



Is the PIE past its sell-by date?

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20 years ago

the PIE and all that



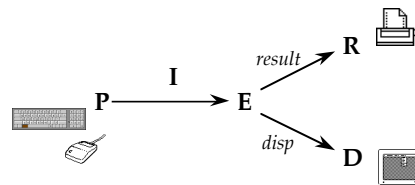
interaction models

- generic models of classes of system
- mainly to aid understanding of general issues

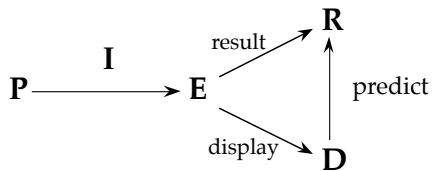


the PIE model (Dix & Runciman, 1985)

- 'minimal' model of interactive system
- focused on external observable aspects of interaction



properties - WYSIWYG



$\exists \text{ predict} \in (D \rightarrow R)$ s.t. $\text{predict} \circ \text{display} = \text{result}$

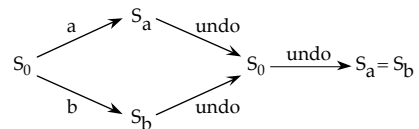
- but really not quite the full meaning



proving things - undo

$\forall c : c \text{ undo} \sim \text{null} ?$

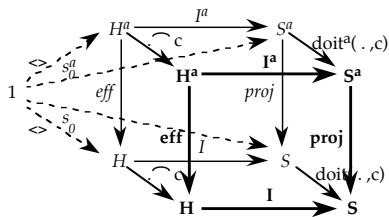
only for $c \neq \text{undo}$



the cube (Mancini, 1997; Dix & Mancini, 1997)



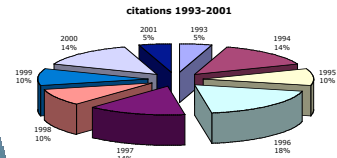
- generic framework for layered systems
- undo, back and history



still going strong



- first book - citeseer.nj.nec.com citation count



... and more

- chapter in Carroll theory book
Upside down Vs and algorithms ...
- in a leading textbook!!
... and the Italians love it!



further back

a formal methods
success story

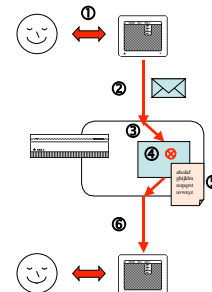
problem



- context
 - mid 80s
 - local authority DP dept
- transaction processing
 - vast numbers of users
 - order processing, pos systems etc.
 - COBOL!
- existing programs ... didn't work

what happens

- 1 user edits form
 - 2 message goes to TP engine
 - 3 passed to application module
 - 4 which processes the message
 - 5 and prepares new screen
 - 6 which is sent to the user
-



fluidity

- 'naturalness' of device-logical mapping

device & logical states

compliant interaction

incidental 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

issues and process

- no accepted methods but ... general pattern
- uncertainty
 - traditional system due to errors
 - sensor-based so intrinsic to design
 - uncertain readings, uncertain inference
 - usually control non-critical aspects of environment
- process ... identify
 - input - what is going to be sensed
 - output - what is going to be controlled
 - scenarios - desired output and available input

designing a car courtesy light

<ul style="list-style-type: none"> available input <ul style="list-style-type: none"> -door open, car engine desired output <ul style="list-style-type: none"> -light! identify scenario label steps <ul style="list-style-type: none"> 0 don't care +, ++, ... want light -, --, ... don't want it legal requirements <ul style="list-style-type: none"> light off whilst driving safety <ul style="list-style-type: none"> approaching car?? 	<ol style="list-style-type: none"> deactivate alarm 0 walk up to car 0 key in door 0 open door & take key + get in ++ close door 0 adjust seat + find road map ++ look up route +++ find right key + key in ignition - start car 0 seat belt light flashes 0 fasten seat belt + drive off 0
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safe? light advertises presence

illegal to drive with interior light on



in summary ...

after 20 years
the PIE is still fresh