

Questions?

- Project #2
- Hw#5 (almost) out!

Direct manipulation: Good or Evil?

- Good for intermediate users
 - Recognition versus recall trade-off
- Explicit versus implicit command
 - “rename each file by adding ‘_old’ to its name”
- Limit of reification
 - How to align an object?
- Metaphor might be too restrictive
 - WYSIAYG: What You See Is All You Get
- Applications mix
 - Direct manipulation
 - *Tools, drag and drop interactions...*
 - Abstraction
 - *Menus, dialog boxes,...*

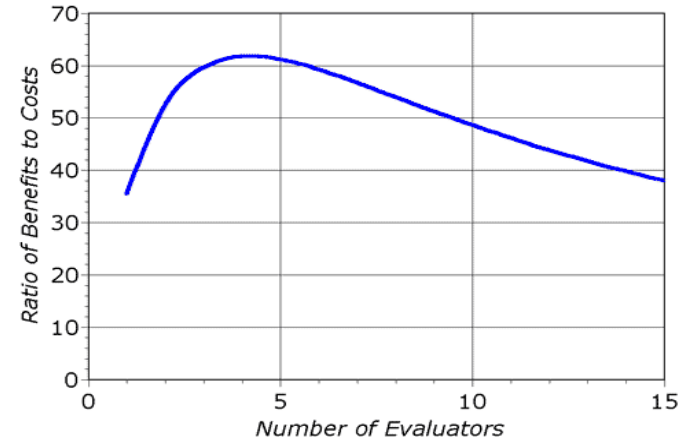
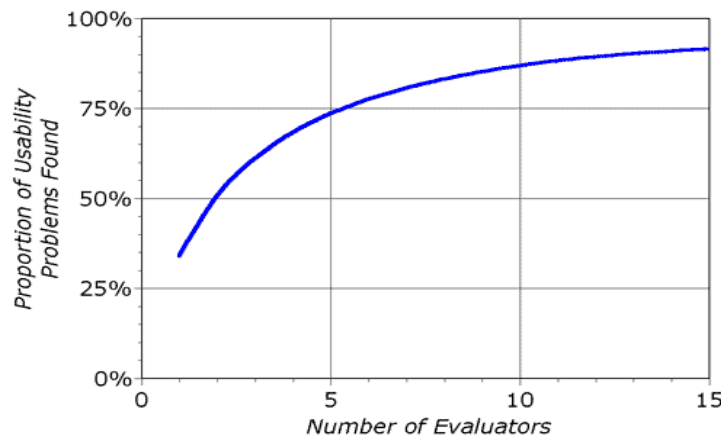


Usability heuristics

- “Rules of thumb” that describe features of usable systems
 - Can be used as design principles
 - Can be used to evaluate a design
- Pros and cons
 - Easy and inexpensive
 - *Performed by expert*
 - *No users required*
 - *Catch many design flaws*
 - More difficult than it seems
 - *Not a simple checklist*
 - *Cannot assess how well the interface will address user goals*

Usability Engineering

- Introduced by Nielsen (1994)
- Can be performed on working UI or sketches
- Required a small set (3-5) of evaluators to examine the UI
 - Check compliance with usability principles
 - *Each evaluator works independently*
 - *Go through the interface several times*
 - All reviews are aggregated in one final usability report



Nielsen's evaluation phases (1-2)

- Pre-evaluation training
 - Provide the evaluator with domain knowledge if needed
- Evaluation
 - First step: get a feel for flow and scope
 - Second step: focus on specific elements
 - *Multiple passes approach is better*
 - *Create a list of all problems*

Nielsen's evaluation phases (3-4)

- Severity rating
 - Performed after individual evaluations are aggregated
 - Establishes a ranking between problem
 - Reflects frequency, impact and persistence
 - *Cosmetic, minor, major and catastrophic*
- Debriefing
 - Discuss outcome with design team
 - Suggest potential solutions
 - Assess how hard things are to fix

Neilsen's heuristics

- Simple and natural dialog
- Speak the users' language
- Minimize user memory load
- Consistency
- Feedback
- Clearly marked exits
- Shortcuts
- Prevent errors
- Good error messages
- Provide help and documentation

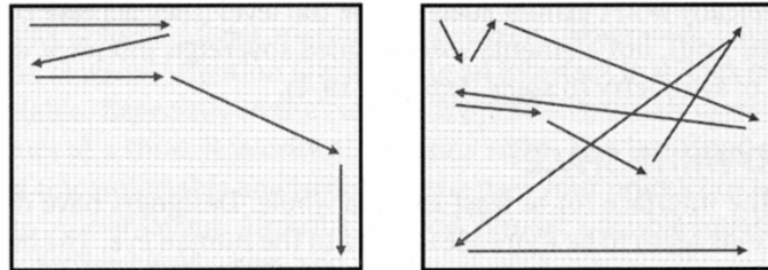
Simple and natural dialog



From Cooper's "The inmates are running the asylum"

Simple and natural dialog

- Present information in natural order

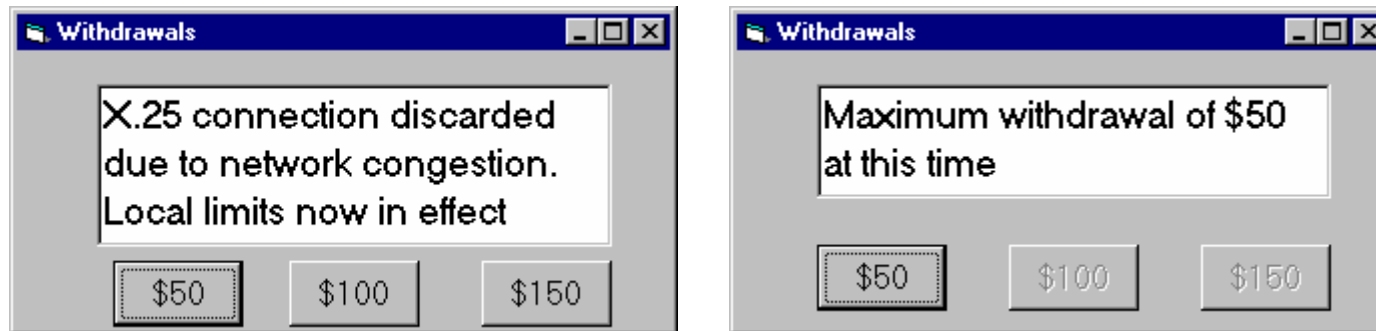


From Cooper's "About face 2.0"

- Occam's razor
 - Remove or hide irrelevant or rarely needed information
 - *They compete with important information on screen*
 - Pro: Palm Pilot
 - Against: Dynamic menus
 - Use windows frugally
 - *Avoid complex window management*

Speak the users' language

- Use a language compatible with users' conceptual model
 - Example: withdrawing money at an ATM



- Use meaningful mnemonics, icons and abbreviations

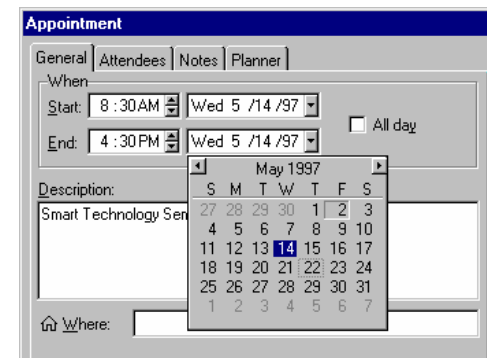


Minimize user memory load

- Promote recognition over recall
 - Recognition is easier than recall



- Describe expected input clearly
 - Don't allow for incorrect input



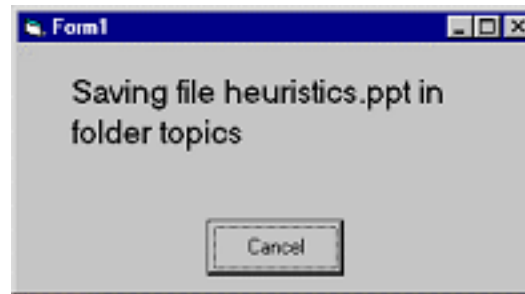
- Create orthogonal command systems
 - Using generic commands that can be applied to all interface objects

Consistency

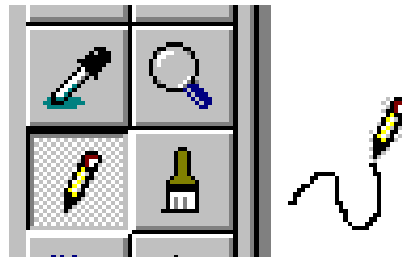
- Be consistent in
 - Command design
 - *Same action, same effect in equivalent situations*
 - Graphic design
 - *Input format*
 - *Output format*
 - Flow design
 - *Similar tasks are handled in similar ways*
- Consistency promotes skills acquisition and/or transfer

Feedback (Semantic)

- Users should always be aware of what is going on
 - So that they can make informed decision
 - *Be specific*



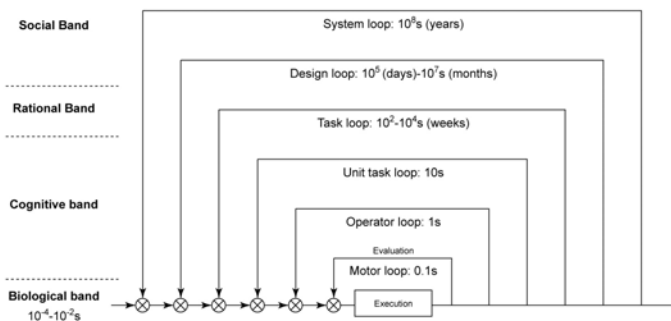
- But do not overburden users!
- Provide redundant information



Feedback: Toolbar, cursor, ink

Feedback (Time)

- Different feedback time scales
 - Shall I wait for that task to finish or go for coffee?



- .1s Causality
- 1s Delay but user's flow of thought is uninterrupted
- 10s Difficult to stay focused
- > 10s User will switch to another task while waiting

- Different techniques
 - Short transaction: hour glass cursor
 - Longer transaction: estimate of time left
 - *An overestimate is always better!*

