

Interaction styles

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Interaction styles

Conversational

Command language
 Dialog imposed by the system

```
% date
Fri February 11
%
```

Menus, forms

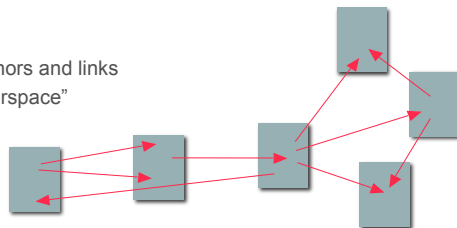
The system guides the user
 Dialog controlled by the system

```
Name : ..... 1 - search
Surname : ..... 2 - create
CPR Number : ..... 3 - delete
```

Interaction styles

Navigation

Nodes, anchors and links
 "lost in hyperspace"



Direct manipulation

Physical, "direct" actions on (representations of) the objects
 Inspires all current "first person" interfaces

Direct manipulation

Shneiderman (1983)

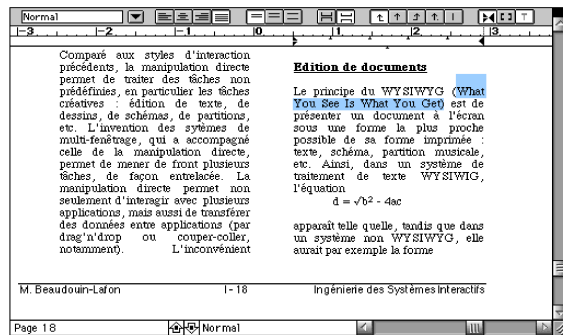
Four principles

1. Continuous representation of the objects of interest
2. Physical actions rather than complex syntax
3. Quick, incremental, reversible operations whose effect on the objects of interest is immediately visible
4. Layered approach to facilitate learning

Direct manipulation

Document editing

Interaction controlled by the user



WYSIWYG

What You See Is What You Get

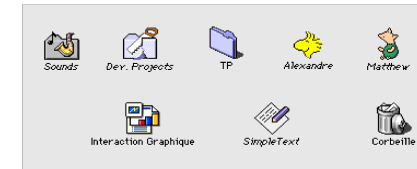
Direct manipulation

Iconic interaction

Generic interface

Metaphorical approach

Drag-and-drop



WIMP interfaces: the current standard

Presentation

Windows

Icons (and other graphical representations)

Interaction

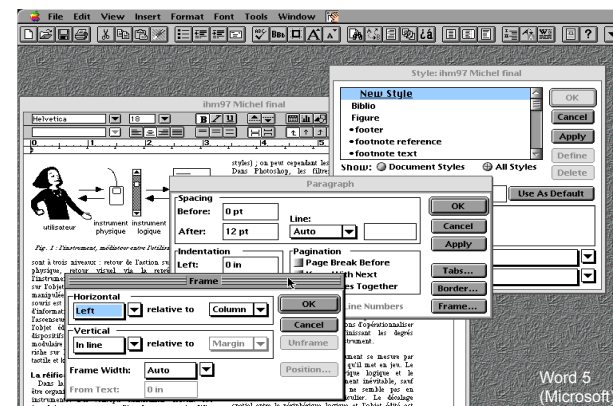
Menus,

Dialog boxes, Input fields, Scrollbars, etc.

Input

Pointing, Selection, Gestures

WIMP interfaces



Interaction styles: gesture-based interaction

Pen-based

PDA (Palm Zire) TabletPC (HP) Whiteboard (Smart)

Touch-based

PLATO (Buxton, 1972) Multitouch (Jeff Han) iPad (Apple)

Interaction styles: gesture-based interaction

3D gestures

VideoPlace (Krueger, 1983) Charade (Baudel, 1993) Kinect (Microsoft)

Interaction styles: multimodal interaction

Combine speech + gesture

Put-that-there (Bolt, 1980)

Minority Report (movie)

Interaction styles: Virtual reality

Immersion of the user

Sutherland (1968)

Cybermind

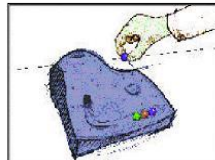
CAVE

Interaction styles: mixed and augmented reality

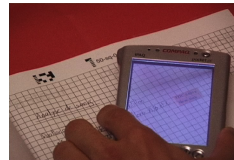
Augmented reality (later renamed Mixed reality):
Augment physical object with computational capabilities
Tangible interaction:
Use physical objects for interaction



Digital Desk
Pierre Wellner



Marble answering machine
Durrell Bishop



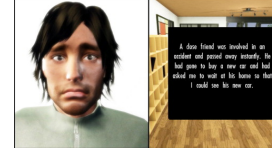
A-book
Wendy Mackay

What next?

Brain-computer interfaces?



Emotional agents



Robots



Your idea?