

Examples

OpenMath in ConTEXT

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PRAGMA ADE

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Colofon

This manual demonstrates a bit of OPENMATH as used in the MATHADORE project. We show both raw MATHADORE code and shortcuts. The shortcuts are translated into MATHADORE and after that all OPENMATH is converted to content MATHML. The code snippets are collected in individual files and processed on demand (when they have changed) using the following setup (jobname.ctx):

```
<?xml version='1.0' standalone='yes'?>

<ctx:job>
  <ctx:message>mathadore</ctx:message>
  <ctx:preprocess suffix='prep'>
    <ctx:processors>
      <ctx:processor name='openmath' suffix='om'>
        texmfstart --direct xsltproc --output <ctx:value name='new' />
        kpse:x-sm2om.xsl <ctx:value name='old' /></ctx:processor>
      <ctx:processor name='mathadore' suffix='prep'>
        texmfstart --direct xsltproc --output <ctx:value name='new' />
        kpse:x-openmath.xsl <ctx:value name='old' />.om
      </ctx:processor>
    </ctx:processors>
    <ctx:files>
      <ctx:file processor='openmath,mathadore'>openmath-*.xml</ctx:file>
    </ctx:files>
  </ctx:preprocess>
  <ctx:process>
  </ctx:process>
  <ctx:postprocess>
  </ctx:postprocess>
</ctx:job>
```

The `example` element in the snippets is there for the sole purpose of satisfying the XSLT parser (we need a valid document).

Because MATHADORE is rather verbose, the MATHADORE project uses shortcuts which are later translated into MATHADORE.

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Hasselt, January 2006

www.pragma-ade.com

Shortcuts

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+

x

1

1.5

$\frac{1}{5}$

$\frac{1.5}{5}$

$\frac{1.0}{5.0}$

```
<?xml version='1.0'?>
```

```
<example>
```

```
  <i>x</i>
```

```
  <i>1</i>
```

```
  <i>1.5</i>
```

```
  <i>1/5</i>
```

```
  <i>1.5/5</i>
```

```
  <i>1.0/5.0</i>
```

```
</example>
```

$$\left(5, \frac{5}{2}\right)$$

$$[5.4, 5]$$

$$[5.1, 5.3)$$

$$(x, 5]$$

```
<?xml version='1.0'?>
```

```
<example>
```

```
  <r type='oo'>5:5/2</r>
```

```
  <r type='cc'>5.4:5</r>
```

```
  <r type='co'>5.1:5.3</r>
```

```
  <r type='oc'>x:5</r>
```

```
</example>
```

(a,b)

$(a/2,a)$

```
<?xml version='1.0'?>
```

```
<example>
```

```
  <c>a:b</c>
```

```
  <c>a/2:a</c>
```

```
</example>
```


Extensions

[openmath-0004](#)
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$$\frac{\Delta y}{\Delta x}$$

```
<?xml version='1.0'?>
```

```
<example>
```

```
  <OMOBJ xmlns="http://www.openmath.org/OpenMath" version="2.0" cdbase="math4a11">
```

```
    <OMA>
```

```
      <OMS cd="math4a11" name="diffquot"/>
```

```
      <OMV name="y"/>
```

```
      <OMV name="x"/>
```

```
    </OMA>
```

```
  </OMOBJ>
```

```
</example>
```

Δy

```
<?xml version='1.0'?>
```

```
<example>
```

```
  <OMOBJ xmlns="http://www.openmath.org/OpenMath" version="2.0" cdbase="math4all">
```

```
    <OMA>
```

```
      <OMS cd="math4all" name="difference"/>
```

```
      <OMV name="y"/>
```

```
    </OMA>
```

```
  </OMOBJ>
```

```
</example>
```

$$\Delta y = f(x) - f(x - 1)$$

```
<?xml version='1.0'?>
```

```
<example>
```

```
<OMOBJ xmlns="http://www.openmath.org/OpenMath" version="2.0">
```

```
<OMA>
```

```
<OMS cd="math4a11" name="difference" cdbase="math4a11"/>
```

```
<OMA cdbase="http://www.openmath.org/cd">
```

```
<OMS cd="relation1" name="eq"/>
```

```
<OMV name="y"/>
```

```
<OMA>
```

```
<OMS cd="arith1" name="minus"/>
```

```
<OMA>
```

```
<OMV name="f"/>
```

```
<OMV name="x"/>
```

```
</OMA>
```

```
<OMA>
```

```
<OMV name="f"/>
```

```
<OMA>
```

```
<OMS cd="arith1" name="minus"/>
```

```
<OMV name="x"/>
```

```
<OMI>1</OMI>
```

```
</OMA>
```

```
</OMA>
```

```
</OMA>
```

```
</OMA>
```

```
</OMOBJ>
```

```
</example>
```

$$\Delta y = f(x) + f(x - 1)$$

```
<?xml version='1.0'?>
```

```
<example>
```

```
<OMOBJ xmlns="http://www.openmath.org/OpenMath" version="2.0">
```

```
<OMA>
```

```
<OMS cd="math4all" name="difference" cdbase="math4all"/>
```

```
<OMA cdbase="http://www.openmath.org/cd">
```

```
<OMS cd="relation1" name="eq"/>
```

```
<OMV name="y"/>
```

```
<OMA>
```

```
<OMS cd="arith1" name="plus"/>
```

```
<OMA>
```

```
<OMV name="f"/>
```

```
<OMV name="x"/>
```

```
</OMA>
```

```
<OMA>
```

```
<OMV name="f"/>
```

```
<OMA>
```

```
<OMS cd="arith1" name="minus"/>
```

```
<OMV name="x"/>
```

```
<OMI>1</OMI>
```

```
</OMA>
```

```
</OMA>
```

```
</OMA>
```

```
</OMA>
```

```
</OMA>
```

```
</OMOBJ>
```

```
</example>
```

$$\frac{ds}{dx}(t)$$

```
<?xml version='1.0'?>
```

```
<example>
```

```
<OMOBJ xmlns="http://www.openmath.org/OpenMath" version="2.0" cdbase="http://www.openmath.org/cd">
```

```
<OMA>
```

```
<OMA>
```

```
<OMS cd="calculus1" name="diff"/>
```

```
<OMV name="s"/>
```

```
</OMA>
```

```
<OMV name="t"/>
```

```
</OMA>
```

```
</OMOBJ>
```

```
</example>
```

$$\frac{ds}{dt}$$

```
<?xml version='1.0'?>
```

```
<example>
```

```
  <OMOBJ xmlns="http://www.openmath.org/OpenMath" version="2.0">
```

```
    <OMA>
```

```
      <OMS name="diff" cd="math4all"/>
```

```
      <OMV name="s"/>
```

```
      <OMV name="t"/>
```

```
    </OMA>
```

```
  </OMOBJ>
```

```
</example>
```

Shortcuts

x

1

1.5

$\frac{1}{5}$

$\frac{1.5}{5}$

$\frac{1.0}{5.0}$

$(5, \frac{5}{2})$

[5.4,5]

[5.1,5.3)

$(x,5]$

(a,b)

$(a/2,a)$

Extensions

$$\frac{\Delta y}{\Delta x}$$

$$\Delta y$$

$$\Delta y = f(x) - f(x - 1)$$

$$\Delta y = f(x) + f(x - 1)$$

$$\frac{ds}{dx}(t)$$

$$\frac{ds}{dt}$$