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## Applying the Transcription System Typannot to Mouth Gestures

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# Applying the Transcription System Typannot to Mouth Gestures

## A new perspective

Typannot system:

- A phonetic transcription of sign languages (SL)
- Descriptive model based on the articulatory possibilities of the body (Fig. 2) rather than on the visual-spatial characteristics of SL gestures (Fig. 1).

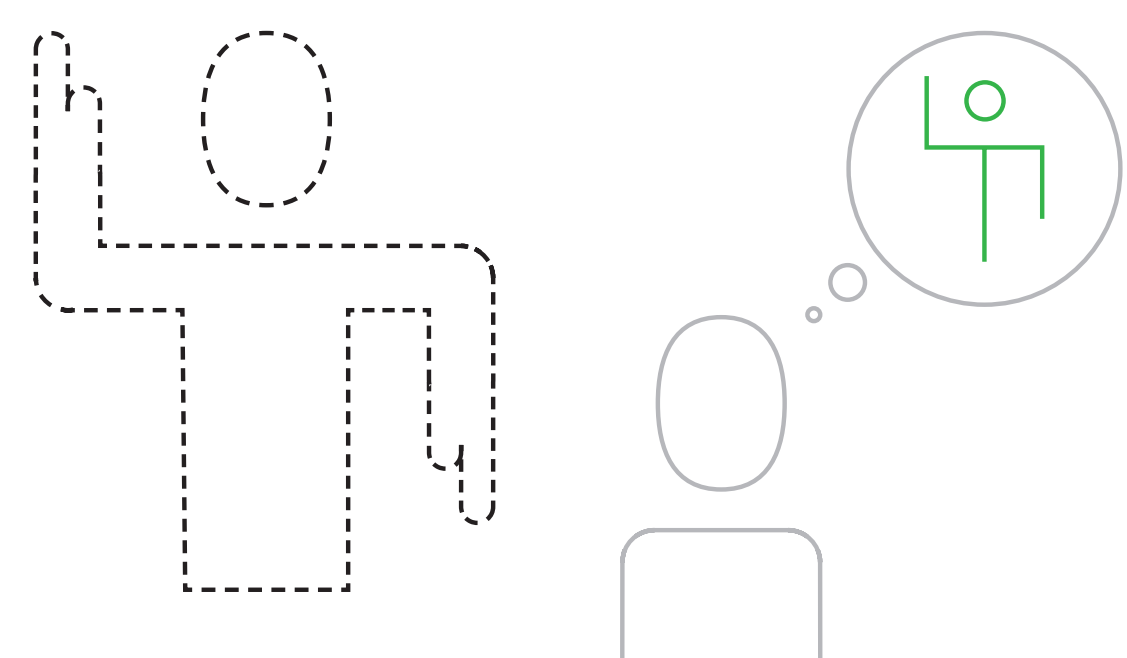


Fig. 1: visuo-spatial perspective

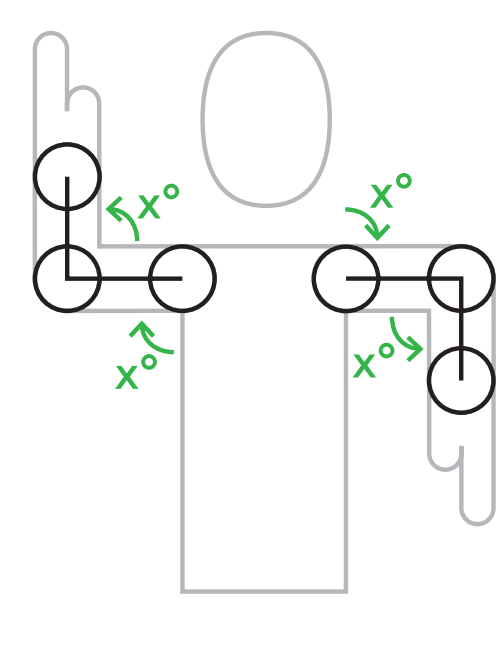


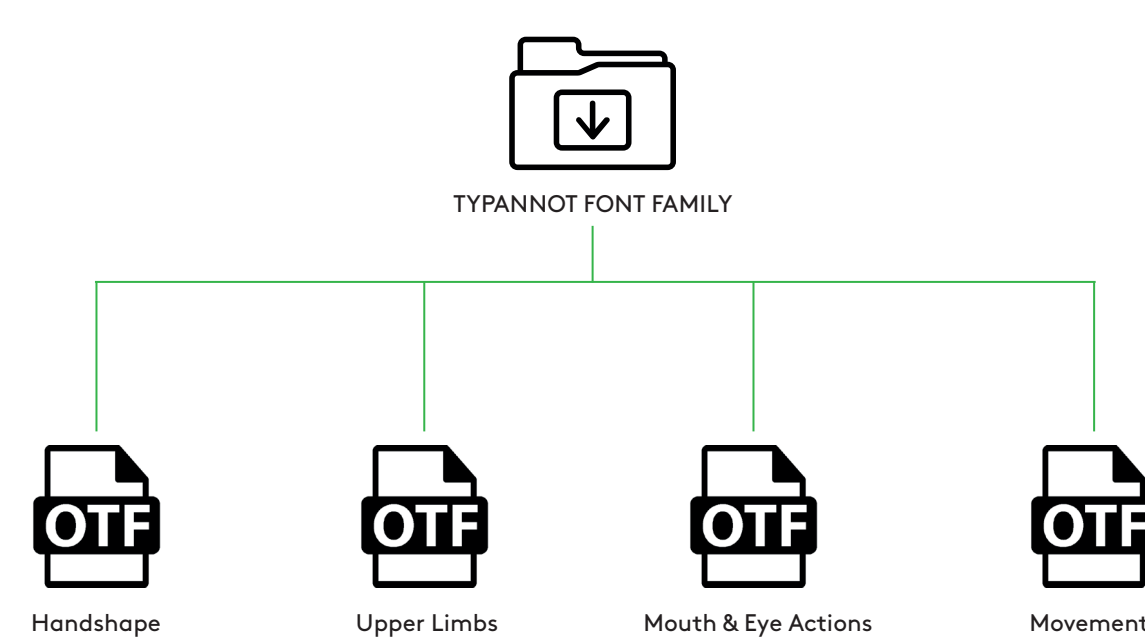
Fig. 2: articulatory perspective

It allows studying the role of the body in the linguistic structuring of SL. It describes the articulators located in the upper part of the body (from head to chest, from hand to shoulder).

- Symbolic description divided into two areas:

1. articulatory structures (their body configurations)
2. dynamics (their movements)

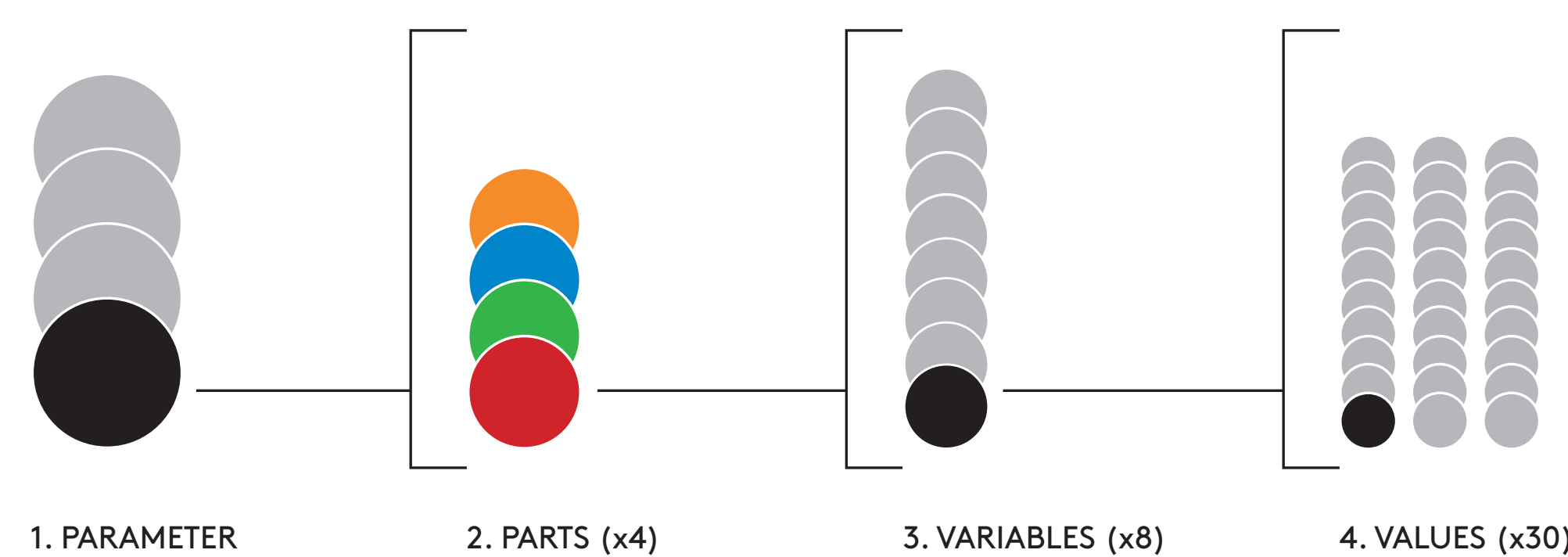
- Symbols grouped into a family of characters made up of different fonts:
  - a font for each body configuration (hand, upper limbs, mouth, eyes)
  - a transversal font for the movement



## Mouth Action



## Describing Mouth Action 4 levels of information



The Mouth Action (parameter) is composed of different face elements (parts) as fixed elements, having activable zones (variables) that carry transformations on the XYZ axes (values).

Set of information bricks:

PARAMETER	PARTS	VARIABLES	VALUES
Mouth Action	Jaw Lips Tongue Air	Selection	Vermillion, Corners, Left Sel., Right Sel., Upper Sel., Lower Sel., Both Sel.
		Vergence	Converge, Diverge, Horizontal, Vertical, Plus One, Plus Two
		Position	Up, Down, Left, Right, Fore, Back, Plus One, Plus Two
		Contact	Contact, Vermillion, Corners, Dental Arc, Alveolus, Cheeks
		Shape	Flat, Round, Tip, Blade
		Channel	Inward, Outward
		Stream	Obscured, Restricted
		None, Hidden	

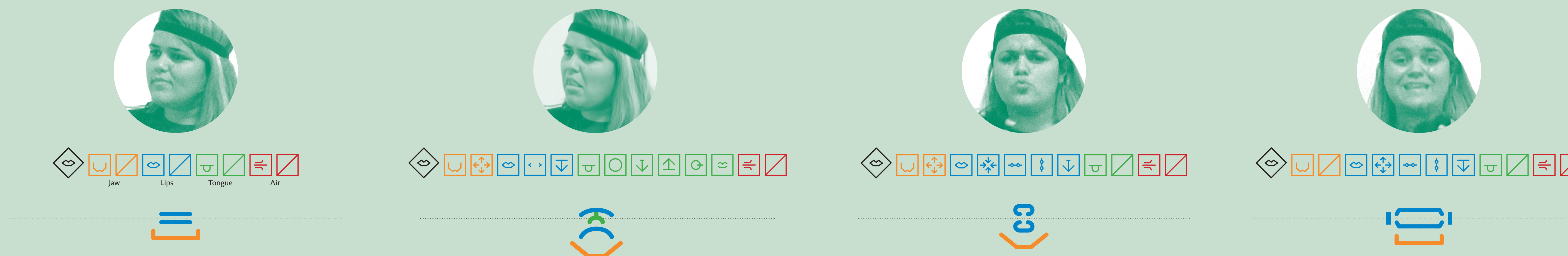
## A double graphic representation

### GENERIC GLYPHS

- Generic glyphs following a formula with a rigid syntax
- Arranged linearly
- Allows the generation of a multitude of mouth gestures combinations
- Technical capabilities to analyze them

### COMPOSED GLYPHS

- Contextual ligatures of generic glyphs according to a composition grid
- See mouth gesture as units
- Allows to "read" intuitively and quickly what is transcribed
- Retaining all the information bricks



## Corpus Application

Typannot can be used to transcribe SL. In C. Thomas' thesis, a corpus of LSF is transcribed to reveal non-manual patterns representing the interrogative utterances in LSF and to establish linguistic rules for (semi) automatic annotation of non manual parameters.

Eye balls	<input checked="" type="checkbox"/>
Eye brow	<input checked="" type="checkbox"/>
Eye lids	<input checked="" type="checkbox"/>
Gloses	[FACILE]   [VE]
Jaw	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Lips	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Tongue	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

Typannot can also be used to transcribe co-speech gestures (CSG). In the ANR-LexiKHuM project, LSF and French CSG corpora are transcribed to study the articulatory characteristics of epistemicity.

[Corpus: DEGELS2011; grant: ANR-20-CE33-0012]

D_POS bouc	
D_POS yeux	<input checked="" type="checkbox"/>
D_POS rega	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
D_MRK corpo	
D_POS tete	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
D_POS epau	<input checked="" type="checkbox"/>
D_POS bust	