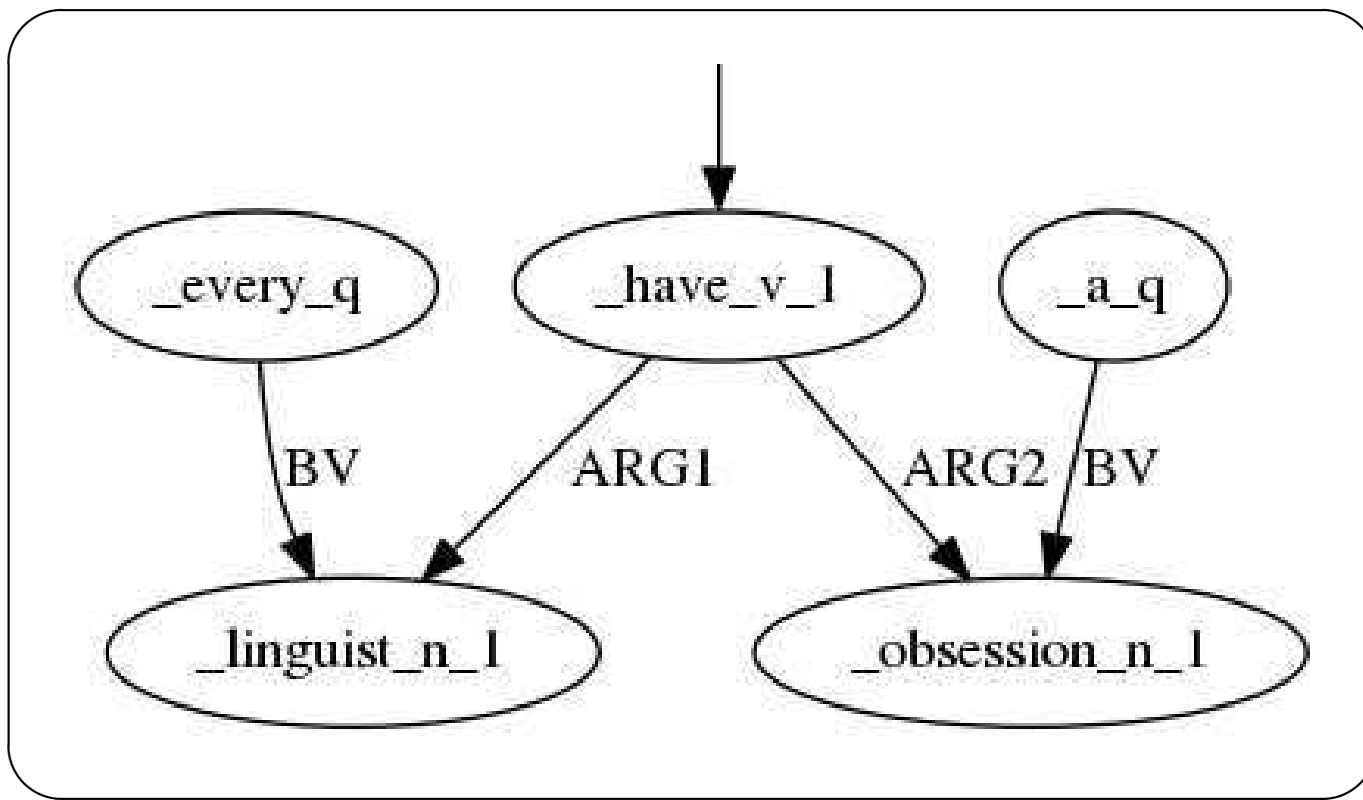


Meaning Representation and Inference

Cleo Condoravdi, Dag Haug, and Stephan Oepen

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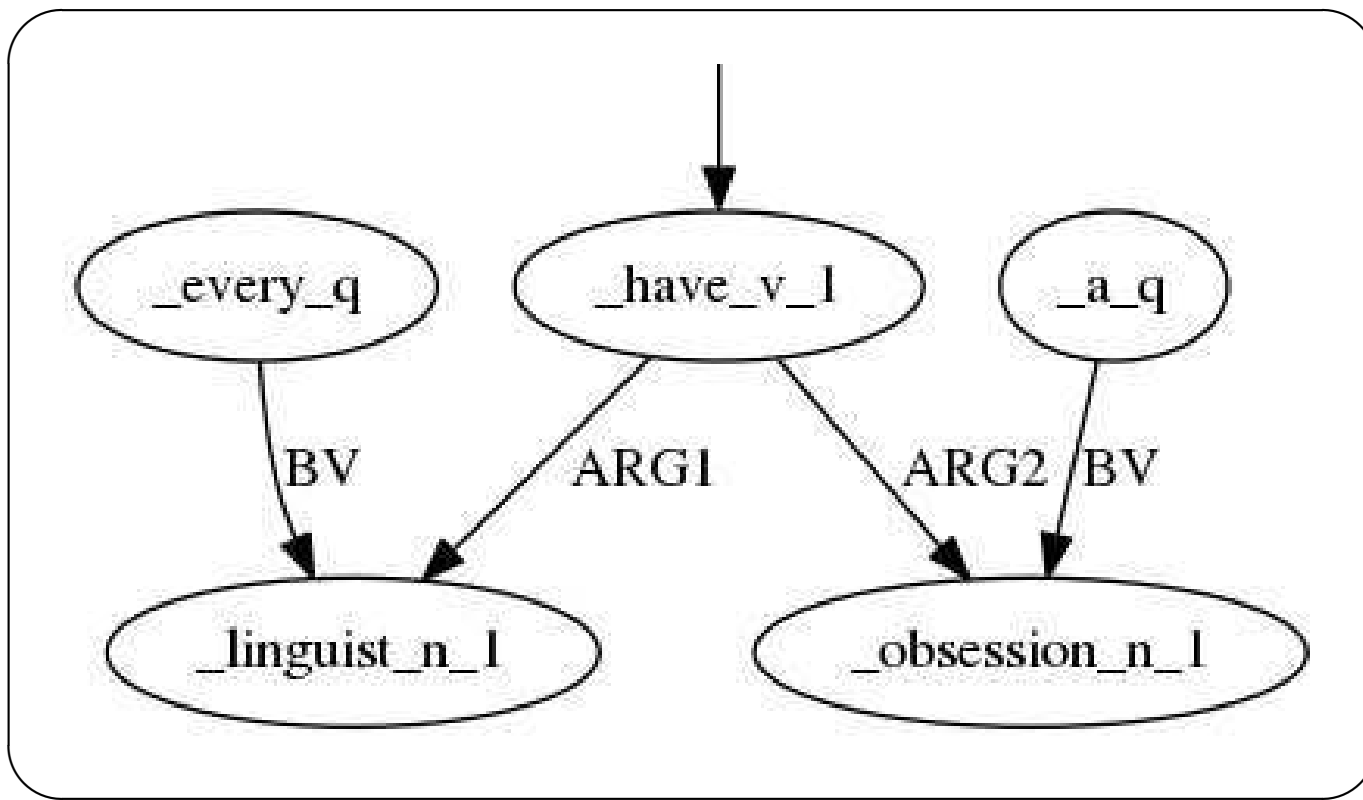


Meaning Representation and Inference

‘Collective Brainstorming’

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Meaning Representation and Inference

‘Collective Brainstorming and Soul Searching’

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(Part) of Our Motivation for Bringing Everyone Here

Cross-Framework Assessment of Meaning Representations

- From point of view of so-called *textual inference* ... but how to define that?
- sentence vs. speaker meaning; linguistic semantics vs. world knowledge?



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Questions to Answer before Lunch on Wednesday

- What properties should meaning representations have to support inference?
- What kinds of information should lexical resources make available?
- What kinds of inferential relations are essential for textual inference?
- How to factor in ambiguity and underspecification: scope, senses, anaphora?
- Can we have 'robust inference'? Does the notion even make sense?



Desirable Properties in Meaning Representations?

November 2014: Contrastive Computational Semantics (CCS)

- In-depth, cross-framework comparison of individual semantic analyses;
- most broad-coverage schools represented: AKR, AMR, DRS, ERS, FGD.



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Type of Information	AKR	AMR	DRS	ERS	FGD
Predicate–Argument Structure	+	+	+	+	+
Quantification & Scope				±	
Sense Disambiguation				±	
Presupposition Projection				–	
Anaphoric Coreference				–	
...					
Form of Representation				MRS	



Kinds of Inferential Relations at Play?

Textual Inference Often Defined through Datasets, e.g. RTE, SICK, NLI



Kinds of Inferential Relations at Play?

Textual Inference Often Defined through Datasets, e.g. RTE, SICK, NLI

T Romano Prodi will meet the US President George Bush in his capacity as the president of the European Commission.

H George Bush is the president of the European Commission.

T A woman is slicing an onion.

H A vegetable is being sliced by a woman.

T A man, a woman and two girls are walking on the beach.

H Four people are walking on the beach.

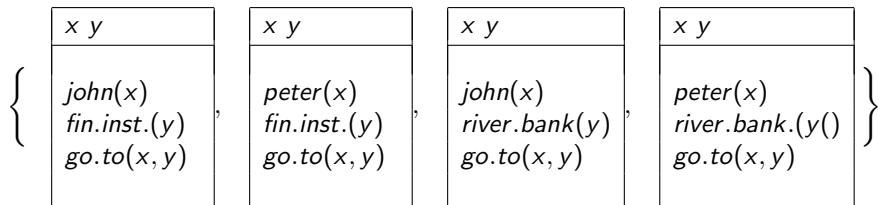


- ▶ Ambiguity vs. underspecification: all or nothing?
- ▶ Is the logic for meaning construction the same as the logic for meaning representation?

(1) He went to the bank

$\exists x.y.he(x) \wedge bank(y) \wedge go.to(x, y)$

or



- ▶ Which approach is right for what?
- ▶ Uniformity across phenomena?
 - ▶ anaphora resolution
 - ▶ scope ambiguities
 - ▶ lexical ambiguities
- ▶ What kinds of arguments?
 - ▶ conceptual
 - ▶ computational
 - ▶ empirical

Lexical inferential potential

- ▶ Lexical implication signatures
- ▶ Implication propagation

Lexical inferential potential

- (1) The Chancellor regrets that the president did not forget to force the commissioner to leave Athens on May 1.
- (2) The Chancellor does not regret that the president did not forget to force the commissioner to leave Athens on May 1.
- (3) The commissioner was in Athens on May 2.