User interface design

- Designing good user interfaces (computer-based or not) is hard
- Difficult for developers to see the problems that "regular users" will have
  - They have a different model of the system to be used – they know too much
- Hard to support both novices & experts well
  - Ease of learning vs. speed on tasks

General UI design principles

- The interface should suggest how to use it properly
  - "Principle of least astonishment"
  - Metaphor
- The interface should not constrain actions
  - "Don't mode me in!"
  - Reversibility, support exploration

Metaphors

- A consistent metaphor can quickly give users a model of the system
  - Users already know many domains
  - If computer system closely resembles one, can leverage this "built-in" knowledge to ease learning
- E.g., the desktop metaphor

Inexact metaphors

- Metaphors aren't always exact
  - E.g. computers aren't exactly like desktops
- The differences can be good:
  - Computer domains allow people to do things that they couldn't do easily in the real domain
- And bad:
  - Misleading metaphors lead to astonishment, mistakes, frustration
    - All are distractions from the real task
  - Slavish adherence to a metaphor can impose its limitations unnecessarily

To mode or not to mode...

- In software, it's convenient to force users to follow expected procedures & paths & forms
  - Less state, less concurrency
- But very constraining for users
  - Users want to be able to explore, back up, try out various alternatives, do several tasks simultaneously