

Markup Languages

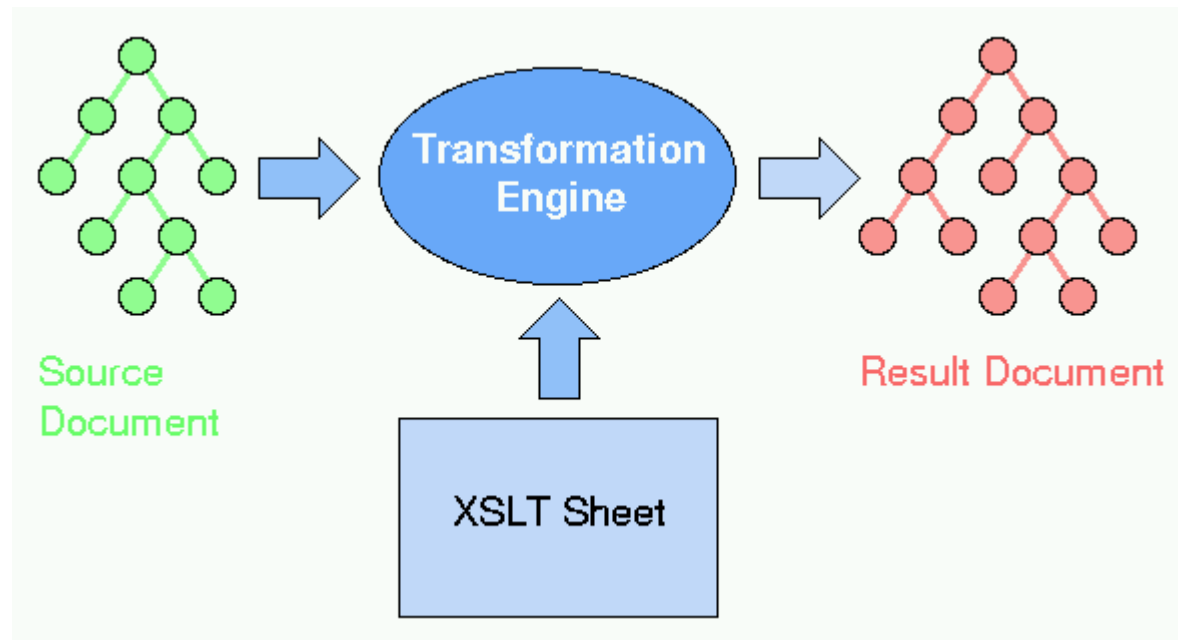
Lecture 3. XSL



We knew...

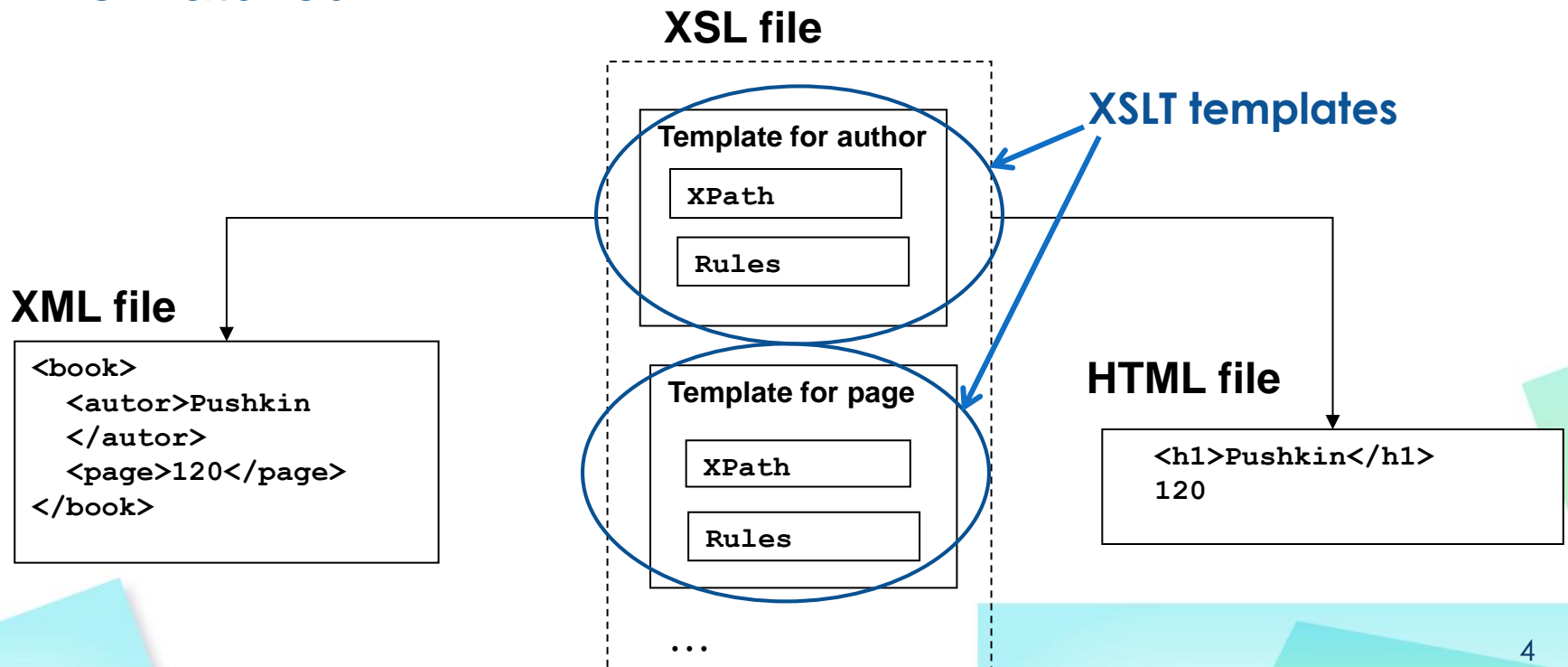
- ◆ XSL consists of three parts:
 - ◆ XSLT, XPath, XSL-FO
- ◆ **XPath** is used to navigate through elements and attributes in an XML document.

XSLT



XSLT templates

- ◆ An XSL style sheet consists of one or more set of rules that are called **templates**.
- ◆ A template contains rules to apply when a specified node is matched.



The <xsl:template> Element

- ◆ The <xsl:template> element is used to build templates.
- ◆ The **match** attribute is used to associate a template with an XML element. The match attribute can also be used to define a template for the entire XML document.
- ◆ The value of the match attribute is an XPath expression (i.e. **match="/" defines the whole document**).
- ◆ `<?xml version="1.0"?>`

```
<xsl:stylesheet version="1.0"
xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
```

```
<xsl:template match="/">
```

```
...
```

```
</xsl:template>
```

```
</xsl:stylesheet>
```

The <xsl:value-of> Element

- ◆ The <xsl:value-of> element can be used to extract the value of an XML element and add it to the output stream of the transformation.

```
<xsl:value-of select="catalog/cd/title"/>
```

The <xsl:for-each> Element

- ◆ The XSL <xsl:for-each> element can be used to select every XML element of a specified node-set

```
<xsl:template match="/catalog">  
  <xsl:for-each select="cd">  
    <xsl:value-of select="year"/>  
  </xsl:for-each>  
</xsl:template>
```

XSLT `<xsl:sort>` Element

- ◆ The `<xsl:sort>` element is used to sort the output.

```
<xsl:template match="/catalog">  
  <xsl:for-each select="cd">  
    <xsl:sort select="title"/>  
  </xsl:for-each>  
</xsl:template>
```

- ◆ `<xsl:sort order="descending" data-type="number" select="title"/>`

Attributes

```

```

◆ Incorrect:

```
<xsl:template match="cd">  
  " />  
</xsl:template>
```

◆ Correct:

1.

```
  <xsl:attribute name="src">  
    <xsl:value-of select="logo" />  
  </xsl:attribute>  
</img>
```

2. <xsl:template match="cd">

```
    
</xsl:template>
```

Traversal of the tree.

The <xsl:apply-templates> Element

- ◆ The <xsl:apply-templates> element applies a template to the current element or to the current element's child nodes.

XML

```
<?xml version="1.0"?>
<?xml-stylesheet ... ?>
<catalog>
<cd>
  <title>Empire Burlesque
  </title>
  <artist>Bob Dylan</artist>
</cd>
<cd>
  <title>Live A Paris</title>
  <artist>Celin Dion</artist>
</cd>
</catalog>
```

XSL

```
...
<xsl:template match="/">
<html>
<body>
</body>
</html>
</xsl:template>
```

HTML

```
<html>
<body>
</body>
</html>
```

Traversal of the tree.

The <xsl:apply-templates> Element

- ◆ The <xsl:apply-templates> element applies a template to the current element or to the current element's child nodes.

XML

```
<?xml version="1.0"?>
<?xml-stylesheet ... ?>
<catalog>
<cd>
  <title>Empire Burlesque
  </title>
  <artist>Bob Dylan</artist>
</cd>
<cd>
  <title>Live A Paris</title>
  <artist>Celin Dion</artist>
</cd>
</catalog>
```

XSL

```
<xsl:template match="/">
<html><body>
<xsl:apply-templates />
</body></html>
</xsl:template>
```

HTML

```
<html>
<body>
Empire Burlesque Bob
Dylan Live A Paris
Celin Dion
</body>
</html>
```

Traversal of the tree.

The `<xsl:apply-templates>` Element

XML

```
<?xml version="1.0"?>
<?xml-stylesheet ... ?>
<catalog>
  <cd>
    <title>Empire Burlesque
    </title>
    <artist>Bob Dylan</artist>
  </cd>
  <cd>
    <title>Live A Paris</title>
    <artist>Celin Dion</artist>
  </cd>
</catalog>
```

XSL

```
<xsl:template match="/">
  <html><body>
  <h1>CD</h1>
  <xsl:apply-templates />
  </body></html>
</xsl:template>

<xsl:template
match="cd">
  This is cd.
</xsl:template>
```

HTML

```
<html>
<body>
<h1>CD</h1>
This is cd. This is
cd.
</body>
</html>
```

XSL Default Rules

◆ First:

```
<xsl:template match="*|/">  
  <xsl:apply-templates/>  
</xsl:template>
```

◆ Second:

```
<xsl:template match="text()|@*">  
  <xsl:value-of select="."/>  
</xsl:template>
```

Opera

Welcome to Opera x file://localhost/M:/%D... x

Локальный localhost/M:/Док/Мой%20диск/ЮУрГУ/Учебная%20нагрузка/1.%

Искать в Google

Этот документ имеет некорректную таблицу стилей XSLT. Сообщение об ошибке обработчика XSLT:

```
<?xml-stylesheet type="text/xsl" href="1.xsl"?>
<catalog>
  <cd>
    <title>
      Empire Burlesque
    </title>
    <artist>
      Bob Dylan
    <q>
      m
    </q>
    </artist>
    <country>
      USA
    </country>
    <company>
      Columbia
    </company>
    <price>
      10.90
    </price>
    <year>
      1985
```

```
<xsl:template match="/">
<html>
<head>
</head>
<body>
<H1>CD</H1>
<xsl:apply-templates />
</body>
</html>
</xsl:template>

<xsl:template
match="cd">
Это элемент cd.<br>
</xsl:template>
```