incidental interaction
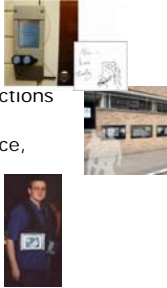## when machines do what they want

Alan Dix

Lancaster University

www.hcibook.com/alan/topics/incidental
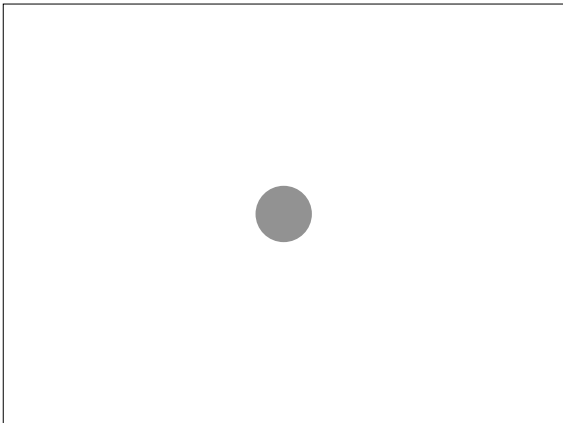
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other things

- situated displays, eCampus,
  small device – large display interactions

- fun and games, artistic performance,
  slow time

- physicality, creativity, bad ideas

- intelligent internet interfaces
  open search, etc.

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the plan

- beyond intention
  - examples at the edge

- incidental interaction
  - definitions and relations

- pushing the boundaries
  - remoulding our models

▶ • beyond intention
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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

Pepys

- Xerox Cambridge (RIP)
- active badges
- automatic diaries

Allan's *purpose* to visit Paul's office

incidentally diary entry created

MediaCup

- cup has sensors
  – heat, movement, pressure
- broadcasts state (IR)
- used for awareness
  – user is moving, drinking, …

Han's *purpose* to drink coffee

incidentally colleagues are aware

shopping cart

- goods in shopping cart analysed
  – e.g. Amazon books
- used to build knowledge about books
  – people who like X also like Y
- used to give you suggestions
  – "you might like to look at …", "special offer …"

my *purpose* to buy a book

incidentally shown related titles

onCue

- 'intelligent' toolbar
  - appropriate intelligence
    - make it good when it works
    - don't make it hard of it doesn't
- analyses clipboard contents
- suggests things to do with it

user's *purpose* to copy text elsewhere

incidentally alternative things to do

- beyond intention
  - examples at the edge

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---

definition

where actions performed
for some other purpose,
or unconscious signs,
are interpreted in order to
influence/improve/facilitate
the actors' future interaction
or day-to-day life

definition

**where actions performed
for some other purpose,**
or unconscious signs,
are interpreted in order to
influence/improve/facilitate
the actors' future interaction
or day-to-day life

beyond intention   13

definition

where actions performed
for some other purpose,
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or day-to-day life

beyond intention   14

definition

where actions performed
for some other purpose,
or unconscious signs,
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influence/improve/facilitate
the actors' future interaction
or day-to-day life

beyond intention   15

definition

where actions performed
for some other purpose,
or unconscious signs,
are interpreted **in order to
influence/improve/facilitate**
the actors' future interaction
or day-to-day life

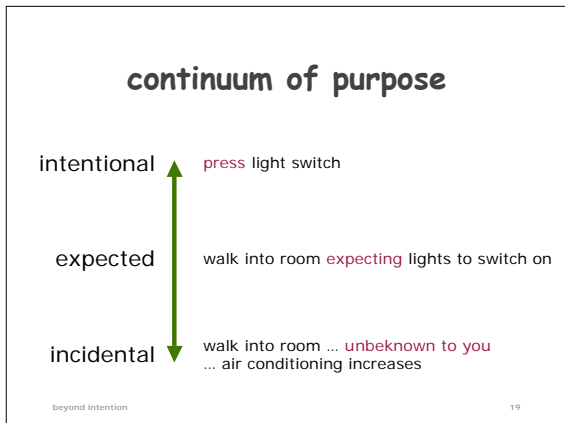## definition

where actions performed
for some other purpose,
or unconscious signs,
are interpreted in order to
influence/improve/facilitate
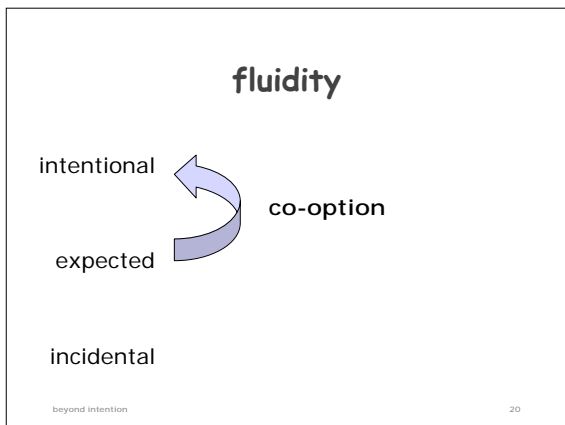the actors' **future interaction
or day-to-day life**

definition

where actions performed
for some other purpose,
or unconscious signs,
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influence/improve/facilitate
the actors' future interaction
or day-to-day life

continuum of purpose

intentional   ↑   press light switch

expected   walk into room expecting lights to switch on

incidental   ↓   walk into room ... unbeknown to you
... air conditioning increases

beyond intention   19

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fluidity

intentional

co-option

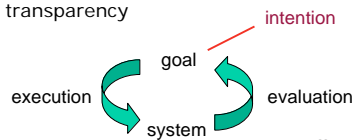expected

incidental

beyond intention   20

- beyond intention
  - examples at the edge

- incidental interaction
  - definitions and relations

▶ • pushing the boundaries
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beyond intention   21

interaction models

- intentional cycle
  - Norman execution/evaluation loop
- some exceptions
  - multiple goals, displays, opportunistic
- guidelines
  - feedback, transparency

---

task analysis

- need richer representations
  - of the world, of devices, of artefacts
  - wider ecological concerns
- two tasks
  - purposeful task – for interpretation
  - supported task – for actions

---

cognition

- physical things (inanimate)
  - directness of effect
  - locality of effect
  - visibility of state
- computational things (also animate)
  - complex effects
  - non locality of effect
    - distance – networks;   time – delays, memory
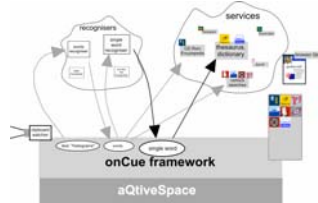 - large hidden state

cognition

- understanding
  - innate intelligences
    - physical, natural/animal, social, physiological
  - rational thought
  - imagination
- interfaces
  - GUI, VR, AR, tangible
    - recruit physical/tangible intelligence
  - ubicomp, ambient, incidental
    - homunculi, haunted houses

system architecture

- open, standardised

  e.g. onCue
  - ✓ clipboard
  - ✗ beyond

- beyond intention
  - examples at the edge

So?

- incidental interaction
  - definitions and relations

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  - remoulding our models

low intention

low attention

breaking
assumptions
of HCI

rewriting
the book