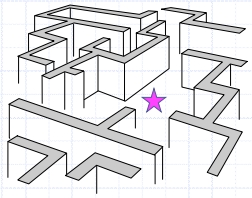
## Navigation and Tools

- Why do you need to plan your navigation?
- What does the user may need to know?
  - Location: "Where am I now?"
  - Options: "Where can I go from here?"
  - Path: "How do I get there?"
  - History: "What have I already explored/learned?"
  - Microworld: "How much more is there to explore?"
- Good navigation is achieved using
  - Node structures
  - Navigation aids
- Care about and measure **Usability**



## How to measure Usability?

- speed of performance of some activity
- incidence of errors while performing act.
- user's ability to recover from errors
- task magnitude in learning to use the system
- user's retention of learned skills
- user's ability to customize the system
- user's satisfaction with the system

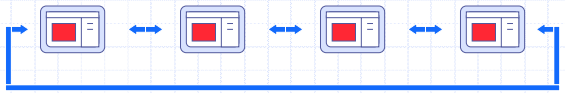
**You have arrived when the user thinks: "Interface? What interface?"**

## Node Structures & Navigation Aids

- Linear
  - circular
- Jump-linear
  - wheel
- Rooted tree
  - general tree
  - binary tree
- Network
- Single-frame techniques
- Combination
- Menus
- Navigation maps
- Metaphors
- Histories
- Travel buttons
- Progress indicators

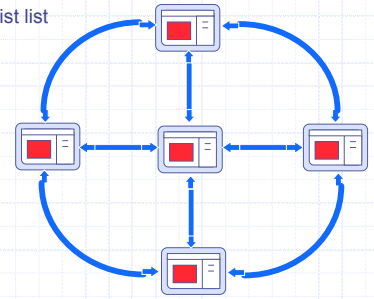
## Node structure: Linear/Circular

- Follows predefined path
- Good for
  - zooming in/out
  - sorted list
  - animation sequence



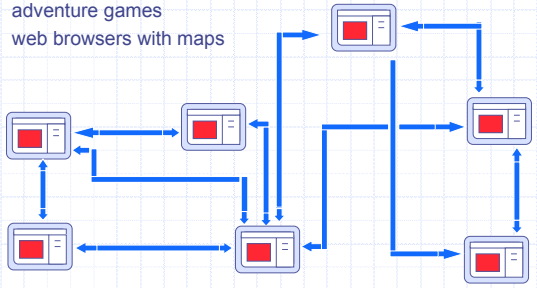
## Node structure: Wheel

- Predefined path with interruption
- Good for:
  - sorted and unsorted list list
  - slide show
  - continuous animation



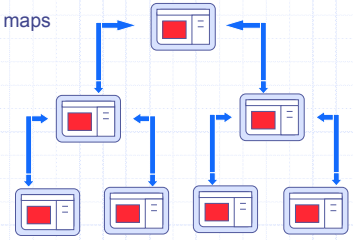
## Node structure: Network

- Most general structure
- Good for
  - adventure games
  - web browsers with maps



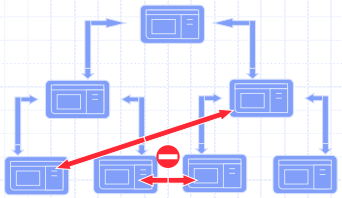
## Node structure: Rooted tree

- Most intuitive navigation
- Good for
  - hypertext
  - web browsers without maps
  - organization chart
  - hierarchies
  - games with choices
  - decisions



## Node structure: Rooted tree (2)

- Warning:
  jumping between cousin and uncle nodes
  is particularly confusing
  - people lose the hierarchical intuition

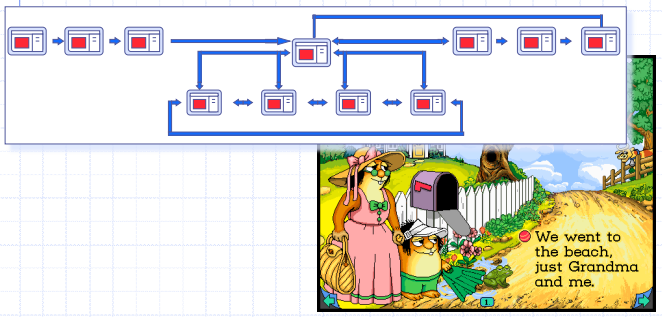


## Node structure: Framing (front-end)

- Transparentnavigation (seems non-existent)
- Display windows (e.g. lexicon)
- Filtering (e.g., in FIND)
- Sub-screen detailing (e.g., zooming, see & point)

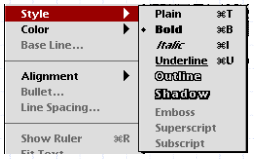

## Combination of Node structures

- Case study: Broderbund kids' Books




## Navigational Aids: Menus

- Full screen menus: explicit options
  - text-only menus
  - text & graphics menus
  - graphics-only menus
- Hidden menus: options
  - Pull-down menus
  - Pop-up menus





## Navigational Aids: Maps

- One of the best navigational aids
- They show the big/whole picture
  - contents
  - structure
  - Linkage
- The WWW cannot implement them easily

## Navigational Aids: Metaphors

- Common ones from office objects
  - books
  - cassette-players
  - film projectors
  - geography maps


- Very often they generate terminology and become "slang"

## Navigational Aids: Histories

- Provide information about "where you have been so far"
- Combined with navigational structures provide a strong navigational tool
- Choose what to include since they grow very fast

## Navigational Aids: Travel buttons

- Home, Next, Previous, Back, Beginning, Quit
- Traditionally the only/main navigational aid
- Explicitly denote options
- Should remain in same relative position
- Related buttons should be grouped




## Navigational Aids: Progress indicators

- Very useful when there is a mass to be covered
- Thermometers, gauges, clocks, filled bars, ...

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