

Epistemically Specific Use and Epistemically Specific Interpretation

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1 Introduction

- This talk is about epistemic specificity of indefinite NPs.
- We distinguish between the epistemic *use* of an indefinite NP and its epistemic *interpretation*.

The first is a relation between an expression (the indefinite NP in question) and a constituent in the mind of the speaker.

The second is a relation between the expression and a constituent in the mind of the interpreter.

- When both speaker and interpreter stand in these relations to the same NP token, we may call this token a '(perfect) case of epistemic specificity'.

In such cases the thoughts that speaker and interpreter connect with the utterance containing the given NP token determine the same (singular) proposition.

- However, there are many other possibilities as well:

(ii) the speaker doesn't use the NP specifically, nor does the interpreter so interpret it;

(iii) the speaker uses the NP specifically, but the interpreter does not interpret the NP as such;

(iv) the speaker doesn't use the NP specifically, but the interpreter interprets it as specifically used.

In case (ii) the propositional content of the interpreter's thought may coincide with that of the speaker's thought.

In case (iii) the propositional content of the interpreter's thought will not coincide with that of the speaker's thought.

In case (iv) the interpreter's thought will (strictly speaking) be incoherent.

- We will present a formal analysis of the notions of epistemically specific use and epistemically specific interpretation that will enable us to substantiate these claims.
- To this end we present a framework within which the analysis will be carried out.

This framework is an extension of DRT that was developed in order to represent propositional attitudes and, more generally, complex mental states, and to analyse the semantics of sentences and sentence combinations used for describing these (so-called 'attitude attributions' or 'attitude reports').

Outline of the talk

1. Some of the example sentences that we will discuss.
2. Sketch of the formal framework and the issues it is designed to address.
3. Formal analysis of epistemically specific use and epistemically specific interpretation.
4. Epistemic specificity and speaker's intentions.
5. Epistemic specificity and uniqueness.
6. Epistemic specificity and scopal specificity, functional and intermediate readings and the *de re-de dicto* distinction.
7. Epistemic specificity: semantics or pragmatics?

End

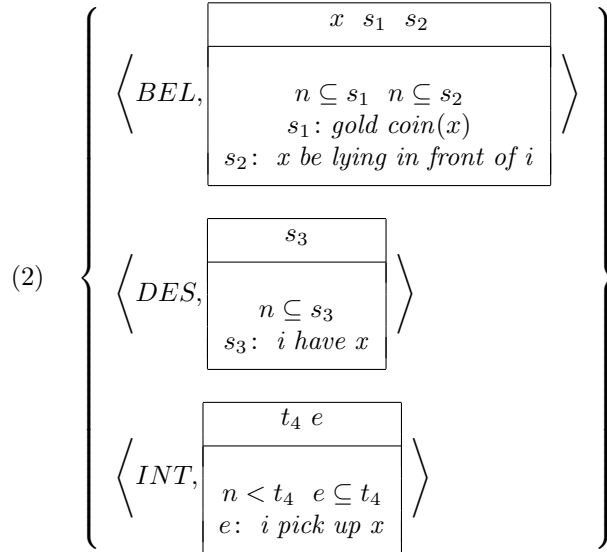
2 Examples

(University teacher A to university teacher B in their Department at 2.00 p.m.)

- (1)
- a. A student was looking for you this morning.
(I told her you would be in this afternoon.)
 - b. I ran into a student this morning who was looking for you.
(I told her you would be in this afternoon.)
 - c. There was a student this morning who was looking for you.
 - d. Some student was looking for you this morning.
 - e. One of our students was looking for you this morning.
 - f. Mary was looking for you this morning.
 - g. Our student was looking for you this morning.
 - h. The new Ph.D. student was looking for you this morning.
 - i. The student was looking for you this morning. (?)
 - j. A certain student was looking for you this morning.
? (I told her you would be in this afternoon.)

3 The Formal Framework

1. Mental state of an agent who perceives (or thinks she perceives) a gold coin in front of her, wants to have it and intends to pick it up:



2. Anchored entity representation of the coin for the agent in 1:

$$(3) \left\langle [ANCH, x], \begin{array}{|l} \hline x \ s \ s' \ s'' \\ \hline n \subseteq s \quad s: i \text{ see } x \\ n \subseteq s' \quad s': \text{coin}(x) \\ n \subseteq s'' \\ s'': 1.5cm < \text{diameter}(x) < 2.5cm \\ \hline \end{array} \right\rangle$$

3. Representation of the agent's mental state with entity representation for the coin:

$$(4) \left\{ \begin{array}{l} \left\langle [ANCH, x], \begin{array}{|l} \hline x \ s_1 \ s_2 \\ \hline n \subseteq s_1 \quad n \subseteq s_2 \\ s_1: i \text{ see } x \\ s_2: x \text{ be lying ifo } i \\ \hline \end{array} \right\rangle \\ \\ \left\langle BEL, \begin{array}{|l} \hline s_3 \\ \hline s_3: \text{gold coin}(x) \\ \hline \end{array} \right\rangle \\ \\ \left\langle DES, \begin{array}{|l} \hline s_4 \\ \hline n \subseteq s_4 \\ s_4: i \text{ have } x \\ \hline \end{array} \right\rangle \\ \\ \left\langle INT, \begin{array}{|l} \hline t_5 \ e \\ \hline n < t_5 \ e \subseteq t_3 \\ e: i \text{ pick up } x \\ \hline \end{array} \right\rangle \end{array} \right\}$$

Semantics for (2): Find proposition-like values for the content of belief, desire and intention in (2) in such a way that the 'internal coreference relations' between the three attitudes (indicated by the occurrence of the same discourse referent x in the three content characterisations) are accounted for.

This can be accomplished by treating the belief in (2) as presupposition of the desire and the intention.

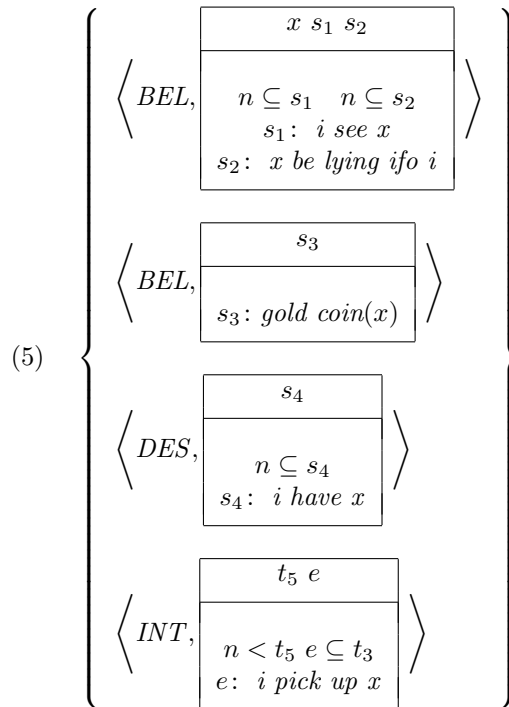
Note well: the propositions that get assigned this way to the components of (2) are general propositions.

In this respect (4) is different. Here the DRSs of each of the three propositional attitudes determine *singular* propositions about the entity represented by the anchored entity representation.

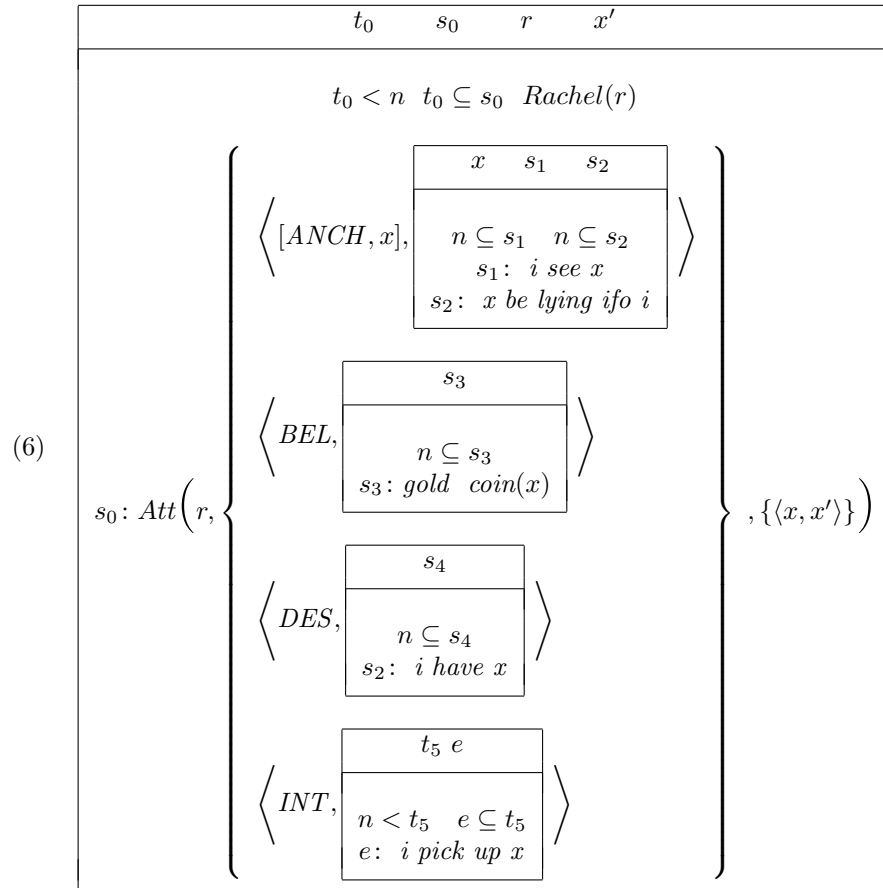
These propositions are defined only if the anchored entity representation whose discourse referent occurs in their DRSs does have a referent (also called its *external anchor*); the referent is an entity that stands to the representation and the agent in the relation described by the entity representation's DRS (its *internal anchor* of the entity representation).

If this condition is not fulfilled, there is still a 'purely descriptive core' of the representation which is semantically well-defined.

This core is obtained by exchanging the entity representation for the belief that an entity of the kind described by the internal anchor exists; see (5).

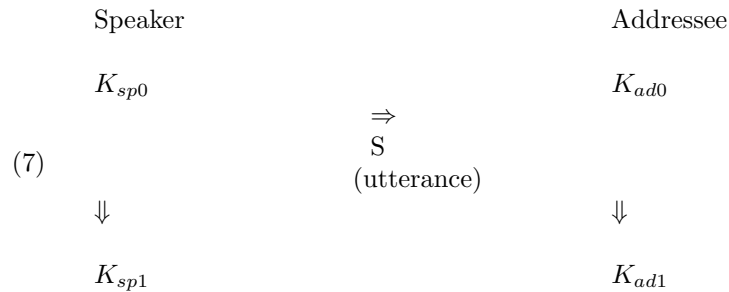


Representations like those in (2)–(5) can be used in representations of attributions of the mental states they describe, as shown in (6) for (4).



4 Formal Analysis of Epistemic Specificity

Schematic representation of communicative interaction in face-to-face communication:



Representations for the specific and non-specific use of *a student* in A's utterance (1.a).

(i) Specific use of (1.a) by A (relevant component of $K_{sp,0}$):

$$(8) \left\{ \begin{array}{l} \left\langle [ANCH, b_A], \begin{array}{c} b_A \\ \text{talk-to}(i, b_A) \end{array} \right\rangle, \\ \left\langle [ANCH, x_A], \begin{array}{c} x_A \\ \text{student}'(x_A) \\ (?) \end{array} \right\rangle, \\ \left\langle BEL, \begin{array}{c} t \quad e \\ \text{'this morning'}(t) \quad e \prec n \quad e \subseteq t \\ e: \text{look-for}'(x_A, b_A) \end{array} \right\rangle \end{array} \right\}, \{\langle b_A, \mathbf{B} \rangle, \langle x_A, \mathbf{x} \rangle\}$$

When $K_{sp,0}$ is like this, then A can use *a student* in (1.a) to realise her anchored representation for *a student* in question.

Non-specific use of *a student* by A (relevant component of $K_{sp,0}$):

$$(9) \left\{ \begin{array}{l} \left\langle [ANCH, b_A], \begin{array}{c} b_A \\ \text{talk-to}(i, b_A) \end{array} \right\rangle, \\ \left\langle BEL, \begin{array}{c} t \quad e \quad x \\ \text{'this morning'}(t) \quad e \prec n \quad e \subseteq t \quad \text{student}'(x) \\ e: \text{look-for}'(x, b_A) \end{array} \right\rangle \end{array} \right\}, \{\langle b_A, \mathbf{B} \rangle\}$$

Note that the content of the belief in (9) is logically entailed by that of the belief in (8). So even if (8) had been As starting representation, A could in principle have had the intention to express this existential proposition (wrt. x) represented by the belief-DRS of (9) and could have used (1.a) for this purpose. If so, then she would have used *a student* non-specifically.

Bs interpretation of *a student* in (1.a) as non-specific.

Relevant component of $K_{ad,1}$:

$$(10) \left\{ \left\langle \left[\text{ANCH}, a_B \right], \left\langle \begin{array}{c} a_B \\ \text{talk-to}(a_B, i) \end{array} \right\rangle \right\rangle, \left\langle \text{BEL}, \left\langle \begin{array}{c} \text{t e x} \\ \text{'this morning'(t) e} \prec \text{n e} \subseteq \text{t student'(x)} \\ \text{e: look-for'(x, i)} \end{array} \right\rangle \right\rangle \right\}, \{ \langle a_B, \mathbf{A} \rangle \}$$

Bs interpretation of *a student* in (1.a) as used specifically by A (relevant component of $K_{ad,1}$):

$$(11) \left\{ \left\langle \left[\text{ANCH}, a_B \right], \left\langle \begin{array}{c} a_B \\ \text{talk-to}(a_B, i) \end{array} \right\rangle \right\rangle, \left\langle \left[\text{ANCH}, x_B \right], \left\langle \left\langle \begin{array}{c} x_B \quad x \\ \text{Att}(a_B, \left\{ \left\langle \left[\text{ANCH}, x_A \right], \left\langle \begin{array}{c} x_A \\ \text{Realise}(a_B, x_A, \text{'a student'}) \end{array} \right\rangle \right\rangle, \{ \langle x_A, x \rangle \} \right\} \right\rangle, \left\langle \begin{array}{c} x_B = x \end{array} \right\rangle \right\rangle \right\rangle, \left\langle \text{BEL}, \left\langle \begin{array}{c} \text{t e x} \\ \text{'this morning'(t) e} \prec \text{n e} \subseteq \text{t student'(x)} \\ \text{e: look-for'(x, i)} \end{array} \right\rangle \right\rangle \right\}, \{ \langle a_B, \mathbf{A} \rangle \}$$

The second anchor of (R5) is known as a *vicarious* anchor: B takes over the anchor that he assumes exists for the discourse referent that A has realised through the use of the given NP (here: *a student*).

(12) is an enlargement of this vicarious anchor:

$$(12) \left\{ \begin{array}{c} \text{Att}(a_B, \left\{ \left\langle [\text{ANCH}, x_A], \boxed{x_A} \right\rangle \right\}, \{ \langle x_A, x \rangle \}) \\ \text{Realise}(a_B, x_A, \text{'a student'}) \end{array} \right\}$$

5 Epistemic Specificity and Speaker's Intentions

Suppose that A has an anchored representation for the student she is talking about in (1.a). Can A nevertheless *intend* to use *a student* non-specifically? And when B interprets *a student* specifically even so, is there a sense in which he 'gets it wrong'?

And if all this is so, does that entail that the article *a* must be considered ambiguous?

Note: In English (and many other languages) special forms are available to convey specificity and non-specificity.

English specificity markers: *a certain, a given, some particular*.

English non-specificity marker: *some ... or other*

When a speaker uses an indefinite NP with such a marker, then she is *committed* to using the indefinite specifically or non-specifically in accordance with what the marker signals.

6 Epistemic Specificity and Uniqueness

So far we have assumed that our speaker A can use *a student* (specifically, and perhaps also, in an intentional sense, non-specifically) when she has an anchored representation for the student she means to talk about.

But this overlooks one important general constraint on the use of indefinites (in English and perhaps in all languages, although that may depend on how we

define "indefinite").

This constraint is *non-uniqueness*: the descriptive content of the NP must be compatible in the common ground with the assumption that it has more than one satisfier.

One piece of evidence for this comes from cases where A is in a position to know that B has never encountered or thought about a certain individual, but where it is possible for him to infer on the basis of general knowledge that the descriptive content of an NP can have only one satisfier, as in (13a):

- (13) a. John's maternal grandmother
b. A maternal grandmother of John

The corresponding indefinite in (13b) is odd because general knowledge tells us that a person can have only one maternal grandmother. ((13b) seems to suggest that the speaker intends to include among the 'mothers' of John also possible step or foster mothers.)

7 Epistemic Specificity and the *de re-de dicto* Distinction

Compare the sentence in (1.a) with the following attitude attribution (14):

- (14) A thinks that a student is looking for B.

On our analysis of the *de re* use of an indefinite in an attitude report this amounts to assuming that the subject A of the report has an anchored entity representation for an entity that (according to the speaker) satisfies the descriptive content of the NP and attributes to A the thought that this entity satisfies the property expressed in the report.

A similar analysis applies to quantified reports like those in (15a,b)

- (15) a. Every colleague of B thinks that some student is looking for him.
b. Every colleague of B thinks that B is doing everything he can to avoid some student.

Note that (15b) has a reading on which it is a typical example of an indefinite with *intermediate* scope.

Our analysis of this reading:

the speaker of (15b) assumes that there is a function which maps each colleague of B to a entity representation that this colleague has of a student x satisfying the predicate 'B is doing everything he can to avoid x '.

Question 1: If we extend the notion of a *specifiable (Skolem-) function* to interpret indefinites in this way, does that enable us to account for all cases of intermediate scope interpretations of indefinites; or are there still some cases that are left out by such an analysis?

Question 2: Which function specifications are possible for which indefinite NPs in which positions?

8 Specific Interpretation: Semantics or Pragmatics?

There are two connected questions we have so far avoided:

1. What, if anything, is the content of an utterance like (1.a)? Does this content depend on what gives rise to the use of the indefinite? Does it depend on the communicative intention of A? Does it depend on how B interprets the indefinite?

A possible candidate for the ‘utterance meaning’ of (1.a): the plain existential proposition that there is a student that is looking for B.

Connected with this question is a second one:

At which level of language processing does the specific interpretation of an indefinite become part of the interpretation of the uttered sentence?

We suspect that there is no uniform answer to this question: Different occurrences of specifically interpreted indefinites may require different answers.

On the one hand indefinites in *there*-insertion constructions can suggest an epistemically specific use on the part of the speaker, just as they can in other occurrences:

(16) There was a student who was looking for you this morning.

If one believes, as we are inclined to do, that in *there*-insertion sentences the indefinite makes its referential argument (a variable or discourse referent) available to *there is* for existential binding, then it won’t be available at that level for binding by an anchored representation.

On the other hand many languages have special devices for making specificity explicit. One such is the DOM particle *pe* of Romanian, which conveys specificity when it marks a direct object phrase:

- (17) a Ion a angajat-o **pe** Lucia.
“Ion has hired Lucia.”
- b Ion a angajat o secretară.
“Ion has hired a secretary.”
(= he has hired someone in the capacity of secretary.)
- c Ion a angajat-o **pe** o secretară.
“Ion has hired someone who was a secretary.”
(= he has hired someone who was a secretary in some capacity or other)
- d Ion iubește un agent imobiliar.
“Ion loves a real estate agent.”
(The speaker doesn’t have any particular real estate agent in mind.)
- e Ion iubește **pe** un agent imobiliar.
“Ion loves a real estate agent.”
(There is some particular real estate agent that Ion loves.)

In cases where specificity is marked in such an explicit way it is natural to assume that it becomes part of the semantic representation that is derived directly from the morpho-syntax — i.e. at a level where it could not become part of the interpretation of a sentence like (16).

Question: What does this tell us about the architecture of a theory of natural language meaning, and about the distinction between semantics and pragmatics?