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COST Office
149 avenue Louise • P.O. Box 12 • 1050 Brussels • Belgium
Tel: +32 (0)2 533 38 00 • Fax: +32 (0)2 533 38 90
E-mail enquiries: office@cost.esf.org • Website:
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**Draft Minutes of COST Action C21 Meeting
Urban Ontologies for an improved communication
in urban civil engineering projects
Belfast, 8 of May 2006**

**Conference Room, Northern Ireland Technology Centre (NITC)
Queen's University Belfast**

Participants:

Jacques Teller, Catherine Roussey, Giovanni Rabino, Guri Krigsvoll, Enrique Calderón, Claudine Metral, Gilles Falquet, Chris Tweed, John Lee, Chantal Berdier, Anssi Joustiniemi, Roland Billen, Celson Lima, Bernard Cornelis, Kostas Karatzas, Miguel Angel Bernabé, Giuseppe Las Casas.

Sprawl and Spatial Ontology, Anssi Joustiniemi

The presentation describes the result of the STSM in Giovanni Rabino lab. Sprawl is related to development stage of US. Sprawl is a negative notion. Mereology theory contains a theory of parts and a theory of connections: there exist different types of parts with different connections. Different types of curves: influence of the neighboring object to describe a curve (for example Splines). 3 classes of space description exist: Absolute space, relative space, and relational space. A scale of measurement gives a dimension. Townology contains only nominal data. Several calculated distances exist : Euclidian distance, Canberra distance : relative, recursive distance : relational. What is the process of sprawl categories? Anssi wants to develop a formal ontology used for interoperability between GIS.

Cultural Tourism Taxonomies and Folksonomy, Chris Tweed

This project builds taxonomy of attraction tourism site. 23 types of attraction are defined thanks to the Prentice's typology. Classification building is a difficult process. Some problems arise like in the Dewey classification where most part of the topics concerns more European culture than worldwide culture. In Urban field domain, classifications are more object-oriented classifications than experience oriented classifications like the Dewey classification. Experienced classification is based on the usage. Path building in a Park is a good example of the usage interest. First, you have to find the attraction and after build the path of the park to go to the attraction. Folksonomy is an ethno-classification. The goal is to define categories rather than build a correct classification. For example Flickr web site contain the most popular tags used for photography. Folksonomy properties are ambiguity, possibility of chaos (no structure), accessibility, and dynamic.

The Cultural tourism web site uses login in order to ensure persistence of data. The users



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of the cultural tourism web site will use it to share experiences and to discover new interesting sites. How do you integrate time in the taxonomy? Folksonomy will trace the dynamic vocabulary change of taxonomy. The big one ontology for a domain does not exist, because an ontology depend of several parameters. You have to define the use of ontology in order to determine the experts' vocabularies.

Ontology like resources in construction, Celson Lima CSTB France

This presentation present the ontology-like resources, used or developed in CSTB projects. Some conclusions from the eConstruction Workshop are presented. This workshop produced some recommendations about "ontologies in the construction sector" (development/ creation / management...)

3000 elements/concepts are defined in ontology about description of a door in 6 languages. These elements described different type of size, of material. No limitation about the number of elements is fixed in this ontology. Catarina Ferreira PhD objectives are to define a mapping semantic resources methodology. Defining a new ontology building methodology is out of the scope of mapping semantic resources methodology. The mapping methodology produces a result but cannot evaluate the mapping. The CSTB used the BcXML meta-schema.

A bottom-up approach for extracting urban ontologies: the case of Brussels Urbis 2. Roland Billen, Université de Liège, Belgique

A way to extract ontologies is to adopt a bottom-up approach, i.e. starting from existing documentation to derive domain ontologies. Indeed, most of the spatial (urban) information sources have been produced without explicit ontologies (at least in Belgium). Therefore, it is necessary to extract these ontologies prior attempting any further operations (e.g. ontologies mapping). This approach is illustrated with some of the Brussels UrbIS 2 database reengineering steps. In this project (started in 1998), semantic information had to be extracted from several information sources (database schema, information stored in the DB, data acquisition specifications, enquiries). It was the necessary step before the creation of "a posteriori" data dictionaries, conceptual data models and quality reports. Our experience in this field is somehow empirical as the aim was not the definition of ontologies but the creation of the previously mentioned products. Nevertheless, it became the base of our methodology for DB reengineering projects (Belgian IGN, Walloon region DBs, etc.). The presentation focuses on spatial representations and relationships, semantic definitions and linguistic issues.

This project is a study of database dictionary in order to make interoperability of database. This work started from database schema and nothing else. The ontology is



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actually used for communication purposes. The database stores all the spatial information for Brussels region and it use by different type of actors. Database is the digital version of map.

Urban renewal: how to make a comparison between different approaches case studies: France, Italy and Spain, Chantal Berdier, INSA de Lyon

This work presents the French point of view of urban renewal, which is focus on High Rise Estate. High Rise estate properties are: shape construction, period construction, density, social problem, population, etc.... Rabino suggests making an interdisciplinary study of the urban renewal process. The density could be the problem of High Rise Estate, but there is no building problem. Chris Tweed suggests making an historical study of High Rise Estate, starting from building period of High Rise Estates. Jarmo suggests studying the difference between suburbs from different country: they look like the same, they were building during the same period, but the evolution of these suburbs was not the same. Thus, we need to add social term in order to make a comparison: ownership is a social economic issue. You have to figure out where is the difference and the difference is not in the building. Chris Tweed said that this is too much work to capture all the social parameters. Why choose Italy and Spain urban renewal policy, because there are other countries that have more similar urban renewal policy? The Czech Republic can be a good candidate for this study. The study is not limited to Italy and Spain but some partners are to be found in order to build this ontology.

The implications of developing WordNet for urban ontologies, Gilles Falquet, Université de Genève

Alignment relationship can be of 2 types: equivalent relationship and inclusion relationship. We need to introduce some king fuzziness in alignment relationship. Several type of French language: Canadian and Belgium. Wordnet is a fixed hierarchy so you cannot change it. There is not a semantic distance in Wordnet but there are some papers, which propose to compute semantic proximity between terms.



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Tuesday 9 of May

Ontologies in the construction industry, John Lee, University of Edinburgh

This work presents the characteristics of the communication process in construction industry. Does the change of the communication element not too often to start to build a cost standardize vocabulary? Vocabulary changes are maybe not so important even during a long period. Ontology for a small group may be readapted to an other group. Skilled builders in Greece have built their own language that nobody else can understand. This was a way to keep the skills in the group. They define also some communication process in the group.

**Norwegian "standards" and "vocabulary" set in an ontological context
Guri Krigsvoll, SINTEF**

This work present a classification used in Norway. This classification is used to describe construction. Database containing the classification will contain all kind of pictures: for example schema, drawing, and photo. Singapore are implemented a system to evaluate the performance requirement. Different tables will be defined, for example function table will define the first function of a building and the actual function of a building. Notice that an element can have several super classes.

**The development of the English Heritage Thesaurus of Monuments
Chris Tweed, Queens University of Belfast**

The first slide contains the specification of the ontology before its construction: the usage or the first objectives. The database users use this thesaurus in order to insert new data in the database. The database maintains the national register of listing building, which provides the record of each national monument. Thus the thesaurus is used to find the type of a specific monument before inserting it in the database. Other software incorporates the thesaurus. For example, the presentation shows software where images are added to the thesaurus. The thesaurus is messy due to the fuzziness of associative relation of the thesaurus. Moreover the same term can appear in multiple elements. In the thesaurus, polysemical terms are not used because the domain is very narrow.

Working group discussions about future work and planning

In the next WG1 in Geneva the article proposition not accepted by the workshop will be presented.

If possible, Another WG2 meeting will take place in Florence before the end of the year.



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