

## Cognitive neuroscience of communication breakout group

The group comprised representatives from various disciplines including speech engineering, cognitive neuro-science, psycholinguistics and computational linguistics. The starting point was that the interacting pair rather than the individual is the natural unit for studying interactive communication processes. So the group set out to identify issues in applying cognitive neuroscientific techniques, such as neural imaging, to the study of interactive processes in communication. It also considered how to model interactive processes in engineering systems such as those for speech recognition/generation.

Key issues that arose organised by members' interests

### Cognition

- What are the relevant differences between interactive and non-interactive language processing?
- How does face-to-face communication change under different settings – e.g., How is it affected by the size of the group? How is it affected by intermediate communication technologies?

### Neuroscience

- What are the limitations of fMRI and MEG for imaging interactive communication processes – e.g., Is it possible to overcome artefacts due to speech articulation?
- How can ERP be used to investigate interactive communication processes?
- What is the relationship between 'mirror systems' for action and 'mirror systems' for language?

### Engineering

- How do you model a 'mirror system' for speech processing?
- Can there be parity between generation and recognition for automatic speech processing systems as assumed in interactive alignment accounts of dialogue processing?

The group felt that there were enough points of contact between research issues in the various disciplines to justify attempting to construct a cross-disciplinary pilot proposal on the topic of the cognitive neuroscience of alignment processes in communication.

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