Administrivia

• Reminders
  – you should have already sent me an email
    • Name/Contact email/Year/Major/Background/
    • Relevant Background/
    • Why are you interested in natural language semantics?
  – this Thursday:
    • computer lab lecture
    • meet in the SBRI lab (Social Sciences 224)
Administrivia

• SWI-Prolog
  – *have you successfully installed SWI-Prolog on your computer?*
Today’s Topic

• Chapter 1:
  – **The Fundamental Question**
  – from the book:
    • What is Meaning? *Fundamentals of Formal Semantics*
    • P. Portner  Blackwell 2005

• Short Quiz
  – @ 4:30pm
  – you have 15 mins
  – *hand it in at the end*
Formal Semantics

• Formal Semantics
  – (page 1) **Why formalize?**
    • can construct precise theories
    • precise theories are better
      – “they don’t allow the theorists to fudge the data quite so easily as less precise theories do”
Formal Semantics

– We all understand the rationale here
– But how would you encode the reasoning?

– Why formalize?
  • can construct precise theories
  • precise theories are better
  – “they don’t allow the theorists to fudge the data quite so easily as less precise theories do”
Formal Semantics

– We all understand the rationale here
– But how would you encode the reasoning?

Example:
– let f be a function “formalize”
– f(theory) = precise_theory
– precise_theory < theory

“They don’t allow the theorists to fudge the data quite so easily as less precise theories do”
Simple past vs. present perfect

- (1) Mary received the most votes in the election
- (2) Mary has received the most votes in the election

- (so) Mary will be the next president

• Idea
  - (1) reports a past event
  - (2) reports a past event and a current “result”

- present perfect
  • expectation...
  • (entailment)
Simple past vs. present perfect

- (3) Will Mary be able to finish Dos Passos’ *USA* trilogy by the next club meeting? It’s so long!
- Well, she has read *Remembrance of Things Past*, and its even longer

- what’s a “result” here?
  - expectation...
  - (entailment)
  - Mary has read a really long book before and therefore...
Question

• What is a Meaning?
  – difficult sometimes to pin down precisely
  – by reference to other words
  – foreign language: 犬 = “dog”
Question

• What is a Meaning?
• Example:
  – important
  – Merriam-Webster (sense 1):
    • marked by or indicative of significant worth or consequence : valuable in content or relationship
Question

• What is a Meaning?
• Example:
  – **important**
  – Thesaurus
  – Text: 1 having great meaning or lasting effect
  – <the discovery of penicillin was a very important event in the history of medicine>
  – **Synonyms** big, consequential, eventful, major, material, meaningful, momentous, significant, substantial, weighty
  – **Related Words** decisive, fatal, fateful, strategic; earnest, grave, serious, sincere; distinctive, exceptional, impressive, outstanding, prominent, remarkable; valuable, worthwhile, worthy; distinguished, eminent, great, illustrious, preeminent, prestigious; famous, notorious, renowned; all-important, critical, crucial
Question

• What is a Meaning?
  • Meaning = Concept (or thought or idea)
    – “dog” maps to DOG
    – <word> maps to <concept>

• Problems
  – need to provide a concept for every meaningful piece of language
  – how about expressions “whatever”, “three”
  – need to map different expressions into same concept
  – twin earth experiment
  – DOG a shared concept?
Question

• What is a Meaning?
• Meaning = Concept (or thought or idea)
  – twin earth experiment
  – same except H2O = XYZ
  – “water” refers to H2O
  – “water” refers to XYZ
  – identical twins on the two earths don’t mean the same thing by the word “water”
Question

• What is a Meaning?
• Meaning = Concept (or thought or idea)

• Skip the “Meaning = Concept” definition
• reason the word “dog” means the same thing for you and me
  – not that we have the same mental constructs relating to the word
  – it’s because of our intention to apply the word “dog” to the same things out there in our environment
Truth Conditions

– The circle is inside the square

• Can draw a picture of scenarios for which the statement is true and the statement is false

• *truth-conditions* different from *truth-value*
Truth Conditions

– The circle is inside the square

• Proposition expressed by a sentence is its truth-conditions

• i.e. sets of possible worlds
  – dog
  – set of dogs
  – set of things that aren’t dogs
Truth Conditions

– The circle is inside the square and the circle is dark

– and = set intersection

– Mary is a student and a baseball fan
Truth Conditions

– Mary *and* John bought a book

– and = set intersection?

are Mary and John sets?
how about “and = set union”?
Truth Conditions

– The square is bigger than the circle
– The circle is smaller than the square

– Given two sentences, evaluate
  • Synonymous
  • Contrary
  • Entailment
  • Tautology: P or not P
Quiz

• 1. Does sleep entail snore?
• 2. Does snore presuppose sleep?
• 3. Given the statement “All crows are black”, give an example of a sentence expressing a tautology involving this statement?