

## 1. XML Syntax

The goal of this lab is to try out tools for editing XML.<sup>1</sup> You are asked to write

- a MathML document with presentation markup for a formula, which will be given below,
- create a simple XHTML document, and
- embed the MathML into the XHTML so that the entire document is valid.

### MathML

MathML is a markup language for mathematics. It has two sublanguages, one for specifying the presentation of formulas and another one for representing the content or logical structure of formulas. In this lab, we will only care about the presentation language.

Your task is to write markup for presenting the following formula:

$$(x^{a-1} + 3xy) \times z$$

To do this, you will only need a rudimentary understanding of how MathML works, which you can grasp quickly from these sources:

- Wikipedia entry on MathML:

<http://en.wikipedia.org/wiki/MathML>

- A Beginner's Guide to MathML:

<http://danielscully.co.uk/web/articles/mathml/>

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<sup>1</sup>I hope they work and they are correctly configured. I did not have the occasion to try out the lab machines myself.

- MathML Presentation for the Impatient:

<http://www.xmlmind.com/tutorials/MathML/index.html>

Your code should finally be validated as XML meeting the MathML standard. To check it, submit it to the W3C validation service at

<http://validator.w3.org/>

Start your XML file with the prologue

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE math PUBLIC "-//W3C//DTD MathML 2.0//EN"
    "http://www.w3.org/Math/DTD/mathml2/mathml2.dtd">
```

The prologue tells the validator which is the DTD that specifies MathML and where it can be found on the Web.

Note as well that the root element of each MathML document must be `<math>`.

Try two different approaches to edit the file:

- with an editor of your choice
- with Eclipse SDE with the XML perspective.

## XHTML

Create an XHTML page with embedded MathML. It should have the prologue

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1 plus MathML 2.0//EN"
    "http://www.w3.org/Math/DTD/mathml2/xhtml1-math11-f.dtd">
```

The opening tag of the `html` element, which must be the top element, should look as follows:

```
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en">
```

The opening tag of every `math` element inside should look as follows:

```
<math xmlns="http://www.w3.org/1998/Math/MathML" display="block">
```

Your html page should contain a title, a heading and at least one sentence.

Edit the file with:

- an editor of your choice
- Eclipse SDE with the XML perspective
- XMLQuire, which runs under Windows (only if you have time).

Load your page into a browser. Which browser displays the formula best?