

The puzzle of irrelevant assertions in alternative semantics

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The Puzzle

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The Data

The Analysis

Context: Sharon is at an event and on the phone with Bill. Bill's good friend Edward is at the same event as Sharon. Sharon does not know Edward, but Bill thinks Sharon and Edward would hit it off. Sharon spots someone she thinks could be Edward.

(A) **Sharon:** Does Edward wear knit ties?

(B) **Bill:** #He only wears RED ties.

Ingredients

1. **only**(p) entails the negation of all relevant alternatives to p . (cf Ippolito 2007)
2. An assertion is **relevant** iff it entails at least a partial answer to the QUD. (Roberts 2012)
3. The **alternatives** to an expression p with focused constituent c are the members of $\{p'(x) \mid x \in D_\tau\}$, where $p'(c) = p$, and D_τ is the set of items either
 - a. with the same semantic type as c (Rooth 1992), or
 - b. of no greater structural complexity than c (Fox and Katzir 2011)

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The Analysis

Relevance

(A) Does Edward wear knit ties?

A relevant answer to (A) will entail either (Y) or (N)

(Y) Edward wears knit ties.

(Z) Edward does not wear knit ties.

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The Analysis

Only

(B) He only wears RED ties

a. only(Edward wears RED ties) (factoring out *only*)

b. $\implies \forall q : (\text{RELEVANT}(q) \wedge q \in \text{Alt}(p)).(q \implies (p \subseteq q))$
(where p = Edward wears RED ties)

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The Analysis

Alternatives

(P) {Edward wears x ties | $x \in D_\tau$ }

a. $\tau = \langle e, t \rangle$ (*red* denotes a property of entities)

b. $\tau = \text{Adj/AdjP}$ (*red* is a simple AdjP)

By either a or b, (P) will contain

(Q) Edward wears knit ties.

a. *knit* denotes a property of entities.

b. *knit* is a simple AdjP.

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The Analysis

(B) He only wears RED ties

a. \implies He doesn't wear knit ties

Bill's answer (B) should entail a negative reply to Sharon's question.

(B) is predicted to be felicitous. (WRONG)

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Diagnosing the problem

1. Relevance?
2. *only*?
 - ▶ Both seem fine
3. Alternatives
 - ▶ We're generating too many alternatives.

Intuition: (B) should generate alternatives based on colour
only RED \implies *not blue, not brown, not colourless, etc*
(i.e. Antonymy)

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How to restrict alternatives

Current theoretical assumptions

Current possibilities:

1. Context
2. Content
 - a. Morpho-phonology
 - b. Syntax (Fox and Katzir 2011)
 - c. Semantics (Rooth 1992)

The meaning of an expression is either:

1. Its reference (Extensionalism)
(*cf.* Quine 1960)

Or

2. How its reference is determined (Fregean Intensionalism)
(*cf.* Frege 1948)

Both theories are compatible with something like Rooth's (1992) theory.

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- ▶ Antonyms are not generally needed to determine reference
- ▶ Reference-based theories are not well-suited to treat antonymy

(Arguments in appendix)

It is clear that the logical product of two elementary propositions can neither be a tautology nor a contradiction. The statement that a point in the visual field has two different colours at the same time is a contradiction.

(Wittgenstein [1921] 1961, 6.3751)

- (1) The spot is red and blue.
- (2) The tie is knit and woven.

(cf. Katz 1998)

Autonomous Theory of Sense

Towards a solution

Sense is that aspect of the grammatical structure of sentences that is responsible for their sense properties and relations (e.g., meaningfulness, meaninglessness, ambiguity, synonymy, redundancy, and antonymy).

(Katz 2004, 17)

Sense : Reference :: Grammar : Meaning

- (3) Colourless green ideas sleep furiously.
- (4) The largest prime number

Katz (1972, 2004):

- ▶ Senses of LIs are possibly complex.
 - ▶ "Semantic markers" which may contain other semantic markers
 - ▶ These represent our understanding of the meaning of LIs
- ▶ Semantic properties and relations of LIs are defined in part-whole terms.
- ▶ The sense of a phrase/sentence is derived with recursive compositional rules

From Katz (2004, 156, 157)

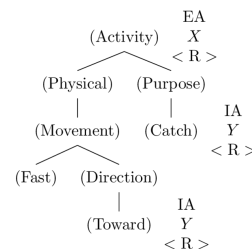


Figure 1: The sense of *chase*

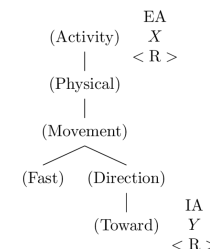


Figure 2: The sense of *follow*

Chase entails *follow* because the latter is contained by the former

- ▶ Senses include specification of Antonymy sets
- ▶ E.g., the sense of a colour term specifies other colour terms as antonyms.

- ▶ **A**/... is the internal negation operator
- ▶ **[F]** **X** selects a predicate, < **(Colour)** > whose sense is rooted in (Colour)

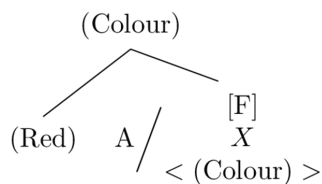


Figure 3: The sense of *red*

- ▶ Alternatives are generated the same way
 - ▶ $\{p'(x) | x \in D_\tau\}$
- ▶ D_τ can now be defined in terms of antonymy sets
 - ▶ $\{p'(x) | x \in A/(f)\}$
 - ▶ f is the focused element

(A) **Sharon:** Does Edward wear knit ties?

(B) **Bill:** #He only wears RED ties.

- ▶ (B) \implies *Edward doesn't wear blue/brown/.../colourless ties.*
- ▶ (B) $\not\Rightarrow$ *Edward doesn't wear knit ties*
- ▶ (B) does not answer (A)
- ▶ Therefore, (B) is irrelevant.

- ▶ How does this generalize?
- ▶ How does it interact with context?
- ▶ Can we formalize A/... better?

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Summary

- ▶ Evidence that alternatives are based on antonymy.
- ▶ Reference-based theories of meaning cannot account for antonymy.
- ▶ A sense-based theory of meaning is required.

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- ▶ Perceptron for concept C:
 - ▶ Input: perception of object X
 - ▶ Output: $\begin{cases} 1 & \text{If X falls under C} \\ 0 & \text{Otherwise} \end{cases}$
- ▶ A perceptron would allow for reference without any notion of antonymy.
 - ▶ RED?(x) can identify red things without even knowing that other colours exist.

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- ▶ Dichromacy is an impaired ability to distinguish two given colours
 - ▶ Usually red and green.
- ▶ A competent English speaking dichromat:
 - ▶ Would be unable to reliably refer to red or green coloured objects
 - ▶ Would still know that red and green are different colours

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- ▶ Russian has no term from blue
- ▶ Instead:
 - ▶ *goluboy*: light blue
 - ▶ *siniy*: dark blue
- ▶ A Russian language-learner (L1 English):
 - ▶ Will not be able to reliably refer to *goluboy* or *siniy* object.
 - ▶ Would likely know that *goluboy* and *siniy* are different colours.

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