Towards the Automated Generation of Hypermedia Presentations

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Presentation Outline:
• What is the problem?
• Where do we start?
  — MMDB, thesauri, HDM, SRM
• Connections among these

The Problem: Which presentation?

commentary:
spoken or subtitles?

language?

expensive, high quality or cheap, low quality?

video?

colour?
**Points of departure**

Multimedia databases with images/video/sound are being created and can be searched within.

We can create domain descriptions (thesauri).

We know how to design (large) hypermedia collections (HDM).

We know how to generate ordered presentations dynamically (SRM).

We “just” need to fit all these together...

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**The pieces of the puzzle**

<table>
<thead>
<tr>
<th>Thesaurus</th>
<th>Multimedia database</th>
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<tbody>
<tr>
<td>semantic relations</td>
<td>feature recognition semantic labelling</td>
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<th>SRM</th>
<th>HDM</th>
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<td>knowledge server generation process</td>
<td>hyperbase schema reading schema layout design</td>
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final presentation
Thesaurus

Sometimes termed *ontology*

Describes terms and their relationships
- These may be hierarchical, or cross-hierarchical

Example is the GRASP ontology, SWI UvA
- Global Retrieval, Access and information System for Property items
- 125,000 terms in art domain—used for tracing stolen works of art.

Given a thesaurus, a user can extract super and sub terms.

Thesaurus captures knowledge about a particular domain.

Multimedia Databases

Store media items: text, images, audio, video.

Media items can be processed and added to descriptions of media data
- features—shapes, colour histograms
- semantics—"building", "gable"

Features can used for multimedia information retrieval, but need connection between feature and semantic content
- find all pictures with tomatoes -> find red circles

Example is ACOI (Amsterdam Catalogue of Images), built on top of MONET.
SRM: The Standard Reference Model for IMMPS

High level model describing framework for generating multimedia presentations.

Developed on the basis of systems that had already been created: e.g. WIP, PPP, COMET, AIMI, TEXPLAN, MIPS

Originally developed for text and image presentations using discourse theory for planning presentation—no temporal synchronization or links.
HDM: Hypermedia Design Methodology

Hyperbase schema

Reading schemas

Layout design

The connections among the pieces

thesaurus
semantic relations

multimedia database
feature recognition
semantic labelling

SRM
knowledge server
generation process

HDM
hyperbase schema
reading schema
layout design

final presentation
Details of Application Expert

Thesaurus—Database connection

**Thesaurus used to:**
- annotate objects in database
- determine relations among media objects.

- Thesaurus
- Annotation Layer
- Multimedia Database

- Herengracht 284
  - content: hg284.jpg
  - terms: building, front
  - anchor #1
    - value: 25,5,50,15
    - terms: gable
  - anchor #2
    - value: 27,65,53,20
    - terms: entrance
What is missing?

- Information on which to base the planning of the presentation.
- Knowing the meaning (semantics) of the material is not enough.
- Some way of determining the narrative structure is needed.
- We have been investigating Rhetorical Structure Theory...