

Hypertext & hypermedia

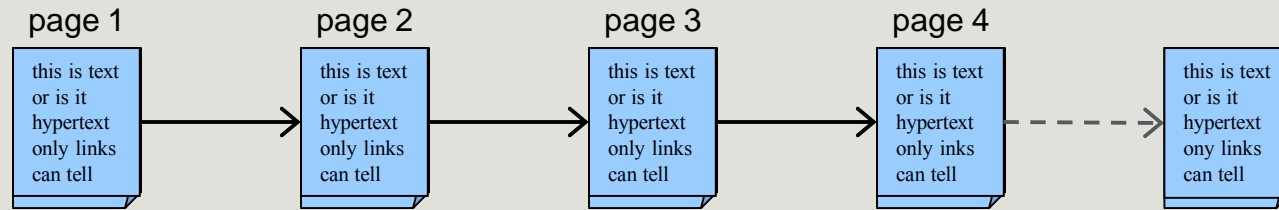
WIOLETA SZWOCH PHD MENG

DEPARTMENT OF INTELLIGENT INTERACTIVE SYSTEMS

Hypertext

Text

- imposes linearity of reading



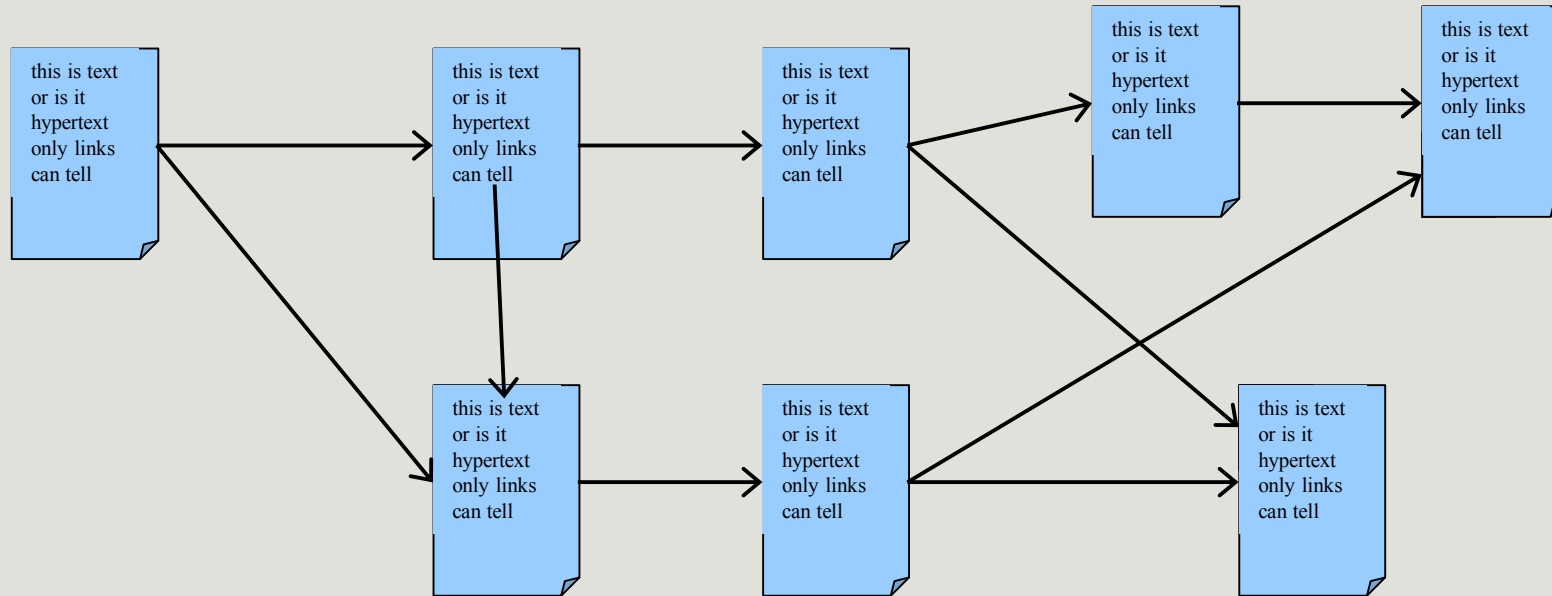
- author knows better



Hypertext

hypertext

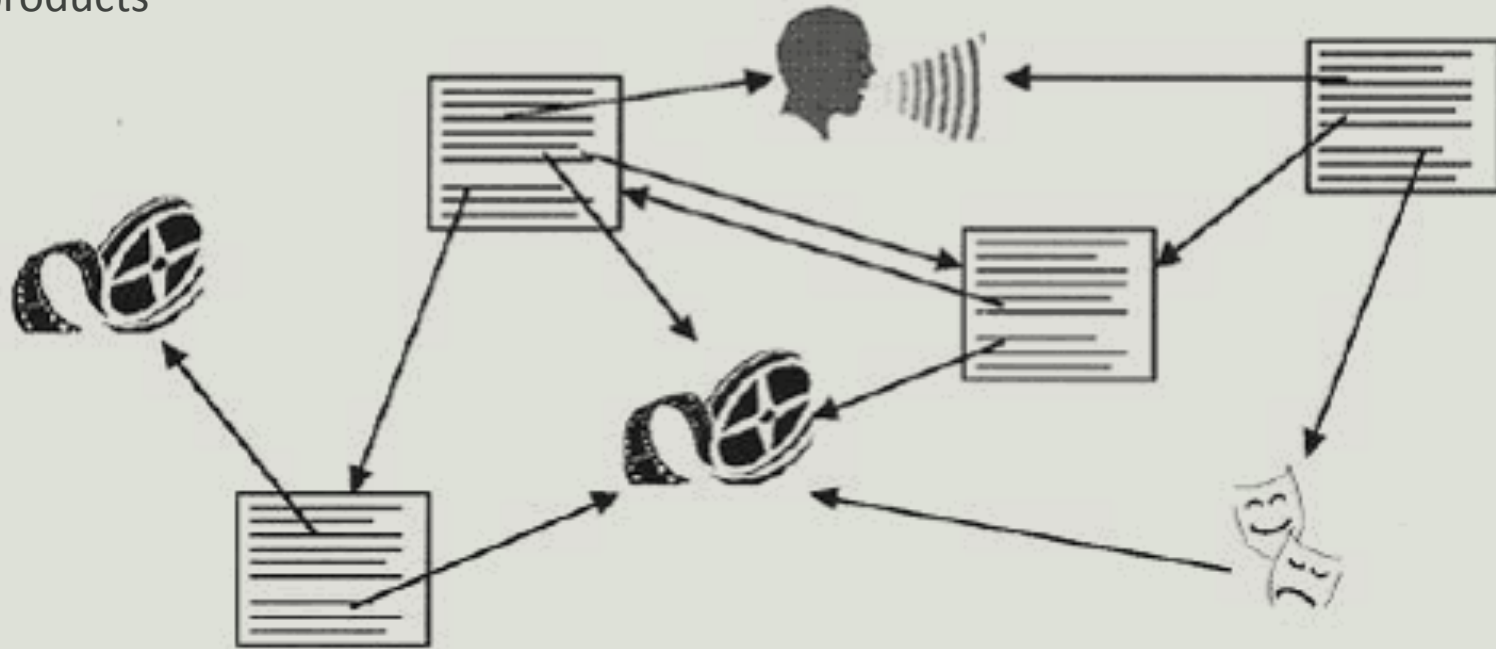
- non-linear text material



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)

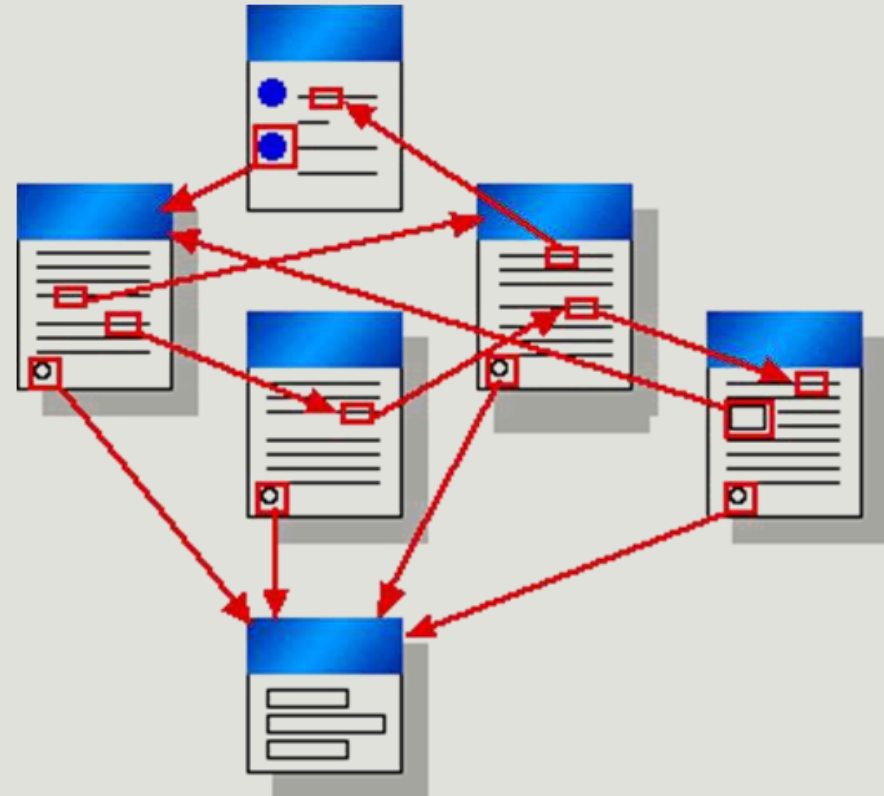
Posibilities

- return
- loop
- marking selected links

Nodes = parti del database (unità di informazione)

Links = collegamenti fra i nodi

Navigation = moving through the hypertext



Nodes

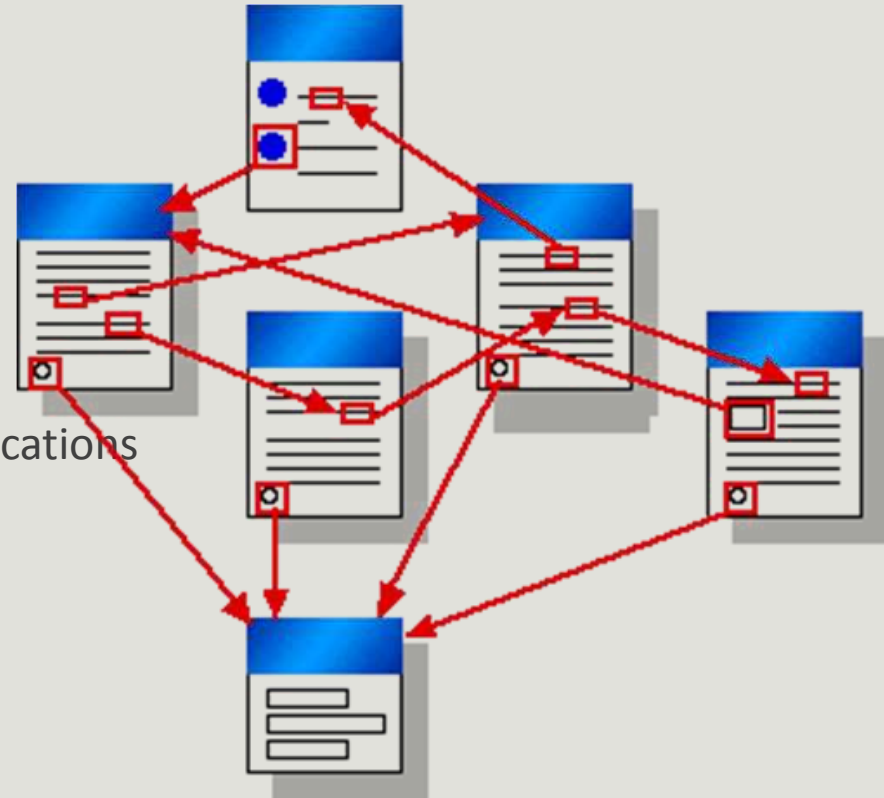
units of information

different names in different systems:

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

may contain:

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



Links

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

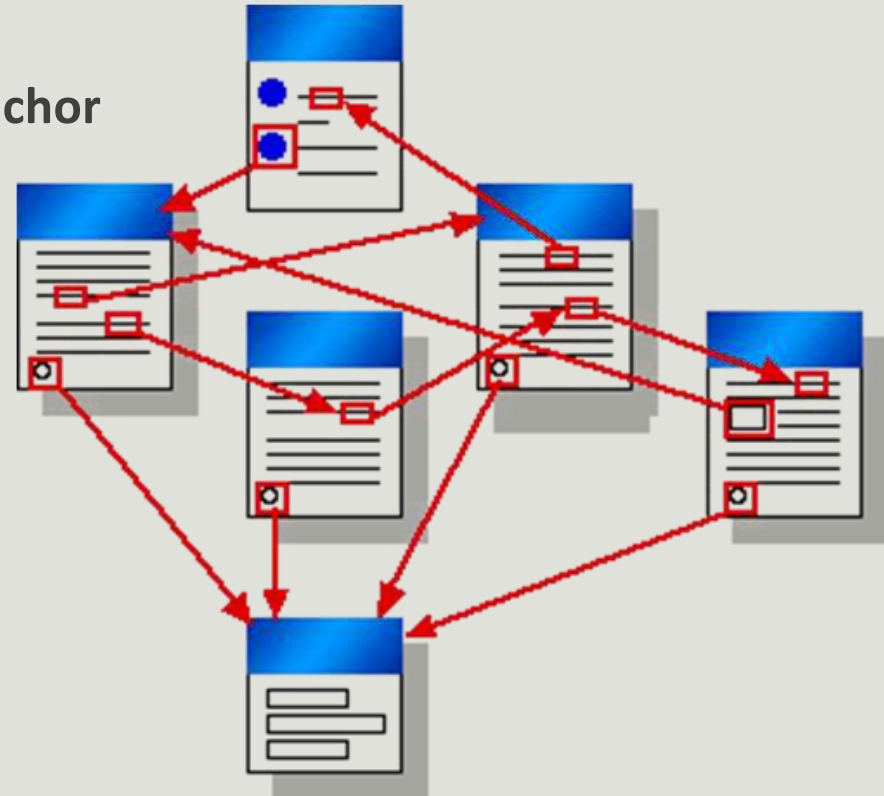
labels, pointers that connecting nodes

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

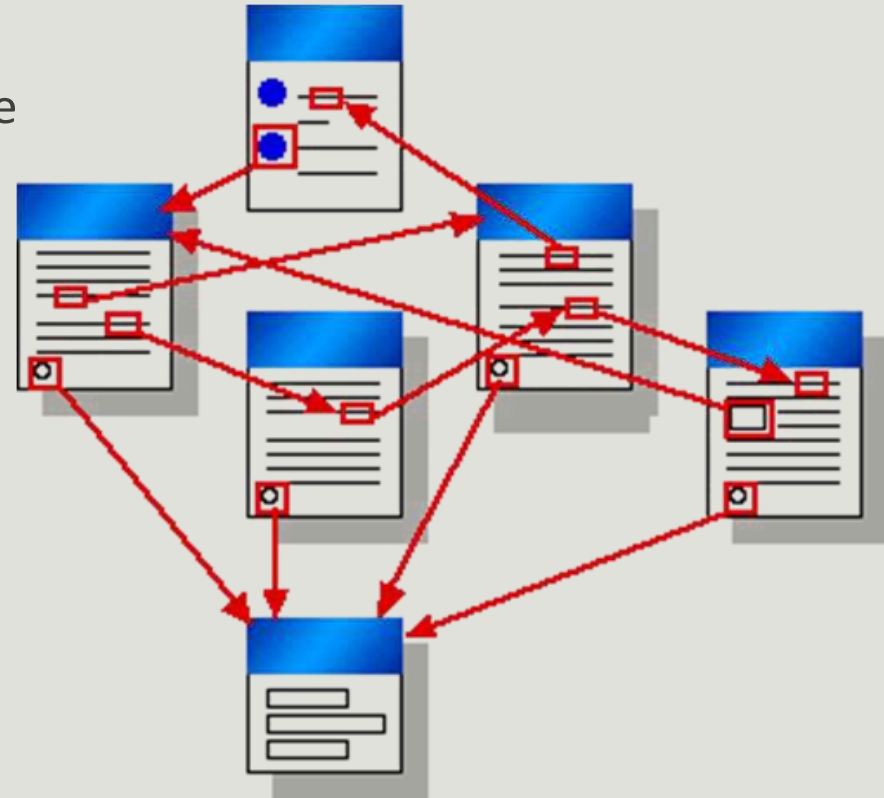
Searching = cercare per esempio per keyword

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,
- ...

IS
Google
MAKING
US
Stoopid?

rejection of
other media
(books and the
press)

constraints
in
perception

getting shorter
and poorer
speech

Internet
addiction

problems with
concentration

easy access to
any information

WHAT THE
INTERNET
IS DOING TO
OUR BRAINS
THE Nicholas Carr
AUTHOR OF THE BIG SWITCH
SHALLOWS

problems
with the
acquisition
of long texts

lack of
criticism

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”
- knowledge and contents
- fragmentary information
 - no integration ...
 - confusion
- navigation and structure
 - hyperlinks move across structure – where am I?

molti percorsi conducono attraverso il materiale

navigazione associativa (così funziona anche il nostro cervello)

Un link è più semplice di una query

Non-linear structure

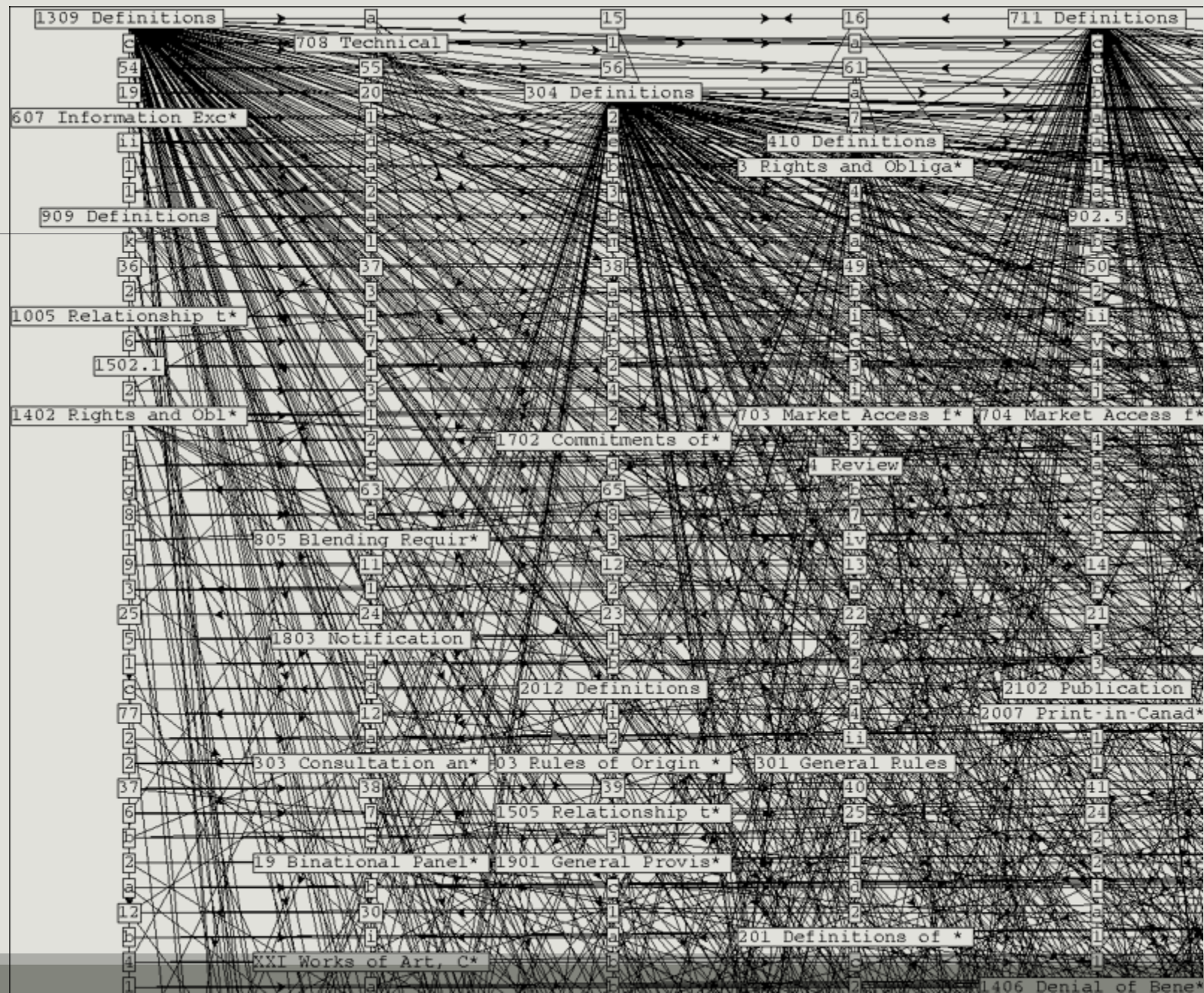


Advantages

- 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



Hypertext Navigation

Goals

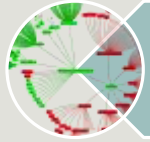
- Find some information
- Learn something

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



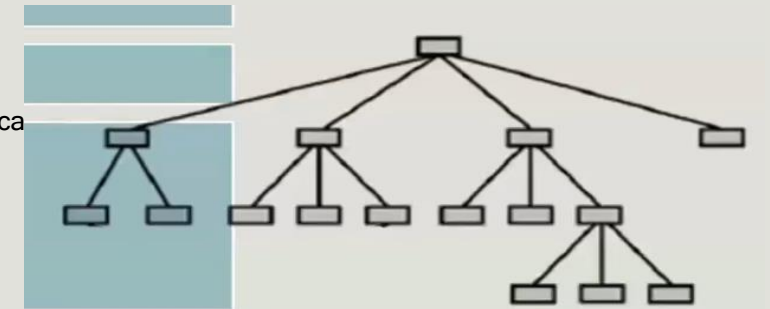
using structure

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

Presentation Level

***Hypertext Abstract Machine
(HAM) Level***

this is the "enginee" of the system

Database Level

Campbell and Goodman

Architecture of hypertext systems

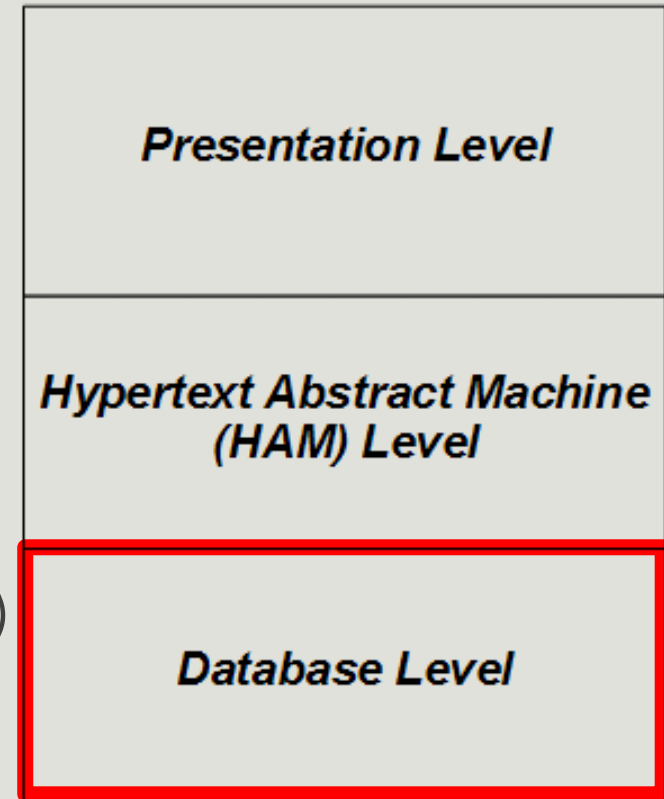
standard database

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)



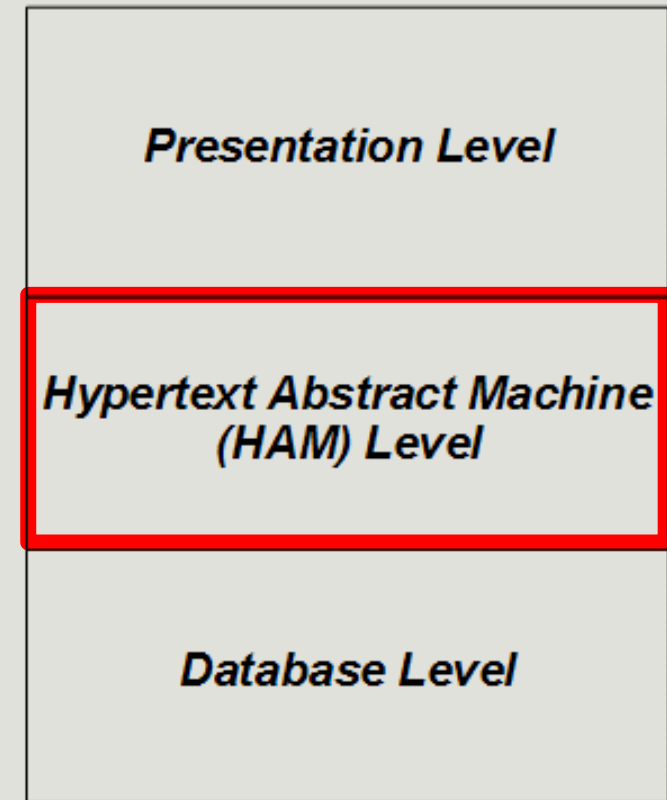
Architecture of hypertext systems

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 present nodes and links)

access rights (filter the information in base a chi fa l'accesso)

- filtering information

Presentation Level

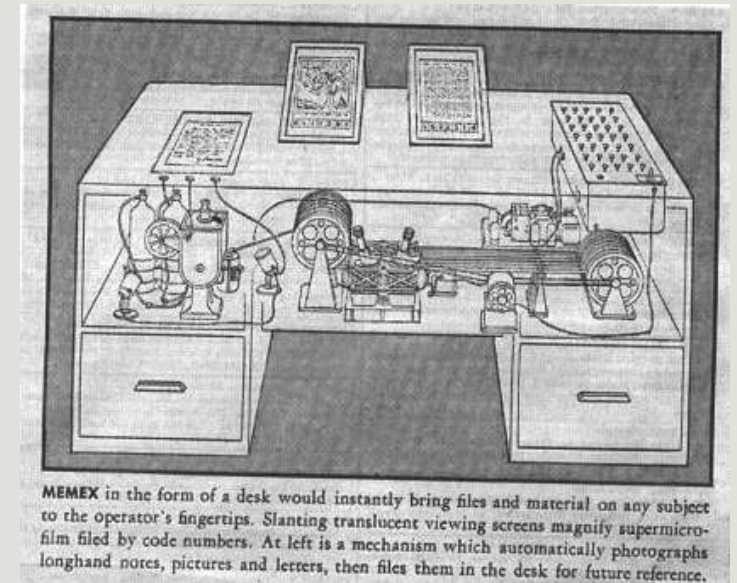
***Hypertext Abstract Machine
(HAM) Level***

Database Level

History

Vannevar Bush, MEMEX

- *Memory Extender*
- 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



History

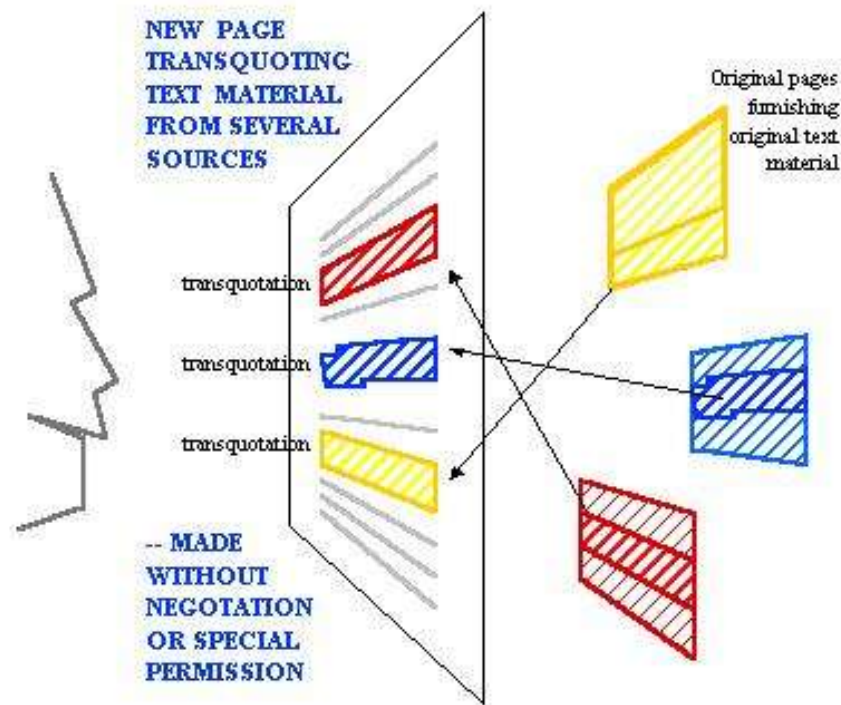
Ted Nelson, XANADU (1965), docuverse

- 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

TRANSPUBLISHING: *A Basically Simple Concept-- Republishing without Complication*



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 the 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

The screenshot displays a HyperCard stack interface. On the left is a text card titled "Hypertext systems" with a spiral binding on its left edge. The text discusses the classification of hypertext systems and lists various systems like Memex, NLS/Augment, Xanadu, Intermedia, NoteCards, HyperCard, and Document Examiner. A button labeled "Definition of HyperText" is highlighted with a mouse cursor. Below the text card is a "Quit" button. To the right of the text card are two overview maps. The top map, titled "Current report overview map", shows a hierarchical structure with "HyperTEXT '87 Workshop" at the center, branching into "People", "Literature", "Systems", "Research issues", "Applications", and "Definition". The bottom map, titled "Current chapter overview map", shows a hierarchical structure with "Classification of HT systems" at the top, branching into "Hypertext systems", "NoteCards", and "Document Examiner". Below these maps are buttons for "Top", "Front cover", and "History list". At the very bottom, a status bar shows "Time since you were here: NEVER".

Hypertext systems
Classifying hypertext systems (Frank Halasz)
Frank Halasz from MCC gave the last talk at the workshop. He and the organizing committee should be criticized for not making it the first talk AND the last talk: Part of the talk was a very good survey of what HT really is and a classification of current systems. This material could have filled a whole talk with no problems but was presented with such speed that it left the audience breathless. It would also have made a good platform for the discussions during the conference if it had been presented at the beginning instead of at the end.

Definition of HyperText
HT systems can be divided into on the one hand the "original" generation of Memex [Vanavar Bush], NLS/Augment* [Engelbart], Xanadu [Ted Nelson], etc. and on the other hand the "current" generation consisting of e.g.
• Research systems: Intermedia [Brown University], NoteCards [Xerox]
• PC Products: Guide [Owl], HyperCard [Apple]
• Workstation products: Document Examiner [Symbolics].

Quit

Time since you were here: NEVER

Current report overview map

- People
- Literature
- HyperTEXT '87 Workshop
 - The workshop
 - Systems
 - Applications
 - Research issues
 - Definition
- CSCW '86 Trip Report

Current chapter overview map

- ✓ Classification of HT systems
 - ✓ Hypertext systems
 - NoteCards
 - Document Examiner
 - HyperCard (Apple)

Top Front cover History list



[illegible]

The diagram illustrates the structure of a HyperText document, showing a hierarchy of topics and their relationships. The main structure is as follows:

- Table of Contents**
 - Introduction
 - Definition of HyperText
 - References
 - HyperText systems
 - HyperText standards
 - HyperText products
 - HyperText applications
- Definition of HyperText**
 - Definition of HyperText
 - HyperText systems
 - HyperText standards
 - HyperText products
 - HyperText applications
- References**
 - References
 - HyperText systems
 - HyperText standards
 - HyperText products
 - HyperText applications

The diagram also shows a 'Table of Contents' box at the top left, which is a simplified version of the main structure. It contains a list of topics: 'Introduction', 'Definition of HyperText', 'References', 'HyperText systems', 'HyperText standards', 'HyperText products', and 'HyperText applications'. The 'Definition of HyperText' box is a larger box that contains a list of topics: 'Definition of HyperText', 'HyperText systems', 'HyperText standards', 'HyperText products', and 'HyperText applications'. The 'References' box is a box that contains a list of topics: 'References', 'HyperText systems', 'HyperText standards', 'HyperText products', and 'HyperText applications'.

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

1967 The
HES, Andy
van Dam

1987 Apple
introduces
HyperCard,
Bill
Atkinson

1991
WWW first
global
hypertext,
Tim
Berners-
Lee

1965 Ted
Nelson
hypertext

1978 Aspen
Movie Map ,
first
hypermedia
videodisk,
Andy
Lippman,

1987
Hypertext'87
first major
conference
on hypertext



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.