Semantic Theory
week 12 – Current issues in semantic theory

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Semantic Theory

Topics covered in this course:

Predicate logic - Type Theory - Lambda Calculus - Generalised Quantifiers - Event Semantics - Plurals and Mass Nouns - Dynamic Semantics - Discourse Representation Theory - Presuppositions

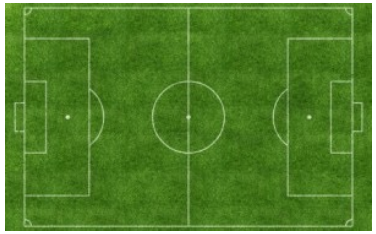
Open questions

I. What is meaning?

Truth-conditions vs. context-change potential
vs. answering the Question Under Discussion

II. Which phenomena should be captured by a semantic formalism?

Syntax vs. Semantics vs. Pragmatics



III. How to validate predictions from formal semantic theories?

Experimental approaches, Computational Semantics

Communication as question-answering

The Goal of communication: to determine what the world is like.

But: an exhaustive characterisation of the current state of the world – "The Big Question" (Roberts, 1996) – is too big a task

- What makes certain issues more important to us than others has to do with our goals
- Therefore, we establish certain subgoals, which take the form of issues to be resolved or Questions Under Discussion (QUDs)
- Content that addresses the QUD is called *at-issue* content; all other content is *not at-issue*

Roberts, 1996; 2012; Simons et al. 2010; Tonhauser et al. 2013

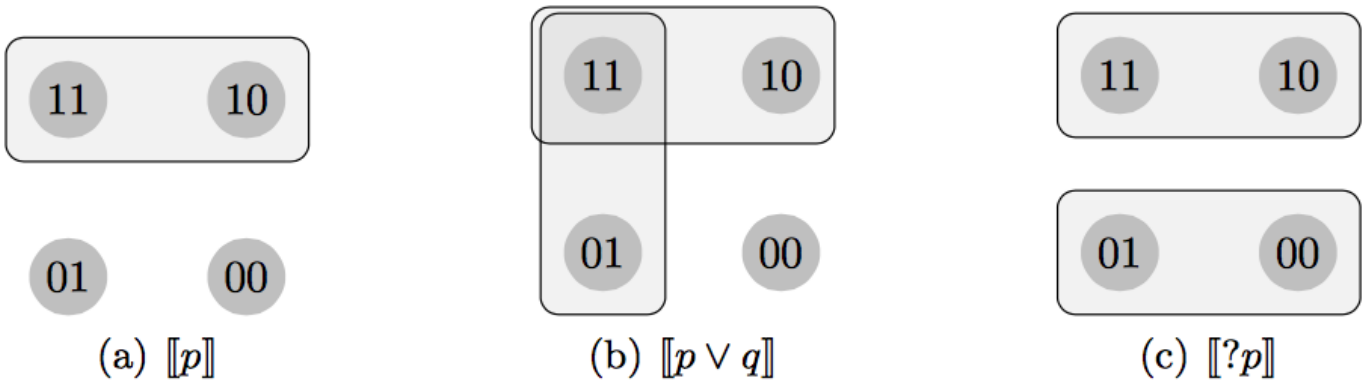
Inquisitive semantics

“Meaning is Information *EX*change Potential”

(1) $[\![\text{John plays}]\!]^{M,w,g} := \{\lambda v.\text{play}(\text{John})(v)\} :: \langle s, t\rangle$

(2) $[\![\text{John or Bill plays}]\!]^{M,w,g} := \{\lambda v.\text{play}(\text{John})(v), \lambda v.\text{play}(\text{Bill})(v)\}$

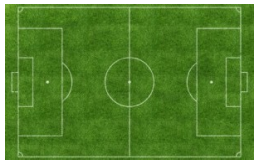
(3) $[\![\text{Does John play?}]\!]^{M,w,g} := \{\lambda v.\text{play}(\text{John})(v), \lambda v.\neg\text{play}(\text{John})(v)\}$



(a) $[\![p]\!]$ (b) $[\![p \vee q]\!]$ (c) $[\![?p]\!]$

(Groenendijk, 2009; Groenendijk & Roelofsen, 2009)

Defining the playing field of semantic theory



What can/should be captured in a semantic formalism?

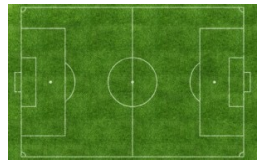
The syntax-semantics interface:

- quantification, anaphora, tense and aspect, thematic roles, …

The semantics-pragmatics interface:

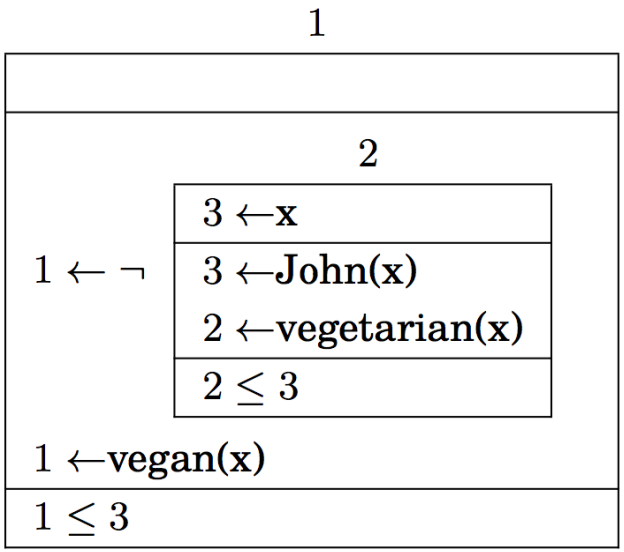
- anaphora (again!), presuppositions, implicatures, rhetorical structure, …

Beyond truth-conditional meaning: Projection



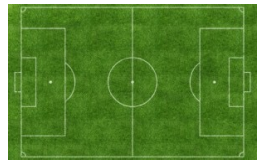
Projective Discourse Representation Theory: DRT with information structure

Toward a unified & unidimensional treatment of projection (*presuppositions, anaphora, and conventional implicatures*)



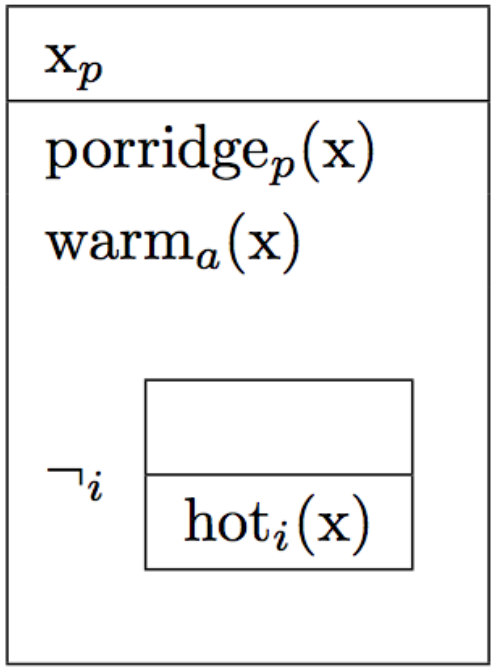
Venhuizen et al. 2013; Venhuizen, 2015

Beyond truth-conditional meaning: Implicature



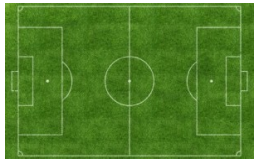
(1) a. The porridge is warm. As a matter of fact, it is hot.
b. ?The porridge is warm. As a matter of fact, it is cold.

Layered DRT: DRT with multiple layers of meaning

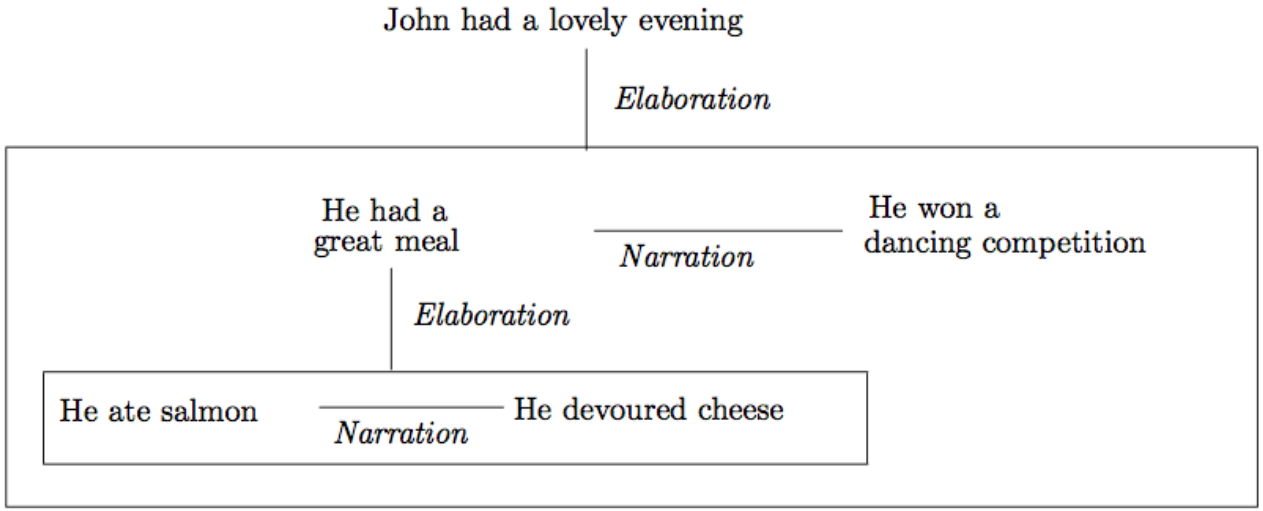


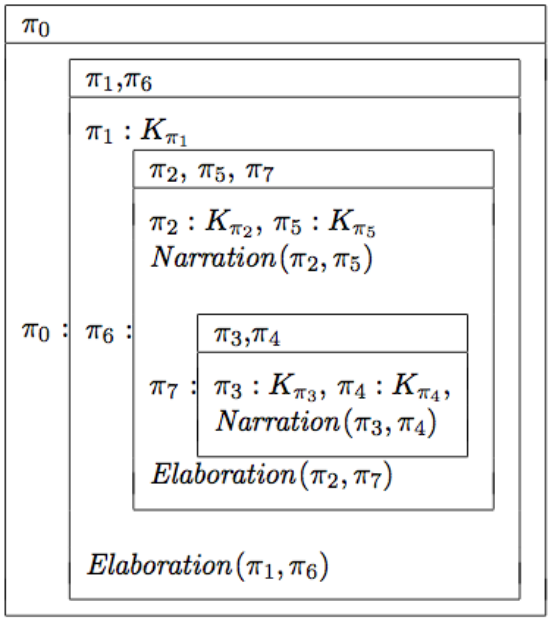
Geurts & Maier 2003; 2013

Beyond truth-conditional meaning: Rhetorical Structure



(1) John had a great evening last night. He had a great meal. He ate salmon. He devoured lots of cheese. He won a dancing competition. ??It was a beautiful pink.





Segmented DRT: DRT with discourse relations

(Asher, 1992; Asher & Lascarides, 2003)

Formal semantics in the real world

How to apply and evaluate formal linguistic theories?

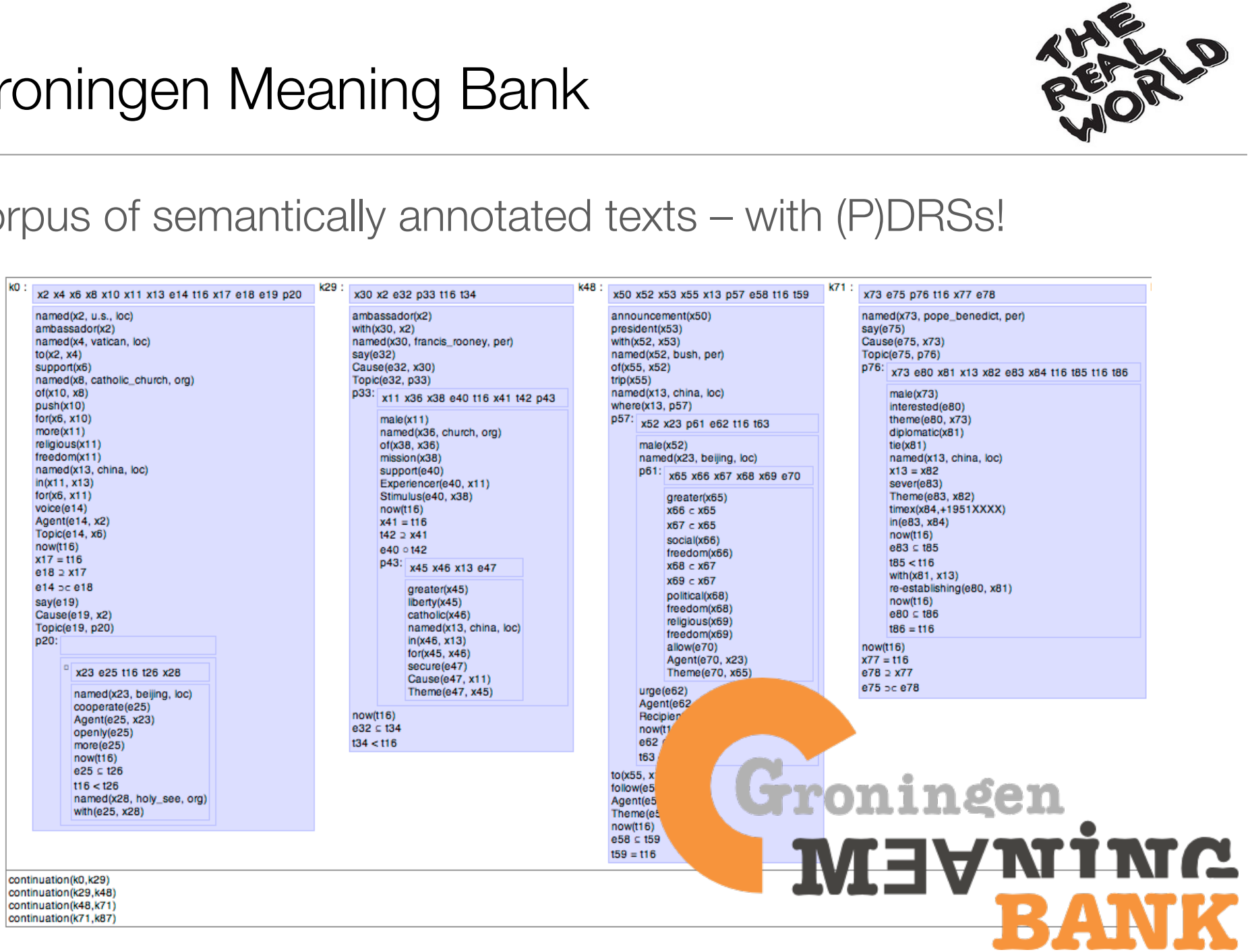
⇒ Testing predictions from formal semantic theories using psycholinguistic methods (questionnaires, eyetracking, EEG)

- Geurts et al (2010); Chemla et al (2011); Florian Schwarz (ed., 2015), …

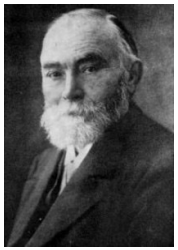
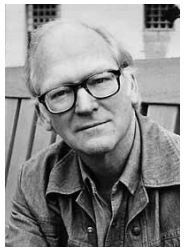
⇐ Using implementations of semantic formalisms to perform large-scale computational semantic analyses

- PDRT-Sandbox (Brouwer & Venhuizen, 2013)
- Boxer (Bos, 2008)
- The Groningen Meaning Bank (Basile et al., 2013; Bos et al., 2015)

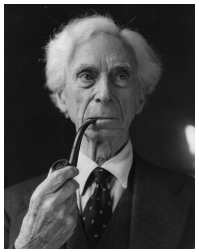
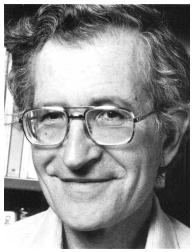
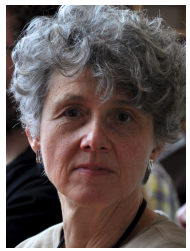
Groningen Meaning Bank



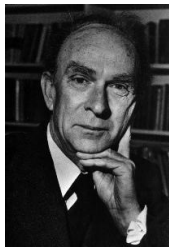
Semantic Theory: from past to present (and future?)

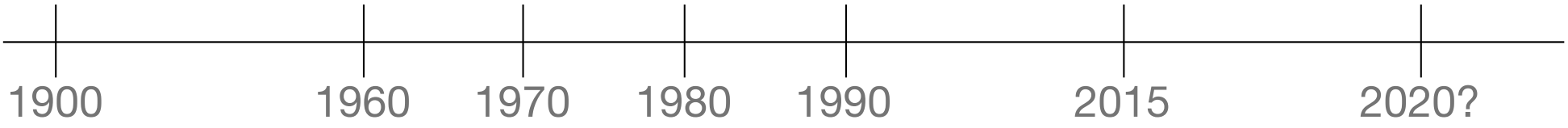








But first… the exam!

- The date for the final exam is: July 30, 10am
- You can (have to!) register for the exam: until tomorrow (15.07)
- You can find a practice exam at:
  http://noortjejoost.github.io/teaching/ST15/practice_exam.pdf
  (NB: you can skip Exercise 3 — not part of this year's materials)
- An example of the exam materials is given at:
  http://noortjejoost.github.io/teaching/ST15/exam_materials.pdf
  (Again, you can ignore the parts about Cooper Storage)
- Next Thursday: Q&A. Take a look at the practice exam, previous exercises, and the slides — Prepare questions!