Openers

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Outline

1. What are openers? What are topics? What is topic saturation?

2. MSDRT: a theory of the structure of mental representations of information and their acquisition.

3.Discourses as input for the construction of MSDRT-like information representations.

4. Summing up: all the remaining questions.

1. What are openers?

- This talk is about 'openers'

  Openers (in my use of the term) are sentences occurring in a discourse or text that introduce a 'topic', about which more is then to be said in subsequent sentences.

- What do I mean by 'topic'?

  For the moment all I want to say about that is this:

  Most statements we make are statements about something

  They can be divided into a 'topic' and a 'comment'.

  Logically such topic-comment structures can always be analyzed as *predications*, involving an argument (the topic) and a predicate (the comment).

  We too analyze topic-comment structures as argument-predicate structures.

Saturated and Unsaturated Topics

- A topic that is introduced in the course of a conversation or text is *saturated at* a given point i (of the text or conversation) iff enough has been said about it at that point so that the topic may be dropped without producing a sense that something is missing.

  If a topic is not saturated at a point of a text or conversation, it is called *unsaturated at i*.

- The points of a text or conversation are determined by its 'discourse units'.

  Explanation: We assume that a text or conversation is given as a sequence of discourse units; each discourse unit determines a 'point' which has been reached when that discourse unit has been processed by the recipient.

  For simplicity I will assume that the discourse units of a text or discourse are its sentences or sentential utterances.

When saturation?

- Topic saturation is a central notion for what I want to say.

  But it is also something that I will be treating as a black box - as an 'oracle', if you like.

  I assume that language users have fairly robust judgments as to when a topic has become saturated.

  It would be important to have a theory of what such judgments are based on, but as things stand, I have no purchase on such a theory.

2. A theory of information representation in the mind: MSDRT

- MSDRT: the representation of information in the mind is typically given as a combination of two types of constituents:

  (a) Propositional Attitudes – of the form $<MOD,K>$, where

  (i) MOD is a mode indicator (e.g. BEL for beliefs)

  (ii) K is a DRS (Discourse Representation Structure) for the propositional content of the attitude.

  (b) Entity Representations – of the form $<[ENT,x], K, \mathcal{K}>$, where

  (i) x is a discourse referent (the *distinguished dref* of the ER);

  (ii) K is a DRS;

  (iii) $\mathcal{K}$ is a (possibly empty) set of *internal anchors*.

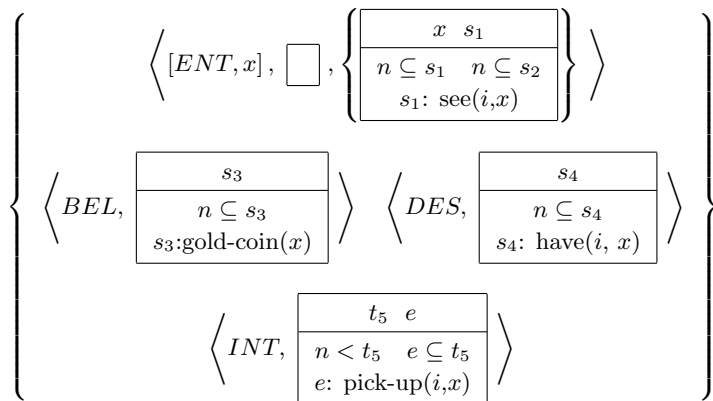## A theory of information representation in the mind: MSDRT

- Each properly formed ER represents some particular entity.

  either descriptively (as the unique satisfier of the ER's middle component K,

  or causally, via the ER's internal anchor or anchors, the members of $\mathcal{K}$.

- The distinguished drefs of ERs in the mind of an agent can occur in argument positions of the content representations K of her Propositional Attitudes.

  When the distinguished dref x of an ER that represents the entity **d** occurs in the content representation K, then the proposition expressed by K (in any MSDRT model in which K is interpretable) is a singular proposition with respect to **d**.

An Example

- A mental state: Entity Representations and Propositional Attitudes.

(1)

$$
\left\{
\begin{array}{c}
\left\langle [ENT, x], \ \boxed{}, \ \left\{
\begin{array}{|c|}
\hline
x \quad s_1 \\
\hline
n \subseteq s_1 \quad n \subseteq s_2 \\
s_1 \colon \text{see}(i,x) \\
\hline
\end{array}
\right\}
\right\rangle \\[3em]
\left\langle BEL, \begin{array}{|c|}
\hline
s_3 \\
\hline
n \subseteq s_3 \\
s_3 \colon \text{gold-coin}(x) \\
\hline
\end{array}
\right\rangle
\quad
\left\langle DES, \begin{array}{|c|}
\hline
s_4 \\
\hline
n \subseteq s_4 \\
s_4 \colon \text{have}(i, x) \\
\hline
\end{array}
\right\rangle \\[3em]
\left\langle INT, \begin{array}{|c|}
\hline
t_5 \quad e \\
\hline
n < t_5 \quad e \subseteq t_5 \\
e \colon \text{pick-up}(i,x) \\
\hline
\end{array}
\right\rangle
\end{array}
\right\}
$$

Information gathering by forming ERs and PAs around them

- Many content representations of the Propositional Attitudes in a mental state contain (distinguished drefs of) ERs.

  This is the *standard format* for the representation of all information that is not purely quantificational/generic.

- One reason for this is the way we normally gather information from experience:

  You form an ER for an entity **d** that you encounter.

  The encounter may also supply you with additional information about the entity represented by the ER.

  This information is represented in the form of a propositional attitude (typically a belief).

Providing Information through language

- In addition the ER will enable you to recognize **d** (as the one the ER represents) when you encounter **d** anew.

  This makes it possible for you to combine the new information about **d** that you get from the new encounter with the information about **d** you already had.

  In this way all the information you collect about **d** on different occasions can be organized 'around' your ER for **d**.

  This organization is crucial to information management and inferencing.

3. Providing information through the use of language

- The way we provide information about particular entities tends to follow this same general pattern.

  We introduce certain entities into the discourse and then provide further information about those entities.

  This explains why topic-comment structure is so important and wide-spread in natural language

  (and why topic-comment structure should be sharply distinguished from focus-background structure, even in cases where topic seems to coincide with background and comment with focus).

- Note well: By my books all information is propositional.

  (The information represented by an ER on its own is the information that an entity exists with the properties that the ER attributes to the entity it represents.)

Providing information through the use of language

- If the story that MSDRT tells about information representation and information acquisition is right, then we might expect human languages to have special devices for distinguishing between topic introduction and the conveying of information about topics.

  and, in particular, that these devices suggest that the topic is introduced as *preparation to some comment about it.*

- The question we must face up to now:

  If there are such topic-introducing devices, what are they like?

Openers

- There is one type of opener that fits the name 'opener' especially well.

  These are discourse-initial sentences that indicate the type or genre of the discourse that they initiate.

  Here is an example (well-known from the literature on information structure, if though for reasons quite unrelated to what maters here.

  (2) An American farmer was talking to a Canadian farmer.

  Suppose I say this to you and then stop.

  First, you will wait; then you will look increasingly puzzled; and then you will ask: 'Yes, and?'

  And when I then say: 'That's it', you may feel you ought to call an ambulance.

Openers

- The reason why uttering (??) without any follow-up is bizarre is that this kind of sentence has the typical ring to it of the opening sentence of a joke.

  A joke that doesn't go anywhere – which keeps you waiting for a punchline that never comes – is bad enough.

  But a joke that doesn't make it beyond the first line is something else.

  That is bizarre in a deeper and more puzzling way.

Other types of opening sentences

- There are many other sentence types that indicate the genre of the discourse that they initiate and these genres normally require more than a single sentence.

  So stopping right after the first sentence just won't do.

- In fact, there aren't all that many sentences that can form a 'complete discourse' on their own.

  In the literature some of the sentences that can do this have been referred to as *thetic sentences*. An example is (**??**.a).

  But other sentence types can do this too, cf. (**??**.b).

  (3) a. It is raining.
      b. Nixon died.

Other types of opening sentences

- Of particular interest for us are sentences like 'Nixon died.'

  This sentence clearly has an obvious topic-comment structure, with Nixon as topic and 'died' as comment.

  It says of some particular entity, Nixon, that it has the property of having died.

  This sentence can stand on its own because what it says about its topic, viz. that Nixon has died, is of sufficient interest to saturate it.

Other types of opening sentences

- Another typical example of a type of opening sentence that functions as an opener because it indicates what kind of multi-sentence discourse it starts is (**??**).

  (4) Once upon a time, in a country far and far away, there was a wise old king.

  We all know this kind of sentence as the beginning of a fairy tale or similar kind of story.

  Stopping right after it is therefore just as unacceptable as it is after our sentence (**??**) about the American and the Canadian farmer.

- But (**??**) also has another feature, which it does not share with (**??**).

  (**??**) not only raises an expectation that something will follow, but more specifically that something more will be said about the king.

Openers designed to introduce topics

- Note that if we just look at the content of (**??**), we can see it as introducing not only a certain king, but also a certain time and a certain country.

  But there is an asymmetry here, which becomes visible when we compare (**??**) with (**??**).

  (5) Once upon a time there was, far, far away, a country with a wise old king.

  Among the coherent continuations of (**??**) there are those which only speak about the king's private affairs (e.g. about his trouble with his very beautiful daughter who refuses to marry anybody).

  But as a follow-up to (**??**) this won't quite do. Something should follow that says something about the country and not just about its king.

Openers designed to introduce topics

- One way to state the difference between

  (a) the entities referred to by the *there is*-complements

  and

  (b) the indefinites occurring in the Prepositional Phrases

  is that only the former are *introduced as topics*, about which something more is still to come.

- That it is the complements of *there is* constructions that serve as topic introducers might be thought to be surprising.

  there is-constructions have been described as existential constructions par excellence, with *there is* as an existential quantifier and its syntactic complement as expressing a predication whose argument variable is bound by this quantifier.

Openers designed to introduce topics

- This is supposed to go some way towards explaining why (**??**.1) is fine, while (**??**.2) hovers somewhere between the bizarre and the ungrammatical.

    (6) a. There is a hole in my pocket.
        b. A hole is in my pocket.

- But of course (**??**.1) doesn't prohibit subsequent reference to the hole, cf. (**??**)

    (7) There is a hole in my pocket. It has been there for some time and it is getting bigger.

Openers designed to introduce topics

- Here are two apparently opposing facts about *there*-insertion sentences:

  1. Such sentences seem to be genuinely existential (see above).

  2. They are often used specifically, and understood as so used by the audience.

  When a *there*-insertion sentence is taken as having been used specifically, the interpreter will introduce an ER for the entity he assumes the speaker is introducing into the discourse.

Openers designed to introduce topics

- Hypothesis:

  The topic-introducing role of so many *there*-insertion sentences can be explained as follows:

  The verbal predication of a *there*-insertion sentence is nearly vacuous.

  It either expresses mere existence, or else presence at some spatial location.

  In such cases the topic introduced by the sentence can only be saturated by predicates that are part of the NP.

  When these predicates have little to say, (cf. *wise old king*), then the *there*-insertion sentence containing it will contribute a topic that is still in need of saturation.

Openers designed to introduce topics

- But note well: not all *there*-insertion sentences introduce unsaturated topics.

  For instance, the sentence (**??**) (' There is a hole in my pocket.') can easily be understood as a comment on an already established topic, viz. the speaker (or perhaps the speaker's trousers or those trousers' pocket).

  When the sentence is construed in this way, it is possible to take the phrase *a hole* in a strictly existential sense.

- This is a general complication to a formal distinction between sentences that act as topic introducers and those that do not:

  Many sentences allow for multiple analyses as topic-comment structures.

  And quite often what is identified as topic on one analysis is new while what is identified as topic by another analysis is old.

Openers designed to introduce topics

- A sentence that allows both for a topic-comment analysis with an old topic and for one with a new topic can often play a double role, as comment about the old topic on the one hand and as introducer of the new one on the other.

  This is reminiscent of what is said about topic shift in Centering Theory:

  Many shifts from an old to a new topic are mediated by sentences in which both the old and the new topic are mentioned. When such a sentence is followed by one which only mentions the new topic, then the shift from old to new topic is perfect.

- When a sentence has two such topic-comment analyses, failure to say more about the new topic won't result in incoherence, because it is always possible to take the sentence as commenting on the old topic and nothing more.

Other topic-introducing openers

- It is a mark of topic-introducing sentences that they themselves
  have little of interest to say about the topics they introduce.

  Here are some examples.

  (8) a. I have an aunt.
      b. At Mary's party last night I briefly talked to a man.
      c. I saw an old man on my way to work.
      d. John told me something quite incredible that happened
         to Frank Berthil.

  Sentences with light verbs, like (**??**.a) with its light verb *have*, are
  good candidates.

  But so are the other sentences in (**??**).

- Nevertheless, for all of these it is possible to think of contexts in
  which they can be interpreted as comments on established topics.

Other topic-introducing openers

- (**??**) gives two examples of sentence forms in which topics are introduced as the referents of definite NPs.
    - (9) a. Then the conversation turned to Frank Berthil.
        - b. Take for example my grandfather.

  For (**??**.a) it is not hard to think of contexts in which they won't be understood as introducing a new topic.

- (**??**.b) can be used *only* for topic introduction.

  (Compare (**??**.b) with the sentence 'An example is my grandfather.'

  Both sentences can be used to present the referent of the NP as an example of a generalization that is salient in the context.

  But (**??**.b) *must* be followed with more about the grandfather.

  Interpretation-related imperatives are special in this regard – compare sentences of the form 'Suppose that ... '.

Summing Up

- The examples we have given of sentence forms that are suited for the introduction of unsaturated topics are not meant as a complete list.

  And I have little doubt that there will other candidates that are just as plausible as the ones mentioned.

  This is one of the respects in which the theme of this talk is still at a very early stage of investigation.

- (Another deficiency, noted early on in the talk, is that so far I haven't given any account of the notion of topic saturation:

  How do we tell, on the basis of the form of a discourse or text and the context in which it is produced and received, which topic is saturated when?

Summing Up

- In spite of these various deficiencies there is a point to these considerations.

  For they indicate an important (if unsurprising) parallel between the way in which discourse makes information available to its consumers and the way in which – if MSDRT is right – we represent and gather information generally.

  The distinction between topic and comment and the ways they fit together can be seen as a linguistic reflection of the distinction between Entity Representations and Propositional Attitudes and the way in which those cooperate in the determination of propositional content.