Computational Semantics and Pragmatics

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Overview

So far:

- important role *intention recognition* in conversation
- *dialogue acts* aim to capture intentions
- discussion of recent paper on automatic DA classification

Next:

- meaning coordination – *joint action* and *grounding*

Joint action

When two or more agents coordinate their actions (in space and time) to produce a joint outcome, they perform a *joint action*.

Arguably, conversation is a type of joint action (not only intention recognition).

The Joint Action model

Also called collaborative model or grounding model.

- Clark & Schaefer (1989) put forward a model of dialogue interaction that sees conversation as a *joint process*, requiring actions by speakers and addressees.

- Conversation is a continuos process of establishing common ground between speaker and addressee $\Rightarrow$ *grounding*
  - ▸ *communal* common ground
  - ▸ *personal* common ground

Clark & Schaefer (1989) Contributing to discourse. *Cognitive Science*, 13:259–294.

Clark (1996) *Using Language*. Cambridge University Press.

Levels of communication

Speakers and addressees have *mutual responsibility* in managing the grounding process and making communication successful.

Ladder of actions at different levels of communication performed by speakers and addressee with each utterance (Clark / Allwood)

Level	Actions
1 contact:	A and B pay attention to each other
2 perception:	A produces a signal and B perceives it
3 understanding:	A conveys a message and B understands it
4 uptake:	A proposes a 'project' and B takes it up

In contrast to Austin's distinction between locutionary, illocutionary, and perlocutionary acts, the emphasis here is in the joint character of the actions performed with/by utterances

⇒ effective utterances in dialogue are *joint actions*.

Grounding criterion

Level	Actions
1 contact:	A and B pay attention to each other
2 perception:	A produces a signal and B perceives it
3 understanding:	A conveys a message and B understands it
4 uptake:	A proposes a 'project' and B takes it up

Lack of understanding may occur at any level of action

- we may not realised we are being addressed
- we may not hear our interlocutor properly
- we may not know the meaning of a word the speaker uses
- we may fail to recognise the relevance of what is said

To achieve grounding, dialogue participants must understand each other at all levels of communication up to the *grounding criterion*:
⇒ *the appropriate degree of understanding given the communicative situation at hand (sufficient for current purposes).*

Refining the uptake level

Julian J. Schlöder and Raquel Fernández. Clarifying Intentions in Dialogue: A Corpus Study. IWCS 2015.

(1) A: I think that's all.
    B: Meeting's over?

(2) A: Just uh do that quickly.
    B: How do you do it?

(3) A: I'd say two.
    B: Why?

	Level	Joint Action	Example Clarification
1	contact	A and B pay attention to each other	*Are you talking to me?*
2	perception	A produces a signal and B perceives it	*What did you say?*
3	understanding	A conveys a meaning and B understands it	*What did you mean?*
4.1	intention recognition	A intends a project and B recognises it	*What do you want?*
4.2	intention adoption	A proposes a project and B takes it up	*Why should we do this?*

Evidence of understanding

How does it become established whether the grounding criterion has been reached?

- Addressees give constant feedback to the speaker regarding their level of understanding.
  - *negative feedback*: clarification requests
  - *positive feedback*: implicit or explicit acknowledgements

- Mechanisms to provide positive evidence of understanding:
  - acknowledgement / backchannel
  - repetition
  - demonstration (paraphrase, reformulation, completion)
  - relevant next contribution

- This need for evidence of understanding structures the dialogue into *contributions*:
  - each contribution to dialogue is made up of a *presentation* phase and an *acceptance* phase.

References

It is difficult to refer to concrete papers that would give you an overview of Clark's theory. The most comprehensive reference is his book *Using Language* from 2006.

For a shorter overview, the following Wikipedia entry is not bad:

- Grounding in communication