Using Natural Language to Manage NPC Dialog

Gary Kacmarcik - Natural Language Processing Group - Microsoft Research - Redmond, WA

**GOAL**
How can we improve NPC dialog using NL technologies?

or

How can we make a wider range of options available to the player without requiring that the game designer script each interaction?

**PROBLEM**
NL interfaces (text/speech) have serious issues with robustness.

**OUR APPROACH**
Use dynamically generated menus that are sensitive to the current game state.

Populate these menus by manipulating abstract logical form (LF) representations that are automatically generated by parsing text. Attach tokens to LF nodes to associate them with game state. As LF subtrees are cut and spliced into new trees, these tokens maintain the semantic associations with the game environment.

**Create KB from NL Text**

“She got sick by eating a poisonous berry.”

```
get
  Manner—eat [^1]
  Tsubj—she
  Tobj—berry [^2]
  Attr—poisonous
  Tsubj—she
```

Store these forms in the NPC’s KB

**Generate List of ICs**

IC = “Interaction Candidate”

Extract a list of all possible interactions by applying tree regular-expressions to the KB tree structures and extracting stimulus-response (e.g., question-answer) pairs.

**Filter and Rank the IC List**

Using game state information about the player, the NPC, the environment and the player’s goals, filter and rank the ICs to produce an ordered list of items for the player.

**Generate Text**

Insert deictic references and generate NL text for each IC.

“Will my sister be O K?”
“How did my sister get sick?”
“What can I do to help?”

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