Gestures of joint attention in multimodal interactions

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Introduction

Discourse is inherently interactive

Discourse: necessarily addressed to another person and the representation of others influences the nature of discourse itself and thus the structure of the linguistic message

In face-to-face interactions, the **state of shared knowledge** between interlocutors is **constantly changing** and influences the linguistic content of the message

In **monologues**, speakers rely on the construction and evolution of the information delivered to shape their future discourse

Interaction: cover term for an 'exchange between different individuals' & way in which the modalities (verbal, oral and visual) do not only participate in the elaboration of the linguistic message, but also the way in which these **different modalities interact with each other**

Introduction

A diversity of speech interactions

CID Corpus, Aix en Provence (Bertrand et al., 2008)

AphasiaBank (MacWhinney et al., 2011)

Internet collection of videos

Introduction

Gesture as an essential part of the linguistic message

Gesture: a "**semiotic modality**" that only marginally participates in discourse?

A large part of face-to-face communication is based on **multimodal ensembles** (Enfield, 2009) or constructs, where information is distributed in different modalities that interact to form the "semiotic mode" (Kress, 2010) of face-to-face communication

The semantic and pragmatic content is conveyed by the **verbal** modality as well as by the **oral** modality (prosody) and the **visual** modality (gestures and facial expressions)

The speaker communicates the various pieces of information in his message by **selecting the modality best suited to the content** conveyed and by articulating the different modalities with each other

Introduction

Salience: prioritised information

Multimodal analysis does not a priori privilege one modality over another, even though one of the modalities may be emphasized in a **social practice** (Adami, 2017)

Each semiotic system has its own **systemic constraints and affordances**. What can be communicated with language or voice will not necessarily be communicable visually and vice versa

> Salience refers above all to the emergence of a figure on a background, i.e. the highlighting of an element in a message. In linguistics, this emergence is due to prosodic, lexical, syntactic or semantic mechanisms, and its main consequence is the highlighting of an entity (an extract of the message), which is thus favoured over the background (the rest of the message and its context) during the comprehension process. (Landragin, 2011:68)

Outline of the presentation

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Highlighting discourse units

Syntactic structures

Lambrecht (1994) distinguishes 3 types of focus in the syntactic domain:

Predicate focus: dislocations and topicalisations → introduce a new referent or maintain a referent in the mind of the addressee

Argument focus: clefts and pseudo-clefts → identify an argument in a given clause

Propositional focus: presnetative structures → introduce a new referent in discourse or a new narrative event

Highlighting discourse units

Prosodic highlighting

Broad focus: the whole utterance is considered as relevant in the activation state of the addressee → falling tone ad final syllabic lengthening (Féry, 2001)

Narrow focus: discontinued discourse topics (Lambrecht, 1994), only part of the utterance is relevant in the activation state of the addressee, emphasis on one discourse item → initial boundary tone (Féry, 2001), higher pitch and intensity, lengthened focused syllables (Lacheret-Dujour, 2003)

Contrastive focus: constrast between two or more discourse units → large pitch movement, higher intensity and/or syllabic lengthening (especially of onset consonant), rising-falling tone on first syllable of intonation phrase ((Katz & Selkirk, 2011 ; Astésano et al., 2004)

Highlighting discourse units

Gesture highlighting

Hand gestures highlight important information in verbal messages and guide addressees' attention towards some particular information in discourse (Alibali & Kita, 2010)

Large gestures more salient than others but **beats** more dedicated to highlighting → help perceive acoustic prominence and influence acoustic parameters in speech

Large beats and points induce the perception of contrastive focus in speech even when there is none acoustically speaking

Ferré, G., 2018. Gesture/speech integration in the perception of prosodic emphasis, in: Proceedings of Speech Prosody, Poznan, Poland, 35-39.

Highlighting discourse units

Gesture highlighting

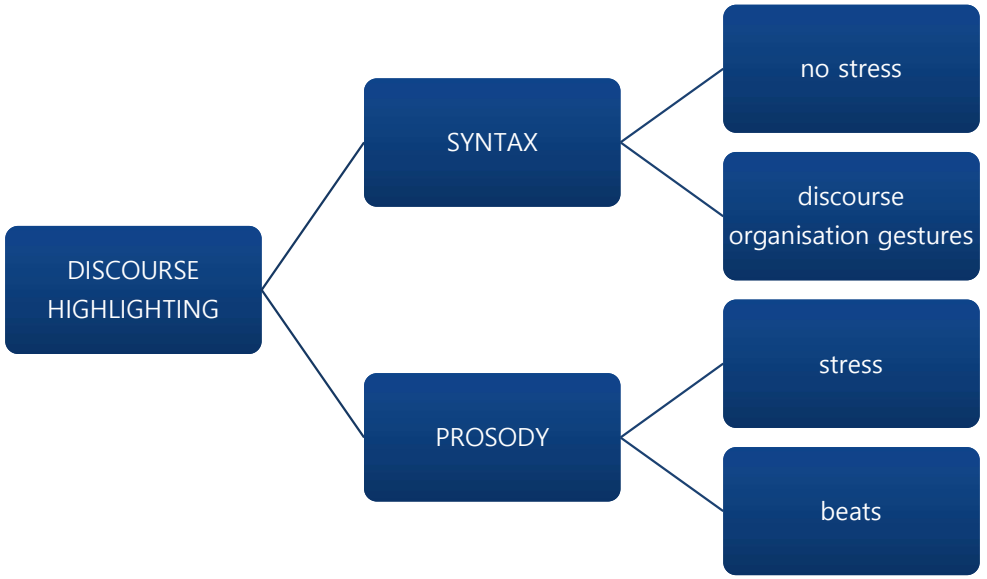
Beats: highlighters that modulate how verbal information is encoded by attracting listeners' attention to specific parts of the speech stream (Biau & Soto-Faraco, 2013)

Points: joint attention gestures → manage the interpersonal / interactional context of speech (Enfield et al., 2007)

Linking elements: points focus attention on specific spatial areas (Edeline et Klinkenberg, 2021), while beats focus on specific parts of speech

Highlighting discourse units

"What is not encoded in syntax is encoded in prosody" (Lacheret, 2003)



Ferré, G., 2014. A Multimodal Approach to Markedness in Spoken French. *Speech Communication* 57, 268-282.

Outline of the presentation

Features of beats and points

Protypical form of the two gestures

Beats:

- open hand palm-on-side
- quick up and down movements
- neither representational nor referential

Points:

- index finger or open palm extended towards an object or spatial direction
- abstract or concrete / static or dynamic
- non representational but referential

Both gestures may be performed with more than one articulator

The features of beats

Gesture overlay and prosodic highlighting

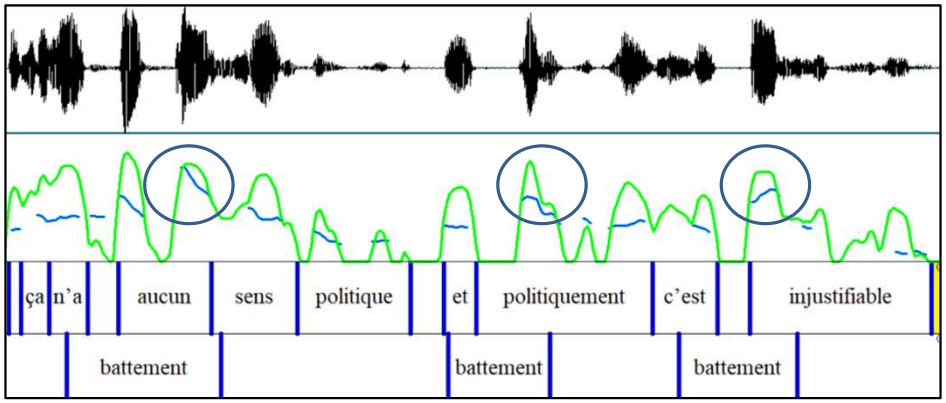
- Can be superimposed on any other type of gesture
- Particularly frequent in political speeches
- Strong correlation with emphatic prosodic stresses

- S. Le Foll's speech in European Parliament
- 75 beats in 2 min of speech
- 65 beats aligned with emphatic stress

The features of beats

Gesture overlay and prosodic highlighting

- Superimposition on any other type of gesture: here, metaphoric gesture pyramid (Calbris, 2011)
- Frequent in political speeches

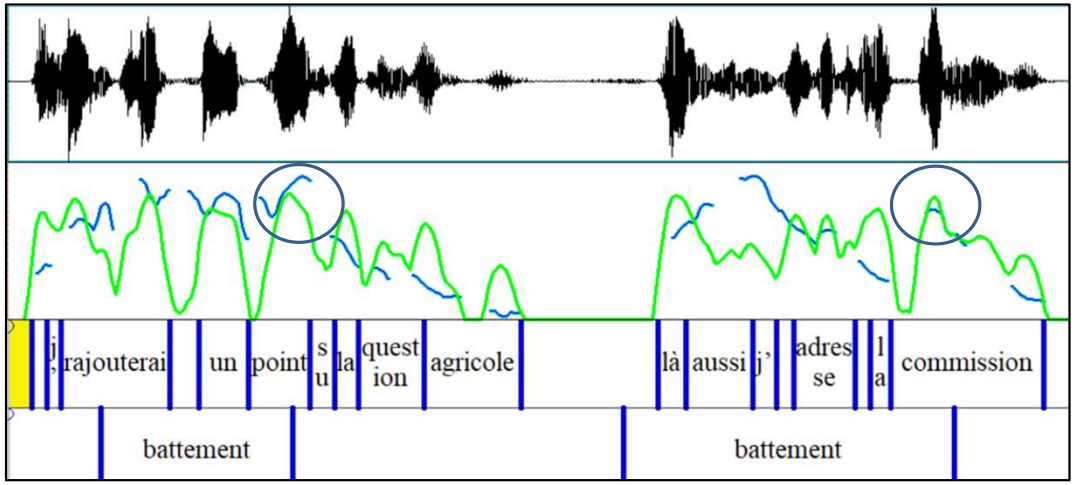


- Strong correlation with emphatic prosodic stresses

The features of beats

Gesture overlay and prosodic highlighting

- Metaphoric gesture: 'digital pincers' (Calbris) or 'ring gesture' (Kendon)
- Correlation with emphatic prosodic stresses



The features of beats

Metaphoric 'cutting' function of the gesture

Gesture semiotics (Calbris, 2011): symbolic associations between gestures and concepts

Beats: metaphoric splitting in two parts of discourse

Focus: word metaphorically detached from what precedes in discourse ; visual splitting of the speech stream in two parts

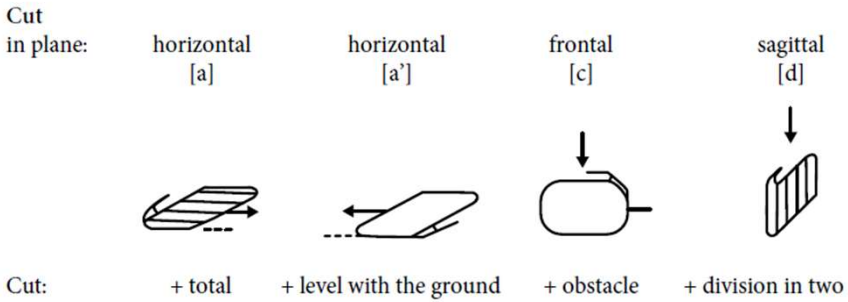


Figure 1. Semiotic variants of the open hand
G. Calbris (2011, p. 232)

The features of points

Referential action

- **Superimposed on other types of gestures:** *contour following gestures* or *area sweep gestures* (Pavlovic et al., 1998)
- Function: **highlighting** of or **focus** on a **particular spatial area**

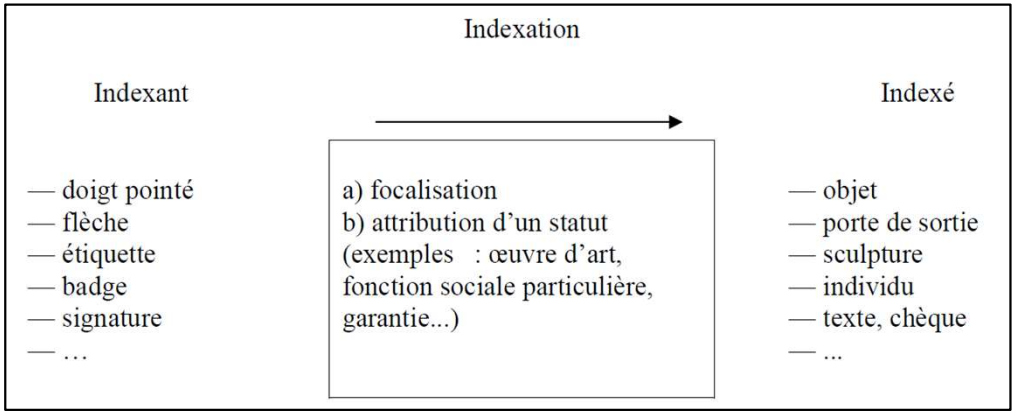
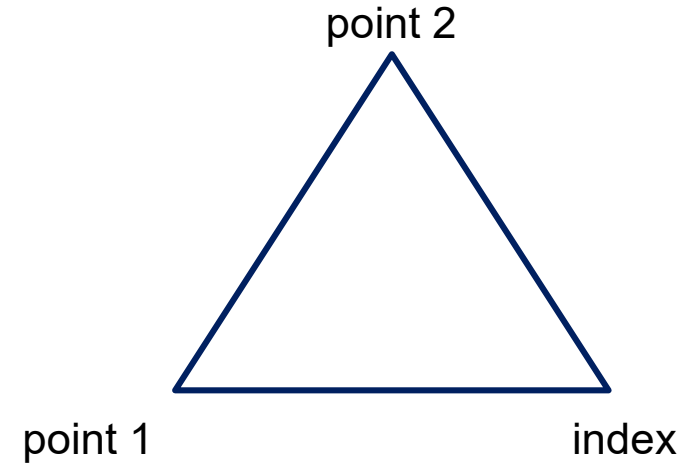


Figure 2. Indexing process and relating signs with referents, from Édeline et Klinkenberg (2021: 2)

The features of points

Referential action

- Points toward concrete but also abstract referents (McNeill, 1992, 2005)
- May indicate temporal changes as in the example below where three different periods of time are referred to
- Triangular relationship of the different points to each other and to the indexed elements of discourse



The features of points

Referential action

- Offer some form of **visualisation of the narrative sequence**
- **Visual trace** which plays a role in the **perception** of the message but also a **cognitive** role in message production
- Some of these points are used by **children or people with aphasia**

so I had the surgery which involved removing a bone at the base of my thumb (.) um having (.) a tendon in my arm (.) a tendon that runs from my, from my index finger (.) half way up my arm (.) split in half, and then half of it was rolled down and put it, inserted to (.) replace the bone they had removed (.)

The features of points

Referential action

Outline of the presentation

Conclusion

Communication as sequences of multimodal ensembles (Enfield, 2007)

Semiotics of discourse (Fontanille, 2007)

Cognition plane: several types of verbal, vocal and gestural devices allow speakers to focus on elements of their speech or elements of their gestural activity

Passion plane: the use of certain terms at the semantic level, but also of certain syntactic constructions allow the attentional focus of the interlocutors to change

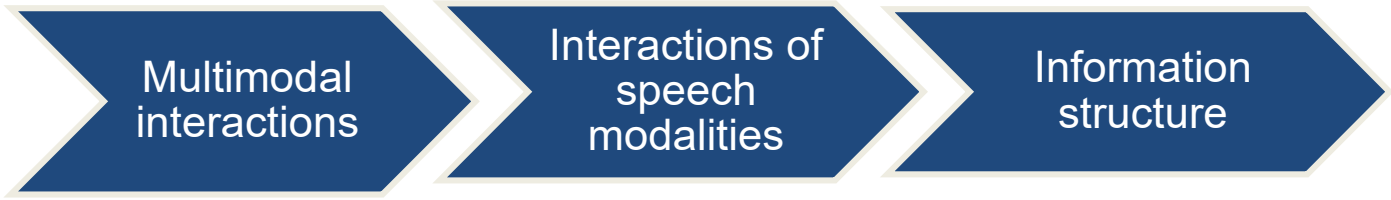
Action plane: a focusing operation can also be achieved through gestures, in particular with beats and pointing

Conclusion

Beats and points: "relators" linking the gesture itself to an element of discourse through a process of indexing which links the "indexed" referents with the "indexing" ones by conferring, through focusing, a particular status to the indexed referents (Edeline & Klinkeberg, 2021)

Points: referential function due to the deictic nature of their action, linking elements of discourse and physical space, providing a visual trace of this linkage

Beats: metaphorical function of cutting the spoken chain, isolating an entity from the rest of the space by a 'cutting' action




Thank you for your attention

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