

Preface to the Second Edition

In the three years since the first edition of this book was published, I have received numerous email messages from readers all over the world commenting on the book and suggesting how it could be improved. Meanwhile, the Semantic Web world has been developing and experiencing exciting changes and improvements, noticeably some new standards such as SPARQL 1.1 and RDB2RDF, and also new developments such as schema.org and important real-world applications that built upon schema.org. In addition, I have also built up a large file of ideas based on my own research in the area and my own experience gained when building semantic Web applications for a variety of organizations. It is indeed a good time to update the book and make all these new material available to our readers.

The most obvious changes in this second edition are the new chapters described as follows.

- *schema.org and Semantic Markup (Chap. 10)*. schema.org has been extremely important and popular since the day it was launched (June of 2011). Developed by Google, Yahoo, and Bing, it is considered as the first mainstream support of the vision of the Semantic Web. This new chapter covers everything about schema.org, including its background and rationale, its vocabulary, and the markup languages recommended. It also includes two examples to showcase some real-world applications built upon schema.org (Google-rich snippets and LRMI Project).
- *Social Network and the Semantic Web (Chap. 11)*. It is not surprising that most of us are more or less related to the Web by participating in some kind of social network sites. It might however be surprising to realize that the Semantic Web technology has actually been playing a key role in these social network sites. This chapter focuses on this topic and helps to understand how the Semantic Web technology has been changing the way social networking sites work. More specifically, this chapter uses three most popular social networking sites, namely, Facebook, Twitter, and Pinterest as examples, and examines their *semantic components* in great detail. For Facebook, we take a look at the *Open Graph protocol*; for Twitter, we study *Twitter cards*; and for Pinterest, we focus

on *rich pins*. This not only shows how the idea of the Semantic Web can help social networking sites, but also serves as examples to the developers, so they can draw inspiration and come up with their own applications.

- *Other Recent Applications: data.gov and Wikidata (Chap. 12)*. This chapter uses two more recent developments to further illustrate how the idea of the Semantic Web can be applied to the Web and data that surround us. The first example is data.gov. We discuss the background of data.gov, how it is related to the Semantic Web, and examples are included to show the benefits of using the Semantic Web technologies on government open data. The second example is wikidata, a popular project that has been constantly under the spotlight recently. The relationship between Wikipedia, DBpedia, and wikidata is first discussed, followed by a close look at the semantic components inside wikidata. This will be another eye-opening project to the readers, because the Semantic Web components used in wikidata have indeed changed how Wikipedia is constructed and maintained.
- *Getting Started: Change Your Data Into Structured Data (Chap. 13)*. This chapter is motivated by questions from our readers. For example, if one is not consuming public RDF data, how should one create his/her own RDF content? If all existing structured data are stored in database tables, how should this structured information be converted into RDF content? Which ontology should be used? Is there a way to understand a complex ontology that is created by someone else? This chapter attempts to answer all these questions, in preparation for the readers to start their own development work. A main focus of this chapter is the RDB2RDF W3C standard, which is discussed in great detail and example implementation is also represented in a way that the readers can directly follow it in their own development work.
- *A Search Engine that Supports Rich Snippets (Chap. 17)*. This chapter is added as another example of developing semantic Web applications. It is important because (1) it directly shows how the Semantic Web idea can be used to enhance the performance of a search engine and (2) the implementation in this chapter can be directly adapted to build customized search engines that support rich snippets for different organizations.

Among the new material in existing chapters, Chap. 6, *SPARQL: Querying the Semantic Web*, has been greatly enhanced by covering the language features of the new standard, SPARQL 1.1, more thoroughly and completely. Compared to the first edition of this book, the coverage of SPARQL 1.1 in this second edition has changed from 14 to more than 40 pages.

Besides the above enhancement, most existing chapters are updated with new links, new figures if necessary, and new version numbers if applicable.

Finally, this second edition is organized into three parts. Part I, *Core of the Semantic Web*, containing Chaps. 1–6, covers the foundation of the Semantic Web, Part II, *Applied Semantic Web*, containing Chaps. 7–12, describes some application examples and latest development in the area of the Semantic Web, and Part III, *Building Your Own Applications on the Semantic Web*, containing Chaps. 13–18,

offers concrete development guidelines and detailed descriptions of the necessary technical foundations, together with real projects and coding examples. This new layout clearly shows how the whole book is organized, with the goal of helping the readers to more easily conquer the learning curve needed to master the world of the Semantic Web.

Delta Air Lines, Atlanta, USA

Liyang Yu

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Yu, L.

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