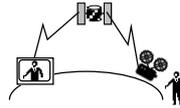


Time

Timing Matters . .

to comedians, lovers, footballers



communication

&



physical activity

Common Timescales

around 200ms

hand-eye coordination
emergency reactions

several seconds

conversation
short term memory

days, weeks, etc.

regular daily or calendar activities
irregular event driven

we are distributed networked systems!

- touch something hot
- nerve impulse
 - from hand to brain ~ 70ms
- lower brain reaction - says move!
- nerve impulse
 - from brain to hand

a bit like the internet

Deliberate Delay



1. click on name part of icon



2. wait a second



3. click again and type



- hard to learn
- hard to proceduralise
- rhythms easier

Natural Time?

- rhythm of language
- rhythm of music
- mechanics of the human body



Computer Usability

Some people say

a child should be able to use it

I say

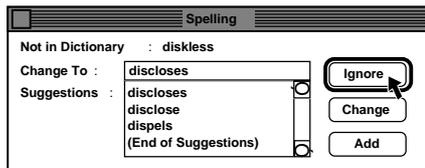
a caveman should be able to use it

The Myth of the Infinitely Fast Machine

designers and documenters of interactive systems assume the computer will be 'fast enough'

it never is!

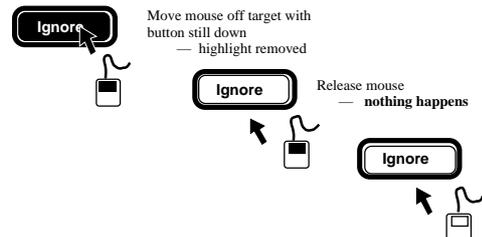
Word (old version) Spell Checker



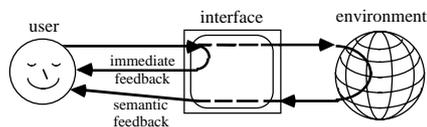
Problems:

- cannot interrupt during search for corrections
- no button feedback when busy
- strange behaviour of buttons

Normal Button Press



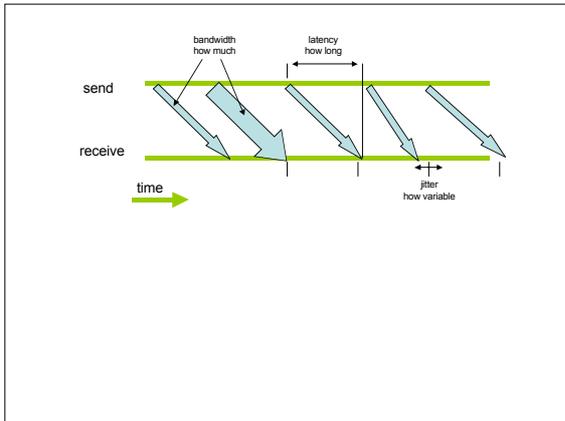
Mediated Interaction



delays due to:
networks, computation or external causes
plan for them:
immediate feedback + semantic feedback
local control

networked media

- QoS (quality of service)
 - bandwidth
 - how much information per second
 - latency
 - how long it takes (delay)
 - jitter
 - how consistent is the delay
 - reliability, ...



- ## networked media
- QoS (quality of service)
 - bandwidth, latency, jitter, reliability, ...
 - media
 - video - dropped frames OK
 - speech - missing sound - disaster
 - mode
 - real-time - jitter can disrupt conversation
 - streamed - use buffering (latency) to overcome jitter

