More of DTDs

Lecture 3

Symbols used in DTD

- COMMA " , " enforces sequence

    <!ELEMENT name (fname, lname)>

Symbols Used in DTDs

The star " * " denotes 0 or more occurrences

    <!ELEMENT keywords keyword*>
Symbols used in DTDs

The star "*?" denotes 0 or 1 occurrence or optional appearance

```
<!ELEMENT article (title, subtitle?, body)>
```

Symbols in DTDs

Vertical Bar "|" allows choice (OR operator)

```
<!ELEMENT checkbook ((deposit|payment)+, balance)>
<!ELEMENT report (title, author, keyword*, abstract?, para+, conclusion)>
```

Elements Containing Only Character Data

```
<!ELEMENT emphasis (#PCDATA)>
<para> ;sldjf;lakjdf;lakjskfl <emphasis> important <emphasis> gasgdsdgjdfljkd</para>
```

Elements Containing Only Elements

```
<!ELEMENT article (para+)>  
Only elements: <!ELEMENT article (para+)> 
```
Elements With Mixed Content

Mixed content: `<ELEMENT para (#PCDATA | EMPHASIS | CROSSREF)>`

Attribute Data Types

- CDATA
- NMTOKEN
- NMTOKENS
- ID
- IDREF
- IDREFS

Attribute Declaration Example

`<!ATTLIST memo`

- id ID #REQUIRED
- security (high|low) "high"
- keywords NMTOKENS #IMPLIED

`>`

IMPLIED means it the attribute is optional and has no default value