Phonological and semantic sublexical features in astronomical neologisms in LSQ

Laurence Gagnon[1,2] & Anne-Marie Parisot[1]

Université du Québec à Montréal[1], Université de Namur[2]

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Considering…

- Signs exhibit internal phonological organization (*e.g.,* Sandler, 2012)
- Modality has an impact on the phonological structure of languages (*e.g.,* Fenlon *et al.*, 2017)
- Modality allows a greater representation of iconicity in sign form (*e.g.*, Östling *et al.*, 2018; Taub, 2012)
- The link between phonology and semantics seems prominent in some signs because of the role of iconicity
- Some linguistic contexts are particularly characterized by that direct link between referent and linguistic form, *e.g.* in the lexicon of emerging languages (Coppola, 2020; Horton, 2020)
- Neologisms undergo entrenchment, conventionalization, and acceptance (*e.g.,* Langacker, 2005; Schmid, 2015)

Question

Does semantic motivation, and more precisely iconic motivation, influence the formation of structural components of signs (place of articulation (POA), movement and handshape) for the lexical creation of astronomical signs in LSQ?

Objective

We present the descriptive analysis of the sublexical structure of neologisms in LSQ (Quebec Sign Language). More precisely, we observed the link between phonology and semantics in a set of 99 neologisms in the scientific domain of astronomy.

Hypothesis

Given the semantic domain of astronomy, that denotes physical, concrete celestial and spherical objects, located in space and primarily in motion, we predict that the three major structural components will be driven by iconicity:

H1: POA will be distal

H2: Movement will involve a path

H3: Handshape fingers will be curved

Corpus

- Analyse, with an astronomer, of semantical content of 49 astronomical concepts from the International Astronomical Union list
- Creation of 99 neologisms to name the 49 concepts by 3 natives signers

Annotation

Using Pietrandrea (2002)'s methods, we annotate each major structural component according to its shape features as well as its semantic contribution (meaningfulness and motivation):

- 2 POA features, area (face, body, or signing space), and position (on the x, y, and z plane)
- 5 movement features (nature, geometric form, temporality, oscillation, and direction of movement)
- 5 handshape features (number of selected fingers, nature of selected finger(s), fingers position, spacing between the fingers, and thumb position)

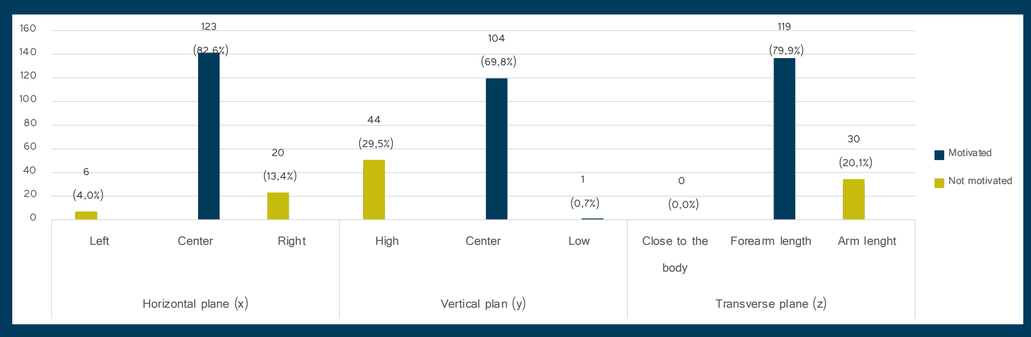
Measures

By a corpus-driven approach, we used two types of statistical measures: a statistical method of exploratory factor analysis, the multiple correspondence analysis (MCA) (Sourial *et al.*, 2010), and a chi-square analysis in order to verify whether the difference between the counts of different variables is significant or not.

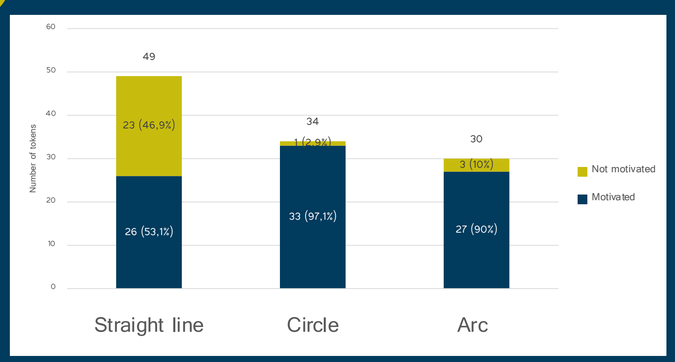
1 General Distribution

Parameters	N	Motivated, N (%)	Not motivated, N (%)
Place of articulation	163	65 (39,9%)	98 (60,1%)
Movement	172	104 (60,6%)	68 (39,5%)
Handshape	248	219 (88,3%)	29 (11,7%)

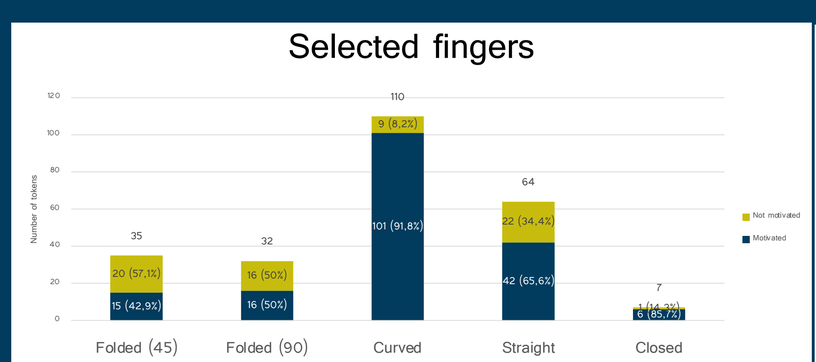
2 Place of articulation

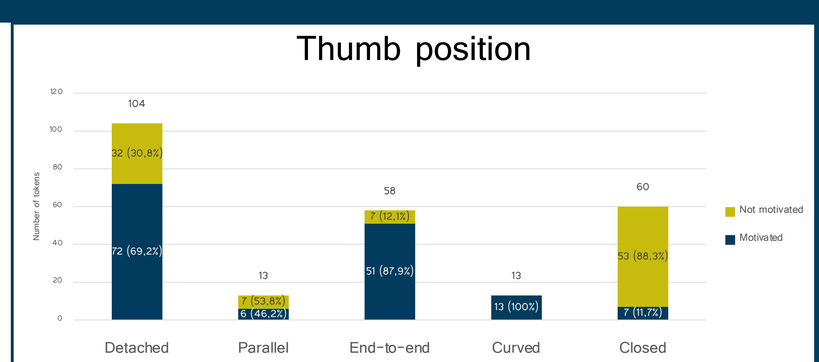


3 Movement

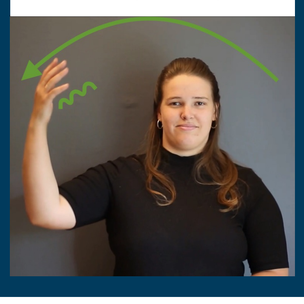


4 Handshape

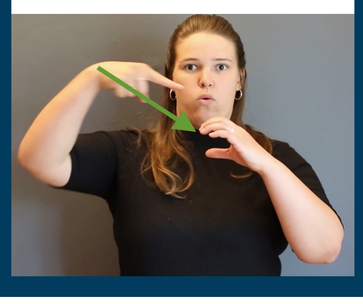




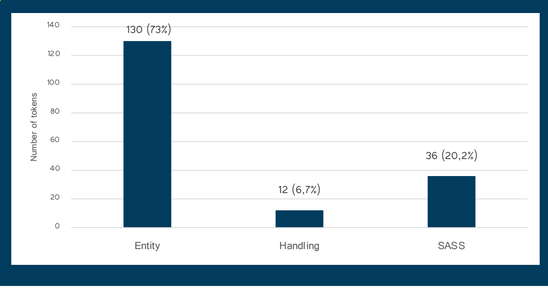
Referent's form: Milky Way



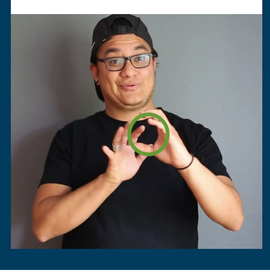
Referent's movement: Meteorite



5 Classifier



Referent's form: Neptun



Conclusion

- Semantic domain influences the features of neologisms, mainly for handshape
- Sublexical components cannot per se be interpreted as bearing iconicity or as being exempt of it
- Findings echo van der Hulst & van der Kooij (2021: 22): feature can be semantically motivated and "semantic/iconic factors play an overriding role in the emergence of the phonological form of signs"
- The notion of distance included is represented by, among other things, the arrangement of hands (instead of POA)

Discussion

- All signs are semantically motivated
- Iconicity is not evenly distributed across phonological components and features

H1 – POA: refuted

- Neutral space
- Do not represent the referent

H2 – Movement: ??

- The majority involve a path
- Half (50%) of the path iconically represent the shape or spatial motion of the referent

H3 –Handshape: confirmed

- Classifiers are highly used for the creation of astronomical signs
- Selected finger and thumb position (curved) is mainly iconic
- Seems to behave as a morpheme allowing the classification of a spherical entity

Scan me to access the corpus!

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