Modeling and Operationalizing Flexible Human-Computer Dialogs
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Publication


Implementation
We use concepts from programming languages, such as curry and partial function application, to achieve flexible dialog evaluation and out-of-turn dialog interaction.

Implementation permits
- non-programmers to prototype and design dialogs
- running a server to evaluate (stage) a dialog with clients
- users to participate in the dialog via messaging client

Dialog engine implementation is C++ with QT for cross platform applications
Implementation is packaged as a software toolkit for rapidly prototyping and evaluating dialogs

Dialog Designer
- Allow designers to create flexible dialogs where clients are equal participants with the computer and can steer the direction of the dialog
- Designers, without programming, can specify human-computer mixed-initiative dialogs using a visual or textual application
- Using arrow connections and evaluation mnemonics, designers can change the permitted order(s) of dialog evaluation without moving dialog content, creating multiple dialogs from a single specification
- Dialog evaluation model supports choosing from all possible sets of orderings/combinations of client user responses (8196 sets for a 3 question dialog)
- User studies can be simulated without needing to develop an actual dialog system

Purpose
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Abstract
We demonstrate a tool for rapidly prototyping dialog-based systems for interactive use. The tool enables a dialog designer to evaluate a variety of dialogs without having to program each individual dialog, and provides a proof-of-concept for our approach to mixed-initiative dialog modeling and implementation. Applications of our tool can be applied to human-computer dialogs common in automated teller machines (ATMs), kiosks, personal assistants, and online forms including course scheduling.

Publications