Utility and Relevance
The point of talking
Where relevance and utility need to be kept apart
Conclusion

Relevance and Utility in an Argumentative Framework.

An Application to the Accommodation of Discourse Topics.

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General Outline of the Talk

- Investigate the link between notions of relevance in Argumentation Theory and expected utility in a game-theoretical framework of pragmatics
- Can the first be reduced to the latter?
- Example: Accommodation of Discourse Topics
⇒ Relevance belongs to grammar, and not to pragmatics
⇒ The notions need to be kept apart

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Relevance in Argumentation Theory

Cf. Ducrot (1980), Merin (1999).

2 Basic Hypotheses of Argumentation Theory

- Speakers always speak to a point
- Argumentative properties are hardcoded in the grammar of natural languages

- relevance of an utterance is defined w.r.t to an argumentative goal.
- But what is an argumentative goal?
  - proposition?
  - disposition to act?
- Why should we care about the nature of an argumentative goal?

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The theoretical stake

If argumentative goals are dispositions to act

- relevance is reducible to expected utilities of discourse participants
- relevance pertains to the use of language in the broad sense, and not to the grammatical system of the langue

If argumentative goals are propositions

- Items in the grammar might be sensitive to argumentative properties and manipulate relevance relations between propositions
- relevance can be based (at least partly) in the langue

We believe that . . .

- argumentation and relevance have proper linguistic characterisations
- it would be difficult (impossible?) to implement a linguistic characterisation between propositions and dispositions to act.

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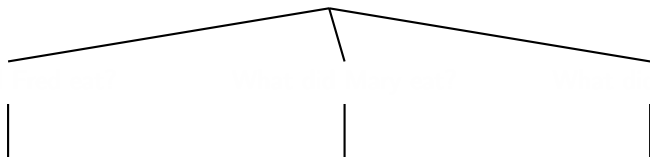Utility and Relevance
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Discourse topics

Discourse topics (according to Büring)

- Discourse is represented as tree (D-Tree)
  - nodes are moves representing declarative or interrogative sentences
- Questions in a D-Tree may be implicit and may be accommodated
- Contrastive Topic and Informational Focus indicate exact strategy used by a speaker (which allows to constrain the set of possible D-topics).

(1)   FRED$_{CT}$ ate the BEANS$_F$.

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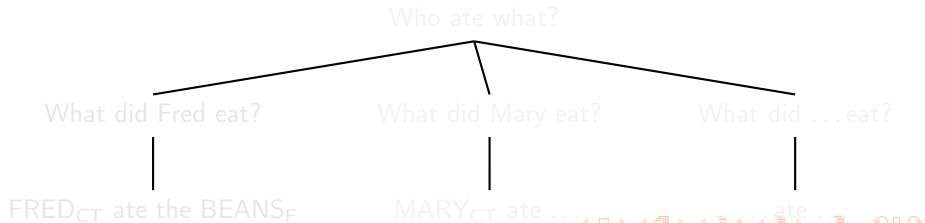
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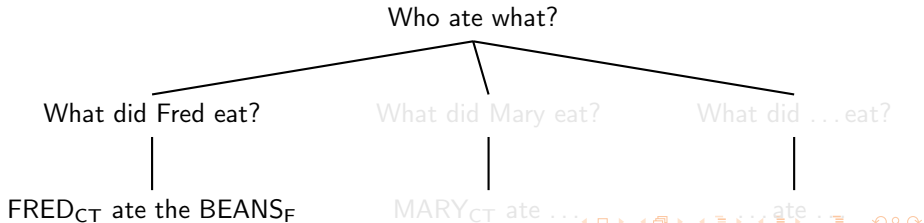Discourse topics
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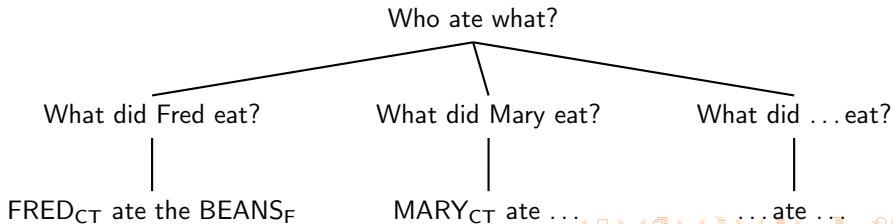(1) $FRED_{CT}$ ate the $BEANS_F$.

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Argumentative Goals (the technical side)

Probabilistic Discourse Semantics (according to Merin)

- A sentence E argues for (against) a conclusion H iff the probability of H after learning E is raised (lowered).
- The higher the change of the conditional probability of H upon learning E, the more relevant is E for H.

- Argumentative goals may be explicitly given (cf. (2)) or implicit.

  (2)   A: Daddy, I want candy!   B: We don't have any.

- If H is implicit, figuring it out amounts to isolating a proposition out of the set of all propositions E argues for.

NB

- Merin considers only a special case of non-cooperative discourse situation
- He calls H the discourse topic. In order to keep this notion apart from the D-Topic, we call Merin's H the R-Topic (Relevance-Topic)

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Linking the two perspectives

- Both approaches concern "what a sentence is about"
- We propose to identify the R-topic with the question whose semantics are the set of argumentative goals
- We assume that when accommodating a question in a D-Tree, one has to take into account the argumentative properties of the utterance it is derived from.
- Generally a R-topic needs to be inferred on top of the D-Tree.

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An example

(3)   This ring is beautiful, but it is expensive.

- Analysis by Anscombre & Ducrot: but connects two propositions that argue for opposite conclusions.
- Probable R-topic: *Should we buy this ring?*
- What would Büring's approach predict as D-Topic?
  - "Is this ring beautiful [E] and is it expensive [F]?"
  - But this does not account for the intuitive topic, nor for the presence of *but*.
- Take the D-topic as input for the inference of the R-topic, and add the constraint that E and F argue for opposite direction.
- H', the R-topic belongs to the set of propositions satisfying the argumentative properties of (3), i.e.,

(4) $H' \in \{H | \text{sign}(r_H(E)) \neq \text{sign}(r_H(F))\}$

- Purchase of ring is a likely scenario and R-topic would then be "Should we buy this ring?"

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Summing up

- Argumentative properties of an utterance contrain the accommodation of discourse topics, just like *CT*-accents do.
- Further (grammatical) constraints like these make it easier to figure out what the speaker is up to.

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Fully cooperative settings
Changing goals
Mixed motive games

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Fully cooperative settings

Bi-partisan relevance

- Merin's relevance has a built-in directionality. This is problematic in fully cooperative settings, and needs to be neutralized.

(5)   A: Did John kill Sue?
       B: He was the last one to see her. [E]
       B: He was in Tokyo at the time of the murder. [F]

- E argues weakly for John being the murderer of Sue (positively relevant); F argues strongly against it (negatively relevant).

- F resolves the issue better than E. Therefore it's a better answer and should be chosen on its strength alone.

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Changing goals

(6)   A: I know someone from Austria who will lend me 5€.
        B (himself Austrian):Yes, Kurt will be happy to do so.

- Assume that H_0 of A is "B will lend me 5€". A's preferences = gain of money.
- B's preference for H_0 = -5.
- A compatible argumentative goal H_1: "Kurt will lend A 5€".
- B prefers H_1 over H_0, A is neutral.

NB

- H_0 is arguably the most relevant proposition
- Expected Utility of the hearer is much lower for H_0 than for H_1
- R-topic conjointly established given their actual preferences.

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Mixed motive games (following van Rooij (2001))

- provide additional motivation to not to identify relevance with expected utility: it may occur that one doesn't act according to his beliefs
- Common ground (set of mutually accepted propositions) determines acts of discourse participants in game following exchange of information
- Rational speaker will utter E only if E is not defavorable to his expected utilities
- Addressee may reject E if it is defavorable to his expected utilities, even if he believes E to be true.
- Addressee cannot play following game according to updated common ground → would jeopardize his utilities
- Purely hypothetical example:

(7)   [General to Prime Minister]
        The Minister of the Interior does not have any bank account in
        Luxembourg.

        Belief cannot be reduced to a disposition to act.

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4. **Conclusion**

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Conclusion

- Relevance (in argumentative theories) $\neq$ expected utility (in game theory)
- How can these ideas be included in a theory of grounding?
- What other cues are there for the inference of discourse topics (in a large sense)?

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Thank you!