

Facial Displays and their dialogical meanings: Lecture 5

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Recap from Lecture 4 I

- ▶ Scherer's cognitive theory of emotion, the CPM.
- ▶ EMA: an implemented CTE and where it's been used
- ▶ CPM in KoS: adding mood to the DGB.
- ▶ A unified illocutionary force for laughter, but distinct meanings; relating power, arousal, and pleasure change.
- ▶ The meaning of emojis.

Today's Lecture

- ▶ Scaling up to other NVSS: smiling, sighing, eye rolling, frowning.
- ▶ Adding NVSS to the grammar? Some considerations.

Outline

Smiling

Sighing

Eye Rolling

Frowning

NVSS in the grammar?

References

Smiling I

- ▶ An intensively researched topic, comparable to laughter in recent decades.
- ▶ Long standing question: is smiling a low arousal version of laughter?
- ▶ Debate re hypothesis that laughter evolved as costly signal to thwart freeloading smilers (e.g., Lockard, Fahrenbruch, Smith, & Morgan, 1977; Gervais & Wilson, 2005)
- ▶ Considerations
 1. For: (i) Scalar implicature, (ii) Overlap in functions.
 2. Against: lack of complete overlap? e.g., greeting function of smiling:
 3. But is it possible to do this with low arousal laughter? Need experimental study.

Smiling II

- ▶ As with laughter, a definitive taxonomy of uses still elusive (Ekman (2001) identified 18 types of smiles and proposed that there might be as many as 50 in all), but considerations seem almost entirely the same.
- ▶ The smile is characterized by the upward turn of the corners of the lips, which is produced by the contraction of the zygomaticus major muscle (Ekman & Friesen 1978).
- ▶ The frequency, intensity, and duration of the zygomaticus major muscle activity positively predicts self-reported happiness of the smiler (Ekman et al. 1980; Cacioppo et al. 1986).
- ▶ Zygomaticus major contraction, however, is observed not only when positive emotions are experienced, but may also be observed when individuals report feeling negative emotions such as disgust (Ekman et al. 1980), disappointment (Kraut & Johnston 1979), sadness and uncertainty (Klineberg 1940), and general discomfort (see Ekman et al. 1990, for a review).

Smiling III

- ▶ (Niedenthal, Mermillod, Maringer, & Hess, 2010): many smiles are simply readouts of positive internal states such as happiness ; this holds also for the “play-face” in primates, such as chimpanzees (more later on this.)
- ▶ Niedenthal et al., 2010 distinguish these from affiliative and dominance smiles. But this seems like the classical error we discussed w/r to laughter.
- ▶ We can deduce in a similar way we did with laughter the affiliation from the enjoyment.

Smiling IV

- ▶ So we posit for smile one basic meaning, similar to low arousal laughter, with distinct formal types:

$$\left[\begin{array}{l} \text{shape : lip-rise} \\ \\ \text{dgb-params : } \left[\begin{array}{l} \text{spkr : Ind} \\ \text{addr : Ind} \\ \text{t : TIME} \\ \text{c1 : addressing(spkr,addr,t)} \\ \text{Mood.pleasant} = \langle \text{pleasant}, i \rangle \\ \text{c2 : } i \geq \theta \\ \text{p} = \left[\begin{array}{l} \text{sit} = \text{I} \\ \text{sit-type} = \text{L} \end{array} \right] : \text{prop} \\ \text{c2 : ActiveSit(I)} \end{array} \right] \\ \\ \text{content} = \left[\begin{array}{l} \text{l-cont} = \left[\begin{array}{l} \text{sit} = \text{s} \\ \text{sit-type} = \left[\text{c4 : Pleasant(spkr,p)} \right] : \text{Prop} \\ \text{l-arousal} = \text{lphontype.power} : \text{RealNum} \end{array} \right] : \text{RecType} \end{array} \right] \end{array} \right]$$

Smiling V

- ▶ given a smile content, the pleasantness value of the mood value of the dialogue gameboard is incremented in a degree dependent on the arousal, which is low:

$$\left[\begin{array}{l} \text{preconditions: } \left[\text{LatestMove} = \left[\begin{array}{l} \text{l-cont : Assert(spkr, Pleasant(p,spkr))} \\ \text{l-arousal} = \delta : \text{lshape.power} \\ \text{c1 : low}(\delta) \end{array} \right] : \text{LocProp} \right] \\ \text{effect: } \left[\begin{array}{l} \text{DGB.Mood.pleasant.x} = \\ \text{preconds.DGB.Mood.pleasant.x} + \theta(\text{preconds.l-arousal}) \end{array} \right] \end{array} \right]$$

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Sighing I

- ▶ Researchers in physiology describe sighs as important for maintaining respiratory homeostasis and restoring healthy levels of respiratory variability (Li & Yackle, 2017).
- ▶ The psychological literature links these respiratory effects to both aversive (Wuyts, Vlemincx, Bogaerts, Van Diest, & Van den Bergh, 2011) and positive psychological states (Hirose, 2000).
- ▶ Teigen (2008) 3 studies: most subjects regarded sighing primarily in weakly negative emotional terms, with resignation, boredom, and longing being the most associated with the act. The prototypical sigh as carrying two messages: discrepancy (something is wrong) and acceptance (there is nothing to be done) (p. 55).
- ▶ Classic reference: Goffman, 1978: response cries produced as spontaneous eruptions understood as externalizing a presumed inner state.

Sighing II

- ▶ (Hoey, 2014): 54 sighs from the Santa Barbara Corpus of Spoken American English and from the Language Use and Social Interaction archive at the University of California, Santa Barbara.

(1) a. HAT: tsksktsktsktsk, tsksktsktsktsk?
Dog: ((approaches Hat, starts to whine))
Mom: ((turns head toward Son, then returns to home position)) (h:)=(HX::::)
((settles back into chair))
(2.5)
((dog begins licking Hat's face))
O:h that is even worse.
((turns head away and back))
Mom: Do you know that- what that dog was eating right before this?
HAT: Pa:sta=MY pa:sta.

Sighing III

- b. Ironic sighing C: [Well do] you wanna grab me a beer?
P: tsk (h::) ..Guess.
C: Please?
P: (hx::).
C: ... Watch out for the lasagna.

► Basic summary:

1. Speakers were found to use prebeginning sighs for presaging the onset of talk and indicating its possible valence. Speakers used postcompletion sighs for marking turns as being complete and displaying a (typically resigned) stance toward the talk.
2. standalone sighs placed in the course of turn-by-turn talk resemble receipts like okay in their acknowledgment/acceptance of some state of affairs
postcompletion stance markers: (laughter, smiles, facial expressions, and I dunno), while concurrently taking a distinctly negative posture toward the implications of that acceptance.

Sighing IV

3. participants may rely on sighing to transition into, out of, and between sequences in service of managing speakership and participation.
- ▶ From a more theoretical point of view, sighs seem injectable pretty much everywhere in the speech stream.
 - ▶ politicians' sighs as a tool against their opponents.
 - ▶ Resembles and can compose with 'Oh X' (God/Christ/Shit/Hell/No) but lower arousal and negative pleasure seems to relate to sigher; the former also lack the powerlessness.
 - ▶ Can be reciprocated, in which case both participants express dissatisfaction and resignation concerning the sighable.
 - ▶ sighable can be clarified:
 - (2) a. A: hx
B: What's wrong?

Sighing V

- analyze as NegPleasant, with a pleasantness decrement and control:0 presupp.

$$\left[\begin{array}{l} \text{phon : sighphontype} \\ \\ \text{dgb-params : } \left[\begin{array}{l} \text{spkr : Ind} \\ \text{addr : Ind} \\ \text{t : TIME} \\ \text{c1 : addressing(spkr,addr,t)} \\ \text{Mood.power} = \langle \neg \text{power}, 0 \rangle \\ \text{Mood.pleasant} = \langle \neg \text{pleasant}, i \rangle \\ \text{c2 : } i \geq \theta \\ \text{p} = \left[\begin{array}{l} \text{sit} = I \\ \text{sit-type} = L \end{array} \right] : \text{prop} \\ \text{c2 : ActiveSit}(I) \end{array} \right] \\ \\ \text{content} = \left[\begin{array}{l} \text{l-cont} = \left[\begin{array}{l} \text{sit} = s \\ \text{sit-type} = \left[\text{c4: } \neg \text{pleasant}(p, \text{spkr}) \right] : \text{Prop} \\ \text{l-arousal} = \text{lphontype.power} : \text{RealNum} \end{array} \right] : \text{RecType} \end{array} \right] \end{array} \right]$$

Sighing VI

- ▶ given a sigh content, the pleasantness value of the mood value of the dialogue gameboard is decremented in a degree dependent on the arousal, which is low:

$$\left[\begin{array}{l} \text{preconditions:} \\ \text{effect:} \end{array} \left[\begin{array}{l} \text{LatestMove} = \left[\begin{array}{l} \text{l-cont : Assert(spkr, } \neg \text{ Pleasant(p,spkr))} \\ \text{l-arousal} = \delta : \text{lshape.power} \\ \text{c1 : low}(\delta) \end{array} \right] \\ \text{DGB.Mood.pleasant.x} = \\ \text{preconds.DGB.Mood.pleasant.x} - \theta(\text{preconds.l-arousal}) \end{array} \right] : \text{LocP}$$

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Eye Rolling I

- ▶ Paucity of data ...
- ▶ Examples:
 - (3) a. (i) racist ranter in cafe; JG and sitter at bar exchange eye rolls (ii) silly announcement in plane; JG and passenger exchange eye rolls
 - b. In agonistic interaction among girls Goodwin & Alim, 2010
- ▶ Eye roller views person *R*'s behaviour as ridiculous, worsens his mood:

Eye Rolling II

$$\left[\begin{array}{l} \text{shape : eyebrowrisetype} \\ \\ \text{dgb-params : } \left[\begin{array}{l} \text{spkr : Ind} \\ \text{addr : Ind} \\ \text{t : TIME} \\ \text{c1 : addressing(spkr,addr,t)} \\ \text{r : Ind} \\ \text{Mood.responsible = r} \\ \text{Mood.pleasant = } \langle \neg \text{pleasant}, i \rangle \\ \text{c2 : } i \geq \theta \\ \text{p = } \left[\begin{array}{l} \text{sit = I} \\ \text{sit-type = L} \end{array} \right] : \text{prop} \\ \text{c2 : ActiveSit(I)} \\ \text{MaxEud = e : (Rec)RecType} \\ \tau : \text{(Rec)RecType} \end{array} \right] \\ \\ \text{content = } \left[\begin{array}{l} \text{l-cont = } \left[\begin{array}{l} \text{sit = s} \\ \text{sit-type = } \left[\begin{array}{l} \text{c4 : Ridiculous(p,e,\tau,r)} : \text{Prop} \\ \text{l-arousal = lphontype.power : RealNum} \end{array} \right] : \text{RecType} \end{array} \right] \end{array} \right] \end{array} \right]$$

Eye Rolling III

- ▶ low arousal annoyance update.

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Frowning I

- ▶ Kaukomaa, Peräkylä, & Ruusuvuori, 2014 suggest w/r to turn-opening frowns that they are related to the emergence of a problem, relate to negative assessment and lack of affiliation across participants.
- ▶ But this generalization is based on very low sample: 5 examples. Seems potentially much more open:
 - (4) a. A (while frowning): You're suggesting we need to redo the calculations? (What is B suggesting? unclear to A)
 - b. A (while frowning): What's the first name of Gesualdo?
- ▶ Tentative proposal: power non-zero; pleasantness to be decreased due to frownable giving rise to a question (Wiśniewski, 2013), though starting point is underspecified on this score (i.e., could be in a reasonably high level of pleasantness, but encounters a temporary problem.).

Frowning II

shape : frowntype

[
 spkr : Ind
 addr : Ind
 t : TIME
 c1 : addressing(spkr,addr,t)
 r : Ind
 Mood.power = $\langle \neg \text{pleasant}, i \rangle$
 c5 : $i > 0$
 Mood.pleasant = $\langle \neg \text{pleasant}, i \rangle$
 c2 : $i \geq \theta$
 p = $\left[\begin{array}{l} \text{sit} = I \\ \text{sit-type} = L \end{array} \right]$: prop
 c2 : ActiveSit(I)
 q : Question
]

dgb-params :

content = l-cont = $\left[\begin{array}{l} \text{sit} = s \\ \text{sit-type} = [c4: \text{Raises}(p,q)]: \text{Prop} \\ \text{l-arousal} = \text{lphontype.power} : \text{RealNum} \end{array} \right]$: RecType

Frowning III

$$\left[\begin{array}{l} \text{preconditions:} \\ \text{effect:} \end{array} \left[\begin{array}{l} \text{LatestMove} = \left[\begin{array}{l} \text{l-cont} : \text{Assert}(\text{spkr}, \text{Raises}(\text{p}, \text{q})) \\ \text{l-arousal} = \delta : \text{lshape.power} \\ \text{c1} : \text{low}(\delta) \end{array} \right] \\ \text{DGB.Mood.pleasant.x} = \\ \text{preconds.DGB.Mood.pleasant.x} - \theta(\text{preconds.l-arousal}) \end{array} \right] : \text{LocProp} \right]$$

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Grammar and Conversation I

- ▶ What's a grammar for?
- ▶ Ginzburg and Poesio, 'Grammar Is a System That Characterizes Talk in Interaction' 2016 *Frontiers in the language sciences*: in practice contemporary theoretical linguistics is typically not interested or able to provide analyses for the rules governing language as it occurs in actual spoken interaction.
- ▶ Phenomena such as non-sentential utterances, disfluencies, gestures, quotation as rule governed and subject to cross-linguistic variation as passive, control, and binding theory.
- ▶ Formal accounts exist for all the 'conversational' phenomena as rigorous as those for the 'standard grammatical' ones.

Grammar and Conversation II

- ▶ Grammar is a means for directly characterising speech events, abolishing the performance/competence distinction (though recasting this in a way that allows maintaining a distinction between the linguistic phenomena from the specific details of how they get processed.).

Grammar and Conversation III

- ▶ How to argue for grammar inclusion?
 1. ✓ enters into content calculation
 2. ✓ participates in pragmatic processes
 3. form/function cross-linguistic variation/universals
 4. neural, evolutionary considerations

form/function cross-linguistic variation/universals I

- ▶ Provine 1993: laughter always follows the laughable (what is laughed about) and only occurs between spoken utterances ('laughter punctuates speech').
- ▶ Vettin & Todt (2005) offer a more nuanced account, but assume adjacency between laughter and laughable and exclude laughters that occur in the middle of or overlap with an utterance.
- ▶ As discussed in lecture 3, Tian, Mazzocconi & Ginzburg, SigDial 2016 demonstrate (for the DUEL corpus (Hough et al. 2016), for two languages, French and Chinese) that, in fact, only a third of laughters immediately follow their referents. Instead, the laugh can occur before, during or after the laughable with wide time ranges.

form/function cross-linguistic variation/universals II

- ▶ An account of placement and form/function correlations still v open for all NVSS, in particular cross-linguistic variation.

neural, evolutionary considerations |

- ▶ Neuroscience study of laughter very active:
- ▶ locating multiple sites in the brain of activation for laughter and smiling (Szameitat et al. 2010),
- ▶ Different brain activity underlying subjects' ability to distinguish 'genuine' / spontaneous' from 'fake' / 'strategic' laughter (McGettigan et al 2016, *Cereb Cortex* (2015))
- ▶ But for the moment, little work on laughter processing in spontaneous conversation. Ditto for other NVSS.

neural, evolutionary considerations II

- ▶ Evidence for continuity of laughter from apes to humans.
- ▶ Davila Ross et al 2015, PLOS ONE: chimpanzees produce the same 14 configurations of open-mouth faces when laugh sounds are present and when they are absent.
- ▶ Chimp laugh face anticipates illoc. act seriousness cancellation laughter with humans?
- ▶ Darwin thought ape laughter physically based (via tickling).
- ▶ Do apes have incongruity laughter?
<https://www.youtube.com/watch?v=OLrYzY3jVPY>

Many Thanks for attending this course!!!

References I

- Gervais, M. & Wilson, D. S. 2005. The evolution and functions of laughter and humor: a synthetic approach. *The Quarterly Review of Biology*, 80(4), 395–430.
- Goffman, E. 1978. Response cries. *Language*, 787–815.
- Goodwin, M. H. & Alim, H. S. 2010. ‘whatever (neck roll, eye roll, teeth suck)’: the situated coproduction of social categories and identities through stancetaking and transmodal stylization. *Journal of Linguistic Anthropology*, 20(1), 179–194.
- Hoey, E. M. 2014. Sighing in interaction: somatic, semiotic, and social. *Research on Language and Social Interaction*, 47(2), 175–200.
- Kaukomaa, T., Peräkylä, A., & Ruusuvuori, J. 2014. Foreshadowing a problem: turn-opening frowns in conversation. *Journal of Pragmatics*, 71, 132–147.
- Li, P. & Yackle, K. 2017. Sighing. *Current Biology*, 27(3), R88–R89.
- Lockard, J., Fahrenbruch, C., Smith, J., & Morgan, C. 1977. Smiling and laughter: different phyletic origins?. *Bulletin of the Psychonomic Society*, 10(3), 183–186.
- Niedenthal, P. M., Mermillod, M., Maringer, M., & Hess, U. 2010. The simulation of smiles (sims) model: embodied simulation and the meaning of facial expression. *Behavioral and brain sciences*, 33(6), 417–433.
- Wiśniewski, A. 2013. *Questions, Inferences, and Scenarios*. College Publications, London, England.