Natural Language Pragmatics

- motivated by the following examples
  - Can you pass the salt?
  - Who's on the phone? IRS. I'm not here
  - Brillo pads? Aisle 3.
- cooperative interaction
- additional information; example: Is there a gas station at the corner?
- deeper intentions to uncover
  - King to servant: It's cold in here

- Phil Cohen's model
  - NL utterances planned when effects wanted as subgoals not already believed to be true
  - example: OSCAR outside, user inside, door locked:: request open door if pre-conds for opening door hold
  - speech acts to represent actions
  - represent speech acts in terms of STRIPS plans

- Allen's model for recognizing intentions
  - helpful assistant; recognize plan
    - Is there a gas station at the corner?
  - train domain (Union Station): meet or board trains, time or track
    - When is the train to Montreal?
      3:15 at Gate 7
    - The 3:15 train to Windsor?
      needs to know location
    - Do you know when ...
      already knows; wouldn't ask otherwise
    - When is the Windsor train?
      To Windsor? (needs clarification)

- features of the model
  - two approaches: top down (expectations) and bottom up (plan inference rules)
  - ratings based on preferred interpretations
  - being helpful: detecting obstacles, providing additional detail
  - handles indirect, non-literal meanings, fragments, clarification dialogues

- problems with Allen's model
  - limited domain
  - processes one sentence only
  - assumes correct plans only
  - heuristics: best guess
  - should be able to reason with more than one possible plan (uncertainty)

- extensions to Allen's model
  - Carberry
    - more than 1 sentence = context (context model approach)
    - track what is currently in focus with respect to plan library
  - Litman
    - discourse: many sentences
    - track domain and discourse plans simultaneously

- Pollack
  - identify the user's plan, even if it's faulty
  - incoherent vs. ill-formed
  - plans as mental states
- Kautz
  - recognize set of possible plans and reason with this
  - structure the plan library to draw general conclusions
  - add temporal information
  - plan recognition as deduction