Softwaretechnologie für Fortgeschrittene

Wohce 2

Modellierung

(with contributions from Christian-Emil Ore, Jon Holmen, and other colleagues at the Unit for Digital Documentation, University of Oslo and from Martin Dörr and Stephen Stead, CIDOC-CRM SIG)
Model of vs. model for

Sources:
Modelling strategies: examples

- Modelling for production
  - Computer science – e.g. UML
  - Digital Humanities – e.g. TEI
- Modelling for understanding
  - Digital Humanities
  - (Humanities, natural sciences, …)
- Modelling for data integration
  - Computer science – e.g. Semantic Web
  - Digital Humanities – e.g. TEI
  - Cultural heritage – e.g. CIDOC-CRM
“The following declaration has been approved: The Premier of the Union of Soviet Socialist Republics, the Prime Minister of the United Kingdom and the President of the United States of America have consulted with each other in the common interests of the people of their countries and those of liberated Europe. They jointly declare their mutual agreement to concert…
……and to ensure that Germany will never again be able to disturb the peace of the world…… “
Images, non-verbose...

**Type:** Image
**Title:** Allied Leaders at Yalta
**Date:** 1945
**Publisher:** United Press International (UPI)
**Source:** The Bettmann Archive
**Copyright:** Corbis
**References:** Churchill, Roosevelt, Stalin

Photos, Persons

Metadata

About...
<table>
<thead>
<tr>
<th><strong>TGN Id:</strong></th>
<th>7012124</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Names:</strong></td>
<td>Yalta (C,V), Jalta (C,V)</td>
</tr>
<tr>
<td><strong>Types:</strong></td>
<td>inhabited place(C), city (C)</td>
</tr>
<tr>
<td><strong>Position:</strong></td>
<td>Lat: 44 30 N, Long: 034 10 E</td>
</tr>
<tr>
<td><strong>Hierarchy:</strong></td>
<td>Europe (continent) ← Ukrayina (nation) ← Krym (autonomous republic)</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>…Site of conference between Allied powers in WW II in 1945; ....</td>
</tr>
<tr>
<td><strong>Source:</strong></td>
<td>TGN, Thesaurus of Geographic Names</td>
</tr>
</tbody>
</table>

**Places, Objects**

**About...**

**Title:** Yalta, Crimean Peninsula

**Publisher:** Kurgan-Lisnet

**Source:** Liaison Agency
The Integration Problem (1)

• Problem 1: identification of things
  – Actors, Roles, proper names:
    - The Premier of the Union of Soviet Socialist Republics
    - Allied leader, Allied power
    - Joseph Stalin….
  – Places
    - Jalta, Yalta
    - Krym, Crimea
  – Events
    - Crimea Conference, “Allied Leaders at Yalta”, “… conference between Allied powers” “Postwar division”
  – Objects and Documents:
    - The photo, the agreement text
The Integration Problem (2)

- Problem 2: hidden (implicit) entities (typically under “title”)
  - Actors
    - Allied leader, Allied power
  - Places
    - Yalta, Crimea
  - Events
    - Crimea Conference, “Allied Leaders at Yalta”, “... conference between Allied powers” “Postwar division”

- Solution:
  Make better metadata structures: but what are the relevant elements?
Explicit Events, Object Identity, Symmetry

E31 Document

"Yalta Agreement"

E7 Activity

"Crimea Conference"

E65 Creation Event

E52 Time-Span

February 1945

E53 Place

7012124

E52 Time-Span

1945-02-11

E39 Actor

P11 participated in

E39 Actor

P14 performed

E39 Actor

P82 at some time within

P7 took place at

P81 ongoing throughout

P86 falls within

P67 is referred to by

E81 Ongoing Throughout

P94 has created

E38 Image

E31 Document

"Yalta Agreement"
The Intellectual Role of the CRM

Conceptualization

abstracts from

? approximates

explains, motivates

organize

refers to

World Phenomena

Data bases

Data in various forms

CIDOC Reference Model

Data structures & Presentation models

Metadata
Top-level classes useful for integration

- **E55 Types**
  - refer to / refine

- **E39 Actors**
  - participate in
  - affect or / refer to

- **E28 Conceptual Objects**
  - location

- **E18 Physical Thing**
  - at

- **E2 Temporal Entities**
  - within

- **E53 Places**
  - at

- **E41 Appellations**
  - refer to / identify

- **E52 Time-Spans**
Event centric data model

Media Object A
Type: Digital copy
"Skrik"

Source for

Event
Type: Use of photoshop

Performed by

Timespan

Person

Place

when

Results in

Media Object D
Type: Collage
"The Imsdal man Meets Munch"

when

Source for

"The Imsdal man"
Date model, concepts and things

Conceptual object

Media group - unit A
Information Object
"Skrik"

Media group - unit B
Information Object
"The Imsdal man"

Media group - unit C
Information Object
"The Imsdal man Meets Munch"

...
Visual Content and Subject

E24 Physical Man-Made Thing

E84 Information Carrier

E36 Visual Item

E73 Information Object

E1 CRM Entity

E55 Type

P62 depicts (is depicted by)
P62.1 mode of depiction

P65 shows visual item (is shown by)
P67 refers to (is referred to by)
P138.1 mode of depiction

P128 carries (is carried by)
P138 represents (has representation)

E34 Inscription

E37 Mark

E38 Image
Development and modelling

theory/modelling

implementation
Empirical model
model of

Theoretical model
model for

Generating knowledge

comparison
verification
calibration

deduction

induction

comparison
evaluation

created object

modelled object

Thanks to Oliver Nakoinz for inspiration
Development and modelling

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modelled object

Universität zu Köln
II 0. UML 2.0 (2003 / 04 ff.)

UML ist eine Sammlung von "graphischen Sprachen", d.h. Regelsystemen für die Konstruktion graphischer Schemata, die:

- unterschiedliche Perspektiven von Anforderungen an Systeme und Entwürfen von Systemteilen, sowie deren Zusammenwirken darstellen,
- einander dabei überrappen können und
- unabhängig voneinander verwendet werden können.

Am wichtigsten:

- Klassenmodelle beschreiben den strukturellen Aufbau eines Systems,
- Anwendungsfallmodelle (Use Cases) beschreiben die Interaktion mit dem System aus Benutzersicht.
The role of UML

Theoretical model → Empirical model

Comparison → Calibration → Verification

Deduction → Induction

Generating knowledge

Created object → Modelled object

Thanks to Oliver Nakoinz for inspiration