Grammars for XML
Document Type Definitions

Lecture "XML in Communication Systems"
Chapter 3

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Recommended Reading

- T. Bray, J. Paoli, C.M. Sperberg-McQueen, E. Maler, F. Yergeau, J. Cowan (Eds.):
  XML 1.1 (Second Edition), W3C Recommendation, 16 August 2006.
  http://www.w3.org/TR/xml11

Document Type Definition

- Snippet from an XML document

```
<Person>
    <Name>
        <first_name>Willibald</first_name>
        <surname>Wusel</surname>
    </Name>
    <Contact>
        <phone_office>0431/880555</phone_office>
        <phone_private>04321/2233</phone_private>
        <e-mail>wiwu@uni-kiel.de</e-mail>
    </Contact>
    <Address>
        <street>Olshausenstr.</street>
        <number>100</number>
        <zipcode>24118</zipcode>
        <city>Kiel</city>
    </Address>
</Person>
```

Document Type Definition

- Related DTD snippet

document element

```
<!ELEMENT Person (Name, Contact, Address)>

<!ELEMENT Name (first_name, surname)>
<!ELEMENT first_name (#PCDATA)>
<!ELEMENT surname (#PCDATA)>

<!ELEMENT Contact (phone_office | phone_private | e-mail)*>
<!ELEMENT phone_office (#PCDATA)>
<!ELEMENT phone_private (#PCDATA)>
<!ELEMENT e-mail    (#PCDATA)>

<!ELEMENT Address  (street, number, zipcode, city)>
<!ELEMENT street (#PCDATA)>
<!ELEMENT number (#PCDATA)>
<!ELEMENT zipcode (#PCDATA)>
<!ELEMENT city (#PCDATA)>
```

sequence

choice

cardinality

"type":
parsed character data

Document Type Definition

- Attributes

```
<!ELEMENT BookStore (Book+)>
<!ELEMENT Book (Title, Author, Date, ISBN, Publisher)>
<!ATTLIST Book
   Category (autobiography | non-fiction | fiction) #REQUIRED
   InStock (true | false) "false"
   Reviewer CDATA " ">
<!ELEMENT Title (#PCDATA)>
<!ELEMENT Author (#PCDATA)>
<!ELEMENT Date (#PCDATA)>
<!ELEMENT ISBN (#PCDATA)>
<!ELEMENT Publisher (#PCDATA)>
```

Document Type Definition

- Where to find the DTD

  - DTD may be enclosed in XML docs.

  - XML document may hold reference to ist DTD in its prologue.

```
<?xml version = "1.0" ?>
<!DOCTYPE Staff SYSTEM "http://myserver.com/staff.dtd">

<Staff>
    <Person>
        ...
```