

HUMAN-COMPUTER
INTERACTION

THIRD
EDITION


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chapter 18

modelling rich interaction


extract for MSc/MRes AISD

rich work ecologies



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INTERACTION

rich contexts




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the problem

- task models
 - formal description
- situatedness
 - unique contexts
- ethnography
 - rich ecologies

}


bringing them together?



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collaboration

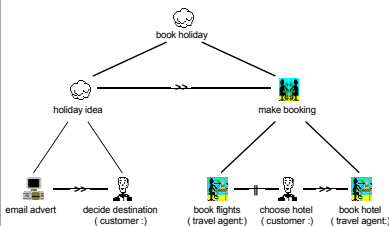
- already in several notations
 - e.g. CTT, GTA
- add artefacts too ?









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ConcurTaskTrees (CTT)

Paterno et al. CNUCE, Pisa



 abstract task
 user task
 computer task
 user and computer
 cooperative task



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Groupware Task Analysis

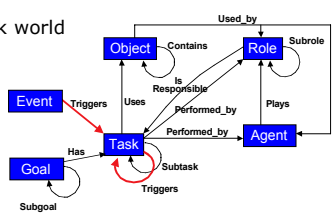
GTA

- conceptual framework, tools, elicitation techniques

rich model of task world

rich ontology

- human roles for collaboration
- physical and electronic objects



information

pre-planned cognitive model
goal → action

situated action
environment → action

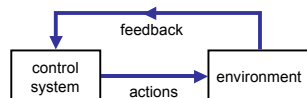
control

- open loop control
 - no feedback
 - fragile

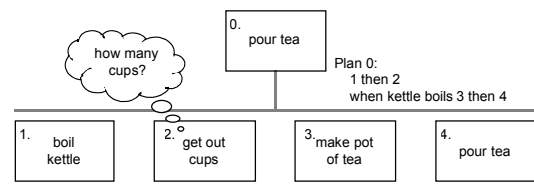


control

- open loop control
 - no feedback
 - fragile
- closed loop control
 - uses feedback
 - robust



adding information



adding information (ctd)

- information required when
- subtask involves input (or output)
 - some kind of choice (how to know what to do)
 - subtask repeated (but iterations unspecified)

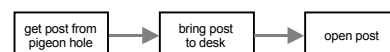
sources of information

- part of existing task (e.g. phone number entered)
- user remembers it (e.g. recall number after directory enquiry)
- on device display (e.g. PDA address book, then dial)
- in the environment
 - pre-existing (e.g. phone directory)
 - created in task (e.g. write number down on paper)

GUI easy (lots of space) mobile/PDA need to think

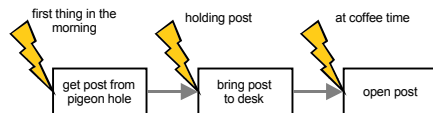
triggers

process – what happens and order



triggers

process – what happens and order
triggers – when and why



common triggers

- immediate
 - straight after previous task
- temporal
 - at a particular time
- sporadic
 - when someone thinks of it!
- external event
 - when something happens, e.g. phone call
- environmental cue
 - something prompts action ... artefacts

artefacts

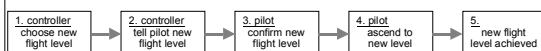
- ethnographic studies
- as shared representation
- as focus of activity
- act as triggers, information sources, etc.

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placeholders

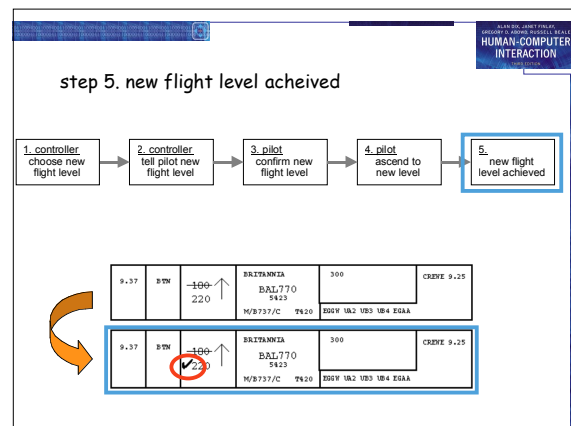
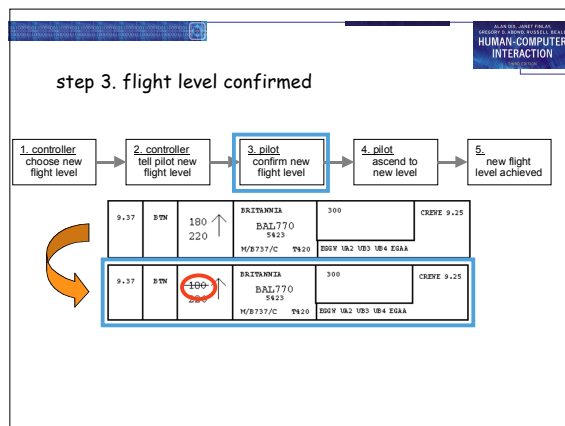
- knowing where you are in a process
 - like a program counter
- coding:
 - memory
 - explicit (e.g. to do list)
 - in artefacts

where are you?



step 1. choose new flight level





tracing placeholders

a form of information, may be ...

- in people's heads
 - remembering what to do next
- explicitly in the environment
 - to-do lists, planning charts, flight strips, workflow
- implicitly in the environment
 - location and disposition of artefacts

electronic environments ...

- fewer affordances for artefacts
- danger for careless design!

papers tidy or skewed
letter open or closed

low intention and sensor-based interaction

car courtesy lights

- turn on
 - when doors unlocked/open
- turned off
 - after time period
 - when engine turned on

driver's *purpose* is to get into the car
incidentally the lights come on