Task Analysis
• Methods to analyse people’s job
  – What people do
  – What they work with
  – What they must know

• TA describes the behaviour of a system
Task analysis

- Insight into the nature of a task as it is performed in the field.
  - What is being done?
  - How are tasks accomplished?
  - There is no judgment as to the appropriateness or efficiency of those procedures.
  - TA addresses what is done, not what should be done.
Elements

• 3 level concept structure
  – Goals
  – Tasks
  – Actions
Goals

• Overall objective of the actions
• Something the user wish to achieve
  – write a letter - make an order – call a friend

• To reach a goal the user usually needs a plan which involves a set of tasks to be performed in order to reach the goal
Tasks

• Structured set of activities required to achieve a goal.
• Involve problem solving or selecting between alternative actions (or sub tasks)
Actions

• A 'simple task' which requires no problem solving
• An action has no structure
• Atomic element performed
• Task analysis steps Goal -> What to do
  SeDevice or Method lect the ->
  Determines the task in concrete terms
  Task -> activities to achieve the goals
  using the device Subtask - components of,
a task Actions - simple tasks
• The tasks can be described as hierarchies.
• E.g., the use of a word processing system can be described as a hierarchy of subtasks which can be taken alternatively or after each others in order to reach the overall goal.
Hierarchical Task Analysis

- Involves breaking a task down into subtasks, then sub-sub-tasks and so on. These are grouped as plans which specify how the tasks might be performed in practice.
- HTA focuses on physical and observable actions of the users, and includes looking at actions not only related to software or an interaction device.
- Start with a user goal which is examined and the main tasks for achieving it are identified.
- Tasks are sub-divided into sub-tasks.
make a cup of tea

plan 0.
do 1
at the same time, if the pot is full 2
then 3 - 4
after four or five minutes do 6

1. boil water
2. empty pot
3. put tea leaves in pot
4. pour in boiling water
5. wait 4 or 5 minutes
6. pour tea

plan 1.
1.1 - 1.2 - 1.3
when kettle boils 1.4

1.1. fill kettle
1.2. put kettle on hob
1.3. wait for kettle to boil
1.4. turn off gas

[Dix et al, p. 515]
Example HTA

0. In order to borrow a book from the library
   1. go to the library
   2. find the required book
      2.1 access library catalogue
      2.2 access the search screen
      2.3 enter search criteria
      2.4 identify required book
      2.5 note location
   3. go to correct shelf and retrieve book
   4. take book to checkout counter
Example HTA (plans)

plan 0: do 1-3-4. If book isn’t on the shelf expected, do 2-3-4.
plan 2: do 2.1-2.4-2.5. If book not identified do 2.2-2.3-2.4.
Example HTA - graphical

Borrow a book from the library 0

plan 0: do 1-3-4. If book isn't on the shelf expected, do 2-3-4.

go to the library 1

find required book 2

retrieve book from shelf 3

take book to counter 4

plan 2: do 2.1-2.4-2.5. If book not identified from information available, do 2.2-2.3-2.4-2.5

access catalog 2.1

access search screen 2.2

enter search criteria 2.3

identify required book 2.4

note location 2.5
Collecting data

• *Observation of subjects performing a task is the central data-source for task analysis*

• Data for task analysis comes from actual observation of the task being analyzed and interaction with experts in the field

• Instructional guides, operational manuals, and other procedural material can provide supplementary information.
Practice versus Model

• The purpose of task analysis is to describe the actual practice, not to construct an 'ideal' model

• Documentation may not provide a sufficient base of information

• Observation of subjects performing the task to be analyzed is the central method of data collection for task analysis.

• Think-aloud
Interviews with expert

• Good data sources, but experts may take certain steps for granted.
  – Useful to resolve questions which grew out of an observational session
  – Caution because experts may not be aware of all of the steps they take when performing a task –
  – Some details drop below the level of conscious thought
Summary

• Task analysis techniques such as HTA help to investigate existing systems and practices