Interaction and Communication
Area 4

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ILIKS

Plan of the session

• Overview of the work done
• Sample joint work:

Signed Languages, Verbal languages, Coverbal Gestures: Analysis and Representation

Carola Catenacci (ISTC-LOA) and Elena Pizzuto (ISTC-SLL), with the contribution of Patrice Dalle (IRIT-TIC) & Brigitte Garcia (UMR 7023, Université Paris 8 & CNRS)

• Discussion
The work covered

• Ontology of interaction and communication
  – Ingredients and their interplay
• Formal models of interaction and communication
  – Language-oriented: semantics and pragmatics
  – Agent-oriented: actions and mental attitudes
  – Social-oriented: conventions and commitments
  – …mixed approaches
ILIKS Interdisciplinarity

- Linguistics
- Philosophy (of language, ontology)
- Psycholinguistics
- Computational linguistics
- Knowledge representation
- Computational vision
Towards an ontology of interaction

• MOSTRO report

  – State of the art, comparison of approaches
    • Communicative acts
    • Intentional approaches
    • Social approaches
    • Semantico-pragmatic approaches
  – Distinction of communication and interaction
    • Communication without interaction (monologue)
    • Interaction without communication (purely physical)
    • Dialogue: communicative interaction, intended and cooperative.
Linguistic structure of communication

• Discourse theory and discourse semantics
  – Discourse structure, Segmented Discourse Representation Theory (IRIT-LILaC)
    • Right-frontier and other global constraints (IRIT-LILaC & ISTC-LOA)
    • Discourse relations: Background (IRIT-LILaC & ISTC-LOA)
    • Complex speech acts (biased questions), embedded speech acts (IRIT-LILaC)
      • Names as “pops” signals
  – Anaphora resolution (IRIT-LILaC; UNITN-DIT&CIMEC)
  – Semantics of modals and counterfactuals (IRIT-LILaC)
  – Presupposition in indexicals (IRIT-LILaC)
Linguistic structure of communication

• Dialogue theories: two main accounts, both based on DRT, segmented into basic units, incremental processing
  – SDRT, Focus on dialogue structure: dialogue acts seen as discourse relations (IRIT-LILaC)
  • Cues for identification of dialogue relations: lexicon, syntax & semantics
  • Grounding: analysis of acknowledgement
  – PTT, Focus on dialogue management (UNITN-DIT&CIMEC)
  • Negotiation for the common ground & grounding
  • Multiple levels of dialogue acts
  • “micro-conversational events”
  • Non-anaphoric reference
Linguistic structure of communication

• Topics in discourse and dialogue
  – Sentence locating adverbs as markers of topic shifts in discourse (IRIT-LILaC)
  – Intonation rises as markers of topic shifts in dialogue (IRIT-LILaC & ISTC-LOA)
  – Topic segmentation in dialogues, a starting work (UNITN-DIT, with UNIBZ)
Linguistic structure of communication

- Annotating discourse and dialogue (UNITN-DIT; IRIT-LILaC)
  - Rhetorical relations / dialogue acts
  - Coreference (anaphoric and deictic links)
  - Ambiguity, misunderstandings
  - Intonation
  - Semantic roles
  - ...
- Discourse parser (IRIT-LILaC, with Univ. of Texas)
Agents’ attitudes in dialogue

• Dynamic logics and epistemic logics
  – Speech acts and epistemic logic (IRIT-LILaC)
    • Application to indirect speech acts
    • Application to dialogue analysis
  – Public and private announcements (visit of Hans van Ditmarsch to IRIT-LILaC - PhD in co-tutorship)

→ Johan van Benthem’s invited talk

• SDRT and PTT
  – although primary role given to utterances, beliefs and intentions are needed for dialogue (rationality and cooperativity principles)
Communicative interaction as a social process

- Logic of grounding (IRIT-LILaC)
  - Semantics of speech acts in terms of group-beliefs (common ground)
  - Application to FIPA ACL semantics
- Commitments and grounding (IRIT-LILaC & ISTC-LOA, with Univ. Paris-Dauphine)
  - Social constraints on dialogue structure, public commitments
- Cooperation in dialogue
  - PTT: Obligations and we-intentions in dialogue; Completion and continuation: coordination in sentence production, (UNITN-DIT&CIMEC)
  - SDRT: Common Ground, Corrections and Coordination (IRIT-LILaC)
The visual dimension of communication

- Signed languages and coverbal gestures (ISTC-LOA, ISTC-SSL, IRIT-TCI)
  → Carola Catenacci’s talk

- Dialogues with avatars, starting collaboration work (UNITN-DIT&CIMEC, ISTC-Padova)
• Grounding
  - Where linguistic, epistemic and social approaches meet
  - …. and gestual modality?

• How much does taking gestual/visual modality into account impact our current theories of discourse semantics?

• Is there a shift from beliefs to emotions as the central agent attitude in communication?