(28) 

APPLEsg
Apple.

APPLE CLpl
Apples.

Although the curved handshape in (29) appears in both lexical and classifier inventories, it cannot be used as a classifier in this context. Instead, the classifier known as *claw* in (30) should appear. How does this follow from iconicity?

(29) 

(30) 

Another challenge for this approach is that some classifiers are specialized for particular referents. For example, the handshape in (31) is used to denote four-wheeled vehicles, whereas the handshape in (32) is used to denote human beings.

(31) 

(32) 

[3] Source: https://www.lifeprint.com/asl101/pages-signs/c/cl4.htm

5.2 Option B: classifiers are morphemes

This theoretical alternative implies that phonology can feed morphological mechanisms.

① Phonological principles trigger ***handshape insertion***.

② The phonological component needs to access ***morphological information*** to select the corresponding classifier, which will provide a handshape.

③ Selection of a classifier should rely on a lexical relation akin to ***hypernymy***, e.g., 4-CL in (2) should denote a set of entities including fences.

This supposes a transparent "back-and-forth" relation between phonology and morphology; perhaps sign languages treat these components as a single ***morphophonological system***, in which form and meaning are integrated. There are reasons to believe this could be the case.

✔ Across sign languages, most lexemes are ***monosyllabic***, i.e., most identifiable morphemic units are expressed through single syllables.

✔ For instance, 83% of the lexical entries in Stokoe et al. (1965) are built from just a single sequential movement.

✔ Phonological units such as the ***root*** in (8) are usually attributed morphemic content (Brentari 1998).

6 Concluding remarks

- The insertion of classifiers in plural nouns reflects a process of epenthesis, triggered by phonological constraints.
- Classifiers are handshapes that allow to "complete" a syllabic structure.
- This epenthetic process applies uniformly to all 38 handshapes identified as classifiers in LSA.
- Two theoretical paths emerge:
  A. Classifiers are non-morphemic, and their interpretive effects are gestural or pragmatic, or
  B. classifiers are morphemic, and sign language grammars require richer interfaces between phonology and morphology to accommodate them.

References

Boria, Yanina & Cristina Banfi. 2021. Lengua de señas argentina (lsa). `https://thesignhub.eu/sign-language/120`.

Boria, Yanina & Carlos Muñoz Pérez. 2023. The morpho-phonology of nominal plurality in argentinian sign language (lsa). In *Formal approaches to languages of south america*, 25–55. Springer.

Brentari, Diane. 1998. *A prosodic model of sign language phonology*. Mit Press.

Brentari, Diane. 2019. *Sign language phonology*. Cambridge: Cambridge University Press.

Cienki, Alan. 2017. Gesture and pragmatics. From paralinguistic to variably linguistic. In Anne Barron, Yueguo Gu & Gerard Steen (eds.), *The Routledge handbook of pragmatics*, 61–68. London: Routledge.

Kampa, Alyssa & Anna Papafragou. 2023. Children and adults use pragmatic principles to interpret non-linguistic symbols. *Journal of Memory and Language* 131. 104429. doi: 10.1016/j.jml.2023.104429.

Liddell, Scott K. 1980. *American Sign Language syntax*. The Hague: Mouton Publishers.

Perlmutter, David M. 1992. Sonority and syllable structure in American Sign Language. *Linguistic Inquiry* 6(1). 3–42.

Pfau, Roland. 2016. Morphology. In Anne E Baker, Trude Schermer & Beppie Bogaerde (eds.), *The linguistics of sign languages*, chap. 9, —. John Benjamins Publishing Company.

Pfau, Roland & Markus Steinbach. 2005. Plural formation in German sign language: constraints and strategies. In Helen Leuninger & Daniela Happ (eds.), *Gebärdensprachen: Struktur, Erwerb, Verwendung*, 111–144. Hamburg: Helmut Buske Verlag.

Quer, Josep, Carlo Cecchetto & Caterina Donati. 2017. *Signgram blueprint: A guide to sign language grammar writing*. De Gruyter.

Quer, Josep & Markus Steinbach. 2019. Handling sign language data: The impact of modality. *Frontiers in psychology* 10. 483.

Sandler, Wendy. 2012. The phonological organization of sign languages. *Language and Linguistics Compass* 6(3). 162–182. doi:10.1002/lnc3.326.

Schlenker, Philippe, Marion Bonnet, Jonathan Lamberton, Jason Lamberton, Emmanuel Chemla, Mirko Santoro & Carlo Geraci. 2024. Iconic syntax: sign language classifier predicates and gesture sequences. *Linguistics and Philosophy* 47(1). 77–147.

Schlenker, Philippe, Jason Lamberton & Jonathan Lamberton. 2025. The inferential typology of language: Insights from sign language (ASL). *Natural Language & Linguistic Theory* doi:10.1007/s11049-025-09660-w.

Stokoe, William C., Dorothy C. Casterline & Carl G. Croneberg. 1965. *A dictionary of American Sign Language on linguistic principles*. Washington D.C.: Gallaudet College Press.

Valassina, Sara. 1997. Diccionario lengua de señas argentina—español. *Buenos Aires: Ministerio de Culture y Educación de la Nación* .

Zwitserlood, Inge. 2012. Classifiers. In *Sign language: An international handbook*, De Gruyter.

Thanks

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