

1: Handbook on Ontologies : Rudi Studer :

The Handbook on Ontologies provides a comprehensive overview of the current status and future perspectives of the field of ontologies considering ontology languages, ontology engineering methods, example ontologies, infrastructures and technologies for ontologies, and how to bring this all into ontology-based infrastructures and applications.

Semantic integration is an active area of research in several disciplines, such as databases, information-integration, and ontologies. This paper provides a brief survey of the approaches to semantic integration developed by researchers in the ontology community. We focus on the approaches that differentiate the ontology research from other related areas. The goal of the paper is to provide a reader who may not be very familiar with ontology research with introduction to major themes in this research and with pointers to different research projects. We discuss techniques for finding correspondences between ontologies, declarative ways of representing these correspondences, and use of these correspondences in various semantic-integration tasks.

1. Several researchers use ontologies themselves to represent mappings declaratively, as instances in an ontology. With the rising popularity of Web services, both academia and industry have invested considerably in Web service description standards, discovery, and composition techniques. The standards based approach utilized by Web services has supported interoperability at the syntax level. However, issues of structural and semantic heterogeneity between messages exchanged by Web services are far more complex and crucial to interoperability. In this paper, we examine challenges to interoperability; classify the types of heterogeneities that can occur between interacting services and present a possible solution for data interoperability using the mapping support provided by WSDL-S. Show Context Citation Context

Ontology mapping, alignment, and translation has been an active research component of the general research on semantic integration and interoperability. In our talk, we gave our own classification of different topics in this research. We talked about types of heterogeneity between ontologies, various We talked about types of heterogeneity between ontologies, various mapping representations, classified methods for discovering methods both between ontology concepts and data, and talked about various tasks where mappings are used. In this extended abstract of our talk, we provide an annotated bibliography for this area of research, giving readers brief pointers on representative papers in each of the topics mentioned above. We did not attempt to compile a comprehensive bibliography and hence the list in this abstract is necessarily incomplete. Rather, we tried to sketch a map of the field, with some specific reference to help interested readers in their exploration of the work to-date. In this paper, we examine challenges to interoperability; classify the types of heterogeneities that can occur between interacting services and present a possible solution for data interoperability using the mapping support provided by WSDL-S, a key driver behind SAWSDL. In such contexts as the Semantic Web, the components of an application increasingly rely on ontological models and content knowledge developed and maintained by independent contributors. These components also are designed to be building blocks of various applications. We advocate the use of a We advocate the use of a mediating component that defines and processes the knowledge transformations required to enable application components to exchange, and inter-operate on, knowledge and data. We present our approach and associated tools to support developers

1 in defining mapping relations between the ontologies involved in their application and 2 in running a mapping interpreter to mediate content knowledge and data among the corresponding ontology-based components. We adopt a frame-based modeling view of ontologies. Accordingly, a set of classes are organized in a subsumption hierarchy to represent concepts in the domain of interest, and have slots attached to We introduce a multiple-view tool called AIViz, which supports the alignment of ontologies visually. Ontologies play an important role for interoperability between orga-nizations and for the semantic web because they aim at capturing domain knowledge in a generic way and provide a consensual underst

Ontologies play an important role for interoperability between orga-nizations and for the semantic web because they aim at capturing domain knowledge in a generic way and provide a consensual understanding of a domain. Alignment is the process where for each entity in one ontology we try to find a corresponding entity in the second ontology with the same or the closest meaning. Existing ontology

alignment tools do not adequately provide a way for users to analyse the results. While many alignment tools generate lists of mappings it is difficult to analyse these alignments without examining every pairwise correspondence in the output files and even then it is an overwhelming task. We propose the use of visualization techniques to facilitate user understanding of the ontology alignment results. The result of an ontology mapping can be a set of mappings between two ontologies with a corresponding similarity value. A variety of approaches have been described in literature [4] and according to User Ratings of Ontologies: Who will Rate the Raters by Natalya F. Noy, Ramanathan Guha, Mark A. Musen - In [26], "The number of ontologies and knowledge bases covering different domains and available on the World-Wide Web is steadily growing. As more ontologies are available, it is becoming harder, and not easier, for users to find ontologies they need. How do they evaluate if a particular ontology is appropriate? How do they evaluate if a particular ontology is appropriate for their task? How do they choose among many ontologies for the same domain? We argue that allowing users on the Web to annotate and review ontologies is an important step in facilitating ontology evaluation and reuse for others. However, opening the system to everyone on the Web poses a problem of trust: Users must be able to identify reviews and annotations that are useful for them. Ontologies On The Web Scale The number of ontologies and knowledge bases covering different domains and available on the World-Wide Web is steadily growing. Ontologies constitute the backbone of the Semantic Web and their number is steadily growing. The Swoogle crawler, for example, indexes more than ontologies at the time of this writing. It is commonly agreed that one of the reasons ontologies became popular is because they hold a promise of facilitating interoperation between software resources by virtue of being shared agreed-upon descriptions of domains used by different agents. Such interoperation is, for example, a key requirement for the Semantic Web to succeed. Suppose we are developing a Semantic Web service that uses an ontology. The benefits of reuse have long been recognized in the knowledge engineering community where the dream of creating knowledge based systems KBSs on-the-fly from libraries of reusable components is still to be fully realised. In this paper we present a two stage methodology for creating KBSs: The methodology is based on four types of ontology: Recently, the advantages of metamodeling as a foundation for the graphical specification of ontologies have been recognized by the semantic web community. This has led to a number of activities concerned with the development of graphical modeling approaches for the Web Ontology Language. An aspect that has not been addressed by these approaches so far is the need to specify mappings between heterogeneous ontologies. With an increasing number of ontologies being available, the problem of specifying mappings is becoming more important and the rationales for providing model based graphical modeling support for mappings is the same as for the ontologies themselves. As in the work of Omelayenko, the semantics of the bridges is only specified in terms of an RDF schema. This ontology can then be used by tools to perform the transformations Schwinger, "With the rise of model-driven software development, more and more development tasks are being performed on models. A rich variety of modeling tools is available supporting different tasks, such as model creation, model simulation, model checking, and code generation. Seamless exchange of models among different modeling tools increasingly becomes a crucial prerequisite for effective software development processes. Due to lack of interoperability, however, it is often difficult to use tools in combination, thus the potential of model-driven software development cannot be fully utilized unless we find some scalable way of integration. We are aiming at providing a semantic infrastructure for model-based tool integration, enabling to facilitate any tool appropriate for the modeling task at hand. The key innovations provided are a set of scalable architectural model integration patterns supported by a highlevel metamodel integration language, thus going beyond existing low-level model transformation approaches. Ontology-based metamodel integration considerably lowers the manual effort required for tool integration, enabling a novel synergic use of technologies Powered by:

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Te Ching, The Book of Five Rings, and Behold, The Second Horseman (Quotes on War).

3: Handbook on Ontologies

Handbook on Ontologies by Steffen Staab An ontology is a formal description of concepts and relationships that can exist for a community of human and/or machine agents. The notion of ontologies is crucial for the purpose of enabling knowledge sharing and reuse.

4: CiteSeerX " Citation Query Musen: Ontologies in support of problem solving, Handbook on Ontologies

The Handbook on Ontologies provides a comprehensive overview of the current status and future perspectives of the field of ontologies. The handbook demonstrates standards that have been created recently, it surveys methods that have been developed and it shows how to bring both into practice of ontology infrastructures and applications that are.

5: dblp: Handbook on Ontologies

Ontologies often need to be built in a decentralized way, ontologies must be given to a community in a way such that individuals have partial autonomy over them, ontologies have a life cycle that.

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The Handbook of Metadata, Semantics and Ontologies is intended as an authoritative reference for students, practitioners and researchers, serving as a roadmap for the variety of metadata schemas and ontologies available in a number of key domain areas, including culture, biology, education, healthcare, engineering and library science.

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The Handbook on Ontologies provides a comprehensive overview of the current status and future prospects of the field, which has developed significantly in the five years since the first edition. Revisions here include 21 completely new chapters.

9: CiteSeerX " Handbook on Ontologies, Staab and Studer- Review Notes

Handbook on Ontologies. 2nd revised revision (1st revision) Springer Series on Handbooks in Information Systems Application of Ontologies in Bioinformatics.

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