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Catchment as a window into cohesion

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Catchment as a window into cohesion.

Cross-linguistic differences in the use of gesture as a cohesive device

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Introduction

- Communicative dynamism (CD) is a property of discourse concerning the online development of information and, specifically, the differentiation between discontinuous and continuous elements (Firbas, 1971). It concerns not only speech, but also co-speech gestures (McNeill & Levy, 1993).
- According to (McNeill, 2000), gestures specialized for continuity are organized in cohesive chains marked by *catchments*, that is “repetitions of gestural features over a stretch of discourse”. However, research on catchments is comparatively scarce compared to other aspects of gestural cohesion (e.g. Debreslioska & Gullberg 2022).
- Therefore, the purpose of this study is to systematically investigate this strategy in two different languages (Dutch and Italian), and in an understudied genre of communication (instruction).
- We address the following research questions:
 - How consistently do speakers providing instructions maintain gesture features used at the first mention of a discourse entity at subsequent mentions of that entity?
 - Which gesture features are used most consistently?
 - Is this consistency influenced by the type of instruction and/or the language of the speaker?

Method

- 32 Dutch and 32 Italian adults interacted in pairs with one taking the role of speaker, the other the role of addressee.
- The speakers were asked to explain the rules of two games (Fig. 1, 2) to the addressees. The games differ in the numbers of entities involved and in the presence/absence of human-like figures.



Fig. 1. Tower of Hanoi



Fig. 2. Camelot

Coding

Speech. All referential expressions to entities mentioned more than once were annotated: five entities for Camelot (knight, princess, tower, stairs, block) and two for the Tower of Hanoi (ring, stick).

All the entities were coded for their referential status:

- First mention* (referent mentioned for the first time in discourse)
- Maintenance* (referent maintained from one clause to the next)
- Re-introduction* (referent re-mentioned after one or more clauses)

Gesture. We annotated all gestures accompanying a referential expression using the video-annotation software ELAN (Sloetjes & Wittenburg, 2008) on the following five features:

- Hands: left, right, both
- Space-lateral: center, right, left
- Space-sagittal: close, middle, far
- Space-table: on-off
- Handshape: 11 values



Fig. 3. The four most common handshapes in our corpus

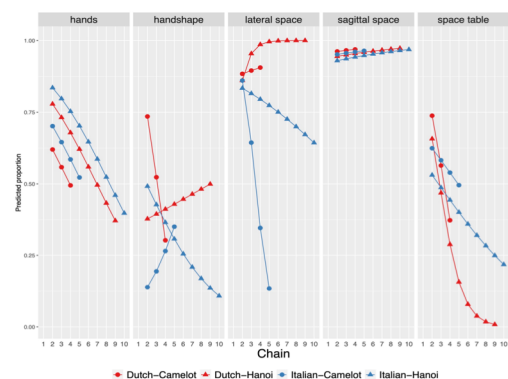
Results

- We identified 34 Dutch and 56 Italian gesture chains (range 2-10 mentions), for a total of 95 gestures in Dutch and 179 in Italian.
- Italian speakers produced longer gesture chains (3.20) than Dutch speakers (2.79) on average.
- The chains were longer in the Tower of Hanoi (4.03) than in Camelot (2.55).



Figure 4. An example of gesture chain referring to the entity “the knight” (Italian, Camelot)

- We counted how often values on each of the five features *after* the first mention of an entity was the same as that on the *first* mention.
- The outcomes of the counts were analyzed as logistic mixed effects models for each of the five features with language, game and chain as predictors.
- The estimated proportions based on the models are shown below.



- There were significant negative effects of chains for the features “hands” and “space-table” (the probability that these features are the same as on the first mention wears off at later mentions).
- The predicted proportions of the feature “sagittal space” are consistently high (probably because there is a predominance of gestures made in the middle).
- The predicted proportions for “lateral space” differ between languages and between games.
- The pattern for “handshape” does not show any consistency between languages nor between games.

Conclusions

- Overall, the results do not support a simple reading of catchment theory: with the exception of sagittal space, speakers in our study did not consistently maintain gesture features used at the first mention of a discourse entity at subsequent mentions.
- The cross-linguistic differences, with Dutch speakers being more consistent in the use of lateral space but less consistent in the use of space-table than Italians, suggest that continuity may be marked differently across language boundaries.
- More research is needed to clarify the specifics of how CD manifests itself in the interplay of speech and gesture.



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