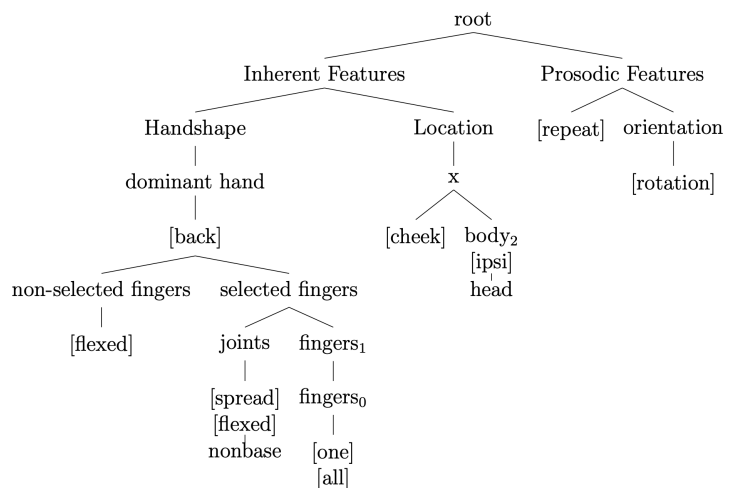


Appendix E: Detailed description of the model-driven measure for the sign TRAIN (Figure 10): Step-by-step procedure

Please note that we *literally* applied Brentari’s framework as in her book; she defines sign complexity based on the definition provided in Dependency Phonology (Anderson & Ewen, 1987; Drescher & van der Hulst, 1993): “Structures that have daughters are more complex than those that do not (...), and structures with branching daughters are more complex than those with nonbranching daughters (...).” (Brentari, 1998, p. 213).

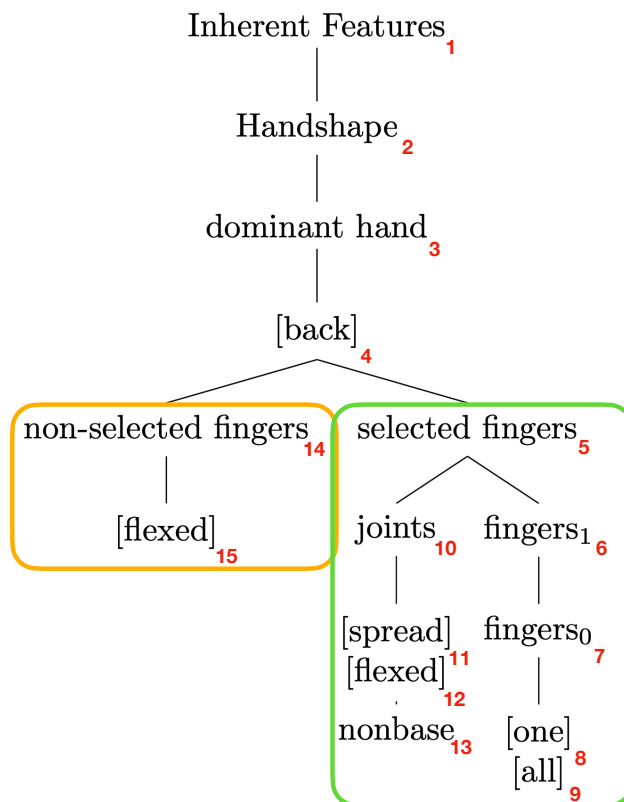
Sign TRAIN and its phonological structure



Step 1: Handshape

The handshape is developed under the major node “Inherent Features” (# 1-2). In TRAIN, as only one hand is used the branch for the dominant hand is developed (# 3) while the one for the non-dominant hand is not. The feature [back] (# 4) here refers to the back of the fingers, the specific hand part facing the location (i.e., the cheek, see below). Two fingers are selected, the index and the major fingers. They are represented under the selected fingers node (# 5). The branch on the right specifies that the thumb is not selected (not thumb branch developed under fingers1 # 6) and that two fingers are selected: [one] and [all] in this order specify the number “2,” and since no specific point of reference is developed under fingers0 (# 7) it means that the referent is the index finger (the second finger is therefore the major finger [# 8-9]). Then, the branch for the joints (# 10) specifies the shape of the selected fingers: They are [spread] and [flexed] at the nonuse joint (# 11-14).

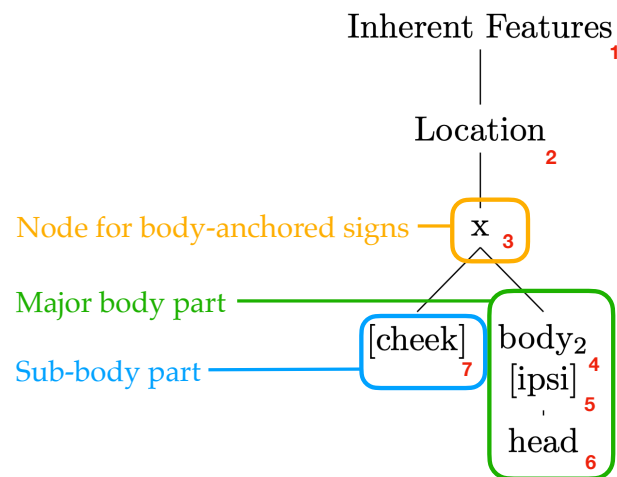
We therefore end up with a score of 15 for the handshape branch of structure.



Step 2: Location

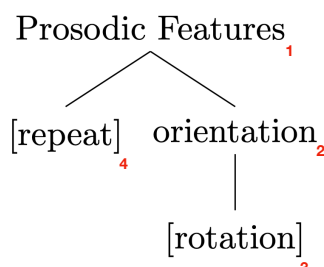
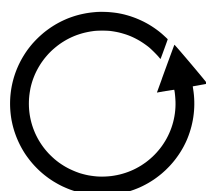
Reminder of Footnote 7: Notice that in order to independently compute the number of nodes necessary to capture both handshape and location, the Inherent Feature node was counted twice. While this increases by one point the overall complexity of a sign, it does so uniformly across all signs. Since we did not compare the complexity of the Inherent and Prosodic branches this move does not affect any of the statistical analyses conducted in the study.

Under the Location node (# 2, also referred to as Place of Articulation and hence POA) the x node is selected as it is the default node to represent the body in body-anchored signs (# 3). The right branch under the x-plane specifies the major body part selected, here the ipsi side of the head (# 4-6). On the left branch, the feature for the sub-part of the major body part is specified: In TRAIN, it is produced on the cheek. We thus end up with a total score of 7 for Location in TRAIN.



Step 3: Movement

Finally, the Prosodic Features branch represents the movement (# 1). In TRAIN, the movement is a simple circular movement. Hence, it is an orientation change (# 2) as it is a rotation of the wrist (# 3). A feature for repetition is also specified as there are several rotations of the wrist in TRAIN (# 4). The total score for movement is then of 4 in TRAIN.



Step 4: Counting

The final scoring for TRAIN is thus as follows:

	TRAIN
Handshape	15
Location	7
Movement	4
TOTAL	26

References

- Anderson, J. M., & Ewen, C. J. (1987). *Principles of Dependency Phonology*. Cambridge: Cambridge University Press.
- Brentari, D. (1998). *A Prosodic Model of Sign Language Phonology*. Cambridge: MIT Press. (<https://doi.org/10.7551/mitpress/5644.001.0001>)
- Dresher, E., & van der Hulst, H. (1993). Head-dependent asymmetries in phonology. *Toronto Working Papers in Linguistics*, 12(2).