Authoring Structured Scholarly Documents
SL2X and MathBook XML

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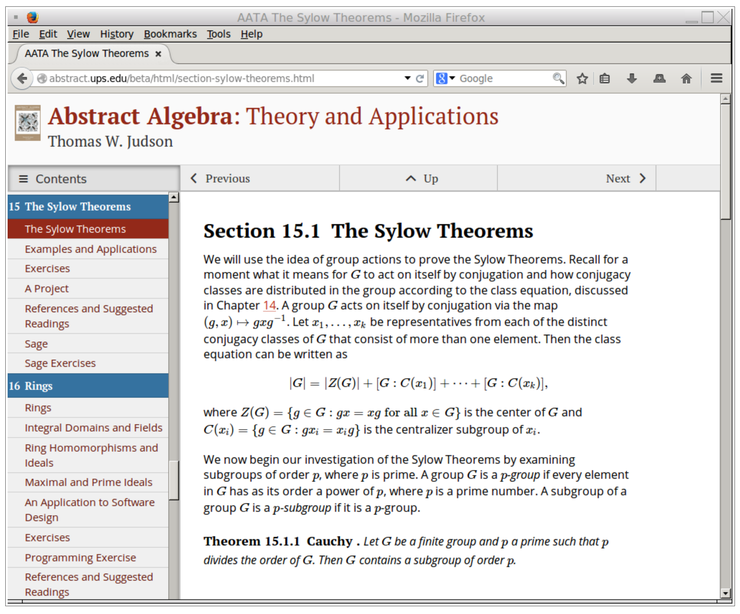
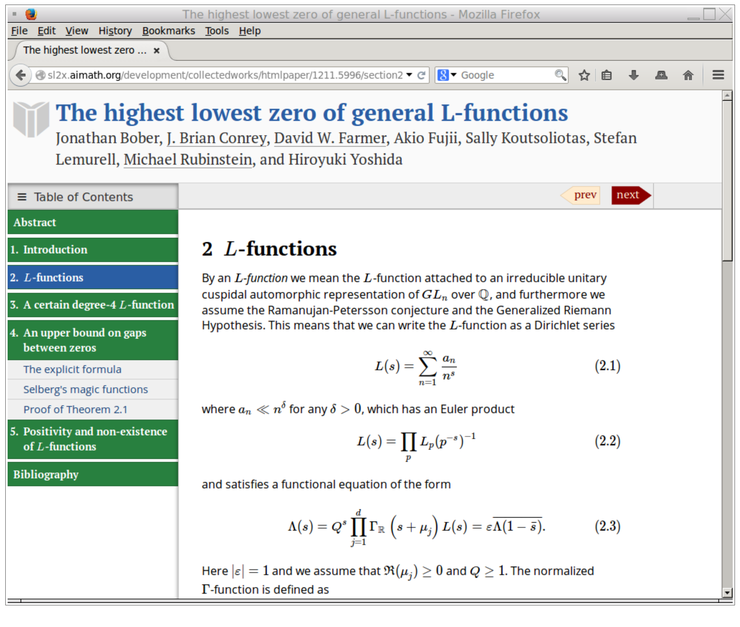
Electronic Textbooks and Articles





SL2X

- "Structured LaTeX to XML"
- Analyze & discern structure of a LaTeX document
- Reassemble document with explicit structure
- Output formats: HTML, MathBook XML

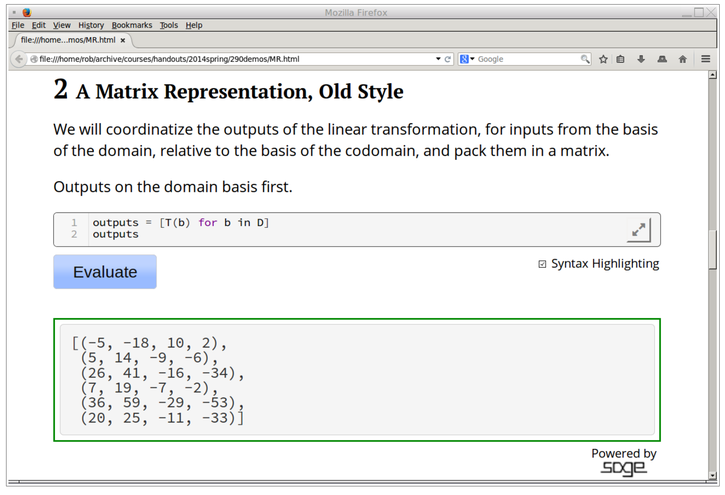
MathBook XML

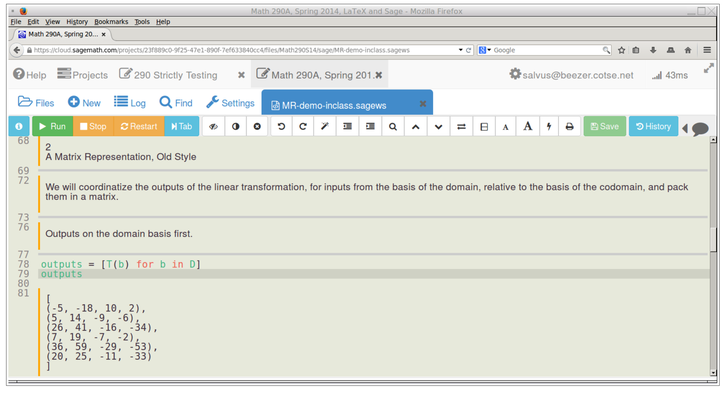
- Authoring language, using XML syntax
- Designed to be easy and natural for authors
- LaTeX syntax for mathematics
- Output: HTML, shared with SL2X
- Output: SageMathCloud worksheets
- Output: LaTeX, especially for print
- Output: Sage Notebook, iPython, EPUB
- GPL license, `mathbook.pugetsound.edu`

Webpage Output

- MathJax for hi-fidelity typography
- Responsive design for mobile devices
- Much greater interactivity than print
- Knowls for cross-referenced material
- Embedded Sage Cells with zero set-up
- Add computations to research articles
- Embed GeoGebra, WeBWork, Skulpt
- Embed video and other media

One Source, Multiple Output Formats





2 A Matrix Representation, Old Style

We will coordinatize the outputs of the linear transformation, for inputs from the basis of the domain, relative to the basis of the codomain, and pack them in a matrix.

Outputs on the domain basis first.

```
outputs = [T(b) for b in D]
outputs
```

```
[(−5, −18, 10, 2),
 (5, 14, −9, −6),
 (26, 41, −16, −34),
 (7, 19, −7, −2),
 (36, 59, −29, −53),
 (20, 25, −11, −33)]
```


Open Source Resources Poster Plus 5 Session, San Antonio, January 13, 2015