dialogue notation

focus on STNs

extract from chap 8 slides for
Human Computer Interaction
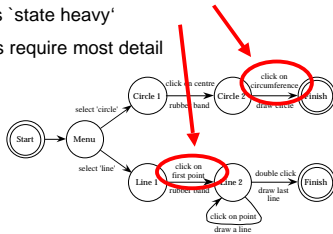http://www.hcibook.com/

State transition networks (STN)

▌ circles - states
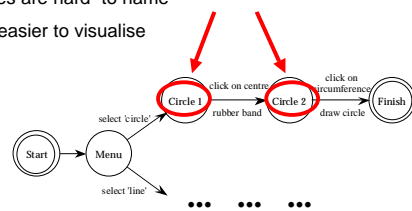
▌ arcs - actions/events
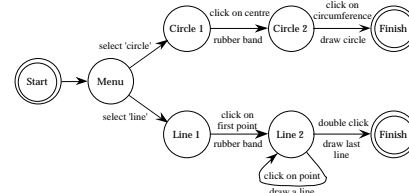
State transition networks - events

▌ arc labels a bit cramped because:

▌ notation is `state heavy'

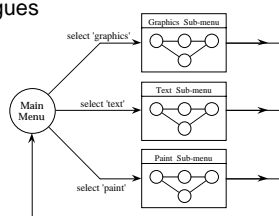▌ the events require most detail

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State transition networks - states

▌ labels in circles a bit uninformative:

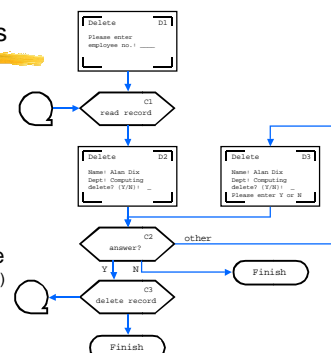▌ states are hard to name

▌ but easier to visualise

Hierarchical STNs

▌ managing complex dialogues

▌ named sub-dialogues
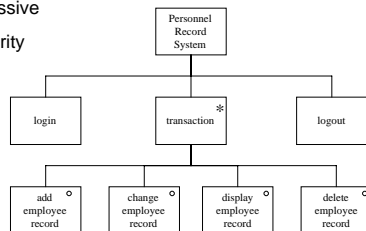

Flowcharts

▌ familiar to programmers

▌ boxes
- process/event
- not state

▌ use for dialogue
(not internal algorithm)

JSD diagrams

- for tree structured dialogues
  - less expressive
  - greater clarity

Concurrent dialogues - I
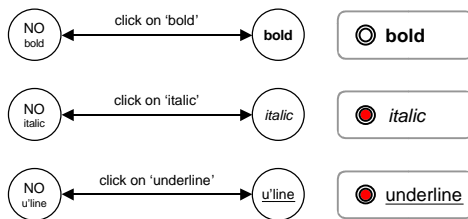simple dialogue box

Text Style

◎ **bold**
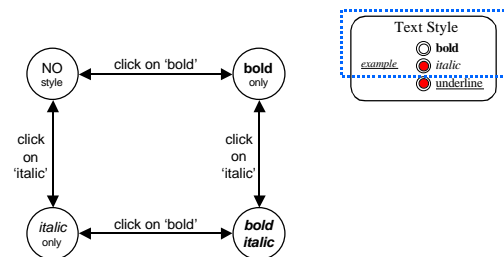*example*   ● *italic*
● <u>underline</u>

Concurrent dialogues - II
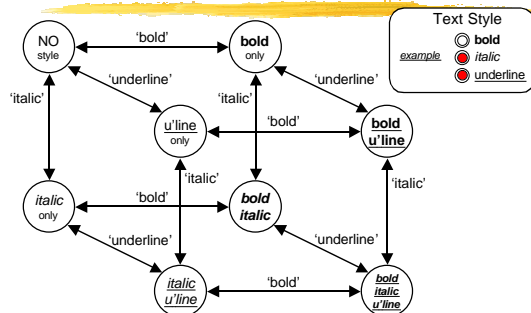three toggles - individual STNs

Concurrent dialogues - III
bold and italic combined

Concurrent dialogues - IV
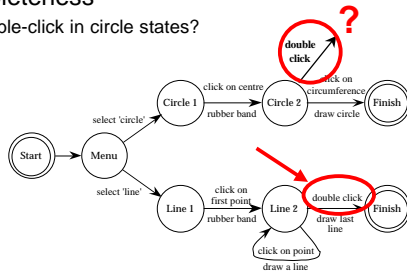all together - combinatorial explosion

Action properties

- completeness
  - missed arcs
  - unforeseen circumstances
- determinism
  - several arcs for one action
  - deliberate: application decision
  - accident: production rules
- nested escapes
- consistency
  - same action, same effect?
  - modes and visibility
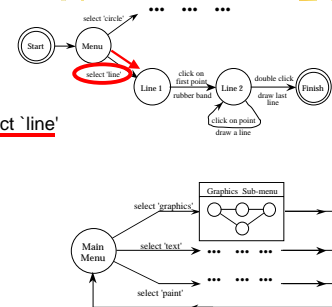
Checking properties (i)

- completeness
  - double-click in circle states?

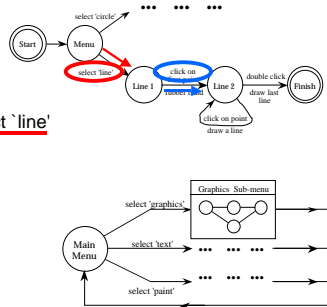## Checking properties (ii)

- Reversibility:
  - to reverse select `line'

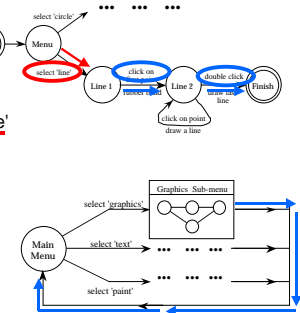## Checking properties (ii)

- Reversibility:
  - to reverse select `line'
  - click

Checking properties (ii)

- Reversibility:
  - to reverse select `line'
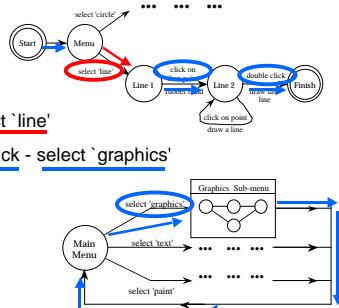 - click - double click

Checking properties (ii)

- Reversibility:
  - to reverse select `line'
  - click - double click - select `graphics'
  - (3 actions)
- N.B. not undo

State properties

- reachability
  - can you get anywhere from anywhere?
  - and how easily
- reversibility
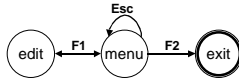 - can you get to the previous state?
  - but NOT undo
- dangerous states
  - some states you don't want to get to
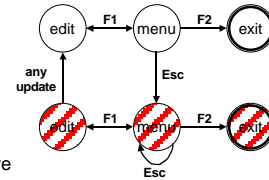
Dangerous States

- word processor: two modes and exit
  - F1 - changes mode
  - F2 - exit (and save)
  - Esc - no mode change

but ... Esc resets autosave

Dangerous States (ii)

- exit with/without save ⇒ dangerous states
- duplicate states - semantic distinction
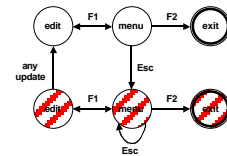
F1-F2 - exit with save
F1-Esc-F2 - exit with no save
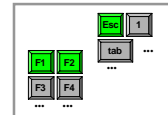

Lexical Issues

- visibility
  - differentiate modes and states
  - annotations to dialogue
- style
  - command - verb noun
  - mouse based - noun verb
- layout
  - not just appearance ...
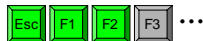
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layout matters

- word processor - dangerous states
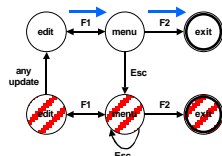
- old keyboard - OK

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layout matters

- new keyboard layout

intend F1-F2 (save)

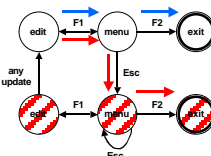finger catches Esc

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layout matters

- new keyboard layout

intend F1-F2 (save)

finger catches Esc

F1-Esc-F2 - disaster!

Dialogue Analysis - Summary
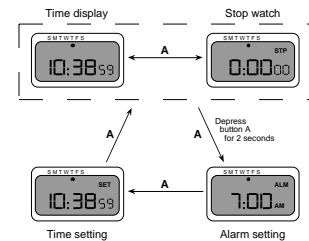
- **Properties of dialogue**
  - action properties:
    - completeness, determinism, consistency
  - state properties:
    - reachability, reversibility, dangerous states
- **Presentation and lexical issues**
  - visibility, style, layout
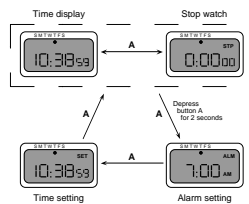 - N.B. not independent of dialogue

Digital watch – User Instructions

- two main modes
- limited interface
  - 3 buttons
- button A
  changes mode

Digital watch – User Instructions

- dangerous states
  - guarded by two second hold
- completeness
  - distinguish depress A and release A
  - what do they do in all modes?

Digital watch – Designers instructions

and ...

that's just
one button