YRRSDS 2009
Session I

Adaptive Dialog Systems

The Big Picture

WE HAD A MINDMAP HERE...

Overview

- Why adapt?
- General issues: adapting vs learning, character of adaptivity
- What to adapt to?
- Where (how) to adapt?
- Problems and challenges

Why

- Usability - improve user satisfaction/experience
- Speed - complete tasks sooner
- Naturalness - more human-to-human like
- Efficiency - transaction completion rates, cost-per-call

Learning vs. adaptation

- Two types of adaptation:
  - 1. Learning = inter-dialog, “global”
    - Concerns general system behavior
    - Mean
  - 2. Adaptation = intra-dialog, “local”
    - Concerns behavior within a single (group of) dialogs
    - Variance

Character of adaptivity

- Is it sensitive to convey to the user that adaptation happened?
- Mirroring vs. non-mirroring

What to adapt to

- User
  - Age, gender, expertise
- Environment
  - Noise
- Task
  - Difficulty

What to adapt to

- What are data sources?
  - online/dynamic
  - offline/static

Where to adapt

- By module
  - ASR, TTS, Dialog Management, Output Generation
- In hierarchy of phenomena
  - Low-level interaction stuff (timeouts, prompt style)
  - High-level dialog stuff (planning)

Where to adapt

- Style/Tone
- Semantic model
- “When” - There are larger procedural issues.

Problems

Misadaptation

- E.g. Identify a novice user as an expert.
- How to identify and recover?

Problems

Overadaptation

- How to avoid positive feedback loop when learning from online data?
- How to avoid user over-confidence in system?

Problems

When *should* we adapt?