Quizzes for General CS II (320102) Spring 2015

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FOR COURSE PURPOSES ONLY

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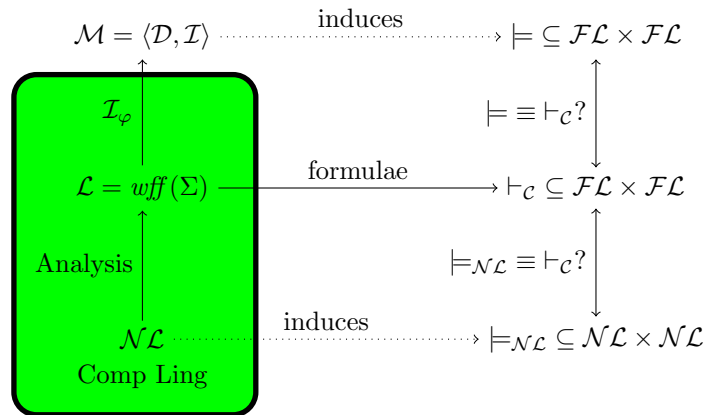
Contents

Quiz 1 (Fragment 1) Given Feb. 18. 2015

Problem 1.1 Briefly explain the significance of the logic in natural language semantics expressed   6pt
in the picture below:

$$\mathcal{M} = \langle \mathcal{D}, \mathcal{I} \rangle \xrightarrow{\quad \text{induces} \quad} \models\, \subseteq \mathcal{FL} \times \mathcal{FL}$$

$$\mathcal{I}_\varphi \uparrow \qquad\qquad \models\, \equiv\, \vdash_{\mathcal{C}}?$$

$$\mathcal{L} = \textit{wff}(\Sigma) \xrightarrow{\quad \text{formulae} \quad} \vdash_{\mathcal{C}} \subseteq \mathcal{FL} \times \mathcal{FL}$$

$$\text{Analysis} \qquad\qquad \models_{\mathcal{NL}}\, \equiv\, \vdash_{\mathcal{C}}?$$

$$\mathcal{NL} \xrightarrow{\quad \text{induces} \quad} \models_{\mathcal{NL}} \subseteq \mathcal{NL} \times \mathcal{NL}$$

$$\text{Comp Ling}$$

Note: The rest of this page is enough space for the explanation.

Problem 1.2 (Fragment 1 Syntax and Semantics)
Draw the syntax tree and translate that to the semantics tree for the sentence.   6pt

The student loved the quiz

Quiz 2 (Fragment 3) Given March. 4. 2015

Problem 2.1 (Syntactic Categories and their Types)

6pt

In Fragment 3 we introduced the concept of types and their correspondence to the syntactic categories. Fill out this table: types of the categories and the intuition why these types are assigned.

Cat	Type	Intuition
S		
NP		
N_{pr}		
VP		
V^i		
V^t		

Problem 2.2 (Word Meanings as λ-Terms)

In Fragment 3 we use the simply typed λ-calculus for word meanings. Fill out this table: give the λ-terms for the word meanings and their types of the fords in the first column according to the use case specified in the last column.

6pt

word	type	term	case
BE_{pred}			adjective
BE_{eq}			verb
and			S-coord.
and			VP-coord.

Quiz 3 (Fragment 4) Given March. 11. 2015

Problem 3.1 (Neo-Davidsonian Representation)

Translate *Peter wiped his nose with a Klenex* into frist-order logic in Neo-Davidsonian style.   6pt
Of what type is the event you introduced?

Problem 3.2 (Description Operator in Logic and NL Semantics)

6pt

1. Describe syntax (type) and semantics of the description operator in higher-order logic.

2. Briefly discuss its role in the semantics of definite descriptions in terms of the translation of the determiner *the* in Fragment 4.

3. Translate *The pope met the shah.*