

Navigating heritage on well-grounded terminology and robust ontology.

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Language for special purposes (LSP) focuses on engineering, science and technology. However, the recent rise in the interest in heritage across the world and making information relevant to (national) heritage to a wider public, does involve a careful consideration of terminology that is used in this context. The information provided by museums and art galleries, the *keepers* of heritage, covers a range of topics, from exhibitions to what is on sale in the shop attached to the museum/art gallery, and from directions of how to get to the museum to the layout of the various galleries. All this information is based on a mutually understandable terminology and the access of all to this terminology requires a robust conceptual system or an ontology. There are proposed standards for terminologies such as CIDOC [3] and Spectrum [2].



Figure 1 *Mother & Child 2006*

Accessing museums and art galleries through the Internet is now a given; in many cases decisions to visit an art gallery is made following a cyber visit. There are software systems that integrate different systems within a gallery: the inventory to the public web access pages and thumbnail sketches to their description.

National art galleries sometimes link up other heritage artefacts, historical data and geographical information, with descriptions of a painting or *object d'art*. The integration is typically carried out by curators who are assisted by web page administrators. The curator knows how to establish the various

links between an artefact and its description and links between different artefacts. However, as the gallery or museum grows, many of these critical links are not made until much later after the acquisition of the artefact.

It is to be expected that in the age of the Social Networking, also known as Web 2.0 or Semantic Web age, the interested cultural public will comment and criticise cultural artefacts in a popular discourse. For example, the digital artwork “отвлечено понятие: майка и дете” [5], denoted here by *Mother and Child 2006* (Figure 1), is likely to be simply tagged by text such as “two blue bottles, one big, one small.” In the Global Communication Network, it is likely that other similar language equivalents will be used. Such popular ways of seeing [1] must be accommodated alongside the professional critical tagged texts.

The ‘search engine’ industry is going apace, indexing huge volumes of books and many of the books relate to what is in the various national and private collections. However, the indexing process relies on the knowledge of, and access to, specialist

terminology — and there are occasions when new terminology is created with the advent of a new art form (e.g. video arts and digital arts) or views about existing art forms change. The terms are to be conceptually organised — and the conceptual structure or *ontology* — used for such an organisation should be up-to-date and readily usable. There is usually an association between the index terms and paintings and other cultural artefacts.

The art galleries and museums will need an intelligent and autonomous system that could analyse the visual features of heritage artefacts, link them to the keywords in the texts collateral to the artefacts, and link the image-text association with other similar artefacts in a given collection. This process will have to be executed automatically — i.e. where possible without human intervention — and the end of the process will lead to the generation of candidate web pages for the collection. Curators can then edit the pages before release to the general public.



Figure 2 Digital Culture 2006

We report on our work that will facilitate the development of an intelligent browsing facility. The technologies we have used thus far include ontological and terminology engineering systems, autonomous learning systems including neural networks, computer vision systems and information extraction systems. The current focus is on creating well-grounded ontology systems based on developments in knowledge representation especially the work of John Sowa's conceptual graphs [4].

References

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