Carberry's TRACK system

- tracking goals of speaker
- heuristics for context processing: currently focused and stack of potential foci
- infer lower level goals and relate to higher level goals
- incremental identification of a user's goals by analyzing utterances and keeping a context of plans identified in previous dialogue

Carberry continued

- library of possible plans
- plan inference rules, as in Allen
- infer derived goal using shared knowledge
- conclusion: focus is worthwhile to track

Litman's Discourse Plans

- discourse and domain plans modeled
- example: Can you mount a mag tape for me? It's snowing like crazy.
- three discourse plans: introduce, continue and correct
- using a stack to push and pop discourse plans
- certain plans prefered, via heuristics: e.g. continue current vs. introduce

Pollack's mental plans

- need to distinguish beliefs of speaker and observer
- notion of an action generates another or enables another
- allow invalid plans
- example: I want to prevent Tom from seeing my files. How can I set the permissions to read only? (Tom is system administrator)
- ill-formed vs. incoherent

Pollack continued

- example: I want to phone Kathy at the hospital. How can I stand on my head?

- start with simple plan (formal definition, including "intends to do action A as a way of doing B"

- can draw from what you already believe

Kautz's plan recognition as deduction

- structure the information in plan libraries (hierarchies)

- useful inferences even when plan is not known (e.g. see someone leave with car keys)

- don't need to wait until plan is uniquely identified

Kautz continued

- axioms to allow plan recognition as deduction
  - CUA: component use axiom – must be of some plan
  - DJA: disjoint axiom – each act of one basic type
  - EXA: exhaustiveness – known ways are only ways
- cooking domain - e.g. marinara sauce being cooked, either fettucini marinara or chicken marinara but still red wine