

Due date/discussion: 28.06.2012

Exercise Sheet 6

XML Schema and XML Data Models (InfoSet, PSVI, XDM)

Exercise 1: Comparing data models (15 points)

1.1. Describe the main properties/features of the XQuery Data Model. Why do you think it was designed this way?

1.2. What is the main difference between Infoset and the XQuery Data Model?

Exercise 2: Infoset (20 points)

Given is the following document

```
<?xml version="1.0"?>
<dc:metadata xmlns:dc="http://www.systems.ethz.ch">
  <dc:title
    xml:lang="en"
    year="2008"
  >Systems Group</dc:title>
</dc:metadata>
```

Describe the Information Set of this document.

For your convenience, a partial description of the dc:metadata element node is provided:

Element Information Item metadata

[namespace name] http://www.systems.ethz.ch

[local name] metadata

[prefix] dc

[children] (add)

[attributes] empty

[namespace attributes] Attribute Information Item namespacedc

[in-scope namespaces] (add)

[base URI] .../info.xml

[parent] (add)

More information can be found at the Information Set specification which is available under the following URL: <http://www.w3.org/TR/xml-infoset>.

It is sufficient to cover a representative subset of properties and nodes!

Exercise 3: Validation and Post-Schema-Validation Infoset (PSVI) (20 points)

3.1. What is the main difference between Infoset and PSVI?

3.2. Given is the following XML Schema file for the XML file in exercise 2

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
  targetNamespace="http://www.systems.ethz.ch"
  xmlns:dc="http://www.systems.ethz.ch"
  elementFormDefault="unqualified">
  <xs:import namespace="http://www.w3.org/XML/1998/namespace"
schemaLocation="http://www.w3.org/2001/xml.xsd"/>
  <xs:element name="metadata" type="dc:metadata-type"/>
  <xs:complexType name="metadata-type">
    <xs:sequence>
      <xs:element name="title">
        <xs:complexType>
          <xs:simpleContent>
            <xs:extension base="xs:string">
              <xs:attribute ref="xml:lang"/>
              <xs:attribute name="year" type="xs:integer"/>
            </xs:extension>
          </xs:simpleContent>
        </xs:complexType>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

What does the PSVI of the document look like after the validation? For each element and attribute, specify the following properties: [type definition type], [type definition namespace], [type definition anonymous], [type definition name].