The Problem

- Patients with Limited or No English (PLONEs)
- Multiple communication difficulties and barriers when accessing healthcare services
- Hospitals and GP surgeries unable to meet appropriate language and cultural needs
- Expressive and receptive communication difficulties
- Patients may be unable to describe their symptoms
- Undergoing treatment
- Resulting in frustration, anxiety, and dependence on others
- Problem recognized, but solutions so far inadequate, e.g.
  - Homolingual GP or linkworker
  - Telephone interpreting
  - Multilingual phrasebook or phrase cards
  - Use of untrained interpreters (esp. family members, e.g. children)

Language technology may be able to help

What is Language Technology?

Any computer-based technology to do with language, including
- Intelligent keyboard
  - Auto-completion when typing (predictive)
  - Typing with reduced key-set, as on mobile phone (interpretive)
- Speech synthesis
  - Based on recordings, or digitized speech
  - Explicitly generated
  - Text-to-speech (e.g. can read out a web-page to blind or illiterate person)
- Speech understanding/Recognition
  - Like in telephone call centre
  - More sophisticated: speech-to-text dictation systems
  - Still a bit flakey, but can work in limited (controlled) circumstances

Fitting Technology to Need

Different aspects of the patient’s pathway to healthcare imply different technologies of varying complexity, for example:
- Information leaflets with medication, equipment etc.
- Instructions printed with prescriptions
- Variable combinations of fixed phrases
- FAQs concerning symptoms/treatment
- Computer-based self-help facility like Google or Ask Jeeves
- Patient history
- Computer-mediated interview

Multi-modal DPI System

Some of the Problems

- Consultation is a task-oriented cooperative dialogue
  - To a certain extent it is somewhat predictable
  - We can store in advance some of the questions
  - And we know what sort of answers to expect
- Different interfaces for doctor and patient
  - Doctor probably used to mouse and keyboard
  - Patient may not be
- Doctor’s interface
  - Intelligent menu-driven interface based on domain knowledge for “standard” questions
  - Typed free text with auto-completion otherwise
- Patient’s interface
  - Drop-down menu
  - Touch screen
  - Use of symbols
  - Speech input and output

Added Problem

Language technology is well developed for “majority” languages – English, French, German, Spanish, Italian, Portuguese, Russian, Chinese, Japanese, Korean, Arabic – but less developed (or not even started) for many “minority” languages (even including widely-spoken languages) which are of less economic interest to big business. Often these coincide with the languages spoken by the most vulnerable: recent immigrants, asylum seekers, etc.

Pilot Project

(CAMELS – Computer Assistance for Minority Language Speakers) focusing on asthma – Somali, Urdu or Sylheti

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