

Lecture #4: 9 February 2 2004

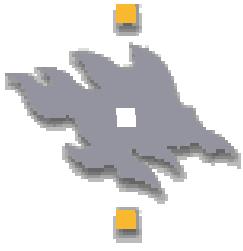
XML Schema

Suresh Chande



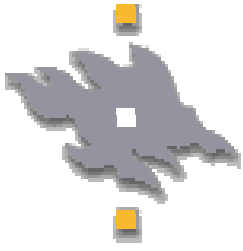
XML Schema – In A Nutshell

- XML Schema provides a method to define the structure, content and semantics of XML documents.
- An XML document which complies to a Scheme defined by an XML Schema is called an Instance Document.
- XML Schemas are Namespace aware and hence can leverage reuse of schema definitions
- XML schema is defined in terms of following two types:
 - **Simple Types:** A Simple XML elements which do not have subelements/attributes: simple data types, enumeration, lists, restricted formatted values(patterns/regular expression evaluated)
 - **Complex Types:** An XML Element which could contain 1 or more subelements and attributes.
 - This also defines the sequence, Choice of occurrence, number of occurrence (min/max), default values for attributes
 - **Global / Local Element types:** Scope of the element declarations
- XML Schema Namespace : <http://www.w3.org/2001/XMLSchema>



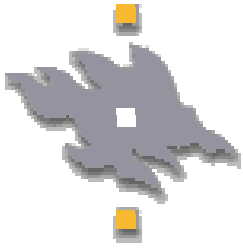
What is XML Schema ?

- XML Schemas purpose is to define a class of XML documents and specifically the structure of such documents and the data types used within the XML documents.
 - The XML Schema addresses both of them via two specifications Parts XML Schema-Part-I Structures and XML Schema Part-II Datatypes
- The documents which conform to the definition of the XML schema are called as Instance Documents



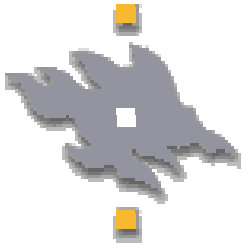
XML Schema Document

- This is an XML document which defines the schema for a class of XML documents, Similar to DTDs but richer from the structural and data types aspects.
- The root element of a Schema document is "schema" belonging the XML Schema Namespace :
<http://www.w3.org/2001/XMLSchema>
- XML Schema defines two types :
 - **SimpleType:** An XML elements which can not have any subelements or even attributes. They contain simple data types, enumeration, lists, restricted formatted values(patterns/regular expression evaluated)
 - **Complex Types:** Allow elements with or without subelements to be defined within them and they can have attributes.



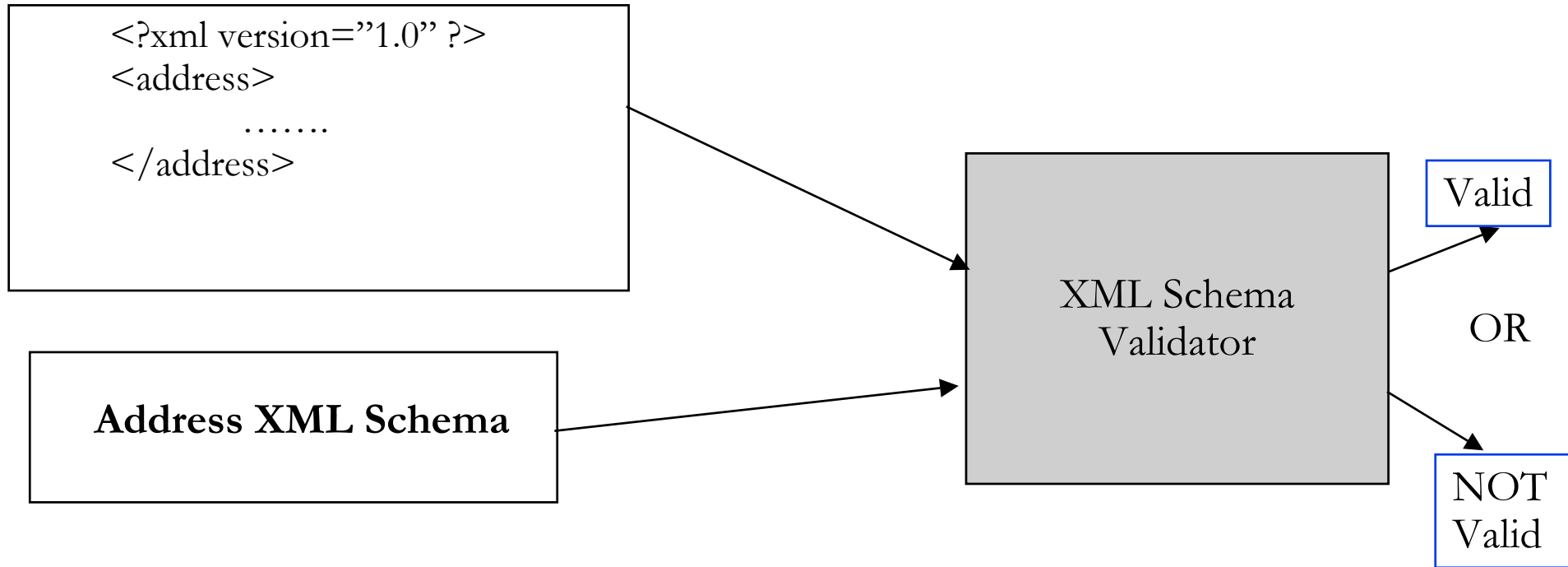
XML Schema benefits

- They are defined as XML Documents by Themselves
- They enable reuse or extensions to already defined Schemas a bit like object oriented languages
- They have richer document structure definition capabilities
- XML Schemas provide a rich set of data definition capabilities: ~44 different types, data ranging, data formatting, pattern definition(regular expressions, etc)
- The XML Parsers do not require to use a different parsing techniques inorder to validate XML documents
- They are Namespace aware hence leveraging and reusing already well defined schemas.
- Allows creation of own data types

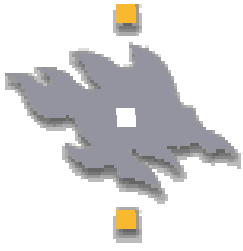


XML Schema validation

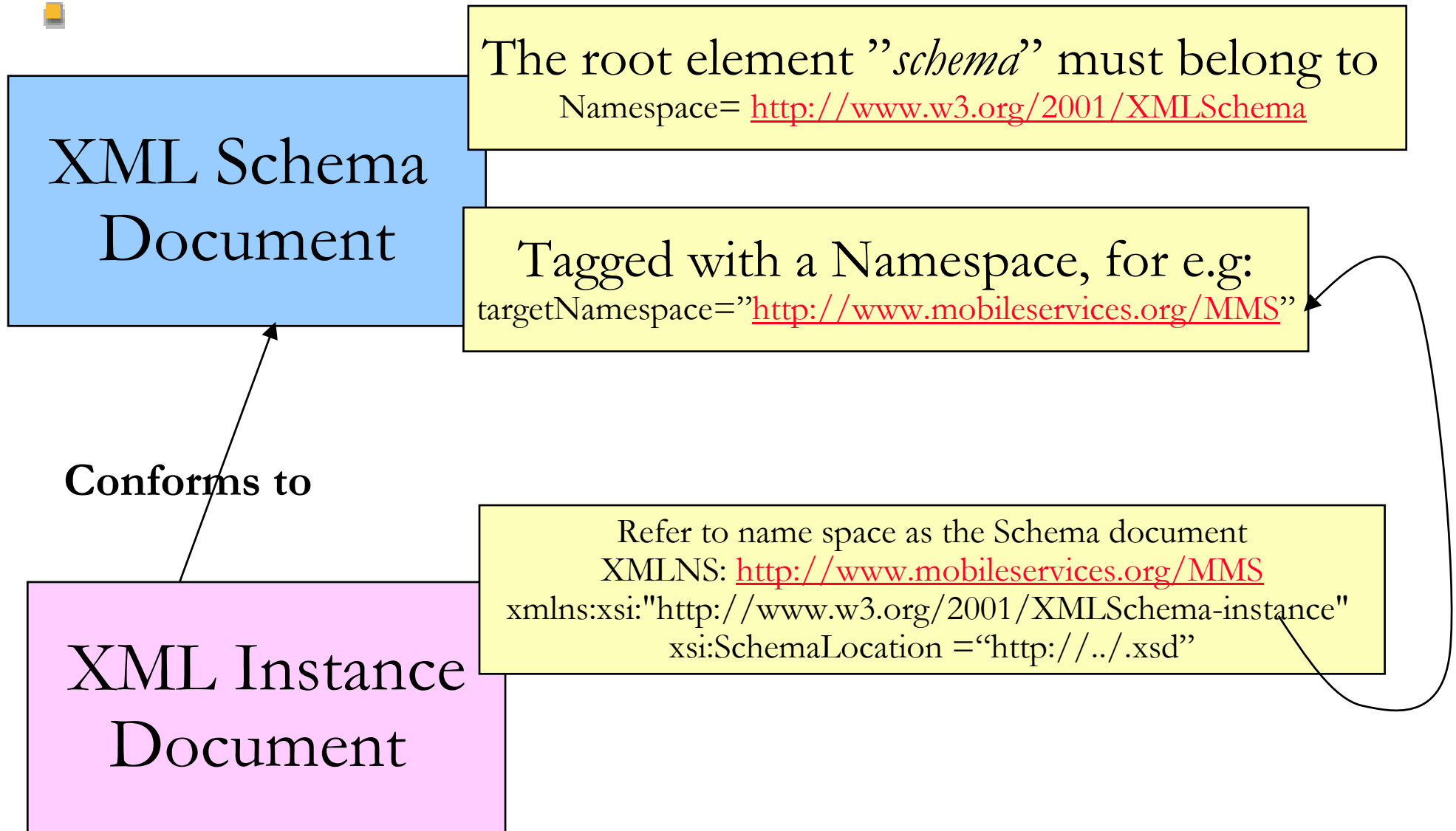
XMLInstance Document

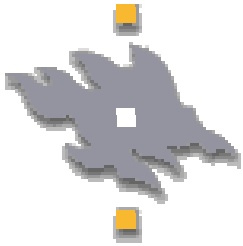


Note: It is not necessary for an XML instance document to explicitly reference an XML Schema document

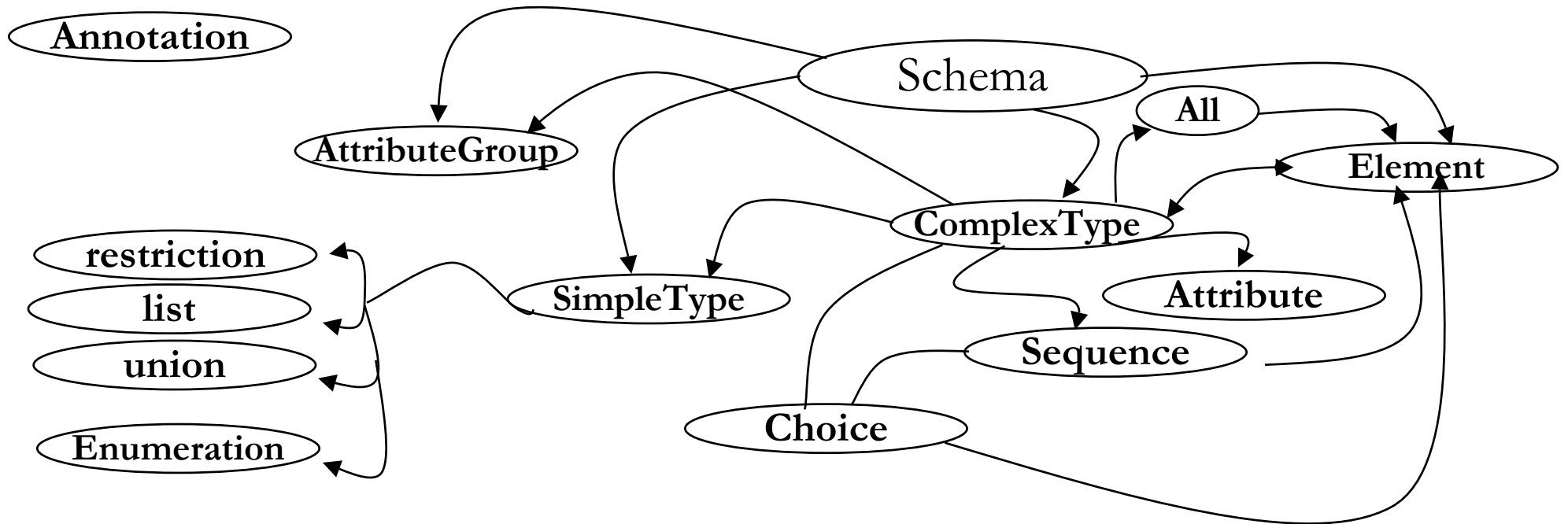


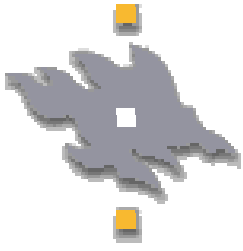
XML Schema and Instance documents





XML Schema Document





XML Schema Specification

- XML Schema Structures
- XML Schema DataTypes

- In next class on the 12th of february
 - XML Schema continued
 - SOAP