



# **Propositions, Logical omniscience and Belief ascriptions**

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# Introduction

# PAA

- Propositional attitude ascriptions(PAA):

x v's that S.

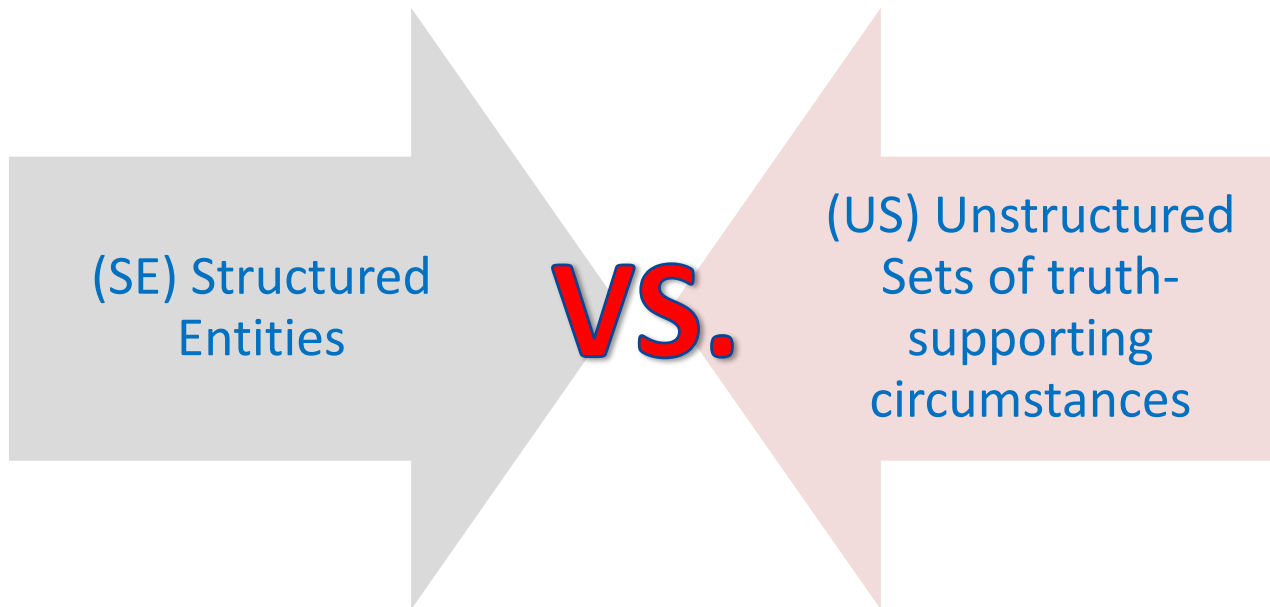
\**e.g., v=believe.*

- **Generally supposed principle (GSP):**

A PAA reports the (R[v]) relation between the agent (A[x]) and the proposition (or semantic content) (P[S]) .

*\*Propositions=semantic contents; (e.g., Soames, 2008)*

# Propositions?



- \* (Soames, 2008), *Why Propositions Cannot be Sets of Truth-supporting Circumstances*, *JPL(2008)*, 37: 267-276.
- \* (Elbourne, 2009), *Why Propositions might be Sets of Truth-supporting Circumstances*, *JPL(2009)*, DOI 10.1007/s10992-009-9112-z.



- *(It seems to me that)*
- **GSP might bring two problems:**
  - Puzzles about belief;
  - Logical omniscience?



**\*The real question is:**

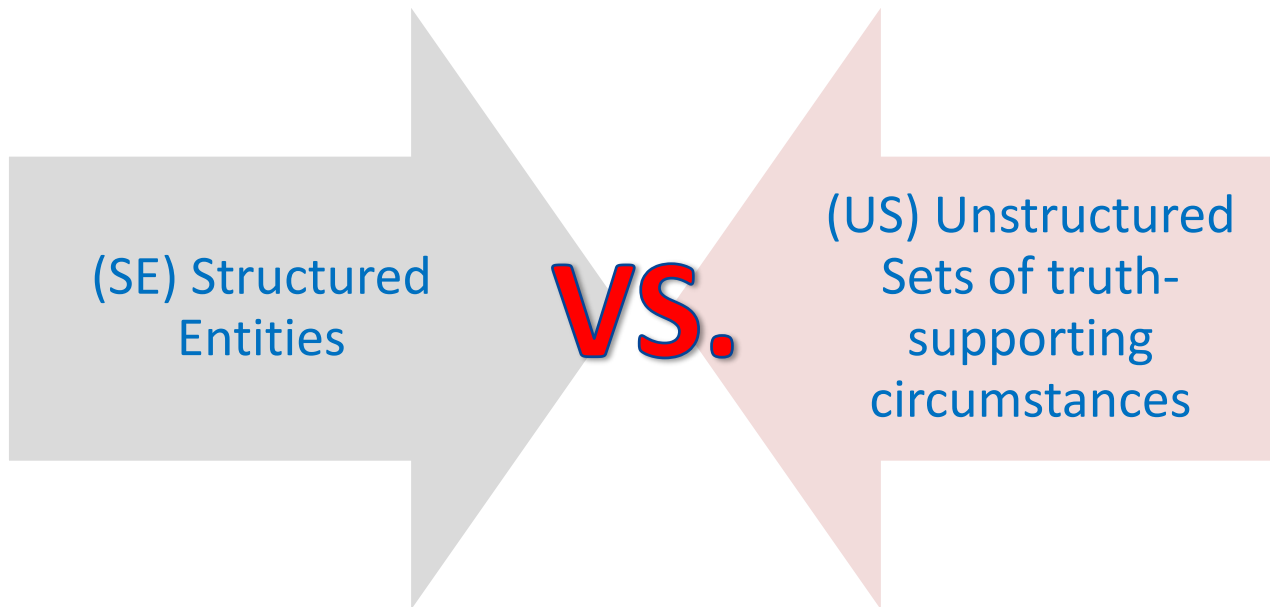
**How to ascribe beliefs?**





# Propositions

# Propositions?



- \* (Soames, 2008), *Why Propositions Cannot be Sets of Truth-supporting Circumstances*, *JPL(2008)*, 37: 267-276.
- \* (Elbourne, 2009), *Why Propositions might be Sets of Truth-supporting Circumstances*, *JPL(2009)*, DOI 10.1007/s10992-009-9112-z.

# SE:

- The semantic content of a sentence S is a structured proposition the constituents of which are the semantic contents of the constituents of S. (Soames, 2008)

\*(Soames, 2008) I argued ... cannot identify **the semantic contents of sentences (the propositions they express)** ...

# US(A1):

- *The semantic content of a sentence or formula (relative to a context and assignment of values to variables) is the collection of circumstances supporting its truth (relative to the context and assignment). (Soames, 2008)*

# *Soames' argument*

- No semantic theory T with A1, A2-A4 and Com is compatible with the facts F1, F2 and F3, thus T is incorrect;
- But A2-A4, and Com are natural and well-motivated;
- Hence, A1 is the offending assumption.

# A1(US):

- *The semantic content of a sentence or formula (relative to a context and assignment of values to variables) is the collection of circumstances supporting its truth (relative to the context and assignment).*

## A2 (GSP):

- *Propositional attitude ascriptions report relations to the semantic contents of their complements - i.e. ( $x$   $v$ 's that  $S1$  is true with respect to a context  $C$ , assignment  $A$  (of values to variables) and a circumstance  $E$  of evaluation iff in  $E$ , the referent of ' $x$ ' with respect to  $A$  bears  $R$  to the semantic content of  $S$  relative to  $C$  and  $A$ . (When  $v$  is the verb 'believes',  $R$  is the relation of believing, when  $v$  is the verb 'says' or 'asserts',  $R$  is the relation of saying, or asserting, and so on for other attitude verbs.)*

## A3(Distributive):

- *Many attitude verbs, including 'say', 'assert', 'believe', 'know', and 'prove' distribute over conjunction. For these verbs,  $[x v's \text{ that } P \ \& \ Q]$  is true with respect to C, A, and E only if  $[x v's \text{ that } P]$  and  $[x v's \text{ that } Q]$  are too.*



## A4(Direct reference):

- *Names, indexicals, and variables are directly referential - their semantic contents, relative to contexts and assignments, are their referents with respect to those contexts and assignments.*

# Com:

- *If S1 and S2 are non-intensional sentences/formulas with the same grammatical structure, which differ only in the substitution of constituents with the same semantic contents (relative to their respective contexts and assignments), then the semantic contents of S1 and S2 will be the same (relative to those contexts and assignments).*

## F1-F3:

- **F1:** The ancients believed that “Hesperus” referred to Hesperus and “Phosphorus” referred to Phosphorus;
- **F2:** Hesperus is Phosphorus;
- **F3:** The ancients didn’t believe that “Hesperus” and “Phosphorus” were coreferential.

Note: Intuitively, F1-F3 are compatible themselves.

# Soames' *reductio ad absurdum*

- *R1. The ancients believed (asserted) that “Hesperus” referred to Hesperus and “Phosphorus” referred to Phosphorus.*
- *R2. Since Hesperus is Phosphorus, this means (given A2, A4, and Com) that the ancients believed (asserted) that “Hesperus” referred to Hesperus and “Phosphorus” referred to Hesperus.*
- *R3. Thus, the ancients believed (asserted) that: “Hesperus” referred to Hesperus and “Phosphorus” referred to Hesperus and, for some x, “Hesperus” referred to x and “Phosphorus” referred to x (from R2, A1a, A1b\* and A2).*
- *R4. So, the ancients believed (asserted) that: for some x, “Hesperus” referred to x and “Phosphorus” referred to x - i.e. they believed that the names were coreferential (from R3 and A3).*

\* Where A1a and A1b are two presupposition of A1 (see Soames, 2008).

# *Soames' argument*

- No semantic theory T with A1-A4 and Com is compatible with the facts F1, F2 and F3, thus T is incorrect;
- But A2-A4, and Com are most natural;
- Hence, A1 is the offending assumption.

# Two rejections

- To the *reductio ad absurdum* itself, (see Edelberg,1996);
- To A4 (direct reference), (see Elbourne,2009).

# A third objection?

- Even if Soames' *reductio ad absurdum* was right, R2 has already been counterintuitive;
- According to his own argument, R2 is independent of A1;
- Thus, the problematic principles would be among A2, A4 and Com.

## R2:

- *R1. The ancients believed (asserted) that “Hesperus” referred to Hesperus and “Phosphorus” referred to Phosphorus.*
- ***R2. Since Hesperus is Phosphorus, this means (given A2, A4, and Com) that the ancients believed (asserted) that “Hesperus” referred to Hesperus and “Phosphorus” referred to Hesperus.***
- *R3. ...*
- *R4. ...*




# *Doubts on A2(GSP)*

- **Puzzle about belief:**
  - with A4 and Com;
- **Logical omniscience:**
  - with A1, A4, and Com?

# Puzzles about belief

- **Pierre's case (Kripke, 1979):**
  - (1) Pierre believes that *Londres est jolie*;
  - (1\*) Pierre doesn't believe that London is pretty.
- **Superman's case (?):**
  - (2) Lois believes that Superman can fly;
  - (2\*) Lois doesn't believe that Clark Kent can fly.

- 
- 1. Clark Kent is Superman; (Fact 1)
  - 2. Then, “Superman” and “Clark Kent” have the same semantic content; (A4, 1)
  - 3. “Superman can fly” and “Clark Kent can fly” are non-intensional sentences with the same grammatical structure;(Fact 2)
  - 4. Thus, they have the same semantic content;(Com, 2 and 3)
  - 5. Since Lois believes that Superman can fly, then she also believes that Clark Kent can fly. (A2, 4)

A scenic view of a beach with turquoise water, white sand, and a blue sky with white clouds and seagulls. The text "Logical omniscience" is overlaid in the center in a bold blue font.

# Logical omniscience

# Logical omniscience

- Kripke model  $M = \langle W, R, V \rangle$ :

$$s \models B\phi \text{ iff } (\forall t)(sRt \rightarrow t \models \phi).$$

- KB:  $B(\phi \rightarrow \psi) \rightarrow (B\phi \rightarrow B\psi)$ ;

# Solutions

- The 'purely' syntactical approach;
- Impossible world semantics;
- Sieve semantics;
- .....

\*see (Meyer, 2003), *Handbook of Philosophical logic*, vol. 10, edited by D.M. Gabbay and F. Guenther, Kluwer Academic Publishers, 2003.

A scenic view of a beach with turquoise water, white sand, and a blue sky with white clouds and seagulls. The text "Belief ascriptions" is overlaid in the center.

# **Belief ascriptions**

# *Distinguishes of beliefs*

- 1. Descriptive or Normative; (e.g. ?)**
- 2. Linguistic or non-linguistic; (e.g. Rohit Parikh,2008)**
- 3. De dicto or De re; (e.g.?)**



# *Parikh's approach*

- **Distinguish of beliefs**

Non-linguistic vs. Linguistic;

**For the linguistic belief, what believed is not proposition but sentence.**



➤ Rohit Parikh, 2008.

SENTENCES, BELIEF AND LOGICAL OMNISCIENCE, OR WHAT  
DOES DEDUCTION TELL US?

*THE REVIEW OF SYMBOLIC LOGIC*, Volume 1, Number 4, December 2008.

# *Concluding Remarks*

- It doesn't matter whether propositions are structured entities or unstructured sets;
- What matter is how to ascribe the beliefs, when confront of a concrete belief statement.



**Thank you!**