XML in Ptolemy II

A few reasons why we did what
we did and would do it again!

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What is XML?

- A Meta-Language for describing other languages
- Similar to SGML/HTML
- Provides for customization of a common markup syntax
  - Document Type Descriptor (DTD)
- Primarily useful for containing small sets of structured data

XML Example

- Document

```
<car>An orange convertible.
<door>
  <window/>
  <handle>Sticks</handle>
</door>
<window broken="true"/>
</car>
```

- DTD

```
<!DOCTYPE car [
<!ELEMENT car ANY>
<!ELEMENT door (window, handle)>
<!ELEMENT handle (#PCDATA)>
<!ELEMENT window EMPTY>
<!ATTLIST window
          broken (true, false) "false">
]>
```

Why use XML?

- Well defined, Standardized syntax
  - Off the shelf editors, parsers, visualization tools
  - Reduced development and testing time
  - Leverage MathML, VML
- Text based
  - Human readable and (almost) createable
  - Un-Endian!

Why use XML?

- Architecture independent
    - Parsers perform character set conversion
    - Transparent to software development
- Language independent
    - Does not depend on Java or C++
    - Same file format useable for Ptolemy Zero!

MPEG Audio Layer III Decoder

- C Reference implementation
    - over 50% of code is I/O!
    - Almost all of the bug fixes are in I/O code
    - STILL requires code patching by hand to work under windows

The Schematic Package

- Uses PTML, a syntax described using XML
- Manages almost all persistant information in Ptolemy II
  - Configuration (The domain library)
  - Actor information (The entity library)
  - Icons (The icon library)
  - and even Schematics!

PlotML

- In development
- Format to save the output from TimePlot, PlotBox
- Similar to current file format, but based on XML
- Anticipate that PlotML will be preferable, since based on XML

Summary

- XML provides a strong, but flexible infrastructure for designing database formats tailored to a specific problem.
- Many XML tools already exist
  - Editors, Parsers, Browsers, etc.
- Easy to use
- Reduced development time