PRETEXT’S GOALS

- Increase the supply of openly-licensed material by making it easy for authors to create quality projects
- Encapsulate publishers’ knowledge and technical knowledge in software
- Provide a future-proof, solid, technical foundation for an author’s hard work. (Shared freely!)
A SHORT PRE-HISTORY

- 2004: Started writing A First Course in Linear Algebra (FCLA)
- 2006: Released v1.0 of FCLA. LaTeX with lots of structure. A book as software
- 2008: tex4ht converts to a version powered by jsMath. Becomes EPUB test case
- 2010: Chris Godsil authors books as raw HTML, duplicating MathJax configuration for each new page/division
- 2010-03-25: experiment with examinations in XML, converted via XSL to LaTeX
- 2011-09-28: David Farmer converts FCLA to HTML, with knowls
- 2013-05-20: Shuttleworth Flash Grant awarded for MathBook XML (MBX)
WHAT IS PRETEXT?

- A language. With a rigorous compact description (the schema)
- A collection of eleven principles
- Not: “an authoring and publishing system”
- Not: a collection of conversions to various output formats
- Maybe: includes a pre-processor and a library of XSL utilities
- Not: just mathematics and computer science
- Definitely: target STEM for now. But why not wider use?
- Not: just undergraduate textbooks
- Definitely: monographs, research articles, slides
- Never has been: an LMS, nor a hosting service
- A modern replacement for LaTeX
- A commitment to creating accessible materials
- A community of instructors, authors, and publishers
The language:

- Opinion: PreTeXt, as a language, is fairly mature. Version 0.95?
- Needs third (and final!) markup for bibliographies
- Elements are expensive, attributes are cheap
- New disciplines will need new elements (chemistry: `<laboratory>`,`<molecule>`)

The software development project:

- Runestone is a huge LEAP forward, providing valuable resources for students, instructors, authors, and researchers
- Lots of opportunities for refactoring and code clean-up
- Push lots of logic and processing to the pre-processor and common templates
- Sustainable: modular, clean, well-documented code base
**SUPPORT AND NEEDS**

PreTeXt can evolve with almost no money.

But it is likely to evolve faster and better with some funding.

- Cost: developer’s time (which we expect as a volunteer activity)
- Cost: annual development-only workshop (ala PDX heat wave)
- Cost: stipends (honoraria almost) for developer projects (e.g. CLI)
- Cost: schema browser software
- Indirect Cost: developers’ hardware
- Free: GitHub, Google Groups, Zoom, Python, development tools
- Funding: grants from NSF, National Federation of the Blind, Open Oregon, etc.
- Support: AIM provides website, workshops, David Farmer
CONVERSIONS

- HTML: lots of interest and expertise. Three hosts: open web, Runestone, React
- PDF/LaTeX: mostly RAB with some help. XSL-FO (Formatting Objects) would be a non-LaTeX approach
- EPUB: mostly RAB, but just a variant of base HTML. Mitch K leads Kindle project
- Jupyter: needs some love. A new design approach from braille could work wonders
- Slides: sporadic development for HTML. Beamer output is unworkable now
- Braille: RAB just completed a total re-write and improvements will be simpler and faster
- Tactile graphics: David Austin, Alexei Kolesnikov, Volker Sorge are on it
THE FUTURE

• Work on the language, the code, and the conversions will continue
• Feature complete, other than the needs of new disciplines (?)
• New elements introduced only with cause (e.g. Runestone exercises, AIM Open Problems)
• Without much money, a legal entity seems unnecessary now
• Discussion: copyrights, licensing, “intellectual property”, both short-term and long-term
• Discussion: how to attract, train, and support volunteer developers?
• Which projects to support? (Witness recent four-year push to support Runestone)
CONCLUSION

Links

- pretextbook.org
- runestone.academy
- buzzard.ups.edu/talks.html
- Twitter: @PreTeXtBook, #PreTeXtGang
- Mastodon: @PreTeXt@fosstodon.org

Acknowledgements

- PreTeXt and Runestone developers, contributors, and authors
- American Action Fund (National Federation of the Blind)
- American Institute of Mathematics
- Partial support for this work was provided by the National Science Foundation’s Improving Undergraduate STEM Education (IUSE) program under Award Nos. 1022574, 1626455, 1821706. And the Pathways to Enable Open-Source Ecosystems (POSE) program under Award No. 2230153. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.