Formal Semantics

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Final Take-Home Exam

Note: Part 1 and Part 2 will be valuated separately: you will thus receive two grades

Part 1 (informal)

1. What is truth conditional semantics?
2.. What is compositional semantics?
3. What is a valid inference?
4. What is the purpose of using formal logic for the semantics of natural language?
5. What are negative polarity items? What semantic constraint on negative polarity items has been proposed? Does your language have negative polarity items?
6. How is semantics to be distinguished from pragmatics?
7. How is semantic acceptability distinguished from ungrammaticality? Give examples.

Part 2.

1. Please formalize in propositional logic:
   a. John is happy and so is Mary.
   b. It is raining, but it is not snowing
   c. John will win the race or Joe will.
   d. John will be upset if he fails the exam.
   e. John will be happy if he passes the exam.
   f. John will be happy only if he passes the exam.

2. a. Apply de Morgan's law to: p v q
   b. Apply Modus Ponent to: p → q

3. Using truth tables, show whether the following formulas are equivalent:

   a. p, ¬¬p

   b. p, p → p

   c. p → q, ¬p v q

4. a. Formalize in predicate logic: *No student is French or German*

   b. Give two formalizations in predicate logic of: *Every man loves a woman.*

5. Translate into predicate logic and give its truth conditions:

   a. *Every man is happy.*

   b. *Mary met a dancer.*

   c. *John is Mary's brother.*

6. Can the validity of the inference below be shown using propositional logic or using predicate logic?

   John has no children, but he is happy.

   John is happy.

7. Using set-theoretic notation or the lambda operator, give the denotations of the following:

   a. likes every woman

   b. everyone's friend