Talkamatic
FREE DIALOGUE

Free robust parsing

Background

Open speech recognition

Talkamatic build dialogue systems and are currently using a GF-based grammar tool for parsing and generation. A unified language description is compiled into a speech recognition grammar (for Nuance Vocon ASR, PocketSphinx and others), a parser and a generator.

The problem with this is that the parser can only handle the utterances which the ASR can recognize fom the ASR grammar. The parser is thus not robust, and if an open dictation grammar is used (such as Dragon Dictate used in Apple's Siri) the parser is mostly useless.

Ontology

Currently TDM (the Talkamatic Dialogue Manager) requires all concepts used in the dialogue to be known in advance. Hence, for a dialogue-controlled music player, all artists, songs, genres etc. need to be known and explicitly declared beforehand.

There are disadvantages with this approach. For example, it requires access to a extensive music database in order to be able to build a dialogue interface for a music player.

Problem description

To simplify the building of dialogue interfaces for this kind of application, it would be useful to have a more robust parse, which can identify sequences of dialogue moves from arbitrary user input strings.

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Ex.

Utterance	Dialogue Moves
”Play Like a Prayer with Madonna”	request(play_song), answer(”Like a Prayer”:song_title) answer(”Madonna”:artist_name)
”Play Sisters of Mercy”	request(play_song) answer(”Sisters of Mercy”:song_name)
”Play Sisters of Mercy”	request(play_artist) answer(”Sisters of Mercy”:artist_name)
”I would like to listen to Jazz”	request(play_genre) answer(”Jazz”:genre_name)

Method

Several different methods can be used: Named Entity Recognizers, regular expressions, databases etc., or combinations of several of these. A strong requirement is that the parser should be built automatically or semiautomatically from a small corpus or database. Computational efficiency is also desirable but less important. The parser must have a Python interface and run on Linux.

Supervision

Peter Ljunglöf, Chalmers Data- och informationsteknik or Staffan Larsson, FLoV, together with Talkamatic AB. Talkamatic is a university research spin-off company based in Göteborg.

Payment

A small compensation may be paid by Talkamatic AB when the thesis is completed.