Towards the Automated Generation of Hypermedia Presentations

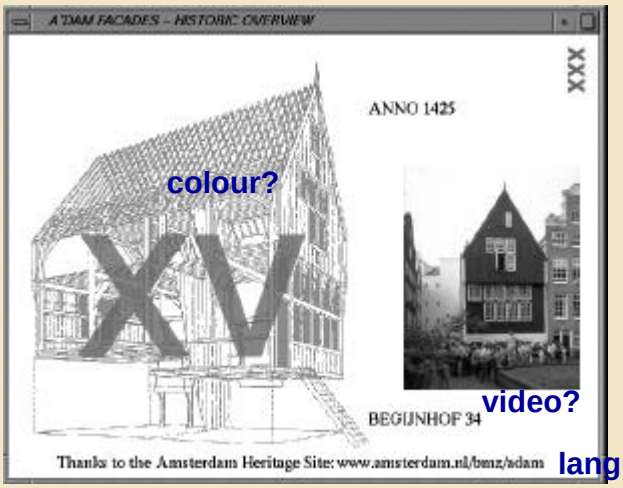
Lynda Hardman
Lloyd Rutledge, Brian Bailey, Joost Geurts, Jacco van Ossenbruggen

Multimedia and Human-Computer Interaction Group
CWI: Centrum voor Wiskunde en Informatica
Amsterdam, The Netherlands

Presentation Outline:

- What is the problem?
- Where do we start?
  — MMDB, thesauri, HDM, SRM
- Connections among these

The Problem: Which presentation?



colour?

video?

language?

commentary: spoken or subtitles?

expensive, high quality or cheap, low quality?

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...

The pieces of the puzzle

thesaurus
- semantic relations

multimedia database
- feature recognition
- semantic labelling

SRM
- knowledge server
- generation process

HDM
- hyperbase schema
- reading schema
- layout design

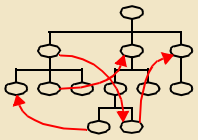
final presentation

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.

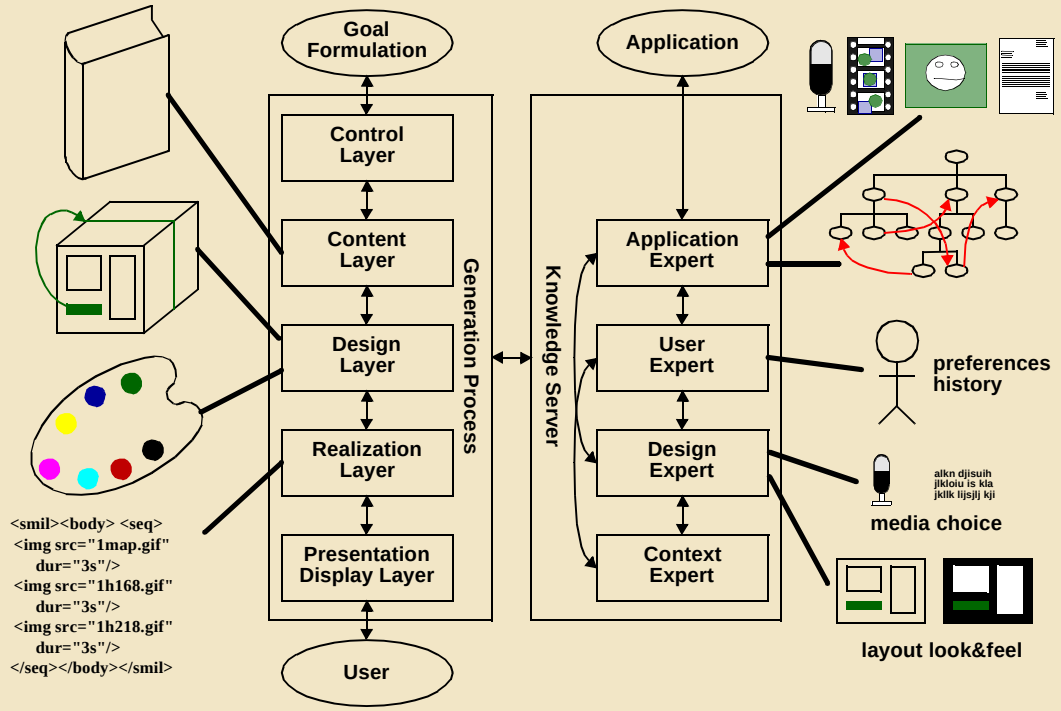
SRM: The Standard Reference Model for IMMPS

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

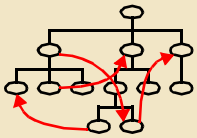
Originally developed for text and image presentations using discourse theory for planning presentation—no temporal synchronization or links.

SRM

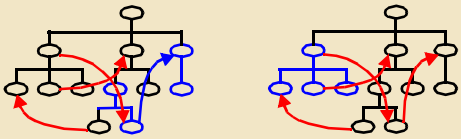


HDM: Hypermedia Design Methodology

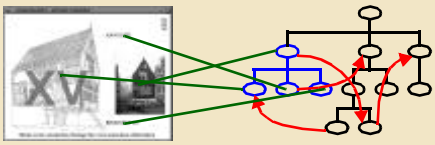
Hyperbase schema



Reading schemas



Layout design



The connections among the pieces

thesaurus
semantic relations

multimedia database
feature recognition
semantic labelling

SRM
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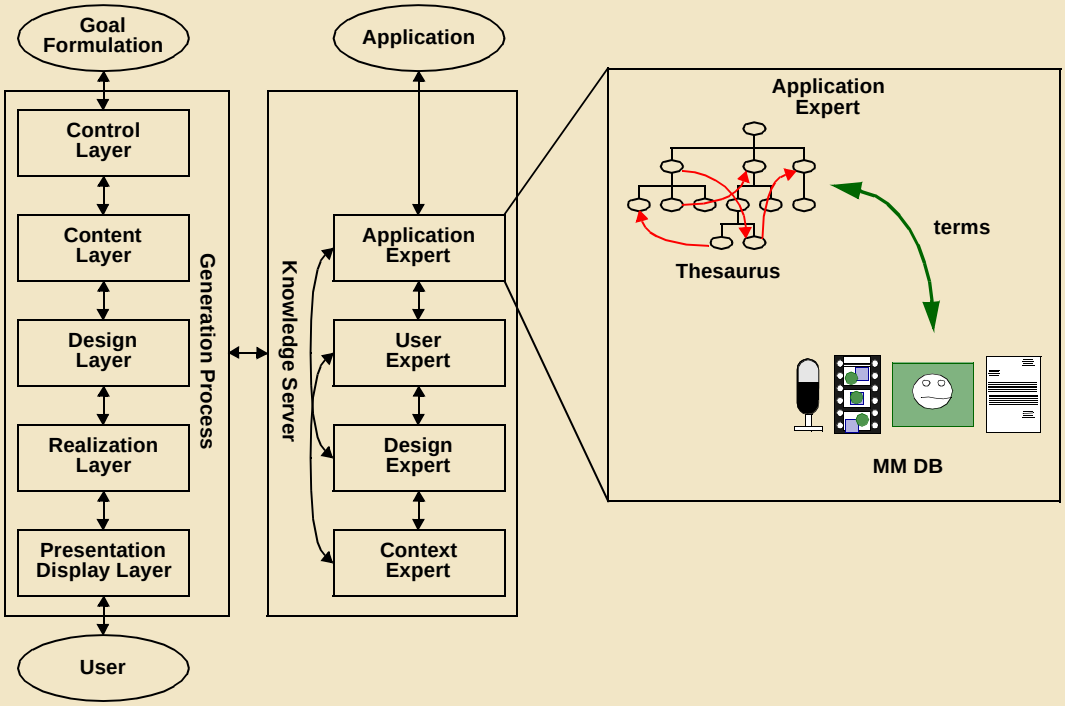
generation process

HDM
hyperbase schema
reading schema
layout design

final presentation

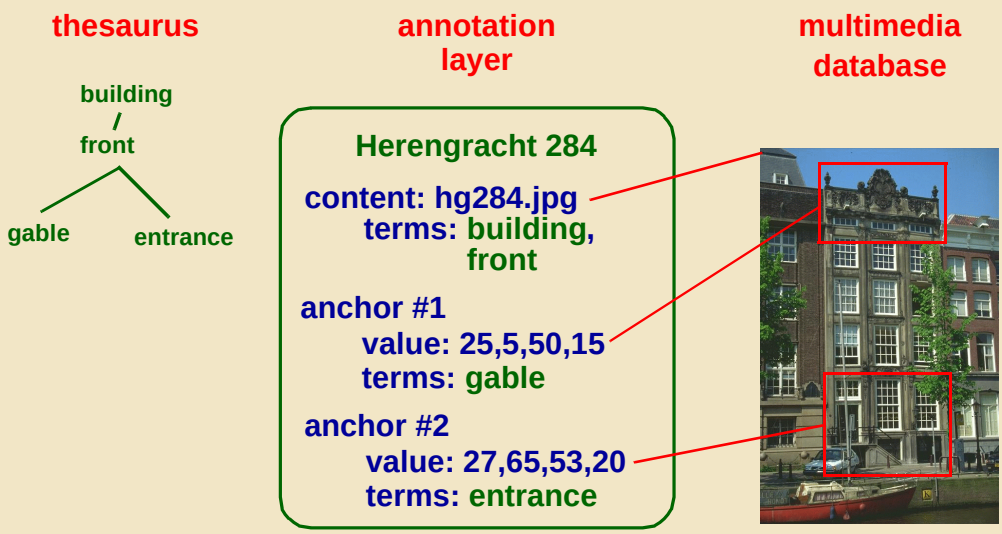
Details of Application Expert



Thesaurus—Database connection

Thesaurus used to:

- annotate objects in database
- determine relations among media objects.



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...