Our software for incremental dialogue processing is available as open source: Open Source!

Abstract

As situations evolve, speakers are able to start talking without having prepared their full utterance. This enables speakers to start commenting about events for which the outcome is not yet known, resulting in time pressure for the generation of a completion of the partial utterance. Temporal overcommitment may occur, which can be (somewhat) resolved by introducing a hesitation.

We investigate the impact of incremental spoken output [1] in a domain where only few utterances could be finished as planned due to the high rate of change. We look at interactional adequacy and temporal overcommitment in 3 scenarios: the car may go more slowly than anticipated (no hesitations), the car will turn, without knowing whether left or right (hesitations), the car turns right and then turns left (hesitations).

Experiment and Results:

- **Incrementally expanded utt's.** (w/ hesitations)
- **Incrementally expanded utt's.** (w/ hesitations)
- **Short utt's.** (standard)
- **One event per utteration**

- 2 settings:
  - Baseline (individual events, skip/abort optional utterances in favour of non-optional utterances)
  - Incrementally extended utterances, using underspecified prediction events

- 9 scenarios (4 configurations × timing variations)
  - Temporal overcommitment in 3 scenarios
  - Rating (on 5-point Likert scale)
  - Naturalness of formulation
  - Naturalness of pronunciation
  - 9 subjects
  - A total of 81 paired samples for each question

- Results:
  - Preference for incremental formulations
  - Preference even in cases of temporal overcommitment
  - Even a preference in pronunciation
  - A carry-over effect from formulation
  - Interactional adequacy may be more important than raw synthesis quality

Implementation and Integration

- Incremental Processors in the IU model [4]
- Utterance plans [5] extended and changed until immediately before the fact
- ISS provides:
  - Feedback on delivery,
  - Automatically aborted hesitations, and
  - Adaptation of prosody in the vicinity of hesitations

Open Source!

Our software for incremental dialogue processing is available as open source:
- **inpro.tk** for the source code and documentation
- **www.inpro.tk** for more information on the Inpro project

We value your feedback to inpro@lists.sourceforge.net !