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## The import of verbo-gestural metaphor in collective reasoning

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## INTRODUCTION

This empirical work stresses a non-documented issue: the **cognitive input of metaphor in collective reasoning**.

The child 6 years and older spontaneously verbalizes metaphors and produces metaphoric gestures during explanation and reasoning (Colletta, 2004; Colletta & Pellenq, 2009).

Nevertheless what is the cognitive input of metaphor in collective reasoning?

Does metaphor, linguistic and gestural, play a role when discussing concepts and judgment premises (Daniel, 2007; Lipman, 1995)?

We study the “resonance” of **verbo-gestural** metaphor in CPI (« Community of Philosophical Inquiry »)\*, i.e. its maintenance and significance across speech turns.

\* CPI is a pedagogical practice which encourages children to think for themselves and collectively from a philosophical question.

## METHOD

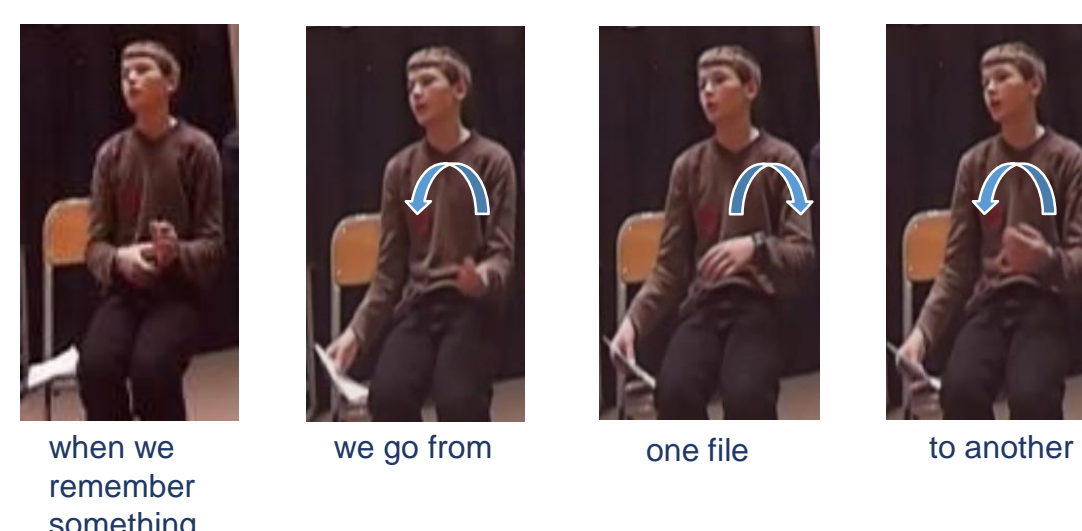
- Selection and analysis of 3 sequences collected in 3 CPI videos recorded in two middle schools in France. Sequences selected for their richness in verbo-gestural metaphor resonance.

	Topic	Grade	Extracted sequence
CPI #1	Money	5th	02:50 - 14:35 (12 min)
CPI #2	Life and death	6th	30:56 - 34:08 (3 min)
CPI #3	Thought	7th-8th	36:45 - 41:02 (4 min)

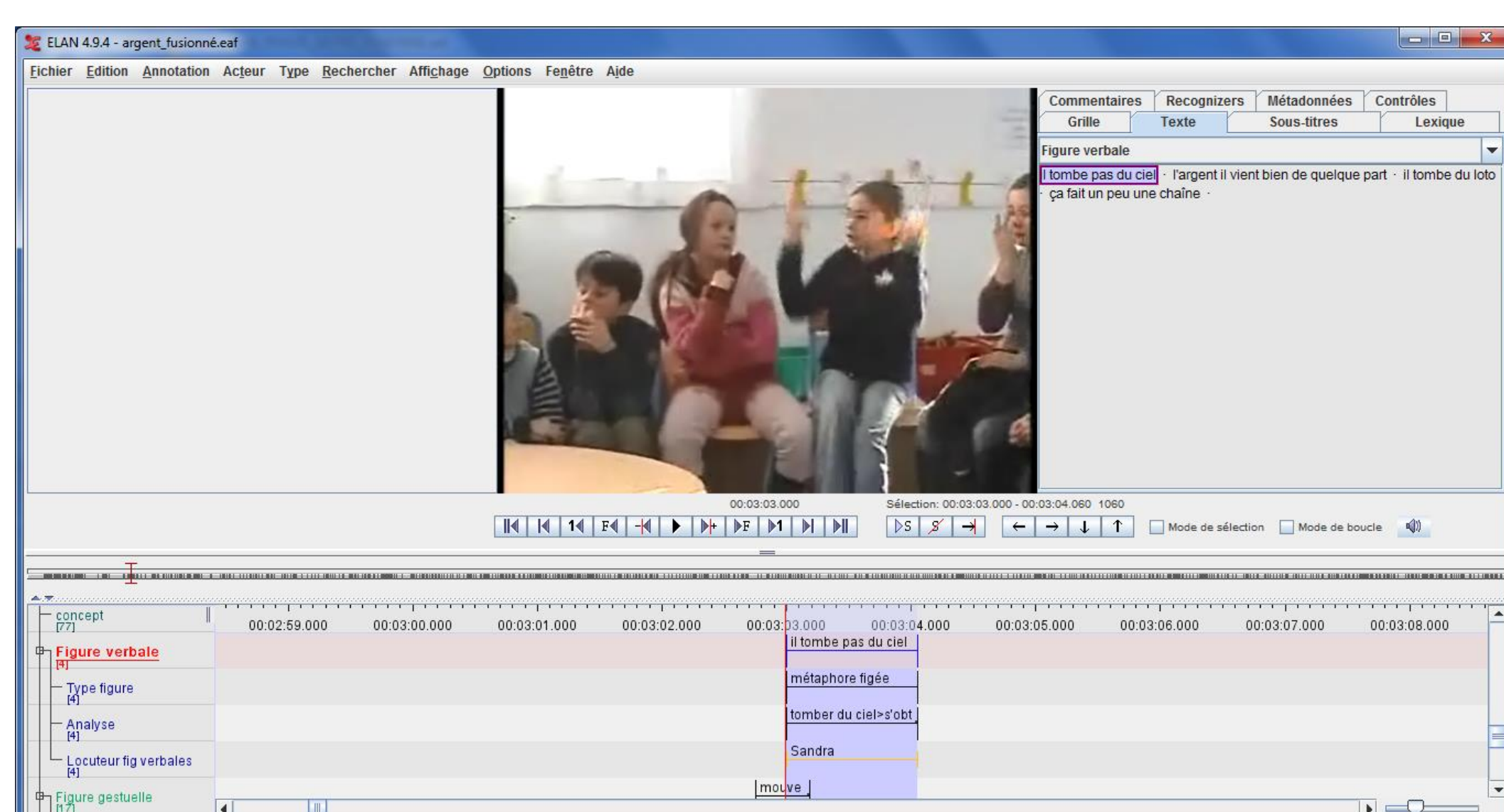
- Participants wordings transcribed with ELAN® software

- Annotation of bimodal metaphors (speech and gestures)

Example of bimodal metaphor :



- Qualitative analysis of each sequence across speech turns and participants
  - Repetition/complement/enrichment of bimodal metaphors
  - Plurality of participants (number of speech turns)
  - Focus of the sequence (presence of conceptualisation and reflexivity) (Tozzi, 2001)



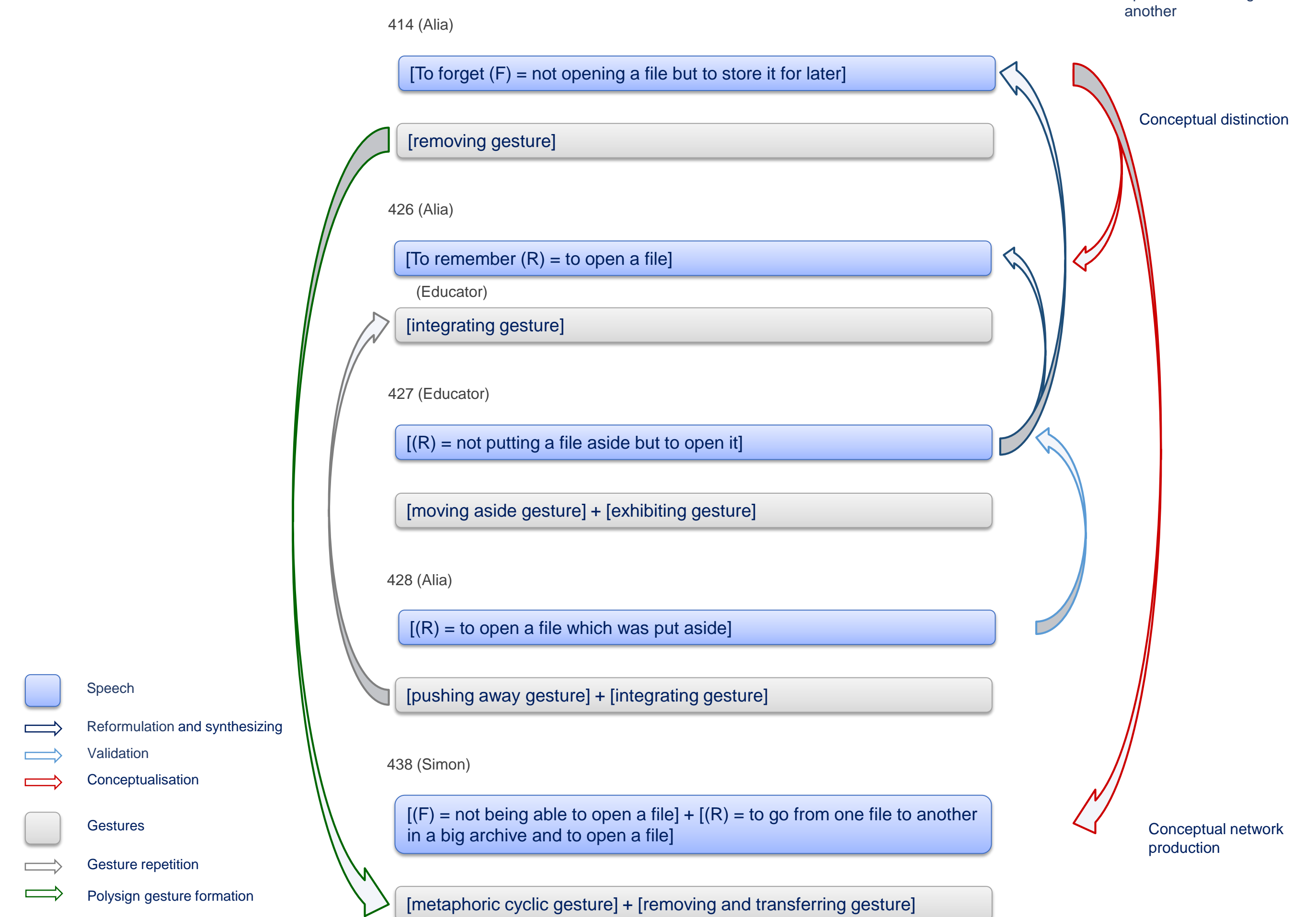
Annotation window and scheme

## ANALYSIS

EXAMPLE OF SEQUENCE #3: EXTENDED METAPHOR ABOUT « TO FORGET/TO REMEMBER SOMETHING » (CPI about thought)



414 (Alia) : To forget something is like keeping a file but... (Damien: we don't open it) yes that's it we'll open it later  
426 (Alia) : When we remember something we precisely open the file  
427 (educator) : We don't put it aside anymore but we open it  
428 (Alia) : Yes the file was put aside but now we're opening it  
438 (Simon) : Souvenirs are like a big archive (...) and sometimes (...) we can't open the file and that's when we forget things but when we remember something then we can open the file and go from one file to another



Analysis of sequence #3 across speech turns and participants

## CONCLUSION AND PERSPECTIVES

- Our data show that bimodal metaphors are used **verbally** and **gesturally** by the **educators** to help children **clarify concepts**
- Bimodal metaphors tend to be used **by the speaker** and **by other children** to bring **conceptual distinctions and networks**
- They tend to be enriched **at verbal and gestural level** simultaneously:
  - extended metaphors co-occur with polysign gestures

### Perspectives

- Analysis of
  - Gesture-only metaphors
  - Verbal-only metaphors
- Developmental analysis
- Longitudinal and quantitative analysis

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