Interaction Modelling

Interaction models can be divided into two broad categories:

- **Task analysis**
    - models only what happens - or is observable - during interaction
- **Cognitive models**
    - designed to incorporate some representation of the user's abilities, understanding, knowledge, etc..
    - The aim is to formalise knowledge gleaned by psychologists so that it can be employed in the design of computer systems.

Cognitive models can be broadly categorised as follows:

- **Hierarchical representations of the user's task and goal structure**
    - These models deal directly with the issues of formulating tasks and goals.
- **Linguistic and Grammatical models**
    - These models deal with articulation and translation between the system and the user.
- **Physical and Device-Level models**
    - These models deal with articulation at the human motor level rather than at higher levels.

Some cognitive models directly embody knowledge about human perception, memory, etc..

Other cognitive models do not embody this knowledge directly, but model interaction in a way that makes it easy to identify processes relying on human perception, memory, etc..

A major issue in the design and use of models is selecting the appropriate level of *granularity*.

- **What is the top-level goal?**
    - Most tasks form part of larger undertakings, so goals can be defined at many levels.
    - The choice is often determined by the system being modelled.
- **What is the lowest-level sub-goal?**
    - Should we break down the goals until we reach the level of individual finger and eye-movements?
    - The approach generally adopted is to identify sub-goals that are *routine, learned tasks* which do not involve problem-solving.
    - These are referred to as *unit tasks*.

Most modelling languages and techniques leave decisions on granularity to the user.