Metaphors and Direct Manipulation

Metaphors

Direct manipulation
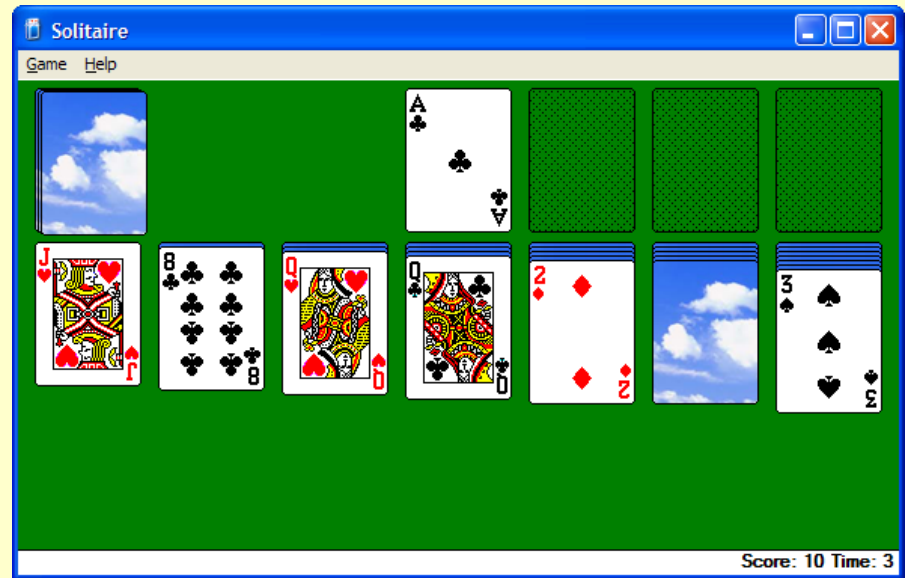
Dynamic queries

Metaphors

Pervade excellent interfaces
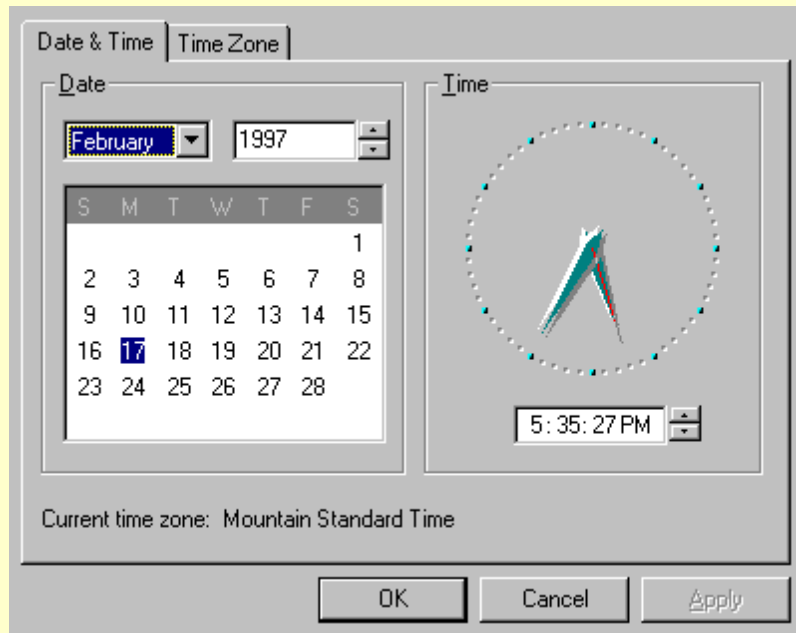

spreadsheet (actuary sheet)

games (literal world)

Metaphors

Control Panels with familiar controls

Name:_____

Address:_____

City:_____

Province:_____

Postal Code:_____

Forms
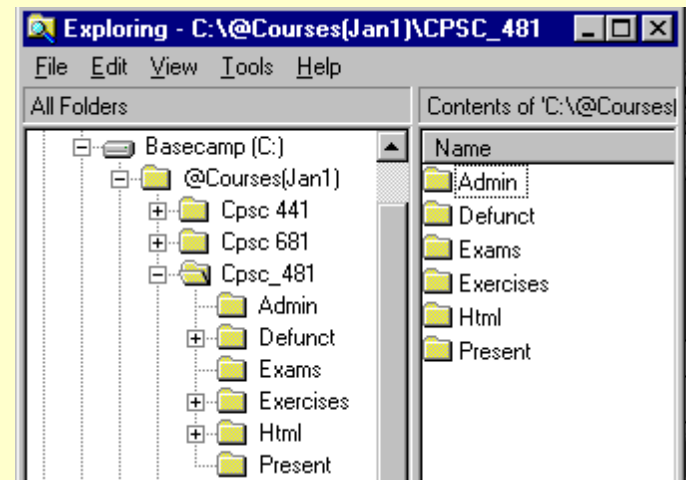
Hierarchical Folders

Metaphors in interfaces

Definition

– represents a system object as if it were another type of object
- disc / network file structure *represented as* file folders

Purpose

– leverages our knowledge of familiar, concrete objects to understand abstract computer and task concepts

Problem

– metaphor portrays inaccurate/naive conceptual model of the system

A presentation tool is a slide projector

Metaphors in interfaces
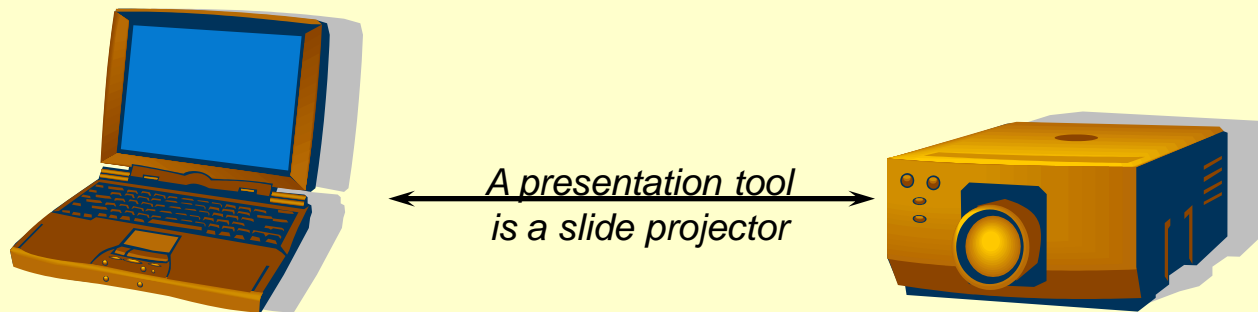
Things to watch for

- Use metaphors that matches user's conceptual task
  - desktop metaphor for office workers
  - paintbrush metaphor for artists...

- Given a choice, choose the metaphor close to the way the system works

- Ensure emotional tone is appropriate to users
  - eg file deletion metaphors
    - trashcan
    - black hole
    - paper shredder
    - pit bull terrier
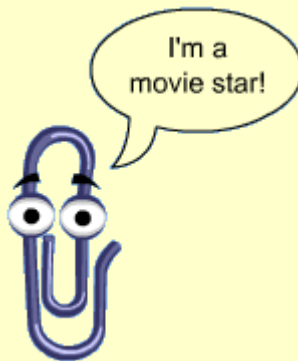   - nuclear disposal unit...

Metaphors in interfaces

Things to watch for

- – will it restrict what people could actually do?
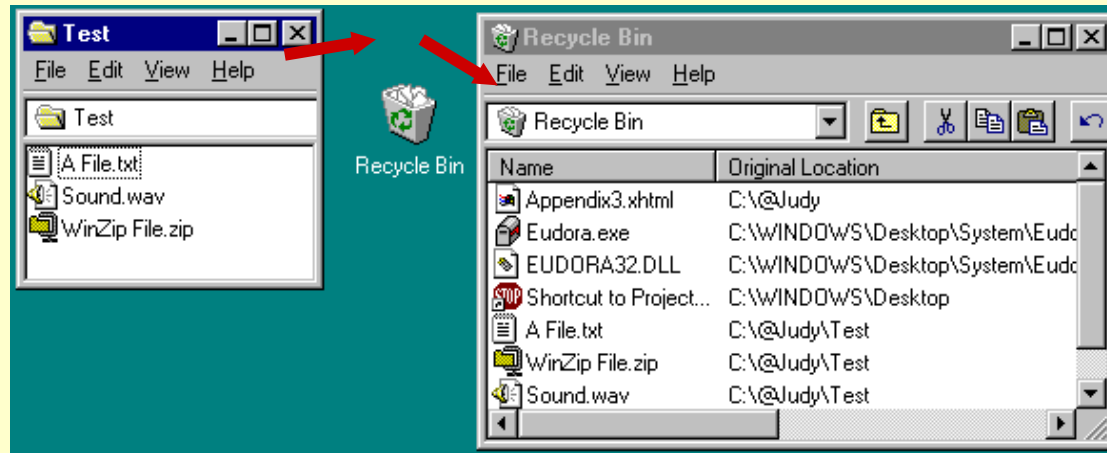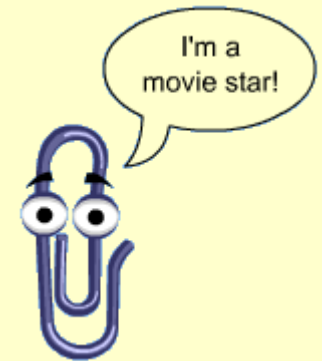   - strict file/folder hierarchy
      vs
      system allows links between directories

- – will it set unrealistic expectations?
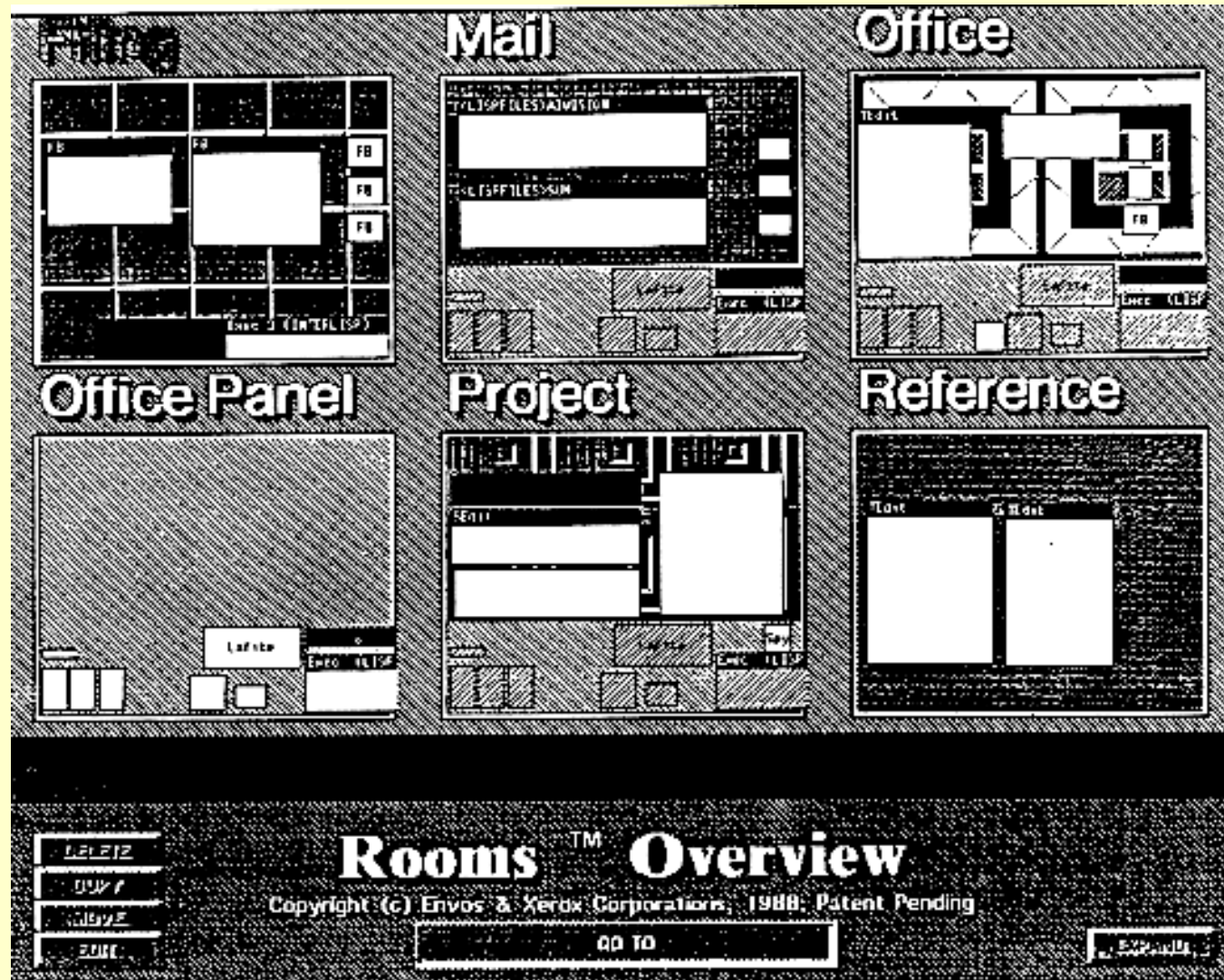   - Clipit

I'm a movie star!

Metaphors in interfaces

Common pitfalls

– overly literal
- unnecessary fidelity
- excessive interactions
- unnecessary restrictions

– overly cute
- novelty quickly wears off
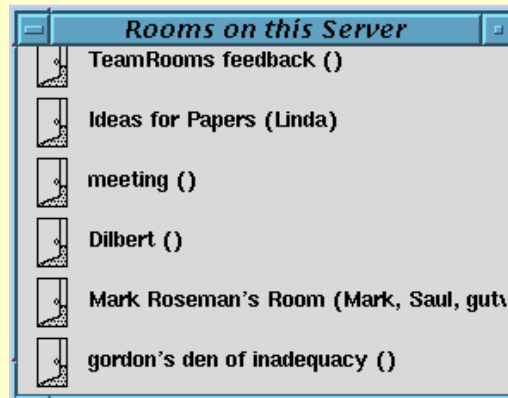
– mismatched
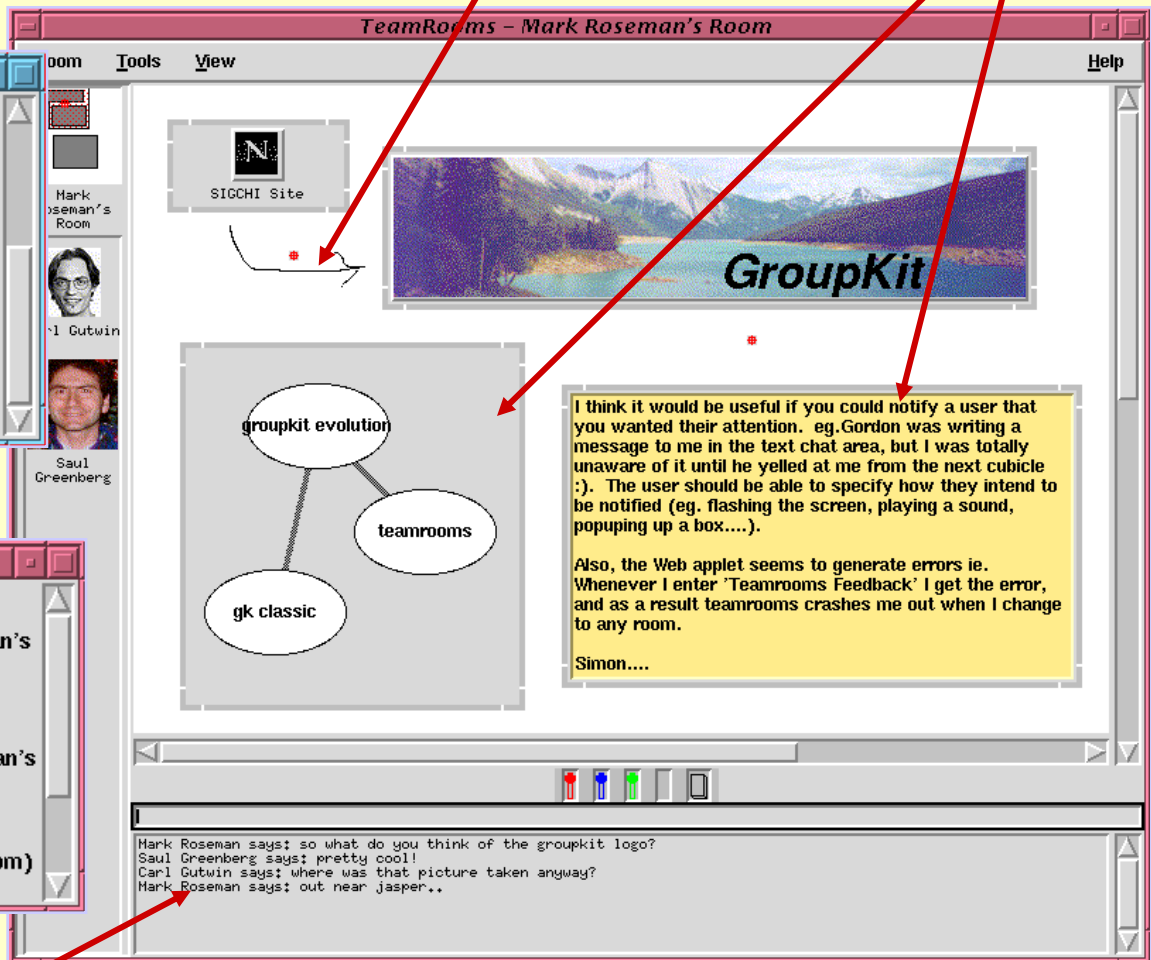- does not match user's task and/or thinking
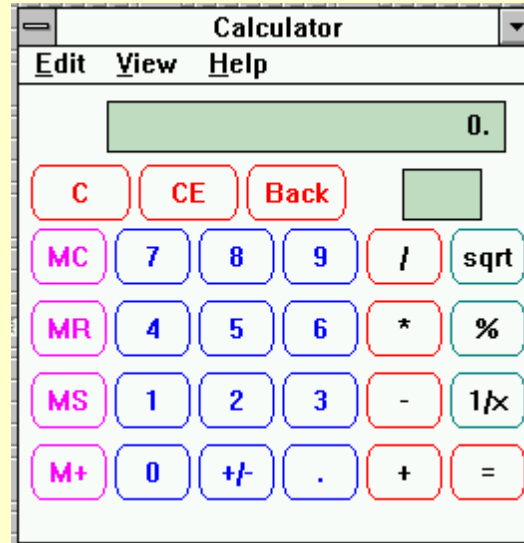
Rooms

TeamRooms

shared whiteboard

applets

List of rooms

Rooms on this Server

- TeamRooms feedback ()
- Ideas for Papers (Linda)
- meeting ()
- Dilbert ()
- Mark Roseman's Room (Mark, Saul, gutw
- gordon's den of inadequacy ()

List of users

Logged in Users

- Mark Roseman (Mark Roseman's
- Saul Greenberg (Mark Roseman's
- Carl Gutwin (Mark Roseman's Room)

TeamRooms – Mark Roseman's Room

Room   Tools   View   Help

SIGCHI Site

GroupKit

groupkit evolution

teamrooms

gk classic

I think it would be useful if you could notify a user that you wanted their attention. eg.Gordon was writing a message to me in the text chat area, but I was totally unaware of it until he yelled at me from the next cubicle :). The user should be able to specify how they intend to be notified (eg. flashing the screen, playing a sound, popuping up a box....).

Also, the Web applet seems to generate errors ie. Whenever I enter 'Teamrooms Feedback' I get the error, and as a result teamrooms crashes me out when I change to any room.

Simon....

Mark Roseman says: so what do you think of the groupkit logo?
Saul Greenberg says: pretty cool!
Carl Gutwin says: where was that picture taken anyway?
Mark Roseman says: out near jasper..

chat tool

Mark
Roseman's
Room

l Gutwin

Saul
Greenberg
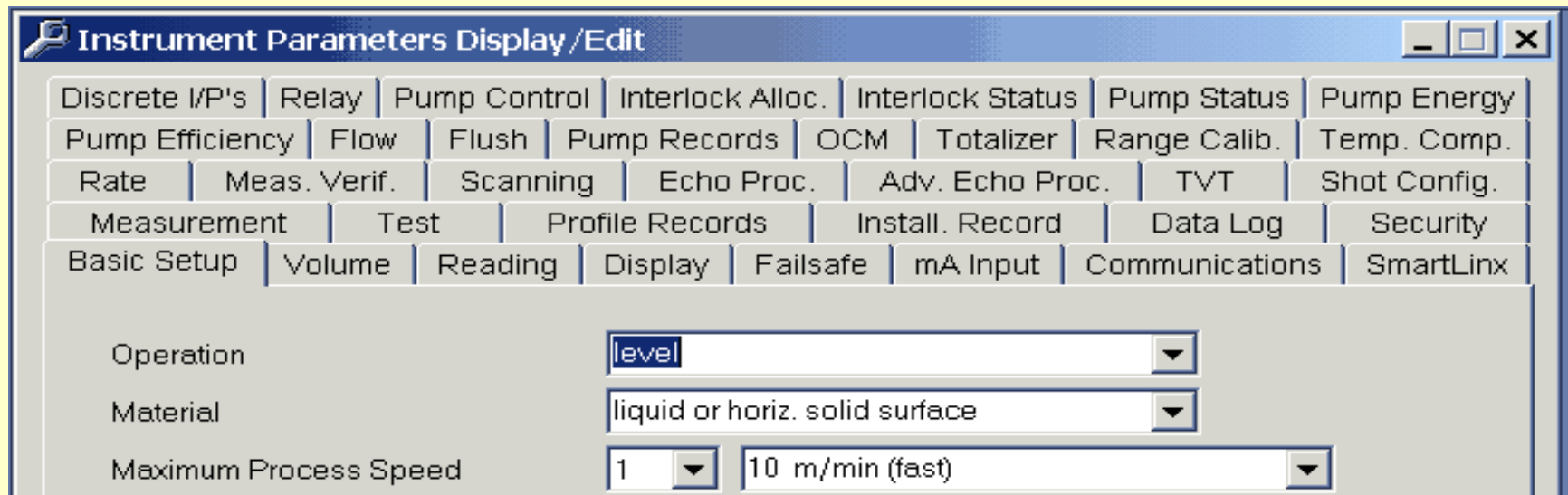
TeamRooms

Room metaphor implies:

– persistent room artifacts

– both synchronous and asynchronous activity

– asynchronous communication by sticky notes attached to artifacts

– "for free" standard tools

– ability to bring in custom tools via (applets)

– same place/different place activity

– knowing who is around

– trivial groupware connectivity

– ...

Metaphor misuses

Direct Manipulation

Direct manipulation
- interface behaves as though the interaction was with a real-world object rather than with an abstract system
- the feeling of working *directly* on the task

Central ideas
- visibility of the objects of interest
- rapid, reversible, incremental actions
- manipulation by pointing and moving
- immediate and continuous display of results

Almost always based on a metaphor
- mapped onto some facet of the real world task semantics

Direct Manipulation
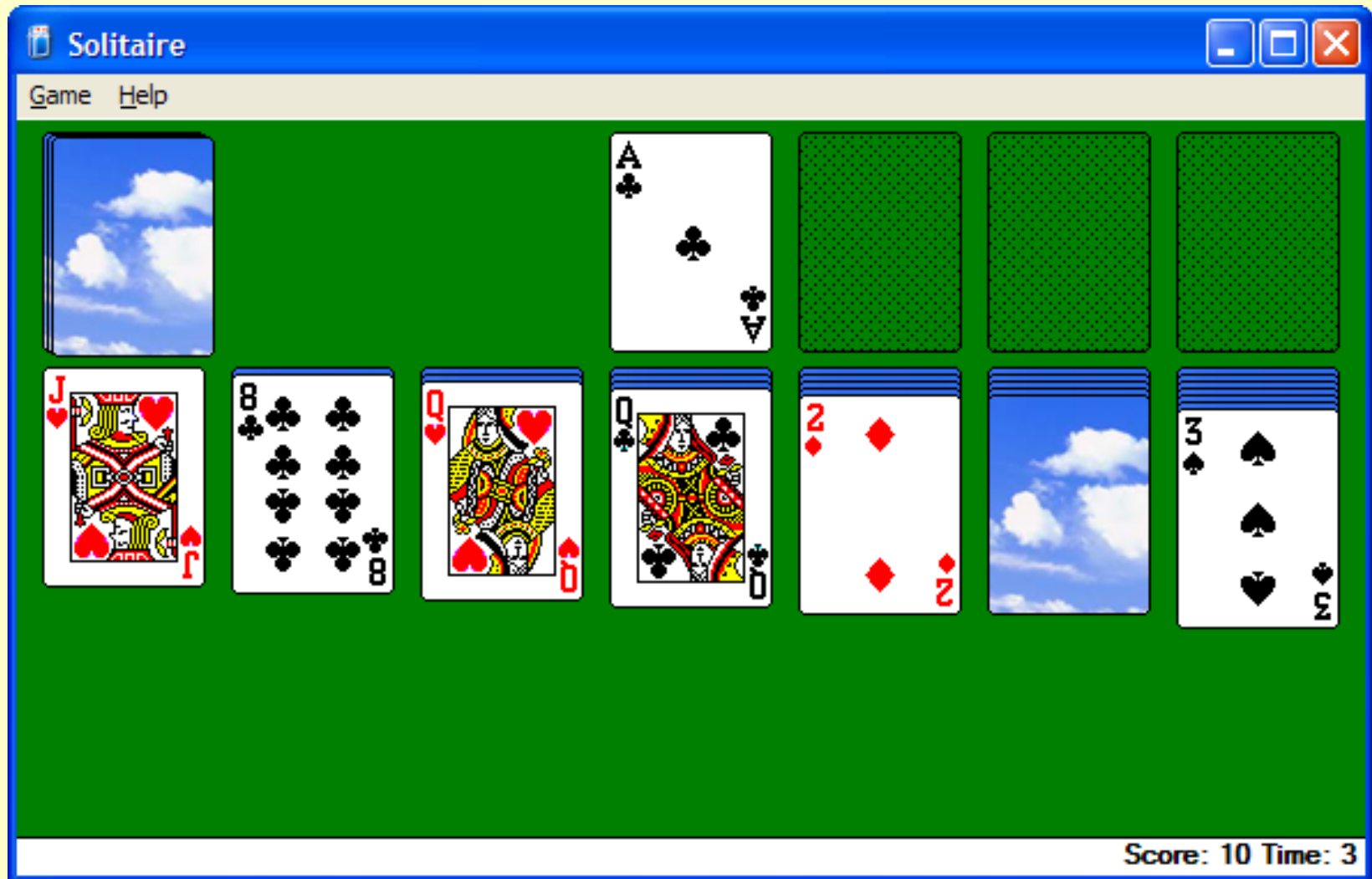
Direct manipulation

Representation affects what can be directly manipulated
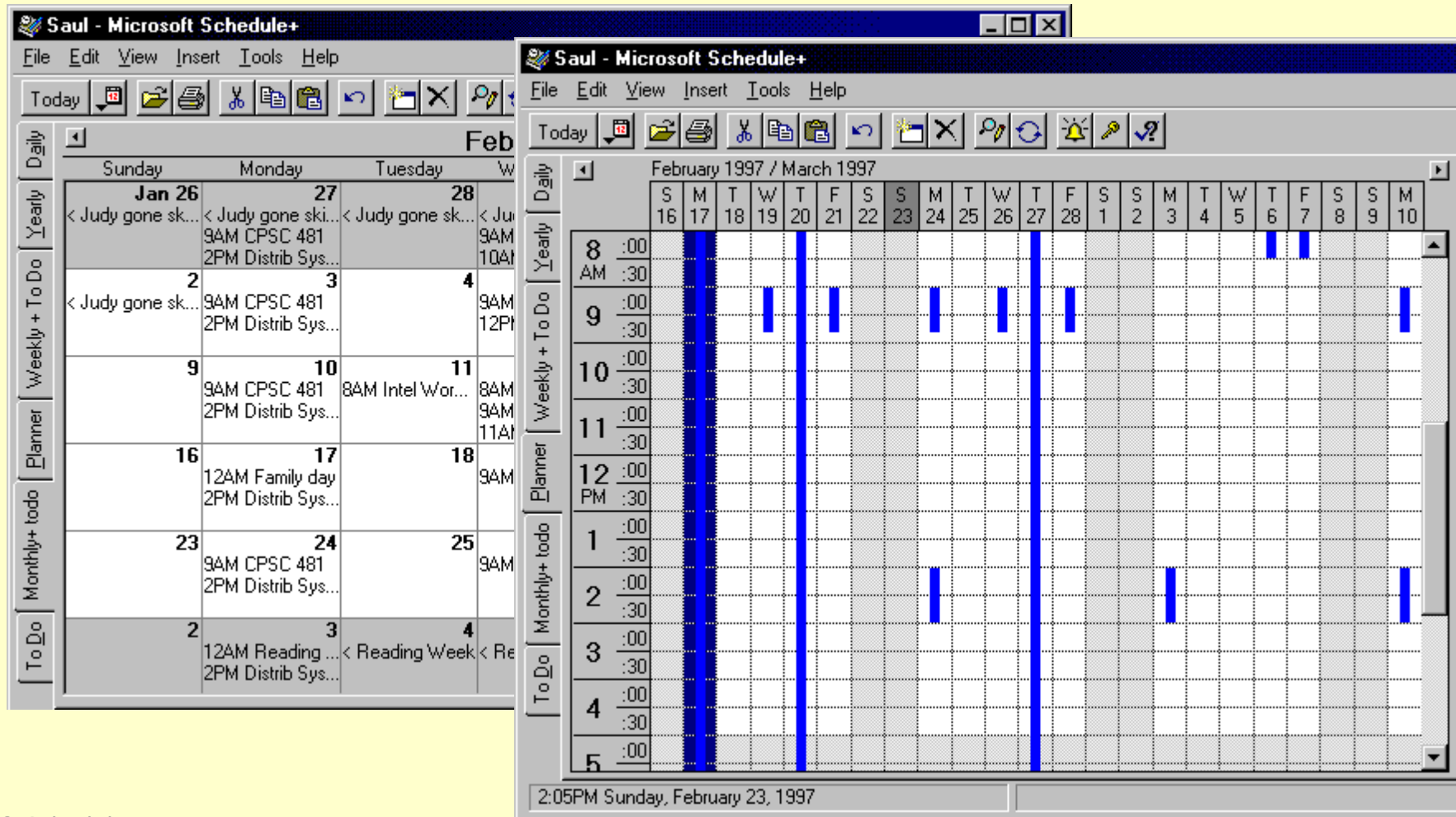
Contact lists

Find "Green"
>S. Greenberg
>Dept Computer Science
>University of Calgary

Command system
no direct manipulation

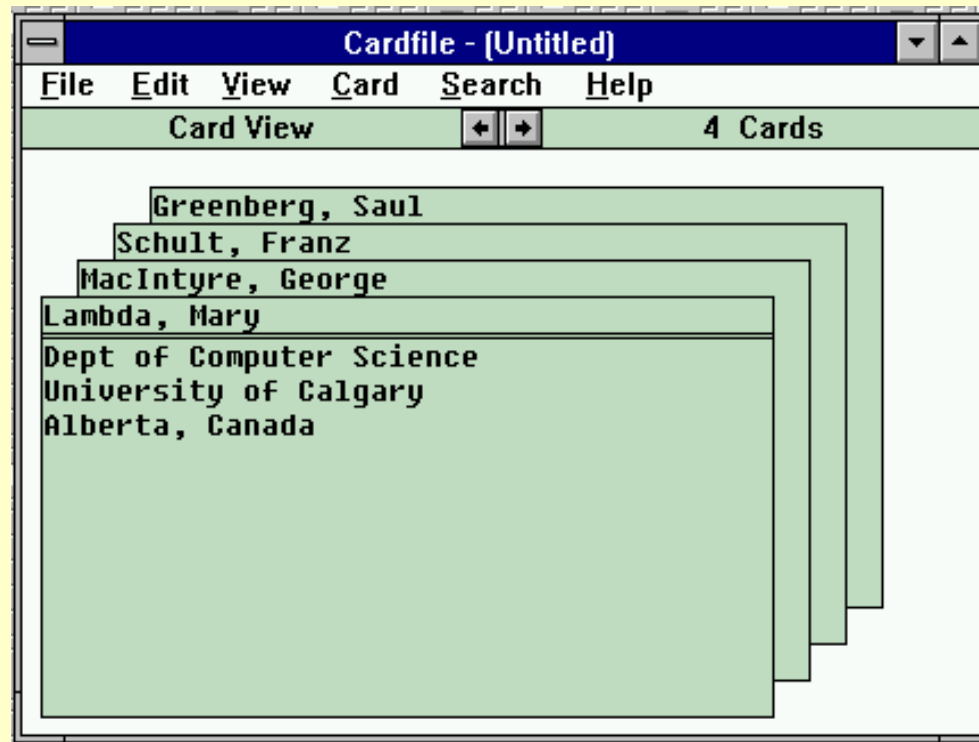*Form metaphor:*
syntactic direct
manipulation

Contact lists

Phone book
a mix…

Microsoft Outlook

P.VISWANATHA

Contact lists

Rolodex

Cardfile - [Untitled]

File   Edit   View   Card   Search   Help

Card View   ◄ ►   4 Cards

Greenberg, Saul
Schult, Franz
MacIntyre, George
Lambda, Mary
Dept of Computer Science
University of Calgary
Alberta, Canada

A-F
T-Z
J-S
Harleck, P.
Guttenburg, A.

Greenberg, S.
Dept Computer Science
University of Calgary
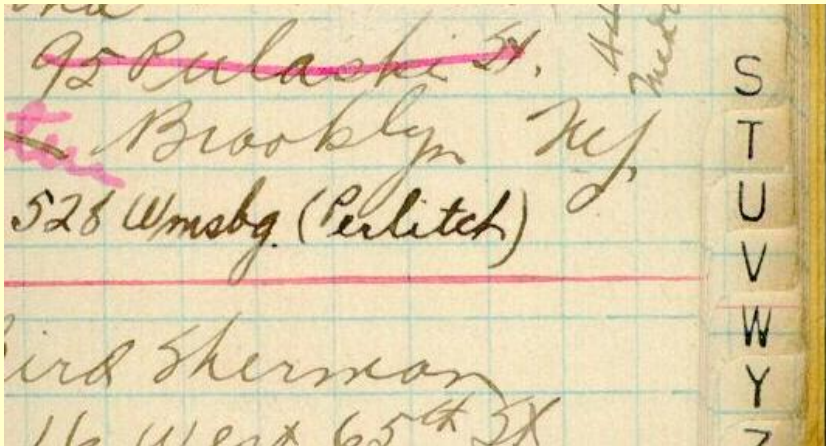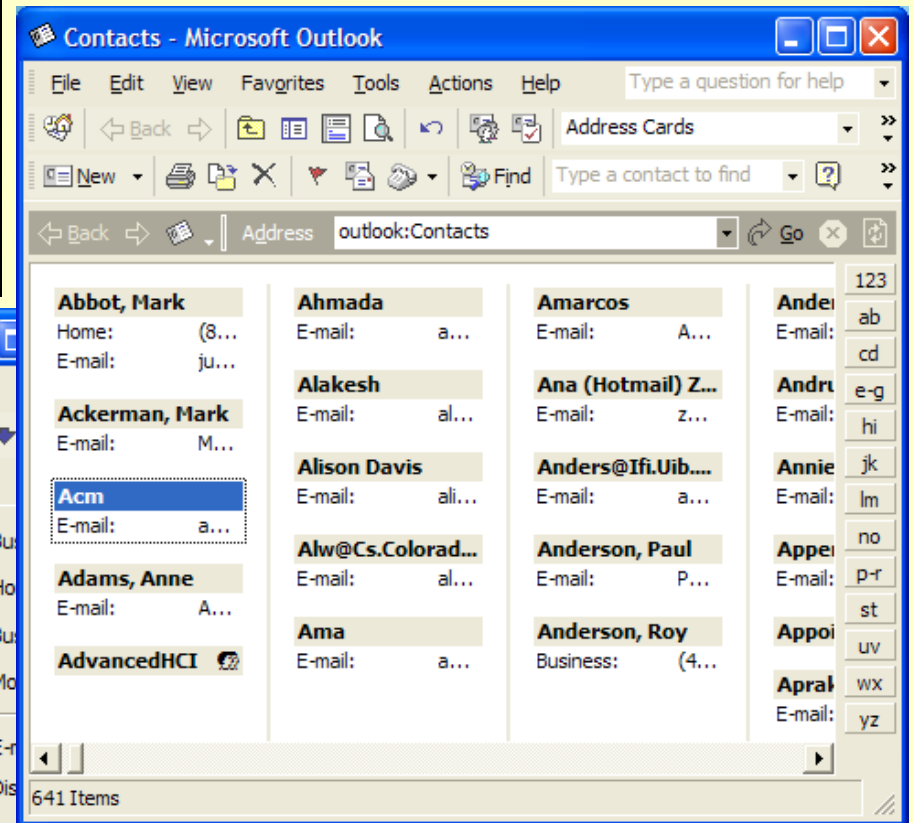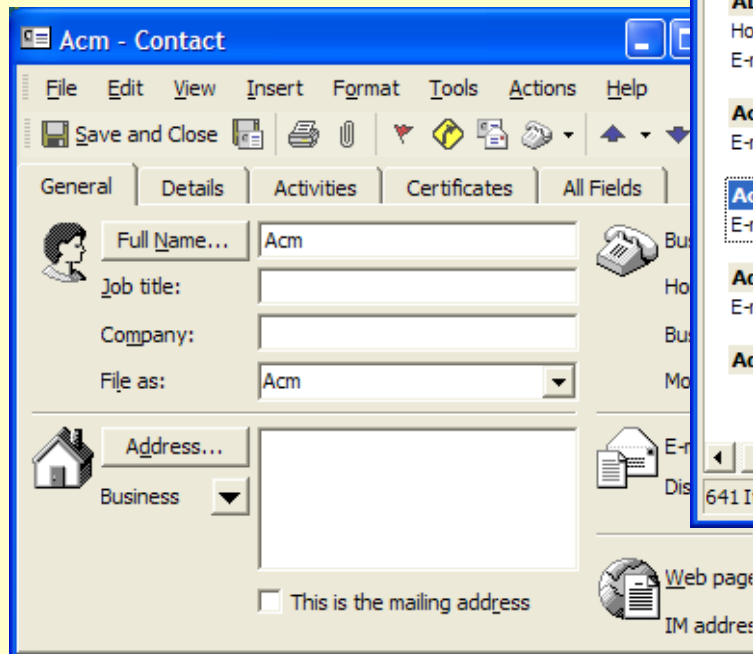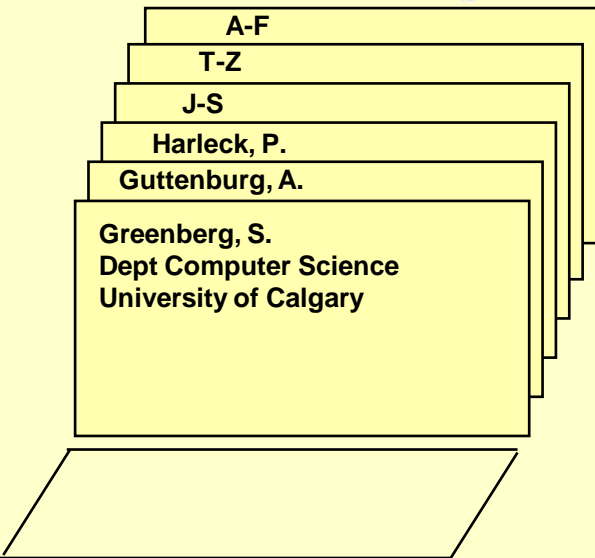
Contact lists

Direct and abstract manipulation

Most good applications mix the two for power
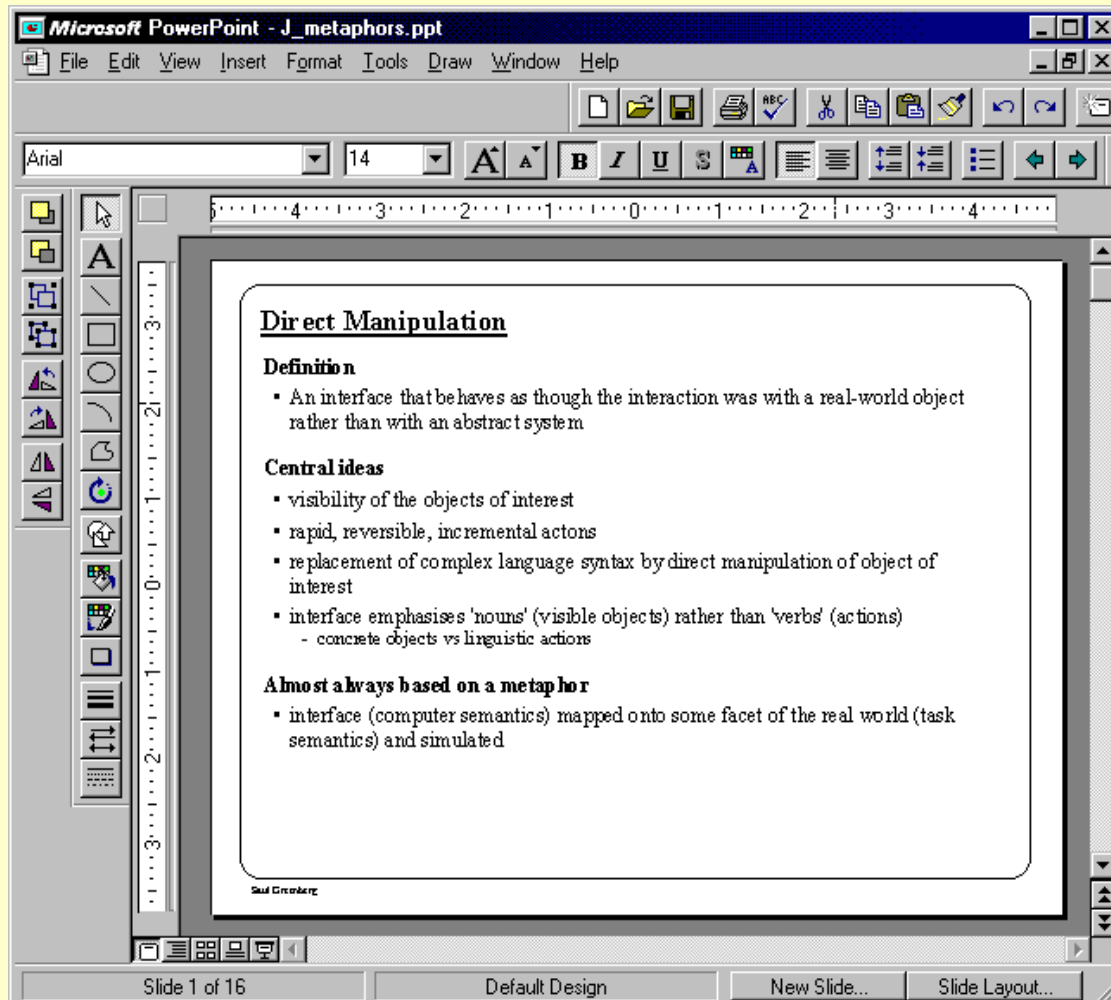
Dynamic queries
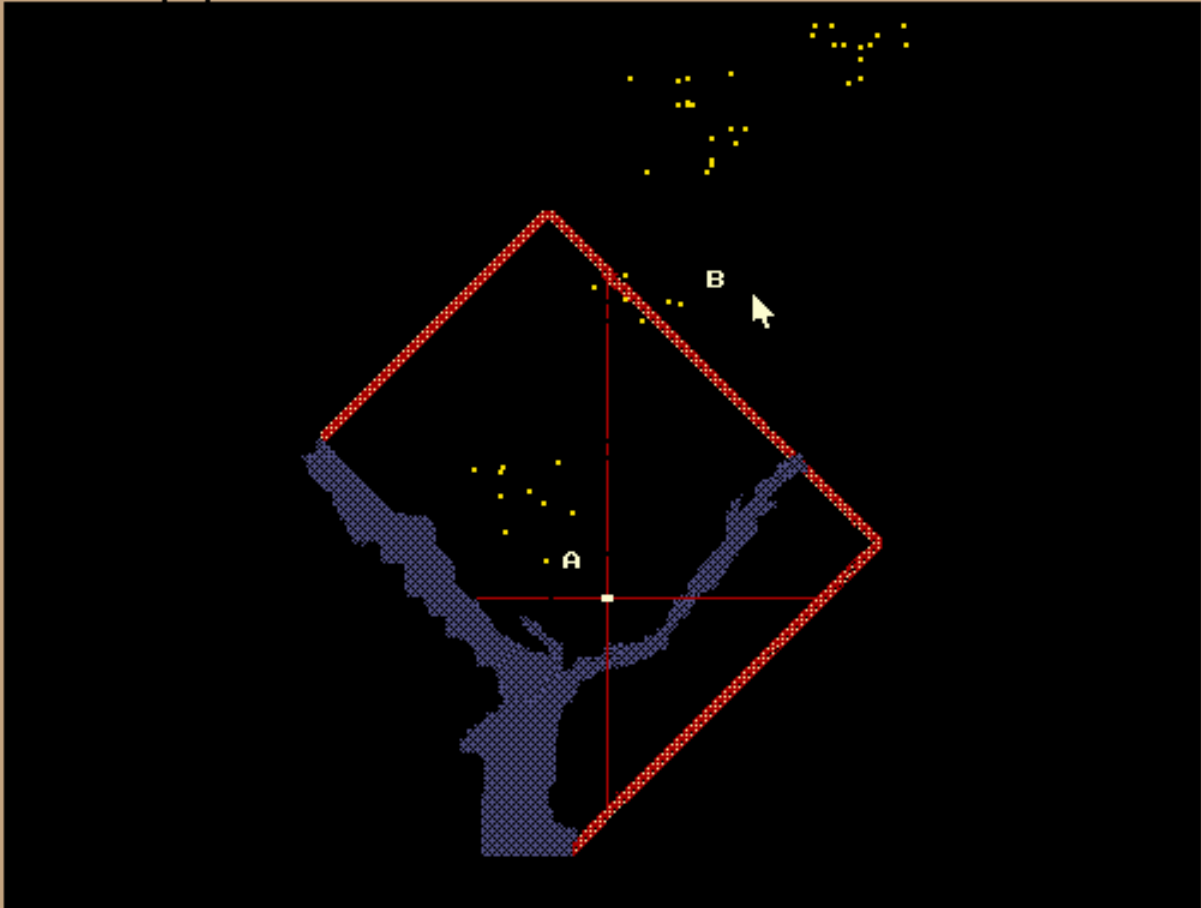
Searches and queries by
- adjust sliders, buttons, check boxes, and other control widgets
- display immediate updates *as* the control is adjusted

Why?
- rapid searching with imprecise queries
- people explore data interactions and limits

Home Finder

HomeBay

Dynamic Queries

Radar Overview

Progressive details on demand

What you now know

Metaphors
– leverages our knowledge of the familiar and concrete

Direct manipulation
– visibility of the objects of interest
– rapid, reversible, incremental actions
– manipulation by pointing and moving
– immediate and continuous display of results (dynamic queries)