



# Narrative Hypermedia

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# Narrative <-> Hypermedia

Contradiction in terms!

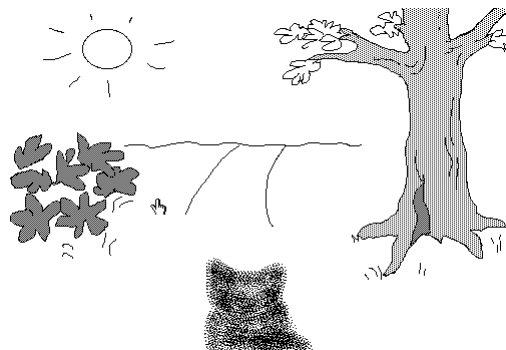
- Narrative:  
storyline with beginning, middle and end  
<http://www.uni-koeln.de/~ame02/pppn.htm>
- Hypermedia:  
collection of linked fragments,  
no required boundary

## Hyperlinks in Film

- **Different forms of hyperlinks:**
  - Choice point  
(Run Lola Run, Closing Doors)
  - Different perspectives in parallel  
multiple simultaneous channels

## Hypertext community

- Experiments with stories '80s onwards
    - Michael Joyce: Afternoon, a Story 1990
    - Shelley Jackson: Patchwork girl 1995
    - Stuart Moulthrop: Victory Garden
    - M.D. Coverley: Califia 1999
- [http://en.wikipedia.org/wiki/Hypertext\\_fiction](http://en.wikipedia.org/wiki/Hypertext_fiction)
- Loops/choice points or events from different perspectives
    - Amanda Goodenough: Inigo Gets Out 1987
  - Author maintains some control by making new material accessible only after reader has read all required passages





## Hyperlinked comics

<http://www.scottmccloud.com>



## Temporal flow

- A story has a beginning, a middle and an end.
- The events being talked about also have a temporal order – these do not have to be the same  
Arundhati Roy, The God of Small Things  
Michael Ondaatje, The English Patient
- When constructing a hypermedia narrative challenge is even greater, since author has less control on what the reader reads next
- Luesebrink explains different temporal layers in a story: cognitive time and interface time
- Presentation itself also has time  
Hardman et al., Do You Have the Time? Composition and Linking in Time-based Hypermedia  
<http://doi.acm.org/10.1145/294469.294515>

## Human->machine

- So far discussed stories/narratives created by humans
- What do we need to understand to allow a computer to do this too?
  - topic of the story
  - intended listener
  - representation of discourse
  - conversion of “query” into “story”

## Query -> presentation creation

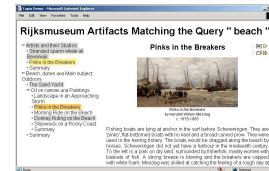
- Goal is to creating meaningful presentations from query results
  - What role does **explicit discourse** information play in creating presentations

## Inferring document structure

- Topia
- Rijksmuseum ARIA database -> RDF
- Clustering on results of query
- Presentation showing “table of contents” and current focus

- Lloyd Rutledge  
ACM Hypertext 2003

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## Inferring document structure


Topia Demo - Microsoft Internet Explorer

File Edit View Favorites Tools Help

### Rijksmuseum Artifacts Matching the Query " beach "

- ▼ Artists and their Studios
  - Stranded sperm whale at Beverwijk
  - **Pinks in the Breakers**
  - Summary
- ▼ Beach, dunes and Main subject: Outdoors
  - The Sand Yacht
  - ▼ Oil on canvas and Paintings
    - Landscape in an Approaching Storm
    - **Pinks in the Breakers**
    - Morning Ride on the Beach
    - Donkey Riding on the Beach
    - Shipwreck on a Rocky Coast
    - Summary
  - Summary

### Pinks in the Breakers



*Pinks in the Breakers*  
by Hendrik Willem Mesdag  
c. 1875-1885

Fishing boats are lying at anchor in the surf before Scheveningen. They are 'pinks', flat-bottomed boats with no keel and a broad curved prow. They were used in the herring fishery. The boats would be dragged along the beach by horses. Scheveningen did not yet have a harbour in the nineteenth century. To the left is a pink on dry land, surrounded by fisherfolk, mainly women with baskets of fish. A strong breeze is blowing and the breakers are capped with white foam. Mesdag was skilled at catching the feeling of a rough day at

Done Internet

## Discourse model components

- A discourse model has knowledge about:
  - genre composition;
  - discourse structure building;
  - discourse structure population.
- genre: a distinctive type of literary composition that defines characteristic attributes of this composition e.g. a flow of discourse.
- discourse structure: identifies the flow of discourse by specifying concepts and their order plus situation of these concepts within sections and subsections.
- order: a meaningful order based on semantic relations between items
- A generation process uses knowledge in the discourse model to generate a final presentation

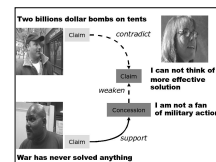
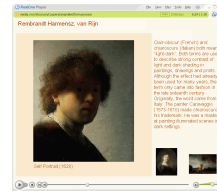
## Insights from existing experiences

- Genres differ in discourse flows
  - Essay, biography: informative genres, oriented on providing information
  - Newspaper article: stronger narrative structure in which climax is essential
- Different mechanisms are required to support different genres
  - Essay, biography: find a set of relevant concepts, decide in what order they should be presented
  - Newspaper article: identify climax, find relevant concepts

Falkovych & Bocconi, Creating a Semantic-based Discourse Model for Hypermedia Presentations: (Un)discovered Problems  
<http://www.cwi.nl/~media/publications/HTW05Falkovych.pdf>

## Explicit Discourse

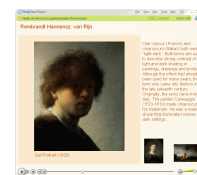
- **Fixed discourse:**
  - DISC – uses annotated multimedia repository + domain ontology and discourse knowledge
  - discourse knowledge = set of rules (genre, narrative units...)
- **Dynamic discourse:**
  - VoxPopuli: argument generation in video
- **Role of structured progression**



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## Fixed Discourse

- **DISC**
- Rijksmuseum repository of media items
- Semantic graph is not enough  
**Rembrandt married-to Saskia**  
 also need discourse structures for deriving grouping, ordering and priorities
- Biography template created  
**painter is-a profession**
- Stefano Bocconi, Joost Geurts  
 ISWC 2003



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**CWI** Centrum voor Wiskunde en Informatica

RealOne Player

media.cwi.nl/cocoon/cuypers/aria/selectform-process

Rembrandt Harmensz. van Rijn



Self Portrait (1628)


Clair-obscur (French) and chiaroscuro (Italian) both mean 'light-dark'. Both terms are used to describe strong contrast of light and dark shading in paintings, drawings and prints. Although the effect had already been used for many years, the term only came into fashion in the late sixteenth century. Originally, the word came from Italy. The painter Caravaggio (1573-1610) made chiaroscuro his trademark. He was a master at painting illuminated scenes in dark settings.

**CWI** Centrum voor Wiskunde en Informatica

## Example 2: Vox Populi Video Sequences Generation

Stefano Bocconi, Frank Nack

- **Interview with America**  
video footage with interviews and background material about the opinion of American people after 9-11  
<http://www.interviewwithamerica.com>
- **Example question:**  
*What do you think of the war in Afghanistan?*



*"I am never a fan of military action, in the big picture I don't think it is ever a good thing, but I think there are circumstances in which I certainly can't think of a more effective way to counter this sort of thing..."*<sup>18</sup>

## Vox Populi Annotations

- **Contextual**
  - Interviewee (social), locations
- **Descriptive**
  - Question asked and transcription of the answers
  - Filmic continuity, examples:
    - gaze direction of speaker (left, centre, right)
    - framing (close-up, medium shot, long shot)
- **Rhetorical**
  - Rhetorical Statement
  - Argumentation model; Toulmin model

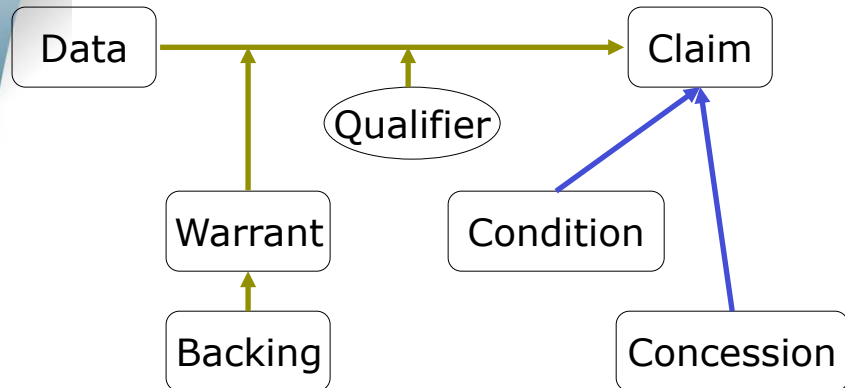
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## Vox Populi Rhetorical Annotations

- **Statement formally annotated:**
  - <subject> <modifier> <predicate>
  - E.g. “**war best solution**”
- **A thesaurus containing:**
  - Terms on the topics discussed (155)
  - Relations between terms: *similar* (72), *opposite* (108), *generalization* (10), *specialization* (10)
  - E.g. **war opposite diplomacy**
- 1 hour video annotated:  
15 interviews, 120 statement

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## Toulmin Model



*57 Claims, 16 Data, 4 Concessions,  
3 Warrants, 1 Condition*

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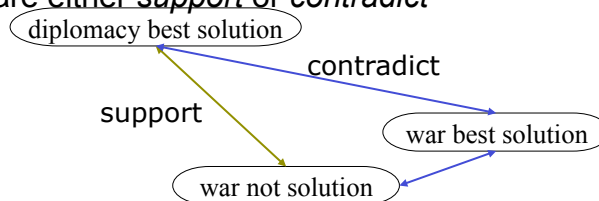
The interface includes the following sections:

- Question:** A list of questions with "What do you think of the Afghanistatn war?" circled in red.
- Interviewee:** A dropdown menu with "Cameroun Parking Guard at Stamford" and "Lawyer in Harward".
- Opinion:** A dropdown menu with "War in Afghanistan - Pro".
- Position:** A label next to the Opinion dropdown.
- Characteristics:** Two identical sets of dropdown menus for Age, Education, Employment, GeoLocation, Race, Religion, and Sex. The first set is circled in red and labeled "First Character", and the second set is labeled "Second Character".
- Strategy:** A section with checkboxes for "Create Clash", "Create Support", and "Vox Populi". "Create Clash" is circled in red.
- Bandwidth:** Radio buttons for "Low Bandwidth", "Medium Bandwidth", and "High Bandwidth".
- Intercut:** Radio buttons for "True" and "False".
- Caption:** Radio buttons for "On (can cause problems)" and "Off".
- Buttons:** "Done" and "Reset" buttons at the bottom.

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## Vox Populi Organize Process

- Using the thesaurus, create a **graph** of related statements
  - nodes are the statements (corresponding to video segments)
    - “war best solution”,
    - “diplomacy best solution”,
    - “war not solution”
  - edges are either *support* or *contradict*



## Result of Vox Populi Query

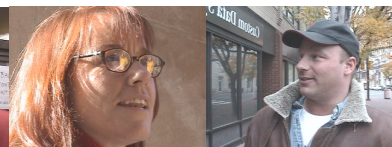
**I am not a fan of military actions**



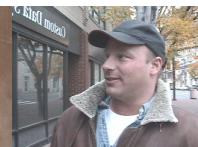
**I cannot think of a more effective solution**



**War has never solved anything**



**Two billions dollar bombs on tents**



## Argument generation in Vox Populi

- Database of video clips
- annotated with different types of annotations
- Argumentation model (Toulmin)
- User specifies query and video sequence generated
- Higher level guidance still needed

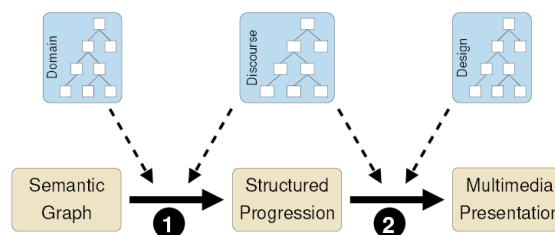
- Stefano Bocconi, Frank Nack and Lynda Hardman:  
*Automatic generation of matter-of-opinion video documentaries*

*Journal of Web Semantics*, 6(2), p139-150, 2008.  
<http://www.cwi.nl/~media/demo/VoxPopuli/>



## Role of structured progression

- **Mono-media cases (text or video sequences):**
  - ordering for the fragments and present them
- **Presentations that use combinations of media,**
  - Semantics of domain and discourse need translation to *hierarchical structures* that can be expressed through *layout*, *navigational links* or *temporal info*.
- **Intermediate format is required:**





## nm2 New Millenium, New Media

- Interactive applications designed for broadcast TV
- [http://www.ist-nm2.org/media\\_productions.html](http://www.ist-nm2.org/media_productions.html)



## Conclusions

- Hypermedia narratives are *still* very much an experimental art form  
Marc Bernstein <http://www.eastgate.com/>  
Online magazine Tekka  
<http://www.eastgate.com/catalog/Tekka.html>  
Online writing centre <http://trace.ntu.ac.uk>
- We can't generate rich hypermedia narratives (yet)
- We can make small steps from domain knowledge to human-consumable information
- We can add rich rhetorical information and generate video sequences