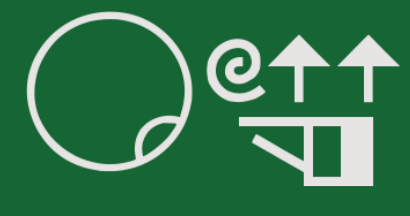


Tools for the use of SignWriting as a Language Resource

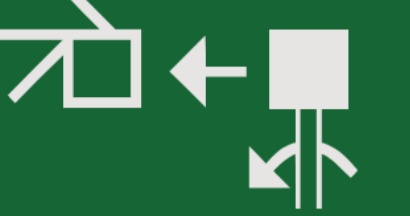
Antonio F. G. Sevilla
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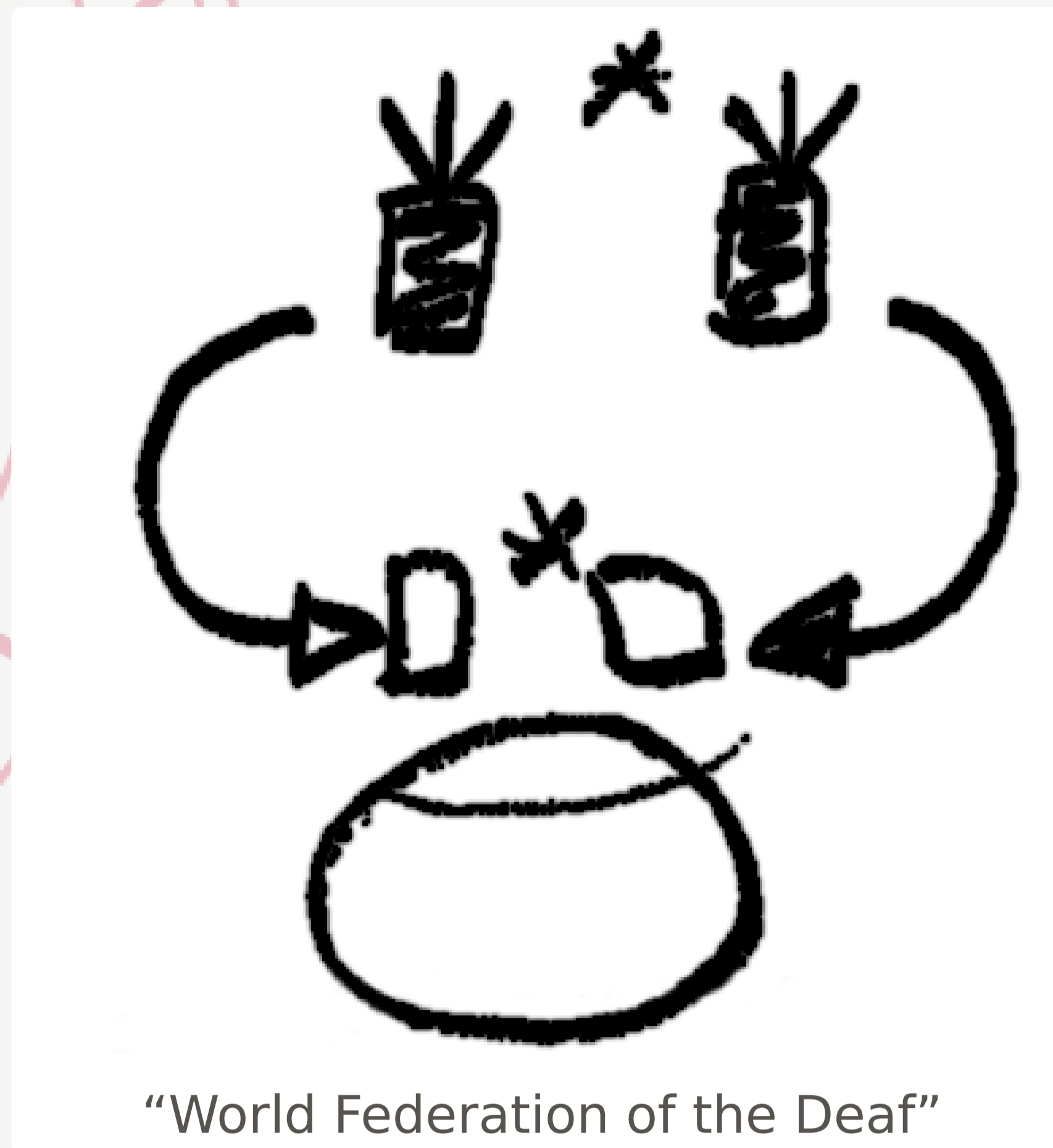
José María Lahoz-Bengoechea
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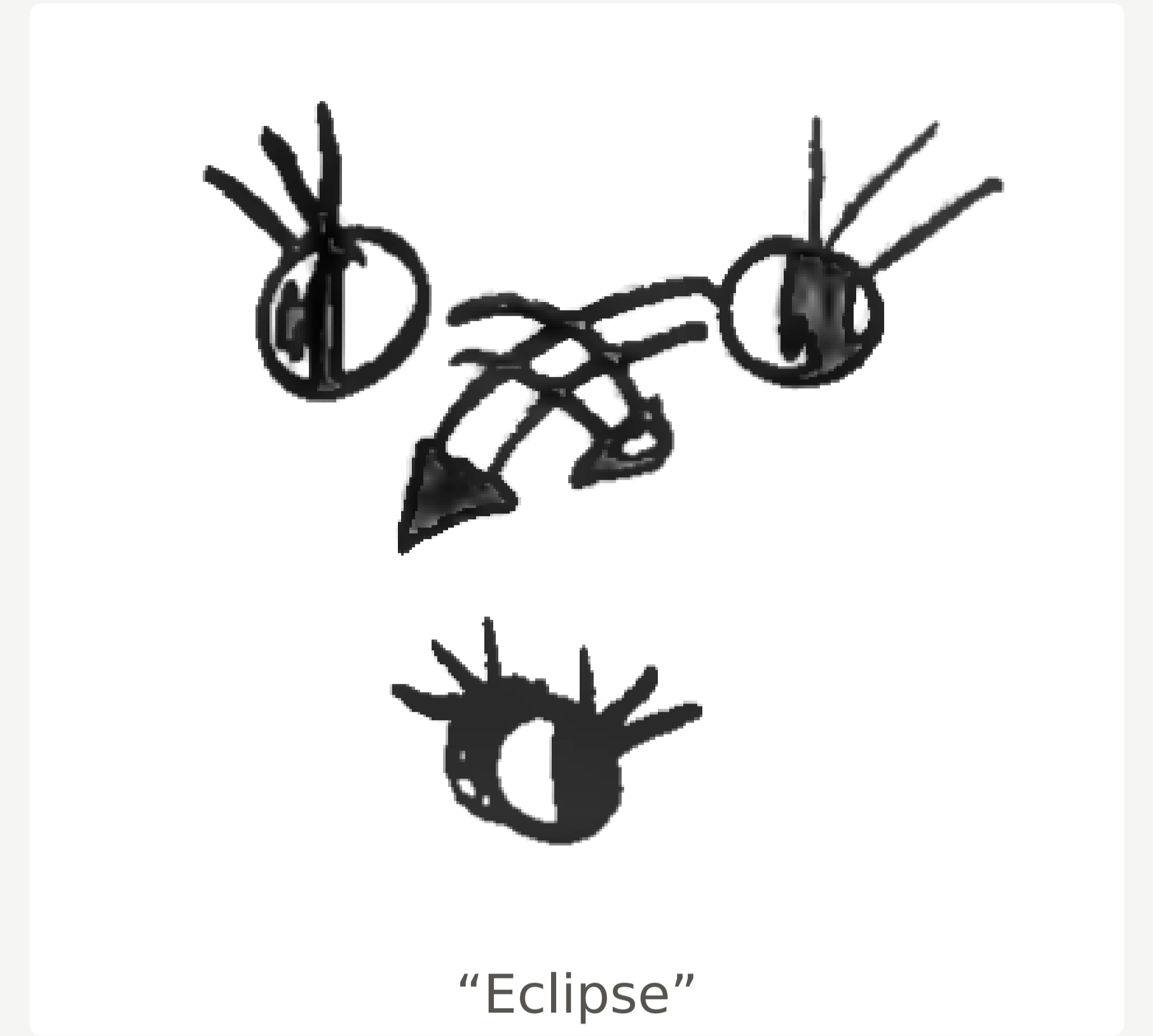
Universidad Complutense de Madrid



"Coffee"



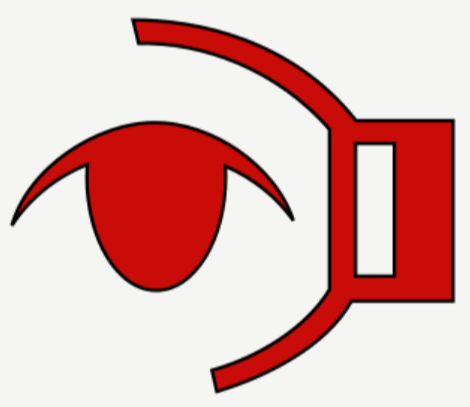
"World Federation of the Deaf"



"Eclipse"

- SignWriting is **phonetic**
- Flexible representation of **space**
- Can be **handwritten**
- A **graphical language** in itself

Quevedo



Quevedo is an open source library and application for annotating and automatically processing corpora of **graphical languages**.

| CLASS | SHAPE | VAR | ROT | REF |
|-------|---------|-----|-----|-----|
| HEAD | chin | VAR | ROT | REF |
| DIAC | touch | VAR | ROT | REF |
| HAND | picamr+ | w | E | n |
| HAND | picamr+ | w | W | y |
| STEM | d | VAR | SE | REF |
| ARRO | b | VAR | SE | REF |
| HAND | PICAM | hb | N | y |
| STEM | d | VAR | NE | REF |
| ARRO | w | VAR | SW | REF |
| HAND | PICAM | hb | N | n |

Topological and featureful annotation of SignWriting

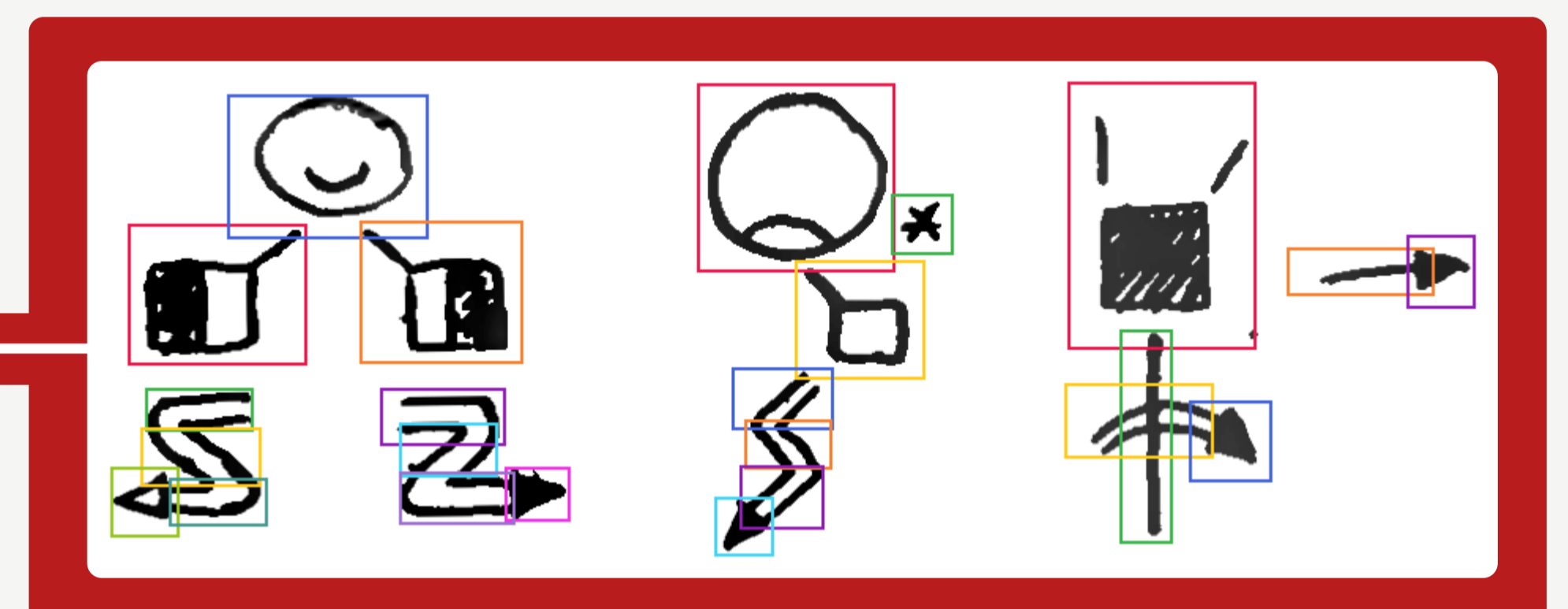
- Grapheme classes: HAND, HEAD, DIAC, ARRO, STEM, ARC
- Tags for grapheme shape and graphical variations
- Tags for spatial transformations (rotation, reflection)
- Movements decomposed into segments

Corpus

The VisSE Corpus is a **publicly available** collection of instances of Spanish SignWriting.



- 982 logograms (transcriptions of signs)
- 6060 graphemes (each of the symbols: hands, faces, movements...)
- Manually annotated



VISSE APP



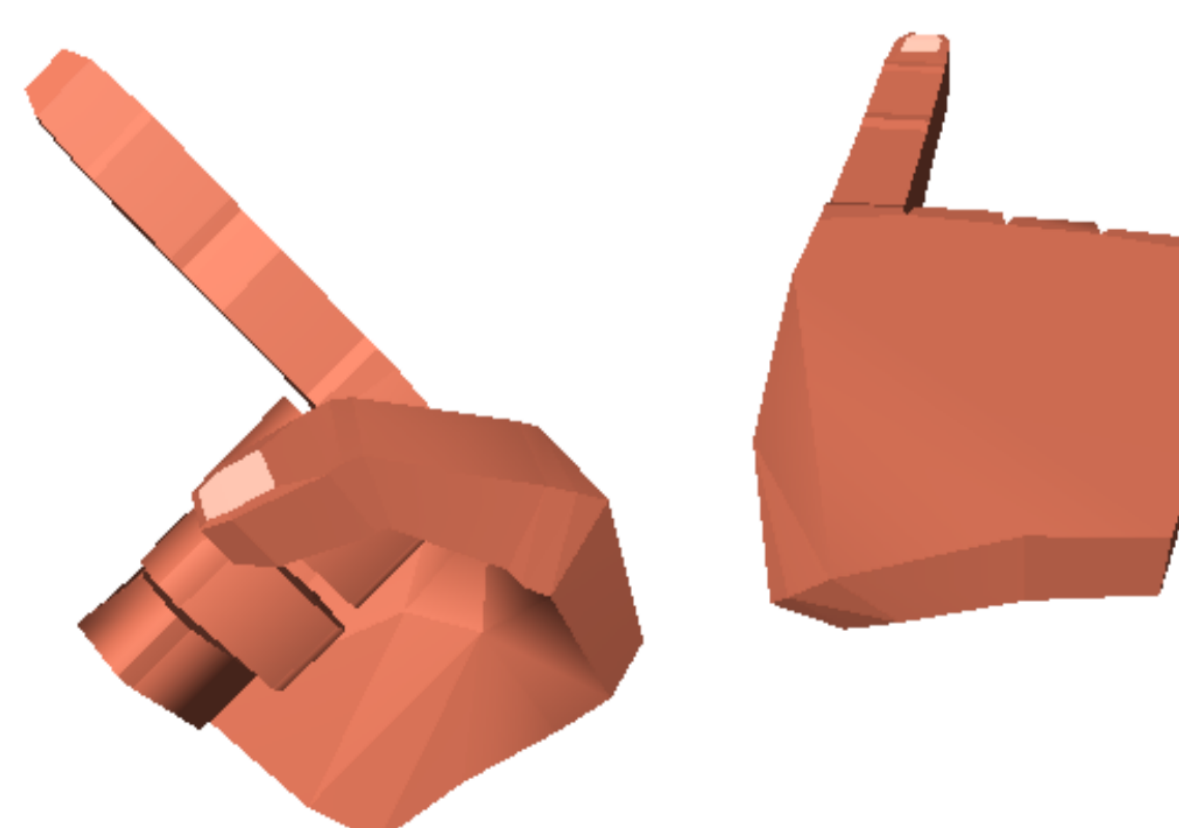
The representation encoded in the annotation, and the data we have collected in the corpus, allows us to build an **automatic recognition of SignWriting** pipeline using **deep learning**.

This recognition is used in a web application that explains (in Spanish) the meaning of SignWriting transcriptions.



| CLASS | SHAPE | VAR | ROT | REF |
|-------|-------|-----|-----|-----|
| HAND | l | hb | N | y |
| ARRO | b | VAR | N | REF |
| STEM | s | VAR | N | REF |
| HAND | l | w | NW | n |
| DIAC | touch | VAR | ROT | REF |
| HEAD | forer | VAR | ROT | REF |

- El dedo índice extendido. La mano hacia arriba y a la izquierda, con la palma mirando hacia ti.
- La punta de flecha negra indica que se mueve la mano **derecha**.
- La varilla simple indica que el movimiento es **horizontal**, paralelo al suelo.



minsait

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FUNDACIÓN

VISSE Project



"Visualizando la SignoEscritura" (Visualizing SignWriting) had as goals the creation of tools for the easier use of SignWriting in the digital world.

Future Work

- Collect and annotate **more data**.
- Convert to and from other representations, like **FSW** or **SWML**.
- Process global meaning and convert to and from **HamNoSys** or **SiGML**.

Publications

- "Quevedo: Annotation and Processing of Graphical Languages" (LREC 22).
- "Automatic SignWriting Recognition"
- "Building the VisSE Corpus of SignWriting"