Facial Displays and their dialogical meanings: Lecture 2

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Recap from Lecture 1 I

- Laughter and non-verbal social signals as pervasive, evolved phenomena.
- Superiority, release, and incongruity as basic notions related to laughter uses.
- Important insights from humor theory ad conversation analysis concerning laughter.
- Extensive evidence that laughter has propositional content (a testable claim!) and participates in semantic/pragmatic processes.
- Began to sketch basic notions from KoS and TTR as a means of developing a formal theory of laughter meaning and use.

Today's lecture I

1. Propositions, Assertion and acceptance/discussion
2. Querying, question deflection, and ignoring
3. Repair: other (with defn of mean predicate) and self (brief example of downdate with S&P reference)
4. Enthymemes and topoi
5. A minimal theory of laughter:
   - Formalizing incongruity
   - Incongruity laughter: a lexical entry
   - antiphonal laughter: sharing incongruous judgement
   - Jefferson's observation.
   - Laughter repair
   - Assertion cancellation, disbelief
   - Query cancellation
   - Scare quotation: truth conditional effects of laughter (different laughables lead to different scare quotations)
   - A simple joke

Outline

Austinian Propositions I

- Propositional-like entities, more intensional than events/situations, are classically posited to explicate illocutionary acts, as well as of attitude reports. In KoS they are used to model grounding/clarification interaction conditions and laughter.
- Building on a conception articulated 30 years earlier by Austin (Austin, 1961), and using it to propose a solution to the Liar Paradox,(Barwise & Etchemendy, 1987) developed a theory of propositions in which a proposition is a structured object $prop(s, \sigma)$, individuated in terms of a situation s and a situation type σ.

(1) a. prop(s, σ) is true iff $s : \sigma$ (s *is of type* σ).
b. prop(s, σ) is false iff $s :\!\not\sigma$ (s *is not of type* σ).

Austinian Propositions II

- A situational witness for the record type could also be deduced to explicate cases of event anaphora, as in(2); indeed, a similar strategy will be invoked for laughter.

  (2) a. A: Jo and Mo got married yesterday. It was a wonderful occasion.
  b. A: Jo's arriving next week. B: No, that's happening in about a month.

- The original Austinian conception was that s is a situation deictically indicated by a speaker making an assertion—teasing the semantic difference between implicit and explicit witnesses is a difficult semantic task.

Austinian Propositions III

- propositions can also play a role in characterizing the communicative process: below we will show that (*locutionary propositions*) individuated in terms of an utterance event u_0 as well as to its grammatical type T_{u_0} allows one to simultaneously define update and clarification potential for utterances.
- In this case, there are potentially many instances of distinct locutionary propositions, which need to be differentiated on the basis of the utterance token—minimally any two utterances classified as being of the same type by the grammar.

Austinian Propositions IV

- TTR offers a straightforward way for us to model propositions using records. A proposition is a record of the form in (3a). The type of propositions is the record type (3b):

(3) a. $\begin{bmatrix} \text{sit} = r_0 \\ \text{sit-type} = p_0 \end{bmatrix}$

b. $\text{Prop} = \begin{bmatrix} \text{sit} : \text{Record} \\ \text{sit-type} : \text{RecType} \end{bmatrix}$

- Truth:

(4) A proposition $\begin{bmatrix} \text{sit} = r_0 \\ \text{sit-type} = p_0 \end{bmatrix}$ is true iff $r_0 : p_0$

Austinian Propositions V

- AmbTemp = $\begin{bmatrix} x : \text{Ind} \\ \text{e-time} : \text{Time} \\ \text{e-loc: Loc} \\ c_{temp-at-in} : \text{temp\_at\_in(e-time,e-location,x)} \end{bmatrix}$
- An instance of such a frame would be a record as in (5a), satisfying the constraints in (5b):

(5) a. $\begin{bmatrix} x & = & \text{-40} \\ \text{e-time} & = & \text{3:45AM, Jan 27, 2015} \\ \text{e-loc} & = & \text{Nome} \\ c_{temp-at-in} & = & o1 \end{bmatrix}$

b. -40 : Ind; 3:45AM, Jan 27, 2015 : Time; Nome : Loc;
o1 : temp_at_in(3:45AM, Jan 27, 2015, Nome, -40)

Simple assertion and querying: ingredients

querying	assertion
LatestMove = Ask(A,q)	LatestMove = Assert(A,p)
A: push q onto QUD; release turn;	A: push p? onto QUD; release turn
B: push q onto QUD; take turn; make q—specific utterance take turn.	B: push p? onto QUD; take turn; Option 1: Discuss p? Option 2: Accept p
	LatestMove = Accept(B,p)
	B: increment FACTS with p; pop p? from QUD;
	A: increment FACTS with p; pop p? from QUD;

Simple assertion and querying: ingredients

- q-specific utterance: an utterance whose content is either a proposition p About max-qud (*partial answer*) or a question q_1 on which max-qud Depends (*sub-question*).

Asking, Asserting, Answering, and Accepting

- QSPEC—KOS's analogue of Gricean Relevance: if q is QUD–maximal, then subsequent to this either conversational participant may make a move constrained to be q–specific (i.e. either About or Influencing q.).

(6) QSPEC

$$\left[\begin{array}{l} \text{pre} : \left[\text{qud} = \left\langle \text{q}, \text{Q} \right\rangle : \text{poset(Question)}\right] \\ \text{effects} : \text{TurnUnderspec} \wedge_{merge} \\ \left[\begin{array}{l} \text{r} : \text{AbSemObj} \\ \text{R: IllocRel} \\ \text{LatestMove} = \text{R(spkr,addr,r)} : \text{IllocProp} \\ \text{c1} : \text{Qspecific(r,q)} \end{array}\right] \end{array}\right]$$

Asking, Asserting, Answering, and Accepting

- This leaves two novel components: QUD incrementation with $p?$ and acceptance.

(7) Assert QUD–incrementation:

$$\left[\begin{array}{ll} \text{preconds} & : \left[\begin{array}{l} \text{p} : \text{Prop} \\ \text{LatestMove} = \text{Assert(spkr,addr,p):IllocProp} \end{array}\right] \\ \text{effects} & : \left[\text{qud} = \left\langle \text{p?,pre.qud} \right\rangle : \text{poset(Question)}\right] \end{array}\right]$$

A simple example

(8) a. A: Hi
B: Hi
A: Who's coming tomorrow?
B: Several colleagues of mine (are coming).
A: I see.
B: Mike (is coming) too.

A simple example

Utt.	DGB Update (Conditions)	Rule
initial	MOVES = $\langle\rangle$	
	QUD = $\langle\rangle$	
	FACTS = cg1	
1	LatestMove := Greet(A,B)	greeting
2	LatestMove := CounterGreet(B,A)	countergreeting
3	LatestMove := Ask(A,B,q0)	Free Speech
	QUD : = $\langle q0\rangle$	Ask QUD–incrementation
4	LatestMove := Assert(B,A,p1)	QSPEC
	(About(p1,q0))	
	QUD : = $\langle p1?, q0\rangle$	Assert QUD–incrementation
5	LatestMove := Accept(A,B,p1)	Accept
	QUD := $\langle q0\rangle$	Fact update/QUD downdate
	FACTS := cg1 $\wedge$ p1	
6	LatestMove := Assert(B,A,p2)	QSPEC
	(About(p2,q0))	
	QUD : = $\langle p2?, q0\rangle$	Assert QUD–incrementation

Assertoric discussion

- Assertion benchmark 2: Accommodate disagreement

(9) A(1): Who will agree to come?
B(2): Helen and Jelle.
A(3): I doubt Helen will want to come after last time.
B(4): I think she's forgiven and forgotten.
A(5): OK.

Assertoric Benchmark 2

Utt.	DGB Update (Conditions)	Rule
initial	MOVES = $\langle\rangle$ QUD = $\langle\rangle$ FACTS = cg1	
1	LatestMove := Ask(A,B,q0) QUD : = $\langle q0\rangle$	Free Speech Ask QUD–incrementation
2	LatestMove := Assert(B,A,p1) (About(p1,q0)) QUD : = $\langle p1?, q0\rangle$	QSPEC Assert QUD–incrementation
3	LatestMove := Assert(A,B,p2) (About(p2,p1?)) QUD := $\langle p2?, p1?, q0\rangle$	QSPEC Assert QUD–incrementation
4	LatestMove := Assert(B,A,p3) (About(p3,p2?)) QUD := $\langle p3?, p2?, p1?, q0?\rangle$	QSPEC Assert QUD–incrementation
5	LatestMove := Accept(A,B,p3) QUD := $\langle p1?, q0\rangle$ FACTS := cg1 $\cup$ {p3}	Accept Fact update/QUD downdate

Querying, question deflection, and ignoring utterances I

- Responding to a query with a query is a common occurrence, representing on a rough estimate more than 20% of all responses to queries found in the British National Corpus.
- A detailed empirical and formal account of the range of such utterances can be found in Paweł Łupkowski and Jonathan Ginzburg 'Query responses' *Journal of Language Modelling*, 2017
- In partcular, we mention two classes identified there, one of which typically leads to *avoiding* the discussion of a query; the other of which leads to *ignoring* an utterance, while responding in a way that relates to the situation discussed.

Querying, question deflection, and ignoring utterances II

- MOTIV:

(10) a. A: What's the matter?
B: Why? [HDM, 470–471]

b. A: Out, how much money have you got in the building society?
B: What's it got to do with you? [KBM, 2086–2087]

c. A: Just what the fucking do you think you're doing?
B: Is that any of your business? [KDA, 1308–1309]

(11) a. I don't know.

b. Do we need to talk about this now?

c. I don't wish to discuss this now.

Querying, question deflection, and ignoring utterances III

- IGNORE:

(12) a. A: Well do you wanna go down and have a look at that now?
<*pause*> While there's workmen there?
B: Why haven't they finished yet? [KCF, 617–619]

b. A: Just one car is it there?
B: Why is there no parking there? <*unclear*> [KP1, 7882–7883]

c. A: I've got Mayfair <*pause*> Piccadilly, Fleet Street and Regent Street, but I never got a set did I?
B: Mum, how much, how much do you want for Fleet Street? [KCH, 1503–1504]

Querying, question deflection, and ignoring utterances IV

- A natural way to analyze utterances relating to `MOTIV` is along the lines of a rule akin to QSPEC given in above: *q* being MaxQUD gives (the responder) B the right to follow up with an utterance specific to the issue we could paraphrase informally as *?WishDiscuss(B,q)*

(13) MetaDiscussing q1

$$\left[\begin{array}{l} \text{pre} : \left[\text{QUD} = \left\langle \text{q1},\ \text{Q} \right\rangle : \text{poset(Question)}\right] \\ \text{effects} : \left[\begin{array}{l} \text{spkr} = \text{pre.addr} : \text{Ind} \\ \text{addr} = \text{pre.spkr} : \text{Ind} \\ \text{r} : \text{Question} \vee \text{Prop} \\ \text{R: IllocRel} \\ \text{Moves} = \left\langle \text{R(spkr,addr,r)} \right\rangle \bigoplus \text{pre.Moves} : \text{list(LocProp)} \\ \text{c1} : \text{Qspecific(R(spkr,addr,r),?WishDiscuss(spkr,pre.MaxQUD))} \\ \text{QUD} = \left\langle \begin{array}{l} \text{Max} = \left\{ \text{?WishDiscuss(spkr,q1)}, \text{q1} \right\}, \\ \text{Q} \end{array} \right\rangle : \text{poset(Question)} \end{array}\right] \end{array}\right]$$

Querying, question deflection, and ignoring utterances V

(14) A(1): Who are you meeting next week?
B(2): No comment.
A(3): I see.
A/B(4): What are you doing tomorrow?

Utt.	DGB Update (Conditions)	Rule
initial	MOVES = $\langle\rangle$	
	QUD = $\langle\rangle$	
	FACTS = cg1	
1	LatestMove := Ask(A,B,q1)	
	QUD : = $\langle q1\rangle$	Ask QUD-incrementation
2	LatestMove := $\langle$ Assert(B,A,p1) $\rangle$	Discussing u?
	QUD := $\langle$ p1? $\succ$?WishDiscuss(q1), q1$\rangle$	Assertion QUD-incrementation
3	LatestMove := $\langle$ Assert(B,A,p1) $\rangle$	Accept
	QUD := $\langle\rangle$	Fact update/QUD downdate
	FACTS := cg1 $\cup$ {p1}	

Querying, question deflection, and ignoring utterances VI

- clarification requests (about which shortly) and `IGNORE` both require making reference to distinct DGBs for the two participants, make use of an additional buffer for ungrounded utterances, PENDING, and involve coherence relations defined at the level of utterances, not merely $q1$ and $q2$.
- `CR`s arise due to a mismatch that occurs between what the speaker assumes her/his interlocutor's linguistic/contextual knowledge is and what it actually is;
- consequently, in the immediate aftermath of such an utterance – before the mismatch becomes manifest, the speaker updates her/his IS with the query s/he posed and the addressee updates hers/his with the clarification question s/he calculated.
- Similarly, in the case of `IGNORE`s the initial speaker updates their information state with the query s/he posed and, ignoring this, the addressee updates hers/his with the situationally relevant question s/he has decided to pose.

Querying, question deflection, and ignoring utterances VII

- The conversational rule we propose allows the potential for $q2$ *and* captures the implicature concerning $q1$ being ignored. The formulation of such a rule presupposes a notion of *relevance* between the content of an utterance ($q2$) and the current context.
- We assume here a notion of relevance defined in (Ginzburg, 2012) which incorporates answerhood, metacommunications, metadiscursiveness, and genre–specificity.
- Define *irrelevance* as *failure of relevance*: for an utterance u being IrRelevant to an information state I amounts to: there is *no way* to successfully update I with u.

Querying, question deflection, and ignoring utterances VIII

- This involves positing a conversational rule along the lines of (15) – given that (the content of) MaxPENDING – the most recent utterance, as yet ungrounded, hence maximal in PENDING – is *irrelevant* to the DGB but situationally relevant to $q2$, one can make MaxPENDING into LatestMove while updating Facts with the fact that the speaker of MaxPENDING does not wish to discuss MaxQUD:

Querying, question deflection, and ignoring utterances IX

(15) Ignoring questions

$$\left[\begin{array}{ll} \text{pre}: & \left[\begin{array}{l} \text{a}: \text{IND} \\ \text{s1}: \text{SIT} \\ \text{q1} = (\text{G})\left[\begin{array}{l}\text{sit} = \text{s1} \\ \text{sit-type} = \text{T}\end{array}\right]: \text{Question} \\ \text{q2} = (\text{G1})\left[\begin{array}{l}\text{sit} = \text{s} \\ \text{sit-type} = \left[\text{c}: \text{p2(a)}\right]\end{array}\right]: \text{Question} \\ \text{In(s1,a)} \\ \text{dgb} = \left[\begin{array}{l}\text{MaxQUD} = \text{q1}: \text{Question} \\ \text{MaxPENDING}^{content} = \text{q2}: \text{Question}\end{array}\right]: \text{DGBType} \\ \text{c: IrRelevant(MaxPENDING}^{content}\text{,dgb)} \end{array}\right] \\ \text{effects}: & \left[\begin{array}{l}\text{LatestMove} = \text{pre.MaxPENDING}: \text{LocProp} \\ \text{Facts} = \text{pre.Facts} \cup \\ \left\{\neg\ \text{WishDiscuss(pre.spkr,pre.MaxQUD)}\right\}.\end{array}\right] \end{array}\right]$$

- Note that this does not make the *unwillingness to discuss* the *content* of the offending utterance; it is merely an inference. Still this inference will allow MaxQUD to be downdated, via fact update/question downdate, as was discussed with respect to `MOTIV` moves.

Querying, question deflection, and ignoring utterances X

(16) **A:** Is there just one car there?
B: Why is there no parking there?

(17)

Utt.	DGB Update (Conditions)	Rule
initial	MOVES = $\langle\rangle$	
	QUD = $\langle\rangle$	
	FACTS = cg1	
1	LatestMove := Ask(A,B,q1)	
	QUD : = $\langle q1\rangle$	Ask QUD-incrementation
2	LatestMove := $\langle$ Ask(B,A,q2) $\rangle$	
	FACTS := FACTS $\cup$ $\neg$ WishDiscuss(B,q1)	Ignoring questions
	QUD := $\langle$ $\rangle$	FACTS update/QUD downda
	QUD := $\langle$ q2 $\rangle$	Ask QUD-incrementation

- To the extent B wishes to ignore A's utterance, we do not need any additional machinery, save for a general principle needed in any case for a variety of other not necessarily linguistic events (e.g., in case one of the participants A burps, spits, or farts) – pretense that an event was not perceived.

Querying, question deflection, and ignoring utterances XI

- Assuming this, a possible evolution of B's DGB is as in (18): B pretends that A's utterance $u1$ did not take place, s/he utters $q2$, which relates to the situation A and B are jointly perceiving; $q2$ becomes MaxQUD:

(18)

Utt.	DGB Update (Conditions)	Rule
initial	MOVES = ⟨⟩ QUD = ⟨⟩ FACTS = cg1	
1	LatestMove := ⟨ Ask(B,A,q2) ⟩ QUD := ⟨ q2 ⟩	 Ask QUD-incrementation

GRCR conditions

- The ability to characterize for any utterance type the update that emerges in the aftermath of successful mutual understanding (*grounding*), and the full range of possible clarification requests (Clarification interaction = CRification) otherwise.

What entity delivers GRCR conditions?

- Meaning?
- Con 1: coarse grained

(19) a. Ariadne: Jo is a lawyer. Barabas: A lawyer?/What do you mean a lawyer?/#What do you mean an advocate?/#What do you mean an attorney?

b. Ariadne: Jo is an advocate. Barabas: #What do you mean a lawyer?/An advocate?/What do you mean an advocate?/#What do you mean an attorney?

Con 2: need syn/phon data to ensure potential for syntactic and phonological parallelism (e.g. for CE):

(20) a. A: I phoned him. B: him? / #he?
b. A: Did he phone you? B: he? / #him?
c. A: Did he adore the book. B: adore? / #adored?
d. A: Were you cycling yesterday? B: Cycling?/biking?/#biked?

(21) (i) A: Did Bo leave? B: Max? (cannot mean: int-cont reading: **who are you referring to?**)

What entity delivers GRCR conditions?

- The locutionary proposition defined by u, T_u is a grammatical type that classifies u is the proposition $\begin{bmatrix} \text{sit} = \text{u} \\ \text{sit-type} = \text{T}_u \end{bmatrix}$. This will deliver GRCR conditions.
- Why the grammatical type:
  - Finer grain than content, meaning
  - syn/phon parallelism with source utterance
- Why the utterance token:
  - Need instantiated content, not merely meaning
  - Reference to sub-utterances tokens figure in CRs ('Bo?' = Who referring to in that utterance of 'Bo'.)

A locutionary proposition

(22)

$$\left[\begin{array}{l}
\text{sit} = \left[\begin{array}{l}
\text{phon} = \texttt{dijoliv} \\
\text{cat} = \text{V[+fin,+root]} \\
\text{constits} = \{\text{di,jow,liv}\} \\
\text{dgb-params} = \left[\begin{array}{l}\text{s0} = \text{sit0} \\ \text{t0} = \text{time0} \\ \text{j} = \text{j0} \\ \text{c3} = \text{c30}\end{array}\right] \\
\text{cont} = ([])\left[\begin{array}{l}\text{sit} = \text{s0} \\ \text{sit-type} = \text{Leave(j,t0)}\end{array}\right]
\end{array}\right] \\
\text{sit-type} = \left[\begin{array}{l}
\text{phon} : \texttt{did jo leave} \\
\text{cat} = \text{V[+fin,+root]} : \text{syncat} \\
\text{constits} = \{\text{did, jo, leave}\} : \text{set(sign)} \\
\text{dgb-params} : \left[\begin{array}{l}\text{s0: SIT} \\ \text{t0: TIME} \\ \text{j: IND} \\ \text{c3: Named(j,jo)}\end{array}\right] \\
\text{cont} = ([])\left[\begin{array}{l}\text{sit} = \text{s0} \\ \text{sit-type} = \text{Leave(j,t0)}\end{array}\right] : \text{Questn}
\end{array}\right]
\end{array}\right]$$

Incorporating metacommunicative interaction

- Add resource: Pending—incompletely processed utterances.
- In light of need for fine grainedness and non-semantic parallelism:
  Change type of resource Moves, Pending keep track of $\langle$ utt. token, utt. type $\rangle$ pair (*locutionary propositions*)
- New defn of DGBType:

$$\begin{bmatrix} \text{spkr: Ind} \\ \text{addr: Ind} \\ \text{utt-time c-utt : addressing(spkr,addr,utt-time)} \\ \text{Facts : Set(Prop)} \\ \textbf{Pending : list(LocProp)} \\ \text{Moves : list(LocProp)} \\ \text{QUD : poset(Question)} \end{bmatrix}$$

Incorporating metacommunicative interaction

- Grounding: utterance type fully classifies utterance token
- Clarification interacation: trigger: utterance type calculated is weak (e.g. incomplete word recognition); need further information to spell out token (e.g. incomplete contextual resolution).
  1. u remains for future processing in PENDING;
  2. a clarification question calculated from u, CQ(u) updates QUD (CQ(u) becomes discourse topic).
- If this interaction is successful, this leads to a new, more detailed (or corrected) representation of either u or T_u.

CRification

- Parameter identification: Input:
  $$\begin{bmatrix} \text{Spkr} : \text{Ind} \\ \text{MaxPending} : \text{LocProp} \\ \text{u0} \in \text{MaxPending.sit.constits} \end{bmatrix}$$
  Output:
  $$\begin{bmatrix} \text{MaxQUD} = \text{What did spkr mean by u0?} : \text{Question} \\ \text{LatestMove} : \text{LocProp} \\ \text{c1: CoProp(LatestMove.cont,MaxQUD)} \end{bmatrix}$$
- Here the predicate Mean tracks the intended value of parameters that need to be instantiated in context.

CRs I

- Leads to DGB mismatch, manifested by the Turn Taking Puzzle (Ginzburg 1997)

(23) a. A: Who does Bo admire? B: Bo?
Reading 1 (**short answer**): Does Bo admire Bo?
Reading 2 (**clausal confirmation**): Are you asking who BO (of all people) admires?;
Reading 2 (**intended content**): Who do you mean 'Bo'?

b. A: Who does Bo admire? Bo?
Reading 1 (**short answer**): Does Bo admire Bo?
Reading 2 (**self correction** Did I say 'Bo'?)

- A and B find themselves in different DGBs after B's clarification request.
- A has to realign her DGB to make B's clarification question her MaxQUD

CRs II

Speech event: $u0$

$\mathrm{u1}_{di}$ $\mathrm{u2}_{bo_w}$ $\mathrm{u3}_{li:ve}$

$$\mathrm{T}_{u0} = \begin{bmatrix} \text{phon} : \textit{did bo leave} \\ \text{cat} : \text{S[+root]} \\ \text{constits} : \begin{bmatrix} \text{u1} : \text{aux} \\ \text{u2} : \text{NP} \\ \text{u3} : \text{VP} \end{bmatrix} \\ \text{dgb-params} : \begin{bmatrix} \text{spkr} : \text{Ind} \\ \text{b} : \text{Ind} \end{bmatrix} \\ \text{cont} = \text{Ask(spkr,?Leave(b))} : \text{IllocProp} \end{bmatrix}$$

Speaker's witnesses for dgb-params:

$$w_A = \begin{bmatrix} \text{spkr} = \text{A} \\ \text{b} = \text{b0} \end{bmatrix}$$

Speaker's DGB update:

$$\text{LatestMove} = \begin{bmatrix} \text{sit} = \text{u0} \sqcup \text{w}_A \\ \text{sit-type} = \text{T}_{u0} \end{bmatrix}$$

$\text{MaxQUD} = \text{?Leave(b0)}$

Addressee's witnesses for dgb-params:

$$w_B = \begin{bmatrix} \text{spkr} = \text{A} \end{bmatrix}$$

Addressee's DGB update:

$$\text{MaxPending} = \begin{bmatrix} \text{sit} = \text{u0} \sqcup \text{w}_B \\ \text{sit-type} = \text{T}_{u0} \end{bmatrix}$$

$\text{MaxQUD} = \lambda x.\text{Mean(A,u2,}x\text{)}$

Self Communication Management I

- Extended to self-repair (Ginzburg, Fernández and Schlangen Amst Colloq 2011, 2014 'Disfluencies as intra-utterance moves' *Semantics and Pragmatics*, 7(9)1–64).
- As the utterance unfolds incrementally there potentially arise questions about what has happened so far (e.g. *what did the speaker mean with sub-utterance u1*?) or what is still to come (e.g. *what word does the speaker mean to utter after sub-utterance u2*?).
- These can be accommodated into the context if either uncertainty about the correctness of a sub-utterance arises or the speaker has planning or realizational problems.
- Overt examples for such accommodation provided by self-addressed questions (*She saw the . . . what's the word?*, *Je suis comment dire?*)

Self Communication Management II

- Thus, the monitoring and update/clarification cycle is modified to happen **at the end of each word utterance event**, and in case of the need for repair, a repair question gets accommodated into QUD.
- A utters *Is Georges here?*. *Parameter identification* licences the accommodation of *What did A mean by uttering Georges?* as MaxQUD, which in turn licences *I meant Jacques* as an utterance co-propositional with MaxQUD. Subsequent to this *Pending Replacement* (a downdate operation on Pending) applies:

  (24) A: Is [$_{u_{georges}}$ Georges] here? I meant Jacques.

- In more detail: after the utterance of *Is Georges here*, A's FACTS will include the presuppositions that the most recent speech event is u0 (*Is Georges here*), which includes as sub-utterance $u_{georges}$, and that u0 is classified by the type IGH; the DGB is essentially the following:

Self Communication Management III

(25)
$$\text{A.dgb1} = \begin{bmatrix} \text{spkr} = \text{A} \\ \text{addr} = \text{B} \\ \text{Pending} = \text{p0} = \left\langle \begin{bmatrix} \text{sit} = \text{u0} \\ \text{sit-type} = \text{IGH} \end{bmatrix} \right\rangle \\ \text{QUD} = \langle\rangle \\ \text{FACTS} = \left\{ \begin{array}{l} \text{In(I,}\{\text{A,B}\}\text{), Named(}\textit{Georges}\text{,g),} \\ \text{MostRecentSpeechEvent(u0),} \\ \text{Classify(IGH,u0) } \ldots \end{array} \right\} \\ \text{Moves} = \langle\rangle \end{bmatrix}$$

- This allows for *parameter identification* to be used—the issue *What did A mean by* $u_{georges}$ becomes MaxQUD with *Georges* as fec.
- This licences as LatestMove *I meant Jacques*, which in turn leads to an update of QUD:

Self Communication Management IV

(26) A.dgb2 =

$$\left[\begin{array}{l}
\text{spkr} = \text{A} \\
\text{addr} = \text{B} \\
\text{Pending} = \left\langle \left[\begin{array}{l} \text{sit} = \text{u0} \\ \text{sit-type} = \text{IGH} \end{array}\right] \right\rangle \\
\text{QUD} = \left\langle \begin{array}{l} \left[\text{q= ?Mean(A,u}_{georges}\text{,jacques), fec=}\{\}\right], \\ \left[\text{q= } \lambda x\text{Mean(A,u0,x),fec =}\textit{Georges}\right] \end{array} \right\rangle \\
\text{FACTS} = \left\{\begin{array}{l} \text{Named(}\textit{Georges}\text{,georges), Named(}\textit{Jacques}\text{,jacques),} \\ \text{2ndMostRecentSpeechEvent(u0),} \\ \text{Classify(IGH,u0),} \\ \text{MostRecentSpeechEvent(u1),} \\ \text{Classify(}\textit{I meant Jacques}\text{,u1) } \ldots \end{array}\right\} \\
\text{Moves} = \left\langle \text{Assert(A,Mean(A,u}_{georges}\text{,jacques))} \right\rangle
\end{array}\right]$$

Self Communication Management V

- Accepting this gives rise to an application of *Pending replacement*, which modifies the original locutionary proposition: u0 is modified to a record v0 with the referent *jacques* replacing *georges* and the utterance type is now IJH (*Is Jacques here?*) whose *phon* includes the form `jacques`; the maximal element of Pending, MaxPending, is modified accordingly:

Self Communication Management VI

(27)
$$\text{A.dgb3} = \begin{bmatrix} \text{spkr} = \text{A} \\ \text{addr} = \text{B} \\ \text{Pending} = \left\langle \begin{bmatrix} \text{sit} = \text{vo} \\ \text{sit-type} = \text{IJH} \end{bmatrix} \right\rangle \\ \text{QUD} = \langle\rangle \\ \text{FACTS} = \left\{ \begin{array}{l} \text{2ndMostRecentSpeechEvent(u0)}, \\ \text{Classify(IGH,u0)}, \\ \text{MostRecentSpeechEvent(u1)}, \\ \text{Classify(}\textit{I meant Jacques}\text{,u1), Named(}\textit{Jacques}\text{,jacques)}, \end{array} \right\} \\ \text{Moves} = \left\langle \text{Assert(A, Mean(A, u0, jacques))} \right\rangle \end{bmatrix}$$

- the utterance u0 is still a component of facts in FACTS, and hence also its sub-utterance $u_{georges}$. Neither utterance is a component of Pending, whose content will be subject to uptake in the next utterance.
- Given that they are in FACTS, referential possibilities to those two utterances (*Is Georges here* and *Georges*)—and to the referent of *Georges*—are not eliminated.

Enthymematic reasoning I

- To explicate incongruity, we use a recent extension of KoS.
- Breitholtz, 2014b, 2014a proposes that the dialogue gameboard also tracks **topoi** and **enthymemes** that conversational participants exploit during an interaction (e.g., in reasoning about rhetorical relations.).
- Enthymemes are defeasible arguments accounted for in rhetorical theory, but also found in conversational data (Jackson & Jacobs, 1980).
- Topoi represent general inferential patterns which may be used to underpin the enthymemes (e.g., *given two routes choose the shortest one*).

Enthymematic reasoning II

- Following Breitholtz, 2014a, we formalise topoi and enthymemes as *dependent types*, more specifically functions from records to record types.
- The actual arguments conveyed in dialogue or other discourse which are drawing on topoi are referred to as *enthymemes*.
- They are applications of topoi in particular cases, e.g., *given that the route via Walnut street is shorter than the route via Alma, choose Walnut street*.
- An enthymeme $E = \lambda e : D1.R1(e)$ belongs to a topos $\tau = \lambda e : D.R(e)$ if:
  - $D1 \sqsubseteq D$, and
  - for any, $e : D1$, $E(e) \sqsubseteq \tau(e)$.

Enthymematic reasoning III

(28) a. λr: $\begin{bmatrix} \text{x}:\textit{Ind} \\ \text{y}:\textit{Ind} \\ \text{c}_{\text{route}}:\text{route(x)} \\ \text{c}_{\text{route}_1}:\text{route(y)} \\ \text{c}_{\text{shorter\_than}}:\text{shorter\_than(x, y)} \end{bmatrix}$.

$\left[\text{c}_{\text{choose}}:\text{choose}(r.\text{x})\right]$

b. λr: $\begin{bmatrix} \text{x=Walnut Street}:\textit{Ind} \\ \text{y=Alma}:\textit{Ind} \\ \text{c}_{\text{route}}:\text{route(x)} \\ \text{c}_{\text{route}_1}:\text{route(y)} \\ \text{c}_{\text{shorter\_than}}:\text{shorter\_than(x, y)} \end{bmatrix}$.

$\left[\text{c}_{\text{choose}}:\text{choose}(r.\text{x})\right]$

Interfacing with the Grammar I

- For this purpose we use HPSG$_{TTR}$ (Ginzburg, 2012), a variant of the grammatical formalism Head–driven Phrase Structure Grammar (Ginzburg & Sag, 2000; Sag, Wasow, & Bender, 2003).
- Utterance types can be modelled as record types, whereas actual utterance tokens—speech events—can be modelled as records.
- An example: 'yes'.
- Polar questions are 0-ary propositional abstracts. Applying such an abstract $(\boxed{\ }).p$ to any record r, in particular the empty record $\boxed{\ }$ yields as result p.

Interfacing with the Grammar II

- As we above, a polar question p? becomes QUD maximal as a consequence of either a query *p*? or an assertion *p*.

(29)
$$\begin{bmatrix} \text{phon} : \texttt{yes} \\ \text{cat} = \textit{adv[+ic]} : \text{syncat} \\ \text{dgb-params.max-qud} : \text{PolQuestion} \\ \text{cont} = \text{max-qud}(\boxed{\ }) : \text{Prop} \end{bmatrix}$$

Outline

Formalizing Incongruity I

- We explicate *incongruity* in terms of a clash between the enthymeme triggered by the laughable and a topos which the enthymeme is supposed to instantiate.
- So, the laughable l satisfies the domain type of the enthymeme, but there is a clash between the range of the enthymeme and that of the topos that the enthymeme is supposed to instantiate.
- In (30), p is a proposition comprised of l, the laughable event, and L a type that classifies l, E is the triggered enthymeme, and τ is the clashing topos—E's domain is a subtype of τ, but its range (P(unch)L(ine)) is incompatible with τ's range:

(30) Incongruous (p, E, τ) iff

$$p = \begin{bmatrix} \text{sit} = \text{l} \\ \text{sit-type} = \text{L} \end{bmatrix} : \mathit{TrueProp},\ \tau = \lambda r : T_1 \ .\ T_2 :$$

$$(\mathit{Rec} \rightarrow \mathit{RecType}),\ E = \lambda r : L \ .\ PL : (\mathit{Rec} \rightarrow \mathit{RecType})$$

$$L \sqsubseteq T_1 \text{ and } PL \perp T_2$$

Formalizing Incongruity II

- Difference from SSTH style incongruity: tied to context via the enthymeme.

Incongruity laughter I

- We offer a lexical entry for incongruity laughter:

(31)
$$\begin{bmatrix}
\text{phon} : \texttt{lphontype} \\
\text{dgb-params} : \begin{bmatrix}
\text{spkr} : \text{Ind} \\
\text{addr} : \text{Ind} \\
\text{t} : \text{TIME} \\
\text{c1} : \text{addressing(spkr,addr,t)} \\
\text{p} = \begin{bmatrix} \text{sit} = \text{I} \\ \text{sit-type} = \text{L} \end{bmatrix} : \text{Prop} \\
\text{MaxEud} = \text{e} = \lambda r.L(PL) : \text{(Rec)RecType} \\
\tau = \lambda r : (T1)T2 : \text{(Rec)RecType} \\
\text{c2: SubType(L, T1)}
\end{bmatrix} \\
\text{content} = \begin{bmatrix} \text{sit} = \text{s} \\ \text{sit-type} = \begin{bmatrix} \text{c3} : \text{Incongr(p,e,}\tau\text{)} \end{bmatrix} : \text{Prop} \end{bmatrix}
\end{bmatrix}$$

Incongruity laughter II

- The laugh marks a proposition whose situational component *I* is *active* as *incongruous*, relative to the currently maximal enthymeme under discussion.
- form underspecified , appealing to a type `laughterphontype` compatible with the apparent large range of possible realizations.
- missing an illocutionary force, which will give it something like a taste predicate force (its incongruity causes me pleasure).

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