Hypertext & hypermedia

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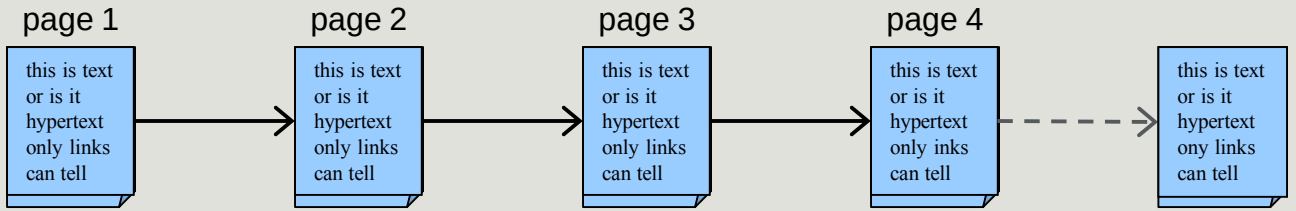
DEPARTMENT OF INTELLIGENT INTERACTIVE SYSTEMS

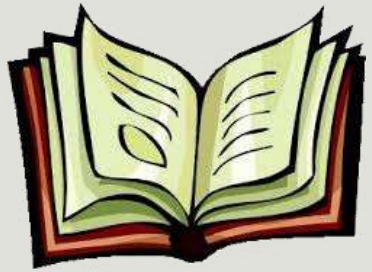
Hypertext

Text

- imposes linearity of reading



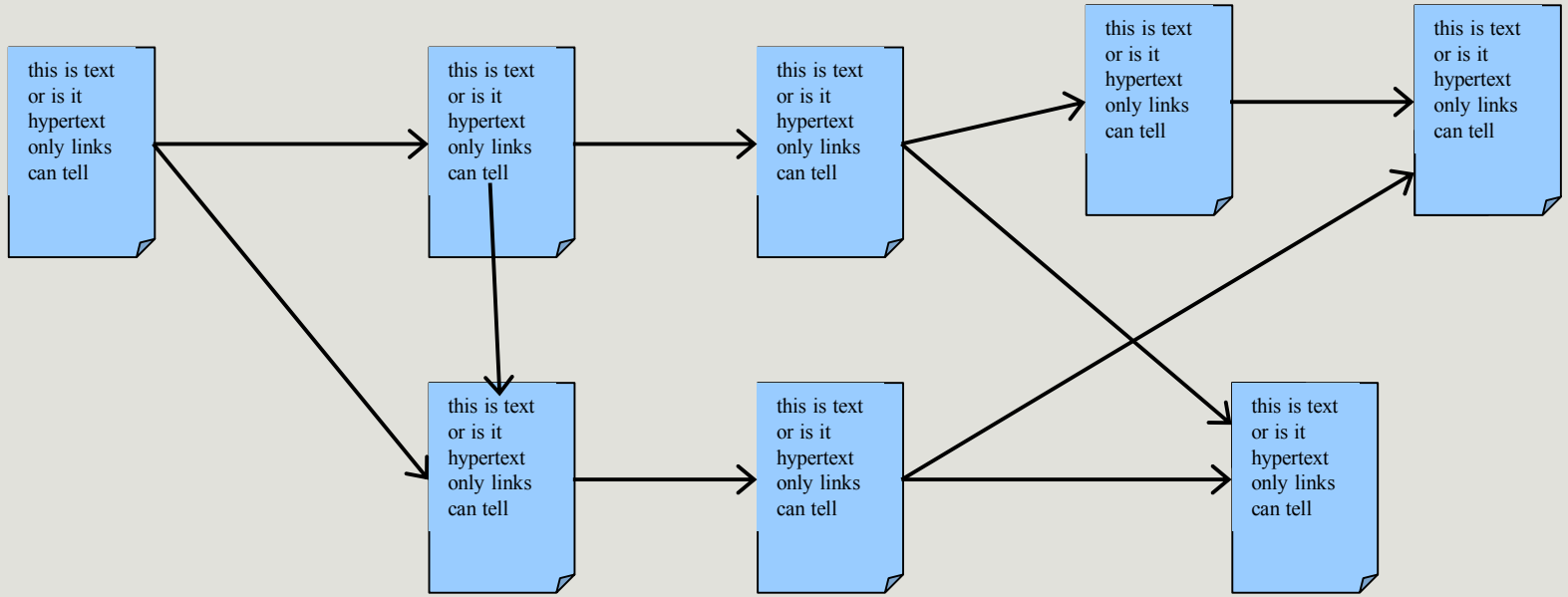
- author knows better



Hypertext

hypertext

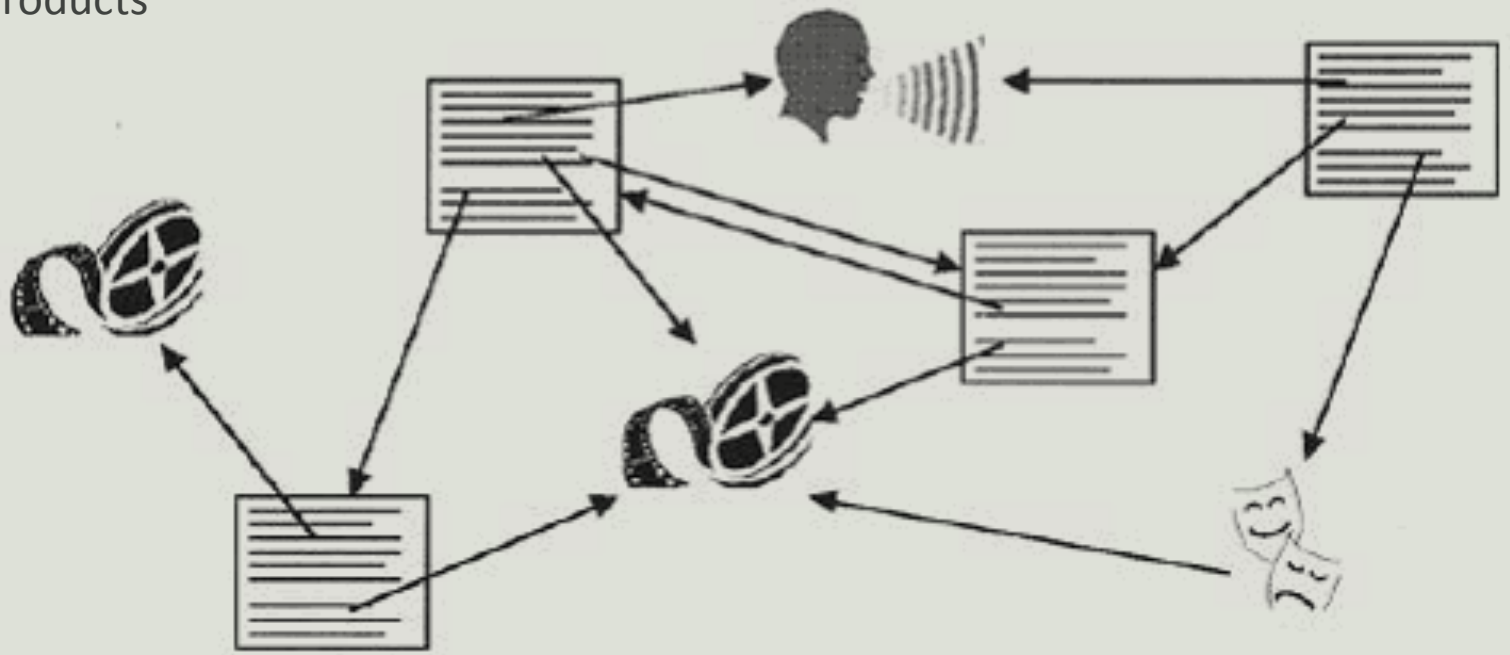
- non-linear text material



Hypertext & hypermedia

hypermedia

- media in a non-linearly organized system
- extension of hypertext
- ideas not products



Hypertext

A database that has active cross-references and allows the reader to ‘jump’ to other parts of the database as desired” Schneiderman, 1989 (Definizione)

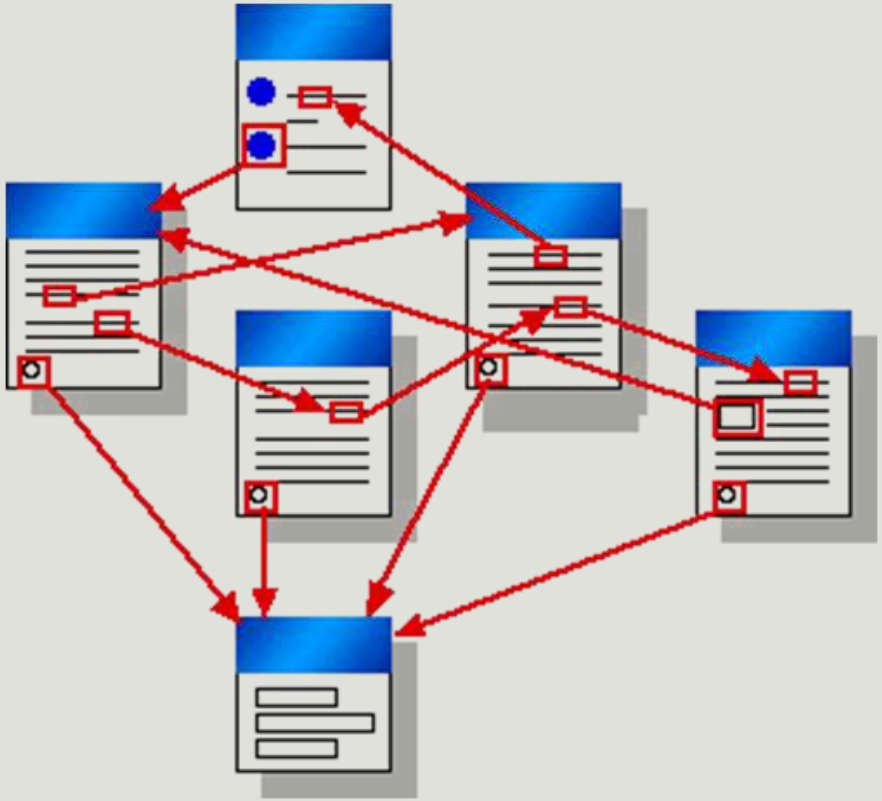
Posibilities

- return
- loop
- marking selected links

Nodes = parti del database (unità di informazione)

Links = collegamenti fra i nodi

Navigation = moving through the hypertext



Nodes

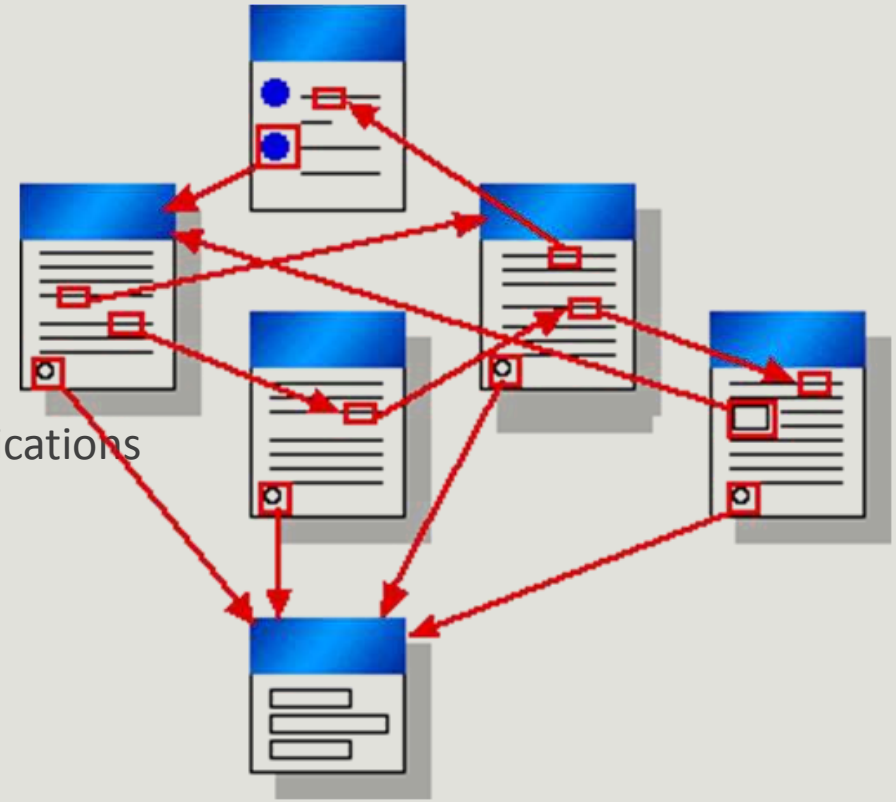
units of information

different names in different systems:

- pages (www)
- cards (HyperCard)
- articles (Hyperties)
- documents

may contain:

- text, graphics, animation, sound, video, images, applications



Links

(lega)

they form a network of connections between nodes, they bind the hypertext

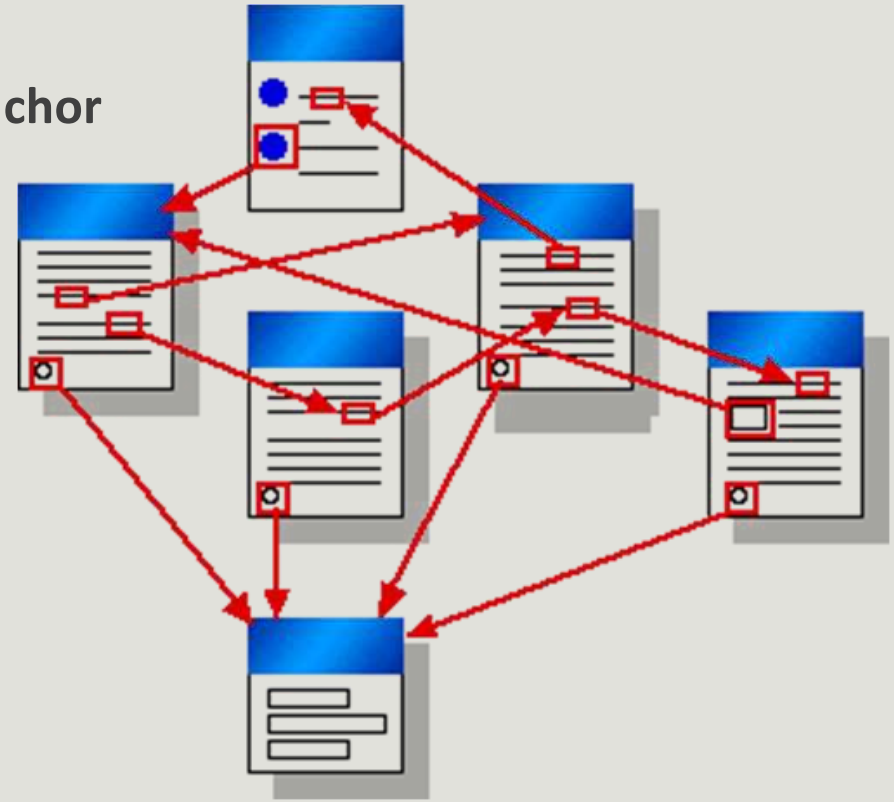
labels, pointers that connecting nodes

associated with a specific part of source node - anchor

what links can do?

- move to a new topic
- show a link
- provide additional information
- display image or video
- run applications

there is no direction in hyperspace



Navigation

the process of moving from one node to another by hypertext

Browsing

Indexing = quando le informazioni sono organizzate

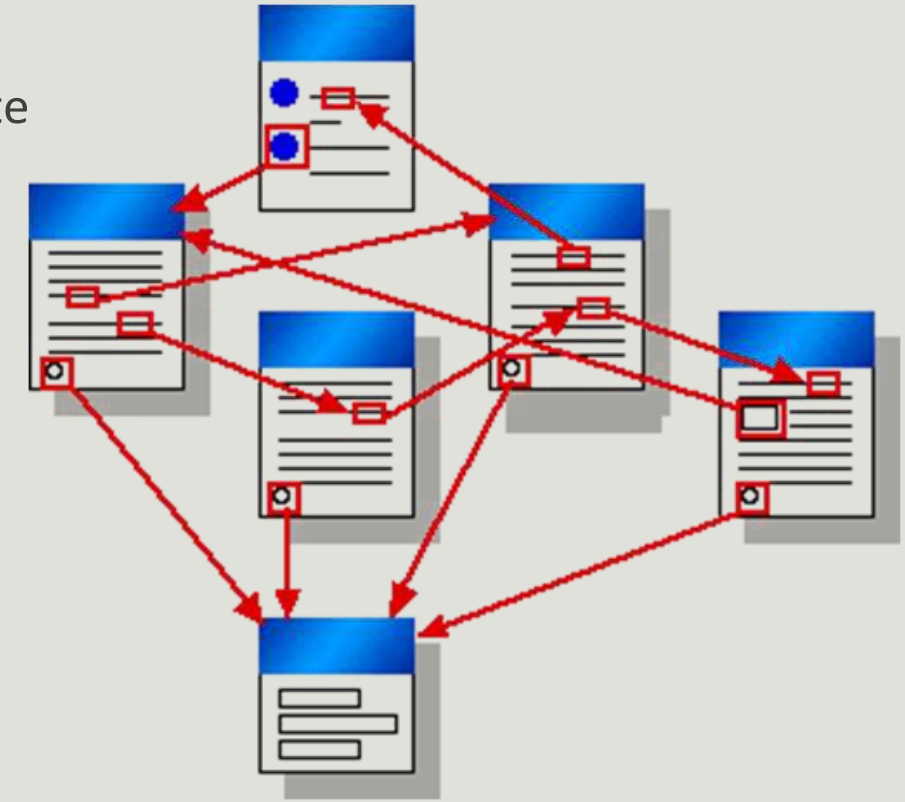
Searching = cercare per esempio per keyword

Filters

Tours

Bookmarks

Path



Application of hypertext

Internet

educational tools

a way to organize content in the database

entertainment

shopping on the Internet

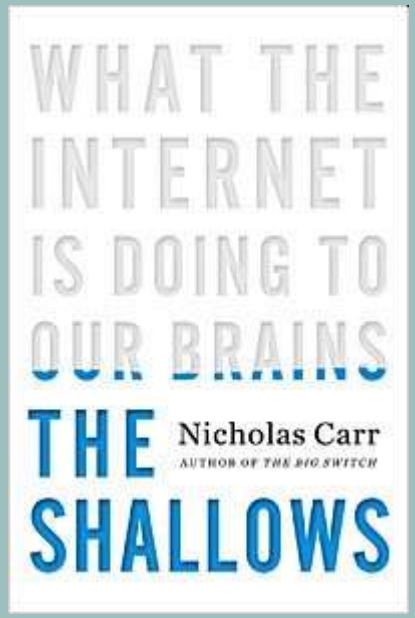
not just web applications:

- encyclopedias,
- dictionaries,
- presentations,
- …

rejection of other media (books and the press)

constraints in perception

getting shorter and poorer speech



problems with the acquisition of long texts

Internet addiction

problems with concentration

easy access to any information

lack of criticism

Non-linear structure

molti percorsi conducono attraverso il materiale

navigazione associativa (cosi funziona anche il nostro cervello)

Un link è più semplice di una query

Advantages

- many paths leading through the material
- associative browsing
- control over screen content
- link is easier to use than complex queries

Disadvantages

- easy to lose „lost in hyperspace”
  - knowledge and contents
  - fragmentary information
    – no integration … confusion
  - navigation and structure •
    hyperlinks move across structure – where am I?

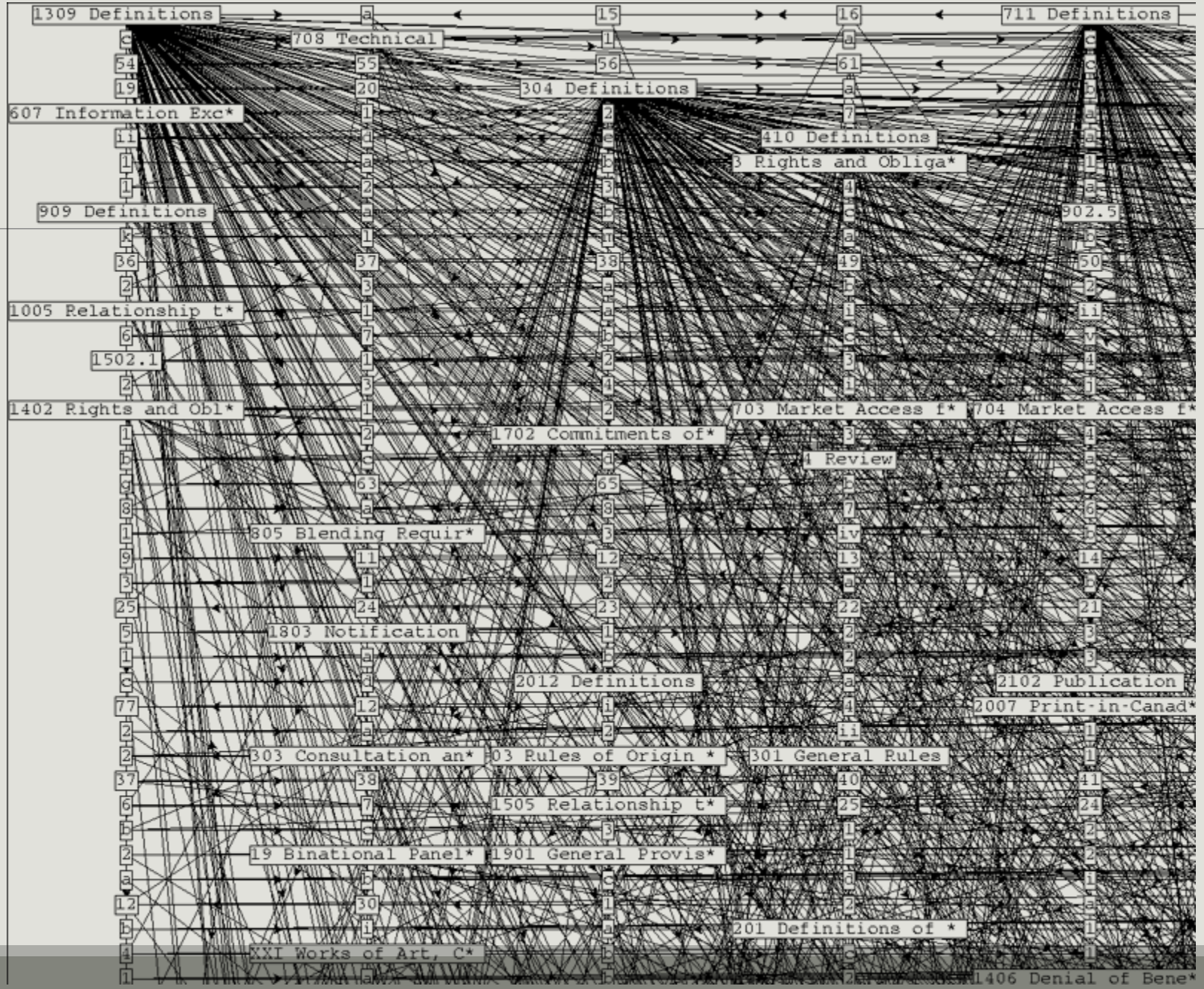
Non-linear structure

Advantages

- many paths leading through the material
- associative browsing
- control over screen content
- link is easier to use than complex queries

Disadvantages

- easy to lose „lost in hyperspace”
- an interesting node may be hard to find again in the future
- ease of looping
- inability to estimate available information


1309 Definitions
708 Technical
304 Definitions
711 Definitions
607 Information Exc*
410 Definitions
3 Rights and Obliga*
909 Definitions
902.5
1005 Relationship t*
1502.1
1402 Rights and Obl*
703 Market Access f*
704 Market Access f*
1702 Commitments of*
4 Review
805 Blending Requir*
1803 Notification
2012 Definitions
2102 Publication
2007 Print-in-Canad*
303 Consultation an*
03 Rules of Origin *
301 General Rules
1505 Relationship t*
19 Binational Panel*
1901 General Provis*
201 Definitions of *
XXI Works of Art, C*
1406 Denial of Bene*

Hypertext Navigation

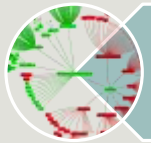
Goals

- Find some information
- Learn something

Problems

- Where am I?
- Where can I go from here?
- Where should I go?

Navigation support



whole picture

intera mappa del sistema con tutti i link e i nodi. Potrebbe risultare alla fine fin troppo grande

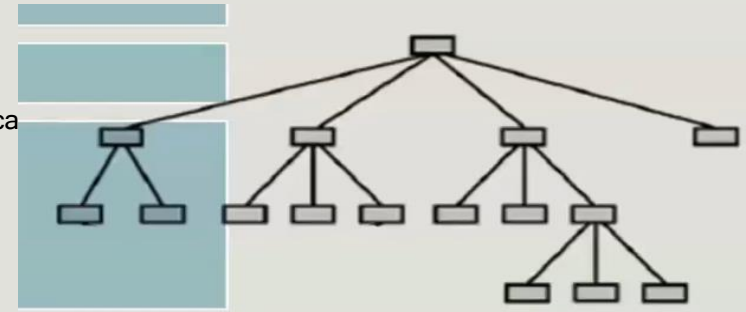
return path

avoiding loops

using structure

- hierarchy A ogni livello l'informazione diventa più specifica
- sequence
  - forward, backward, home
- tree
  - top, ancestor, descendants, siblings

metaphor



Tipo di architettura di un sistema di ipertesti, proposto da due persone in basso

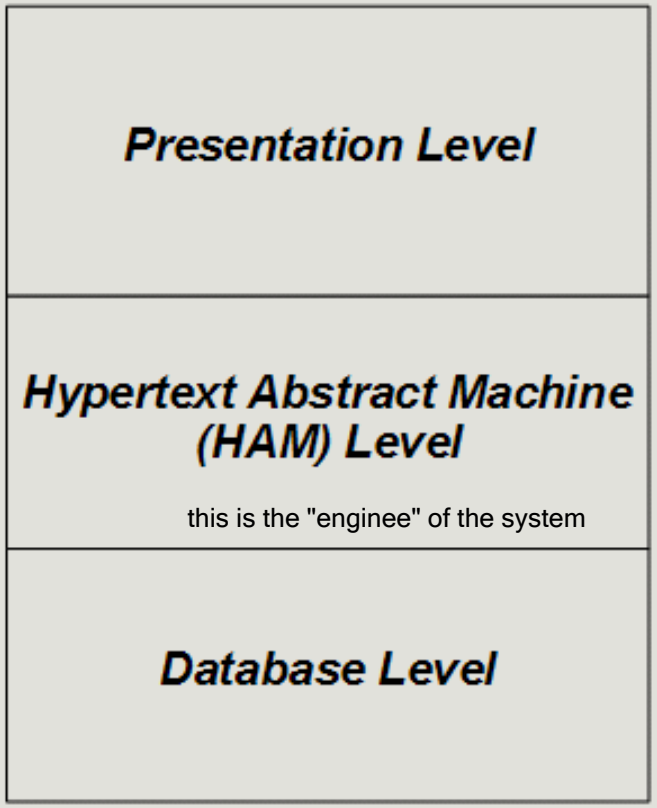
Architecture of hypertext systems

Attualmente pochi sistemi seguono questo modello, ma è abbastanza semplice da capire

user interface

nodes and links

storage, shared data, and network access



Campbell and Goodman

Architecture of hypertext systems

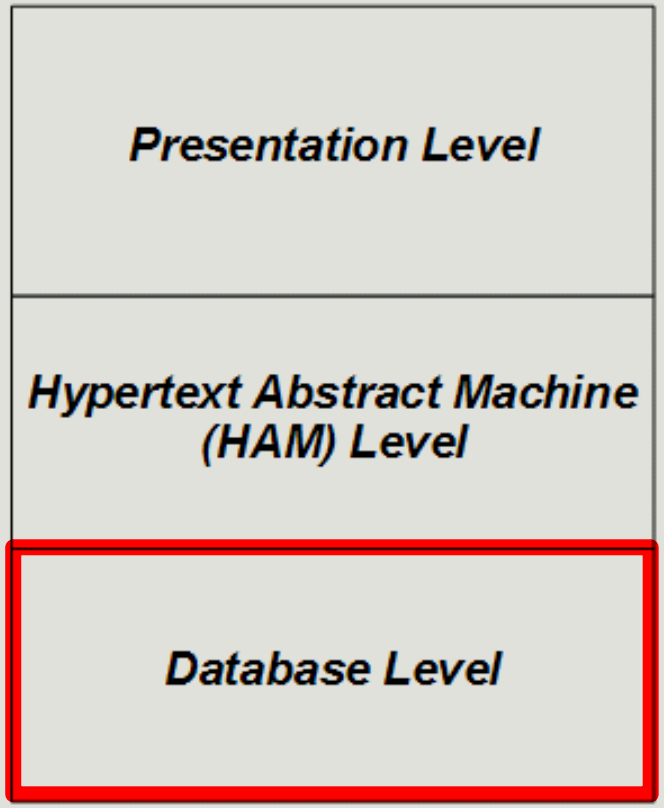
standard database

the information can be located at a local or remote computer

no matter how the information is stored - the speed of access to information is important

multi-user access to the information, various security considerations, including backup

sees the hypertext nodes and links, as just data objects (vede i nodi e i collegamenti, solo come oggetti)



Architecture of hypertext systems

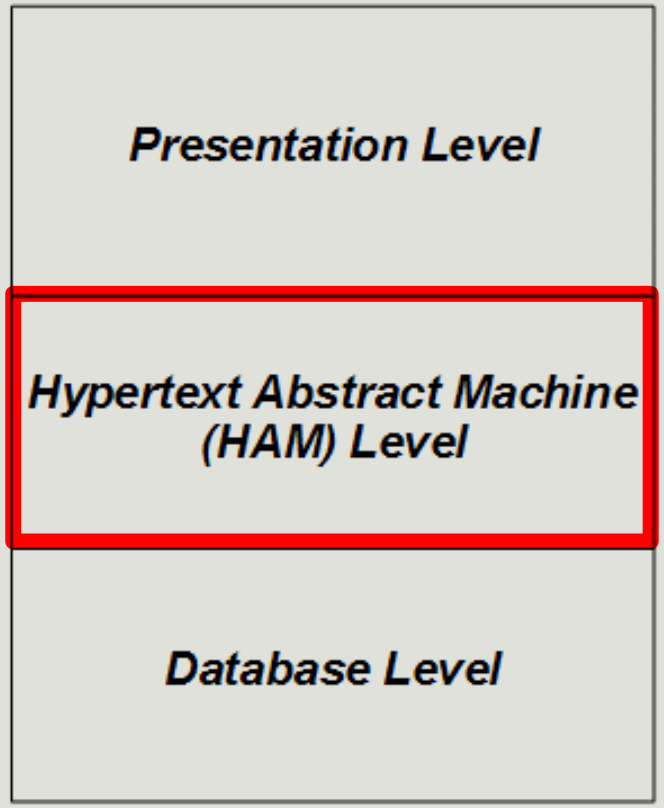
an engine which manages all information about the hypertext and communicates with the application through a byte-stream protocol

knowledge of the form of the nodes and links and would know what attributes were related to each

(conoscenza della forma dei nodi e link e di come

sono relazionati)

the ability to transfer information from one hypertext system to the other



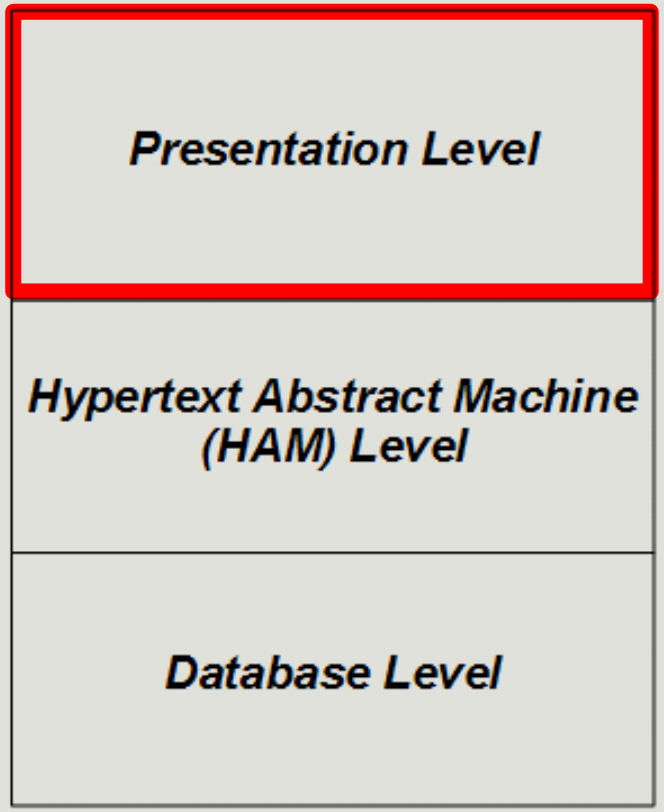
Architecture of hypertext systems

the level determines how to present the information in the HAM level

- nodes and links (how to presente nodes and links)

access rights (filtra le informazioni in base a chi fa l'accesso)

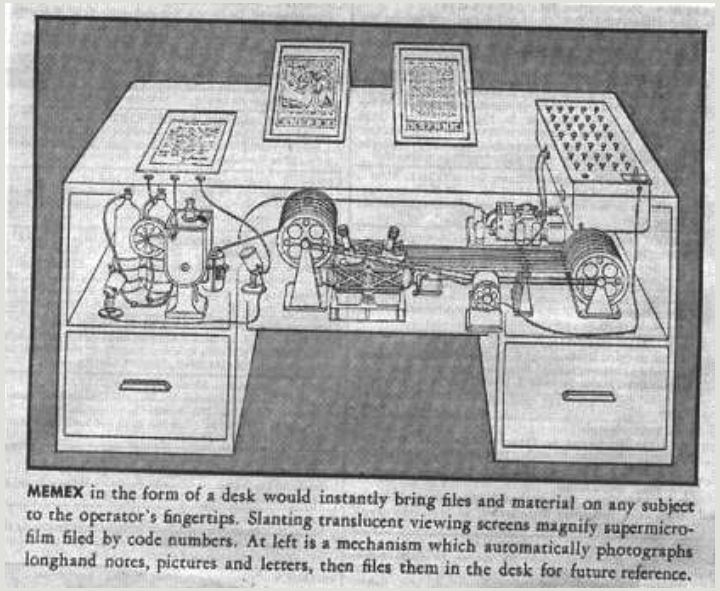
- filtering information



History

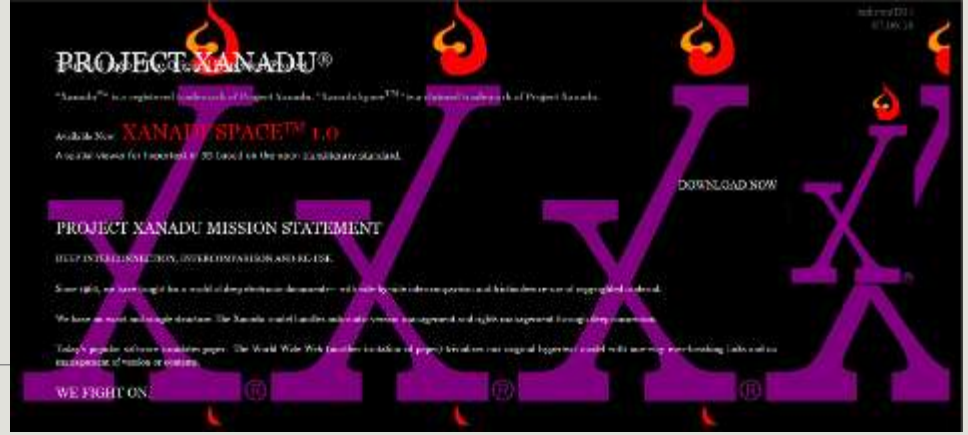
Vannevar Bush, MEMEX

- ***Mem**ory **Ex**tender*
- proposes **Memex** in the article “As We May Think”
- never implemented
- a mechanized device which would enable a user to view all sorts of written material and organize it arbitrarily, adding annotations and links
- ability to create links between items or documents
  - Combining links into **trails** of information relevant to given topics



MEMEX in the form of a desk would instantly bring files and material on any subject to the operator's fingertips. Slanting translucent viewing screens magnify supermicrofilm filed by code numbers. At left is a mechanism which automatically photographs longhand notes, pictures and letters, then files them in the desk for future reference.

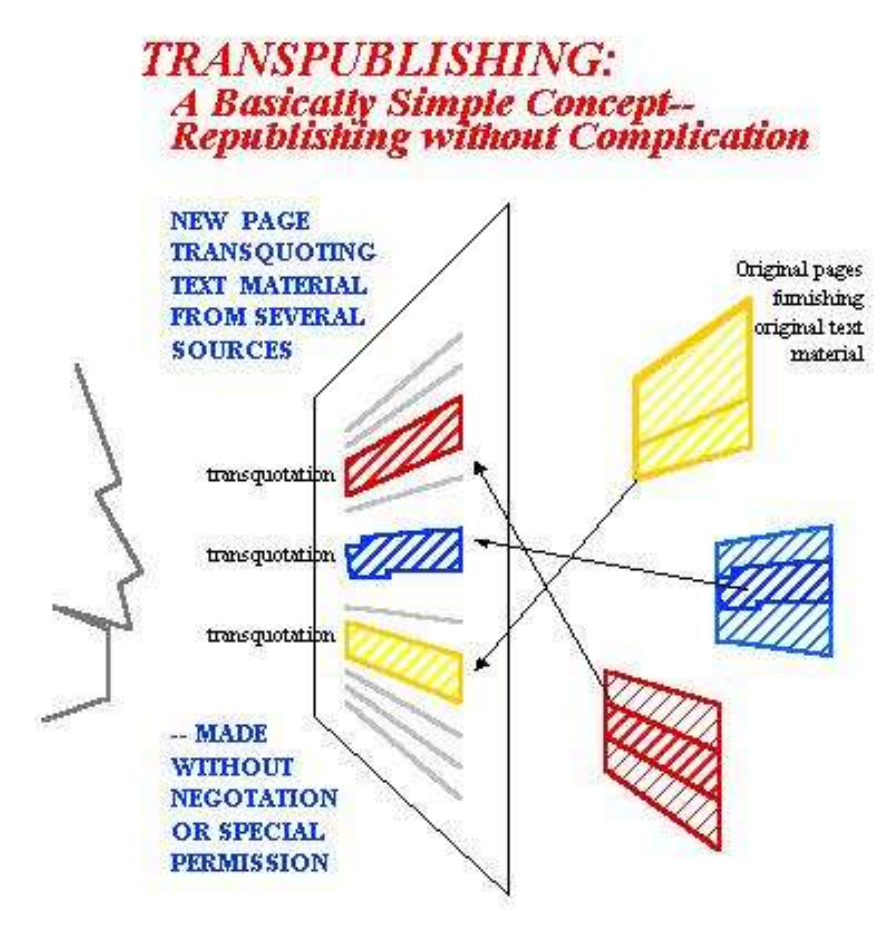
History



Ted Nelson, XANADU (1965), docuverse

- Ted Nelson introduces Xanadu and coins the term ‘hypertext’
- A repository for everything ever written
- Possible to address any substring of any document from any other location
  - Every byte in every document needs its own address
- Text is never deleted
  - All versions can be generated from the latest version
- Author of every document is known and s/he gets royalties based on how many people read how many bytes of author’s work
- XANADU has never been completed

History



each transquotation comes, in effect, from the original publisher; the original publisher supplies the quotation to each user

transclusion is the inclusion of part or all of an electronic document into one or more other documents by hypertext reference

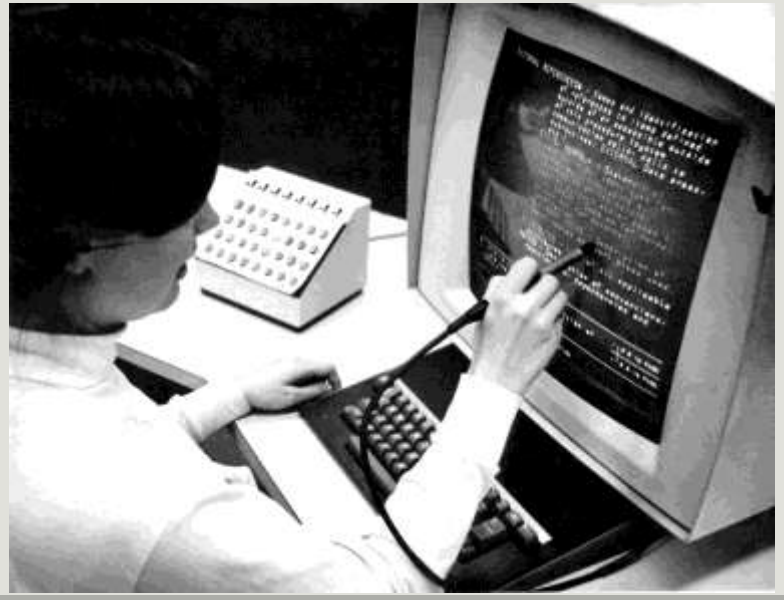
Here are some real transquotations, coming from other pages by permission of their owners.

One of my students wrote a delightful humorous essay; and here is a transquotation from it: trans ... I believe that just as extreme intelligence is a gift, so is extreme stupidity. c
(The first special quote-mark goes to the original context; the second special quote-mark goes to ghe copyright permission statement.)

History

van Dam, HES (1967)

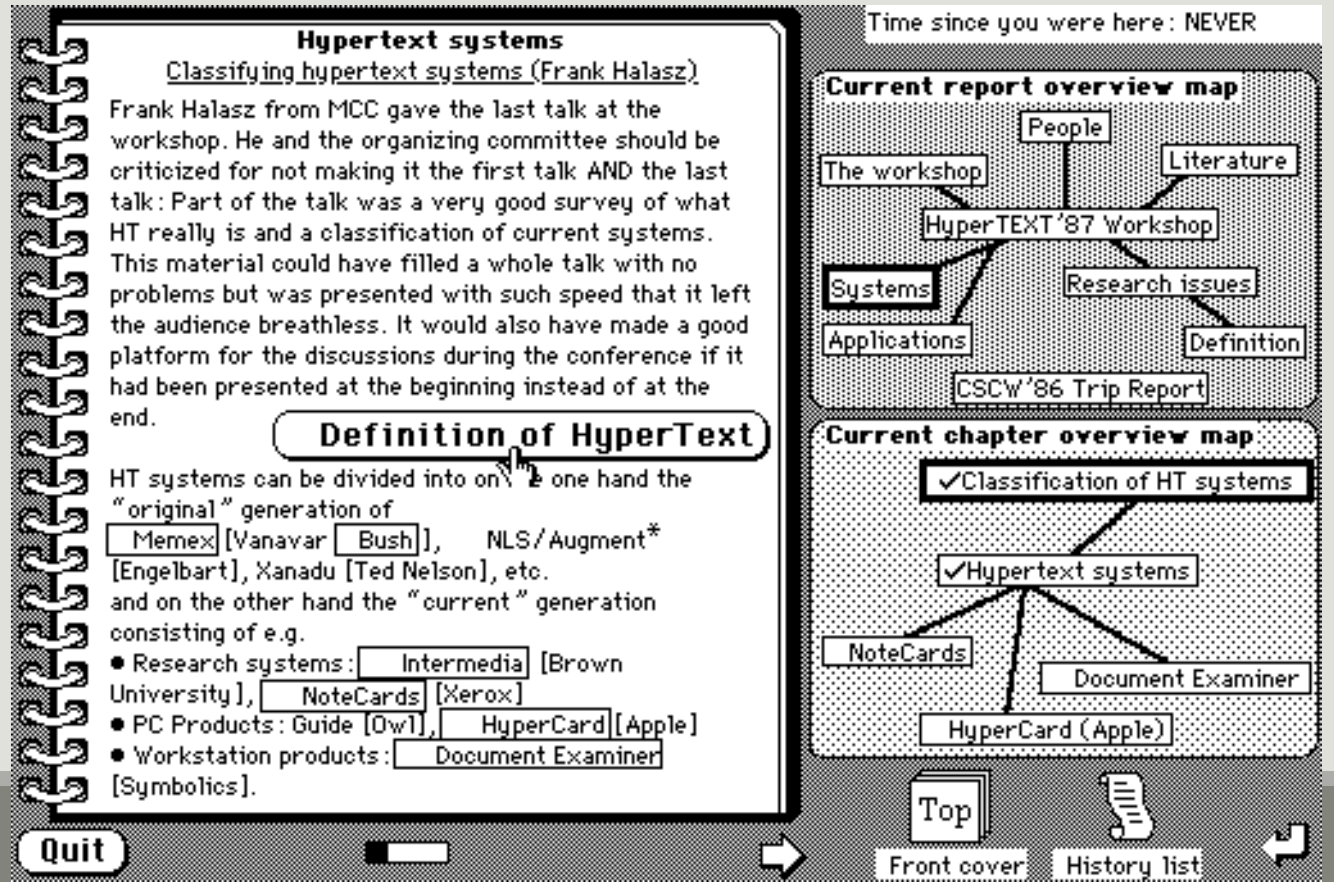
- Hypertext Editing System
- Ran in 128K on an IBM/360 mainframe
- Supported by IBM, who sold to the Houston Manned Spacecraft Center
  - Used to produce documentation for the Apollo space program

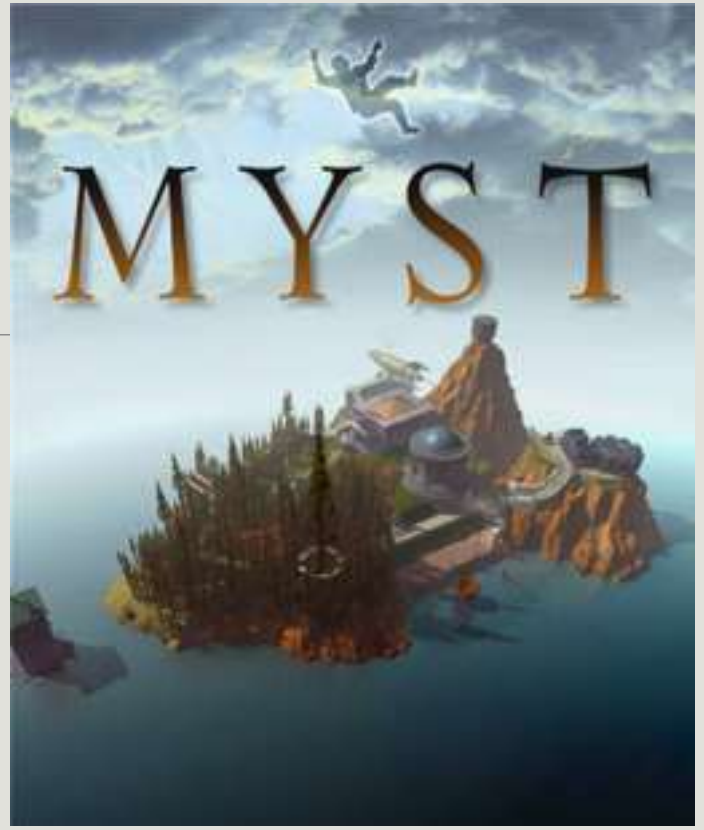


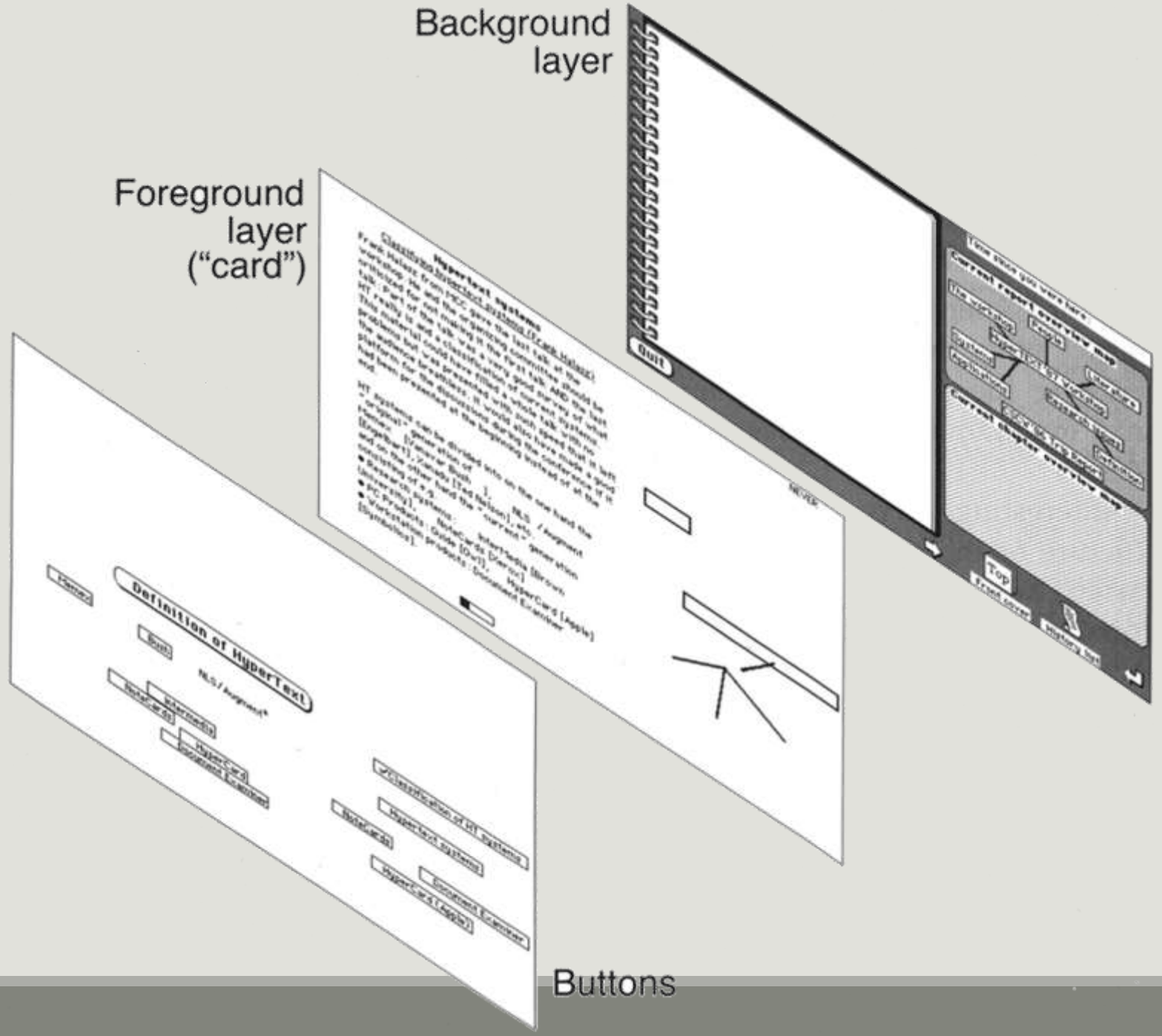
History

HyperCard (1987)

HyperTalk - programming language






Background layer
Foreground layer ("card")
Buttons
Quit
Top
Definition of HyperText

History

Tim Berners-Lee (1989)

project goal: easy exchange of information between scientists using the hypertext system

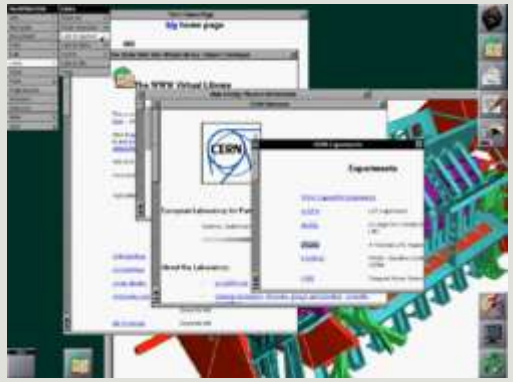
Web, integration of text documents, graphics, image, sound

he developed the syntax of HTML

the first WorldWideWeb browser

the first server www (1991)

World Wide Web Consortium (W3C)




1945 Vannevar Bush Memex
1965 Ted Nelson hypertext
1967 The HES, Andy van Dam
1978 Aspen Movie Map , first hypermedia videodisk, Andy Lippman,
1987 Apple introduces HyperCard, Bill Atkinson
1987 Hypertext'87 first major conference on hypertext
1991 WWW first global hypertext, Tim Berners-Lee

Example of hypertext system

www

Web is a “weak” hypertext system

„The Xanadu® project did not "fail to invent HTML". HTML is precisely what we were trying to PREVENT-- ever-breaking links, links going outward only, quotes you can't follow to their origins, no version management, no rights management.

The "Browser" is an extremely silly concept-- a window for looking sequentially at a large parallel structure. It does not show this structure in a useful way.”

Ted Nelson

Hypermedia ≠ World Wide Web ◦ The Web is one type of hypermedia application but does not illustrate all hypermedia concepts.