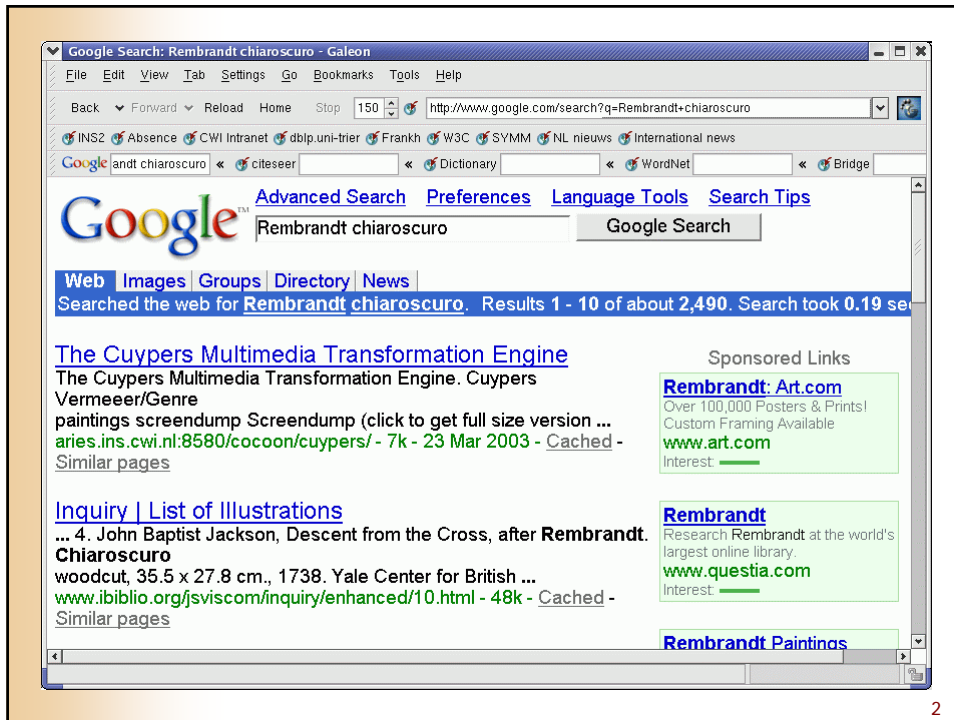
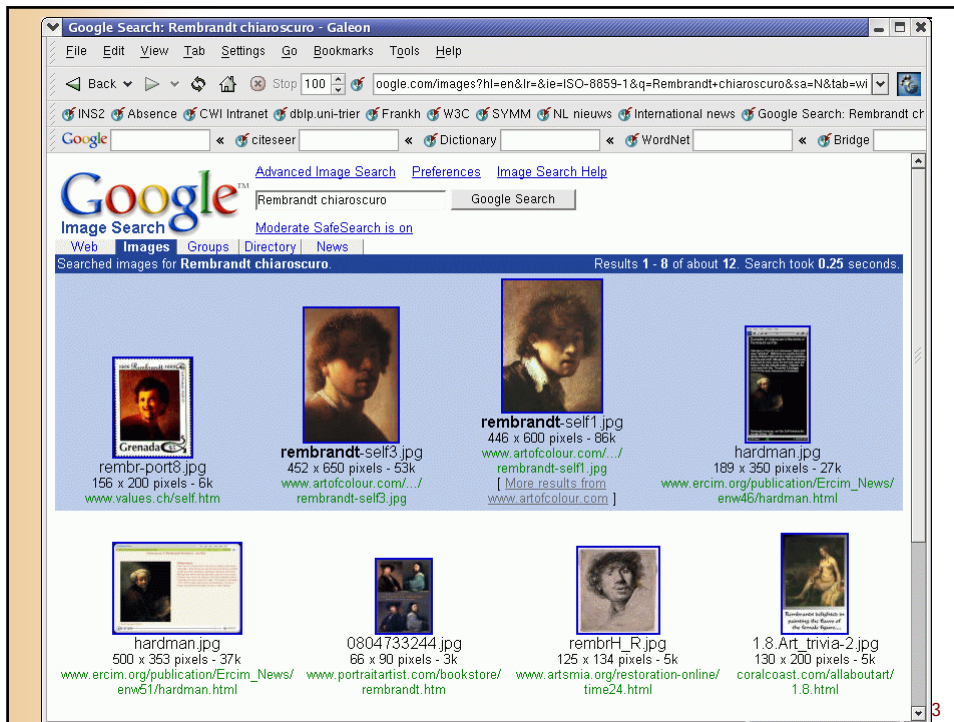


Interaction Design for the Semantic Web

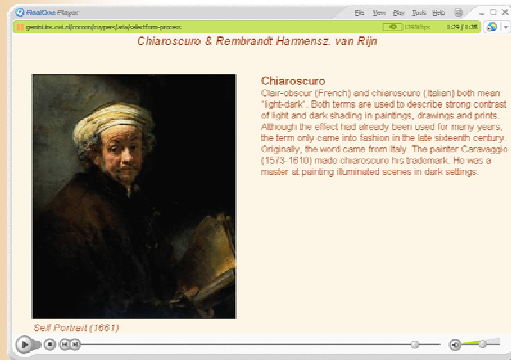
Lynda Hardman

CWI, Semantic Media Interfaces
TU/e, Multimedia and Internet Technology





One size *doesn't* fit all



5

The problem

- Too many users need their own information
 - for their level of expertise
 - using appropriate media
 - in an appropriate style
 - displayed on their own device
- Multimedia information design is expensive
- There has to be some automation in the process

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The Context

- Web
 - open and linked
 - is with us now
- Semantic Web
 - open and richly linked
 - is under development
 - particularly for machine processing
- User's information seeking task

7

Interaction Design for the SW

- Long term goal to construct hypermedia automatically.
 - What good is that to you?
- You understand interfaces and how to design them by hand.
 - How can machines help us with the details?
- We can capture semantics about information design for re-use.
 - Not there yet.
- We can use information sources available on the SW and make them available to end-users.
 - That's what much of this week is about.
- Then we need to deal with:
 - Selecting a sub-set (semantic search)
 - Grouping and ordering (linking to extra) for end-user.
(Start with "data" based structuring and move to discourse based.)
- New functionality
 - relation search
 - include higher level human-oriented communication
 - others?
- And then we need to understand what good **new** interfaces are.
 - Evaluating an existing interface is relatively easy


8

RealOne Player

gemini.ins.cwi.nl/cocoon/cuyper/aria/selectform-process

1393kbps 1:29 / 1:35

Chiaroscuro & Rembrandt Harmensz. van Rijn



Chiaroscuro
 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.

Self Portrait (1661)

10

Three ingredients



Content

11

Content of example



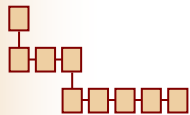
Clair-obscur (Frans) en chiaroscuro (Italiaans) betekenen 'licht-donker'. Beide termen worden gebruikt om sterke licht-donkercontrasten in schilderijen, tekeningen en prenten aan te duiden. Hoewel het effect al eerder werd toegepast, is de term pas sinds het einde van de 16de eeuw in zwang. De oorsprong van het woord ligt in Italië. De schilder Caravaggio (1573-1610) maakte het chiaroscuro-effect tot zijn handelsmerk. Hij was een meester in het schilderen van donkere taferelen met één felle lichtbundel.



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Three ingredients

Presentation structure

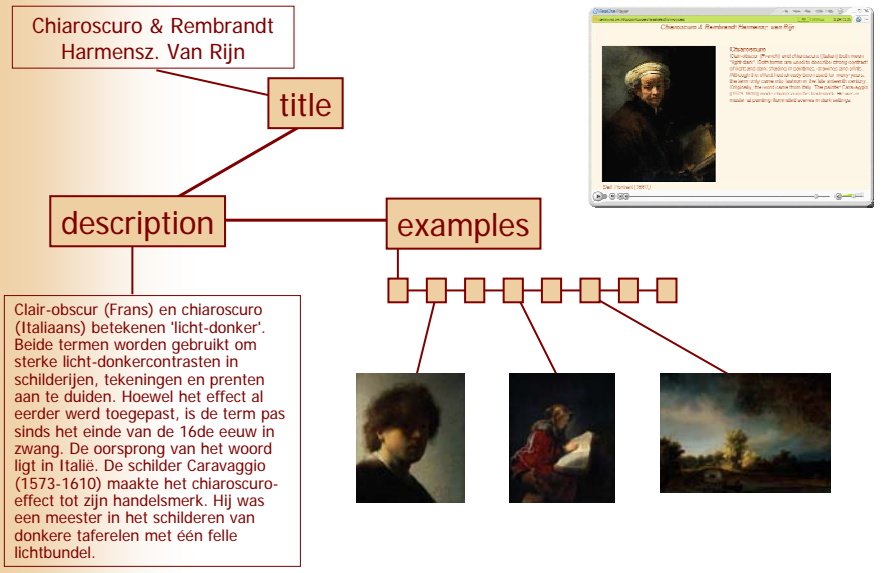


Content

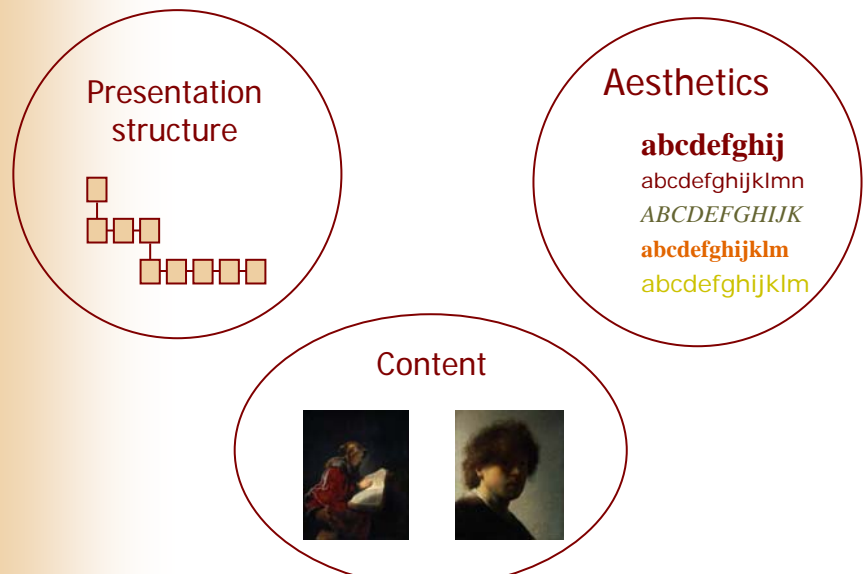


13

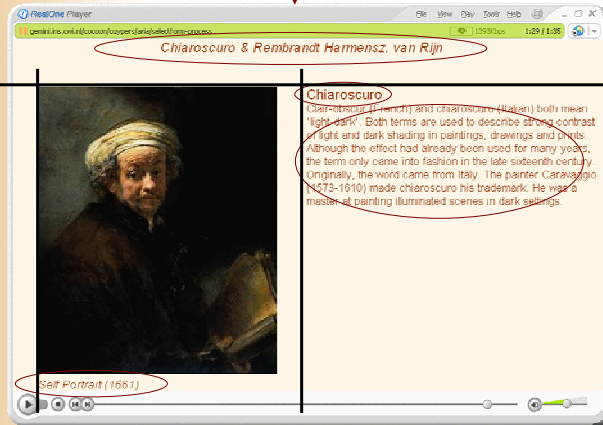
Presentation structure of example



Three ingredients



Aesthetics of example



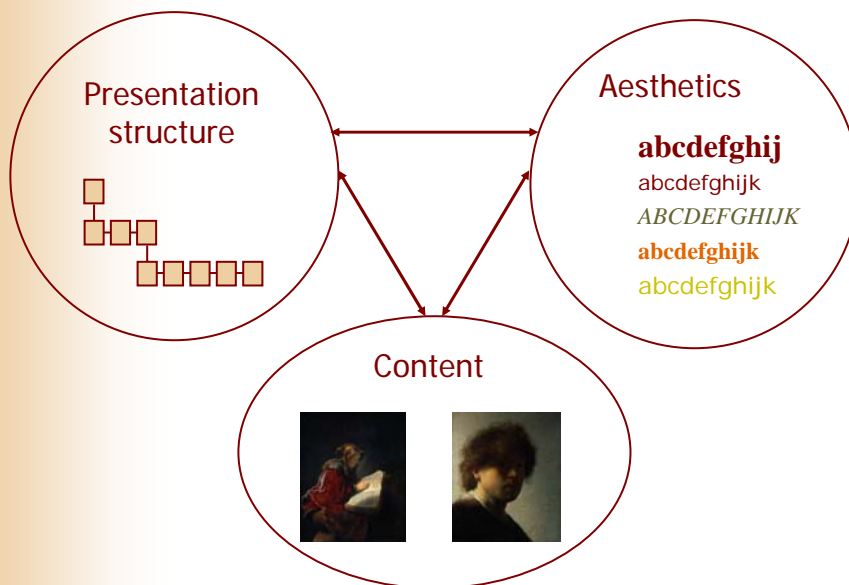
Fonts

Layout

Colours

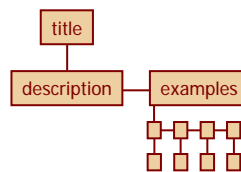
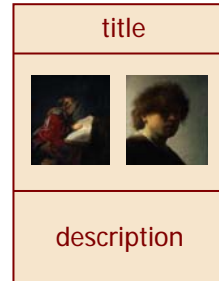
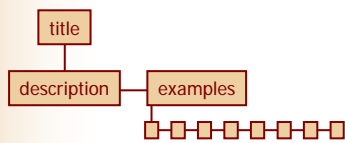
16

Design dependencies



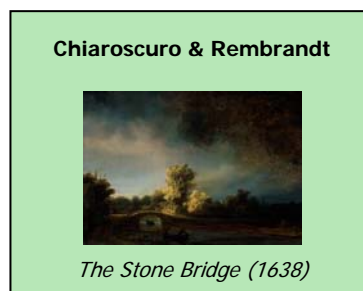
17

Presentation Structure depends on Layout



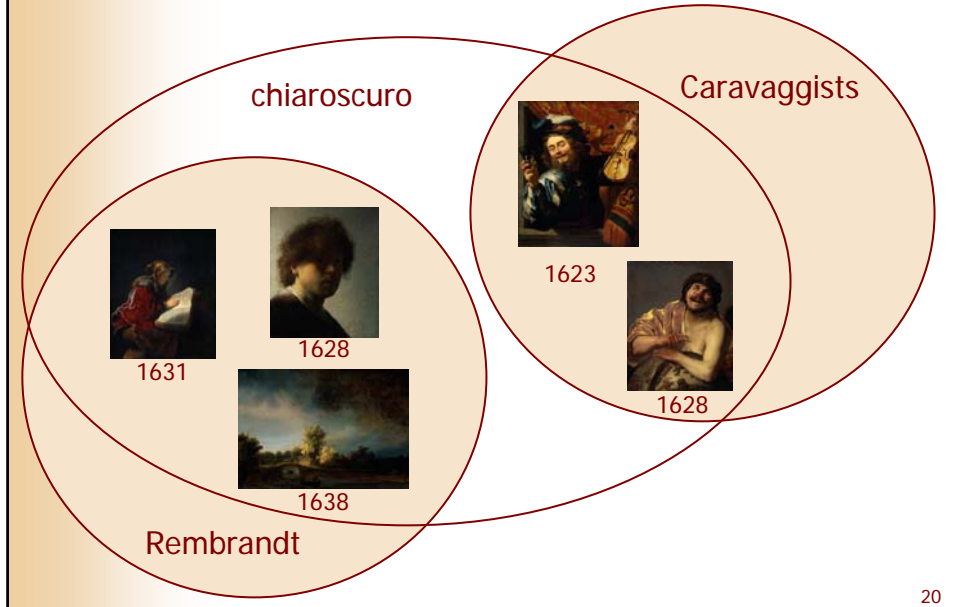
18

Style Depends on Content



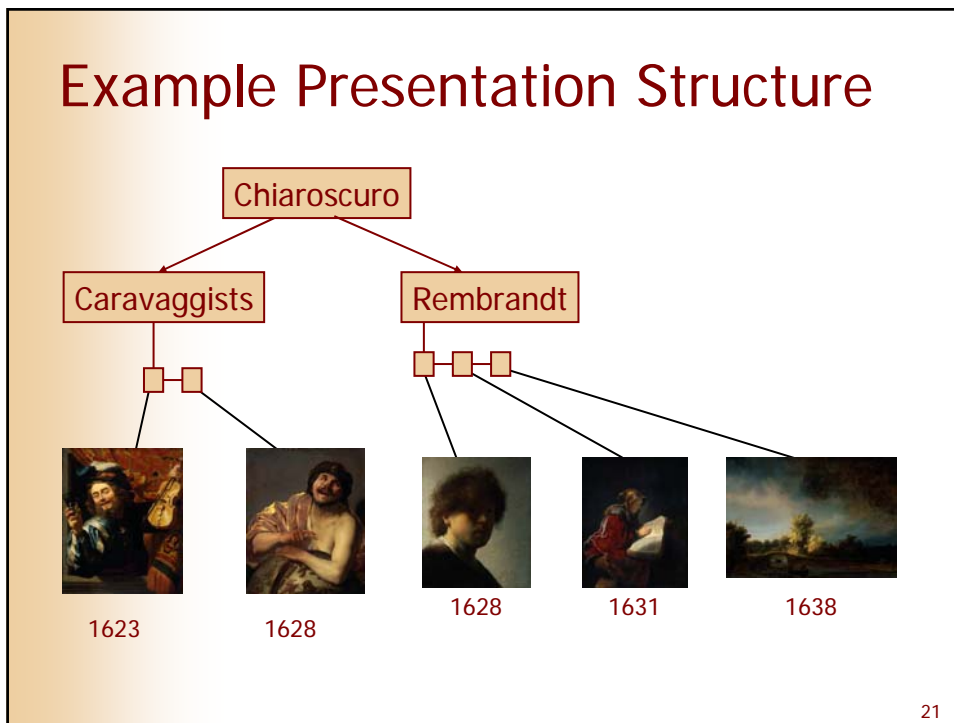
19

Presentation structure depends on content



20

Example Presentation Structure



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Different presentation styles

- Large amount of information
- High interaction

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RIJKS MUSEUM
a m s t e r d a m

Artists: Johannes Vermeer, Pieter de Hooch

Step 1: choose artist | Step 2: choose artefact | Step 3: choose genre | FINISHED

Please choose the artist(s) you want information about:

A B C D E F G **H** I J K L M N O P Q R S T U V W X Y Z

Haag, Tethart Philipp Christian	Hiller, Joachim
Haarlem, Cornelis Cornelisz. van	Hiroshige, Utagawa
Haaxman, Pieter Alardus	Hisgen & Co., O.
Hack, Marinus Johannes	Hobbema, Meindert
Hainhofer, Philipp	Hodges, Charles Howard
Hals, Dirck	Hogenberg, Frans
Hals, Frans	Hogers, Jacob
Hanneman, Adriaen	Hokusai, Katsushika
Hannké,	Hondecoeter, Melchior d'
Hansen, Carel Lodewijk	Hondius I, Hendrick
Hausdorff,	Honthorst, Gerard van
Heda, Willem Claesz.	Hooch, Pieter de
Heem, Jan Davidsz. de	Hoogstraten, Samuel van
Heemskerck, Maarten van	Horrix, Gebr.
Heemskerck, Willem Jacobsz. van	Horrix, Matthijs
Helst, Bartholomeus van der	Houckgeest, Gerrit
Herselle, Josse van	Houdon, Jean-Antoine
Heyden, Jan van der	Hove, Bartholomeus J.W.M. van
Hillegaert, Pauwels van	Huysum, Jan van

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Presentation Player
 RIJKS MUSEUM
 amsterdam

Artists: Johannes Vermeer, Pieter de Hooch Artefact: The Kitchen Maid Genre: Genre piece

■ Artist ● Artefact ◆ Style ▲ Genre ▼ Technique

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Presentation Player
 RIJKS MUSEUM
 amsterdam

Artists: Johannes Vermeer, Pieter de Hooch Artefact: The Kitchen Maid Genre: Genre piece

■ Artist ● Artefact ◆ Style ▲ Genre ▼ Technique

1 2 3 Text: Audio: [] [] [] []

● The Kitchen Maid

ca. 1658, Johannes Vermeer
 Oil on canvas, 45,5 x 41 cm

With quiet concentration a woman pours milk into a bowl. With her left hand she supports the can she is pouring from. Around her are various objects: a loaf of bread, a stoneware jug, a basket and a brass bucket. The woman is standing near the window so she can see what she is doing. The light falls on her hands; her silhouette is dark against the white wall. There is a fascinating play of light and shadow in this painting.

▲ **Genre**
 This is one of Johannes Vermeer's genre pieces in which he establishes an intensely intimate atmosphere. Although the artist observes his model from nearby, she continues with her work, totally unperturbed.

▼ **Technique**
 Vermeer made use of light and perspective to create the intimate atmosphere. All lines of perspective lead to the right hand of the girl, which subtly accentuates the task of pouring milk in which she is completely engrossed. The horizon lies beneath her head, so that the viewer seems to look up

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Presentation Player
RIJKS MUSEUM
 amsterdam

Artists: Johannes Vermeer, Pieter de Hooch Artefact: The Kitchen Maid Genre: Genre piece

■ Artist ● Artefact ◆ Style ▲ Genre ▼ Technique

The Kitchen Maid

ca. 1658, Johannes Vermeer
 Oil on canvas, 45,5 x 41 cm

▲ Genre
 E Ex J All

▼ Technique
 E Ex J All

◆ Style
 E Ex J All

■ Johannes Vermeer
 E Ex J All

● The Sleeping Girl
 E J All

Street
 Light and perspective
 Classicism
 Genre piece

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Presentation Player
RIJKS MUSEUM
 amsterdam

Artists: Johannes Vermeer, Pieter de Hooch Artefact: The Kitchen Maid Genre: Genre piece

■ Artist ● Artefact ◆ Style ▲ Genre ▼ Technique

The Kitchen Maid ▲ Genre: Genre piece ● Justification

ca. 1658, Johannes Vermeer
 Oil on canvas, 45,5 x 41 cm

Artemisia, ca. 1645, follower of Domenico Fiasella, Canvas

Street
 Light and perspective
 Classicism
 Genre piece

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Different presentation styles

- Entertainment rather than information
- Low interaction

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Presentation Player

RIJKS MUSEUM
a m s t e r d a m

Duration: 3 minutes Character: Prosaic

Step 1: choose duration | Step 2: choose character | Step 3: choose artefact | FINISHED

Step 1: How long do you want your story to be? minutes.

Step 2: What is the preferred character of your story?

Prosaic

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Presentation Player
RIJKS MUSEUM
 amsterdam

Duration: 3 minutes Character: Prosaic Artefact: The Kitchen Maid
 Step 1: choose duration | Step 2: choose character | Step 3: choose artefact | FINISHED

2. Search by name of artist:

A B C D E F G H I
 J K L M N O P Q R
 S T U **V** W X Y Z

Vermeer, Johannes

Artefacts in Rijksmuseum:

"Little Street", ca 1658
 The Kitchen Maid, ca 1660
 Woman reading a Letter, 1662/1663
 The Love Letter, 1669/1670


All other Artefacts in chronological order:

Soldier and a laughing Girl, ca 1658
 View of Delft, 1660/1661
 The Music Lesson, 1662-1664
 Woman holding a Balance, 1669/1670
 Young Woman with a Water Pitcher, 1669/1670

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Presentation Player
RIJKS MUSEUM
 amsterdam

Duration: 3 minutes Character: Prosaic Artefact: The Kitchen Maid
 Text: Audio: Speed: 1 2 3



The Kitchen Maid
 by Johannes Vermeer
 ca 1660
 Oil on canvas
 45.5 x 41 cm

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Presentation Player

RIJKS MUSEUM
a m s t e r d a m

Duration: 3 minutes Character: Prosaic Artefact: The Kitchen Maid

Text: Audio: Speed: 0 1 2 3

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Flexible interfaces to MM

- Creating multimedia presentations requires
 - understanding message of presentation
 - knowing specifications of use context
 - making design dependencies explicit
 - taking these dependencies into account
- This is what we want to achieve

Information Seeking

Information seeking is the process or activity of attempting to obtain information in both human and technological contexts (Wikipedia).

Research on information seeking behaviour:

- Information Foraging Theory (Pirolli, 1999)
- Information Seeking Task (Keller, 2007)
- Behavioral Model of Information Seeking on the Web (Choo, 2000)
- and many others

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Information Seeking Tasks

(adapted from Kelly 2007)

- **Fact Finding**
query with a clear goal, answer either there or not.
 - Simple query:
“Where was this painting created?”
 - Complex query:
“Is there any painting from our collection depicting Amsterdam or created by a painter from Amsterdam with width smaller than 50 cm?”

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Information Seeking Tasks

(adapted from Kelly 2007)

- **Information Gathering:** collecting information around a particular topic mostly from different sources, has a high level goal, e.g. in order to make decision, write a report, carry out an assignment.

1. Comparison: compare differences and similarities between objects or sets of objects.

A curator needs to make a proposal each year for acquisition or selling some objects for the museum collection. To do this, she needs to make an assessment of the objects in the collection, and compare them with collections from other musea to see what they already have/don't have and to see whether the museum needs to obtain a specific object to make the collection complete.

"What kind of middle-east collections do other musea in the Netherlands have? Is there any tribe or region which is not represented in our collection or in the collection of other musea? If there is, we need to find out exactly what kind of object we should get."

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Information Seeking Tasks

(adapted from Kelly 2007)

2. Relationship: find relationships between people and things. Interesting relationships may be direct or indirect, through several links.

A curator needs to do research about the people around Rembrandt van Rijn. To do this, the curator does a literature search on close and distant family members of the artist, people who he painted - mostly rich and influential people, people who he met and was friends with.

The questions about these people are the same:

"Who is this person, what does s/he do and what is the nature of his/her relationship with Rembrandt?"

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Information Seeking Tasks

(adapted from Kelly 2007)

3. Topic:

gather information about a topic, e.g. "Tell me more about X".

A curator wants to find the story behind every object in the collection. Among the objects is a Jewish ceremonial coat. The curator needs to find out the history of the coat. The curator checks the literature, newspaper archives and auction records.

*"Where and when was the coat made?
Was there any restoration done to the coat?
What is the purpose of the coat? What does it symbolize?
Is there any meaning behind the embroidery?
Where was it used? Who used it?
Was it used at an important event?"*

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Information Seeking Tasks

(adapted from Kelly 2007)

4. Combination: find a match between two pieces of information, most likely from different sources. This task is similar to putting pieces of a puzzle together to get answers.

A new part of a public building needs to be decorated.

An art adviser first gathers the requirements for the public-art, such as the amount of space, the preference of the client, the purpose of the building, the theme of the art and the environment.

The next step is to search for all public-art artists, and their portfolio containing examples of their work.

The next step is to match the collected requirements with an appropriate artist. The art advisor needs to make a selection of several artists who are suited to the job and then present these options to the client for approval.

"Which public art artists match the project requirements?"

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Information Seeking Tasks

(adapted from Kelly 2007)

5. Exploration: Also known as exploratory search. The nature of the search is exploratory, after following one trail of idea after another, the researcher may unexpectedly find another new idea.

An example is when an expert is looking for examples of artworks for use in staircase projects. Artists do not specialise in staircase art. Rather, the expert looks for related projects for suggestions, such as artists who do landscaping or city planning art projects.

“. . . In specific situations, (such as) in the Staircase project, I look a lot at similar examples of artworks in staircases, for instance, art projects connected to landscaping or city planning, something like that.”

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Information Seeking Tasks

(adapted from Kelly 2007)

- **Keep up-to-date:** not goal driven. The motivation is to “see what is new”, “keep up-to-date” or even “waste time”
 - Active: e.g. browsing on news website
 - Passive: e.g. subscribing to news website RSS feed

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Literature tips 1

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http://archivesic.ccsd.cnrs.fr/documents/archives0/00/00/05/94/index_fr.html
- *Jacco van Ossenbruggen*
Web Document Engineering, Part I of PhD thesis (2001):
<http://www.cwi.nl/~jrvosse/thesis/thesis-linked.pdf>
- *Lloyd Rutledge, Jacco van Ossenbruggen, Lynda Hardman, and Dick C.A. Bulterman*
Structural Distinctions Between Hypermedia Storage and Presentation
ACM Multimedia pp. 145-150, ACM Press, Nov 1998
<http://www.cwi.nl/~lloyd/Papers/ACMMM98/acmmm98.html>
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<http://www10.org/cdrom/papers/572/>
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Computational Linguistics 27(3), pp. 409-449, September 2001
<http://acl.ldc.upenn.edu/J/J01/J01-3004.pdf>

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Literature tips 2

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MultimediaN E-Culture Demonstrator, ISWC 2006
http://dx.doi.org/10.1007/11926078_70
- *Michiel Hildebrand, Jacco van Ossenbruggen and Lynda Hardman*
/facet: A Browser for Heterogeneous Semantic Web Repositories
ISWC 2006 http://dx.doi.org/10.1007/11926078_20
- *Stefano Bocconi*
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PhD thesis, Technical University of Eindhoven, 2006
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