NOTES FROM INFRASTRUCTURE GROUP (Session 1, Team 3)

The theme of this group was the potential development of an infrastructure to support cognitive systems research at many different levels, ranging from brain imaging, through articulatory data capture, through to linguistic annotations of spoken language databases. One of the main impetuses to this theme was the possibility that the development of such a multi-disciplinary infrastructure might provide an environment for new research synergies to grow. Much of the discussion built on Steve Young's talk from the previous day.

A potential cognitive systems infrastructure project would build on the E-Science initiative. The following points were noted:

- A peer-to-peer organizational model is probably best (rather than some centralized facility)
- It needs the development of an agreed XML-based language for the distributed database, to make it easy for people to share resources
- Although data grids (which would enable common sharing of data in a distributed manner) are core to any infrastructure, there is a possibility that computational grids (based on web services) could become important for issues such as automatic annotation
- The availability of browsers for the visualization of these data streams was seen as essential
- The success of such an infrastructure, would also depend on consolidating existing data collections, for example through the import of existing data.

Some important questions were also posed:

- Given a limited budget, is the concentration on such an infrastructure a diversion from the main research issues?
- How would we ensure that such an infrastructure is well-populated (requires change in researchers behaviour) - analogies to chemistry (molecular markup language) and biology where it becomes a researchers responsibility to populate such databases.

Such an infrastructure would enable a variety of projects, such as the development of machine learning algorithms to process multi-channel, multi-source data. A potential "grand challenge" proposal that would be supported by such an infrastructure would be based around fully-instrumented human-human and human-computer interaction.

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