XML: From practice to theory

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Abstract

The development of XML technology has occurred very rapidly, initially leaving theory behind. As is often the case in such situations, practical development sometimes seemed more ad-hoc than well principled. There is now a substantial body of work providing formal foundations for XML. This paper presents a personal perspective on some recent developments in the theory of XML.

1. Introduction

As the standard for data exchange on the Web, XML has become a central component of modern data management. Unlike the relational model, whose birth was preceded by solid theoretical foundations, XML is the fruit of an often chaotic design process involving many different communities and standards committees. While the theory of XML initially lagged behind the practice, this is beginning to change. There is now a substantial body of work providing formal foundations for XML, including schemas, constraints, and query languages. In this paper we describe some of the recent developments in the theory of XML, emphasizing a very useful and elegant connection of XML schemas and queries to tree automata and transducers. Indeed, this connection has emerged as a recurring theme in recent theoretical research on XML.

We begin with a brief review of XML, then discuss schema formalisms and their connection to tree automata theory. We next proceed to XML query languages and their abstraction as tree transducers. Next, we show how this can be applied to static typechecking. Finally, we present an informal overview of other research on XML, including constraints for XML, the complexity of XPath query evaluation and containment testing, validation of streaming XML, incremental XML validation, and XML with incomplete information.

This paper is not meant to be a comprehensive survey of the developments in database theory related to XML. Several excellent survey articles are referenced in the paper. The book [1] is a valuable source of information on databases and the Web, including semi-structured data and XML.

2. XML Documents and Schemas

XML documents as labeled trees   XML has been introduced in the document community as a subset of SGML. XML is in some sense an augmentation of HTML, allowing annotations of data with information about its *meaning* rather than just its presentation. An XML document consists of nested elements, with ordered sub–elements. Each element has a name (also called tag or label). The full XML has many bells and whistles, but its simplest abstraction is as a

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Xml In Theory And Practice

Benjamin Fisher Hall

Xml In Theory And Practice:

XML in Theory and Practice Chris Bates,Chris D. Bates,2003-07-16 Aimed at developers who are starting to use XML in their applications this book puts XML into context in modern software development Chris Bates provides a thorough treatment of the key features of XML and backs up each with good examples   **XML Theory and Practice Through an Application Feasibility Study** Benjamin Fisher Hall,1999   **Database Programming Languages** Marcelo Arenas,Michael I. Schwartzbach,2007-10-05 This book constitutes the thoroughly refereed post proceedings of the 11th International Symposium on Database Programming Languages DBPL 2007 held in conjunction with VLDB 2007 The 16 revised full papers presented together with one invited lecture were carefully selected during two rounds of reviewing The papers are organized in topical sections on algorithms XML query languages inconsistency handling data provenance emerging data models and type checking   **Principles and Practice of Semantic Web Reasoning** ,2005

Documenting and Revitalizing Austronesian Languages Victoria Rau,D. Victoria Rau,Margaret J. Florey,2008-09 This is a National Foreign Language Resource Center conference volume and special issue of Language Documentation and Conservation an open access journal http nflrc hawaii edu ldc   *Chicago Journal of Theoretical Computer Science* ,2000

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Unveiling the Magic of Words: A Report on "**Xml In Theory And Practice**"

In a world defined by information and interconnectivity, the enchanting power of words has acquired unparalleled significance. Their power to kindle emotions, provoke contemplation, and ignite transformative change is actually awe-inspiring. Enter the realm of "**Xml In Theory And Practice**," a mesmerizing literary masterpiece penned by a distinguished author, guiding readers on a profound journey to unravel the secrets and potential hidden within every word. In this critique, we shall delve into the book is central themes, examine its distinctive writing style, and assess its profound effect on the souls of its readers.

https://ftp.thebrandexperience.com/data/Resources/index.jsp/Walk_In_Space.pdf

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