Smile change and topic change: links between these two actions

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15 July 2022
1 Context

2 Methodology

3 Résults

4 Conclusion
Main objectives

- Smile as a “facial gesture” (Bavelas et al., 1991)
- Thematic transition: better understanding of conversation organization
- Interactants’ degree of acquaintance
Conversation

- Conversation is a “collaborative production” (Sacks et al., 1974)
- Described as a “system” (Winkin, 1981) organized around constraints
- Mixed approach: qualitative and quantitative analyses of interactional phenomena
- Conversational Analysis (Sacks et al., 1978) Interactional Linguistic (Couper-Kuhlen & Selting, 2001)
Conversation and gesture

- Multimodal resources are mobilized during interactions (Birdwhistell, 1968; Ferré, 2011)
- Speech and gesture as a whole (Winkin, 1981)
- Facial gesture are particularly observed by the interlocuteur (Barrier, 2013)
What about facial gesture?

- Eye gaze (Brône et al., 2017; Auer, 2021)
- Eyebrow movement (Goujon, 2019)
- Eye blink (Hômke et al., 2018; Holler & Bavelas, 2017)
- Laughter (Mazzocconi et al., 2020)
Smile functions: a polyfunctional gesture

**Interlocutor**
Feedback (Jensen, 2015; Boudin et al., 2021)
Listening Marker (Duncan et al., 1979)
Maintaining attention (Theonas et al., 2008)

**Speaker**
Humorous frame (Priego-Valverde et al., 2018)
Narrative punctuation (Chovil, 1991)
Emotional transition (Kaukomaa et al., 2013)
Thematic transitions

- Main observable of the interactional organization (Cosnier et al., 1987)
- The theme is (1) the focus of shared attention, (2) specific to the participants, (3) co-constructed (Riou, 2015)
- Strategies to make the themes consistent
- Cues and markers of thematic transition
- Several type of thematic transition depending on the coherence (Crow, 1983)
Main questions

1. How participants use their smile in thematic transitions?
2. Does the role of smile depend on the participants’ degree of acquaintance?
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Corpus

- 20 interactions
- Instructions: reading of a canned joke then **free discussion** for 15 min
- 5h27 of french conversations

### CHEESE!
(Priego-Valverde et al., 2020)
- 2016
- Acquainted
- 2h37

### PACO
(Amoyal et al., 2020)
- 2018
- Initial interactions
- 2h40
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<thead>
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Transcription

- Automatic slicing into IPUs under SPPAS software (Bigi, 2015)
- Manual transcription according to the "Enriched Orthographic Transcription" convention (Bertrand et al., 2008)
Transitions annotation

Manual annotation under Praat (Boersma & Weenink, 2018)

- Thematic segment (e.g. personal relationships, career background, place of residence)
- Transitions types: initiation, shading, insertion, renewal (Crow, 1983) (agreement rate = 69, 65%, $\kappa = 0.46$)
- Transitions phases: proposition, acceptation, ratification (Traverso, 2012) (agreement rate = 95, 12%, $\kappa = 0.89$)
Smiling Intensity Scale (Gironzetti et al., 2016)

Illustrations from the corpus Cheese! (Priego-Valverde et al., 2020)
Automatic Smile Detection

SMAD (Rauzy & Amoyal, 2020)

- Open face (Baltrušaitis et al., 2018): landmark detection and AU calculation from the video
- Precision: 68% of correct labels
- 10-fold reduction in annotation time
Smile annotation protocol

- Checking intensities and intervals from video and audio
- Manual correction under ELAN (Brugman et al., 2004)
- Counter-coding: $\kappa = 0, 6$
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Smile in the whole conversation

- 33% of conversations
- Average duration: 3 secs
- Smile synchrony in the whole interaction and both corpus
- The relationship does not affect the smiles duration nor distribution
Transitions

- 234 transitions: 121 in CHEESE! et 113 in PACO
- 12 transitions/interaction: 1 transition every 1min22
- Average duration: 7.18 secs
- No difference between the types of transitions according to the corpus (Student’s test, $p > 0.5$)
Smile in every transition phase

**Proposition**
- Smile suppression ($\chi^2 = 180.44$, DF = 78, $p < 0.01$)
- More in PACO (5,6 vs. 4,5)

**Acceptation**
- Smile increase ($\chi^2 = 111.96$, DF = 78, $p < 0.01$)
- More in CHEESE! (2,6 vs. 2,1)

**Ratification**
- Maintain the previous intensity
- In both corpus
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Take home message

- Proposition: reduction of the speaker’s smile
- Acceptation: increased smile of the interlocutor
- Smile change is closely related to topic change
- What other multimodal resources contribute to the thematic transition?
Thank you for your attention!

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Open source corpus, annotation guides and smile software

Cheese : https://hdl.handle.net/11403/cheese
PACO : https://hdl.handle.net/11403/paco
SMAD : https://github.com/srauzy/HMAD
Références I


Références II


Références III


