

PreTeXt Publisher's Guide

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Preface

Once you have *authored* your document, then it becomes time to *publish* it. You could engage a publisher to help you, likely at some cost, such as surrendering your copyright. Or perhaps you intend to retain ownership of your copyright and use it to provide an open license. Then you are likely both the author and the publisher. In this case, conversions from PreTeXt to various output formats will help you with many of the tasks a publisher might help you with. But there is still more to know and do. This guide will help you.

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Chapter 1

(*) Producing a Book

You have finished using PreTeXt to write a textbook, research monograph, laboratory manual, writer's handbook, or some other scholarly work, and you want to share it openly with students and other readers. Good! That's why we created PreTeXt, and why we include this chapter. There is more to do.

This chapter will try to distill our personal experience, along with many conversations with other authors confronting these same decisions. But recognize there is a lot of *advice* here, and a bit of an attitude, simply for your consideration. The decisions are yours.

Open Source PreTeXt is open source *software*, but that places no restrictions on how you use output that PreTeXt creates (see [Item B.0.1:8](#)). You are welcome to sell your copyright to a commercial publisher or university press. But just once, here and now, we will encourage you to consider an open license (see [Chapter 2](#)) as a way of paying it forward.

1.1 (*) Front Matter

1.2 (*) Landing Page

1.3 (*) Source

1.4 (*) Marketing

Didn't think about that one? Write it, and they will come? Not necessarily. I have seen nice projects where authors make little extra effort to get the word out, and it shows. With the Internet, effective promotion can be accomplished without much effort or expense. And very soon your project can rise very high in search engine rankings.

1.4.1 (*) Social Media

1.4.2 (*) Reference Sites

1.4.3 (*) Analytics

1.4.4 (*) Discussion Groups

Chapter 2

Copyright and Licensing

The legal issues described here are based on the authors' experiences and study, which necessarily reflect the laws of the United States. But the Berne Convention, which dates to 1886, has 172 parties, so law and practice are very similar the world over. The United States acceded to the convention in 1988.

2.1 Copyright

Copyright is a monopoly granted by the government. It gives the author control over reproductions, translations, adaptations, performances, communications, etc. of their work for a fixed time. Since 1978, it has not been necessary to register a copyright—it is automatic. So for example, every web page, no matter how simple or unrefined, is copyrighted by its author.

The phrase “All Rights Reserved” is used to assert that the copyright holder intends to exercise all the rights granted by copyright. It is not required to mark a document with the copyright symbol (©) but in case of disputes, it can be helpful.

So in PreTeXt you can go

```
<frontmatter>
  <colophon>
    <copyright>
      <holder>Thomas Jefferson</holder>
      <year>1776</year>
      <minilicense>All Rights Reserved</minilicense>
    </copyright>
  </colophon>
</frontmatter>
```

to assert a “traditional” copyright and the recommended information will then appear on the page after the title page.

In academic publishing, authors have usually transferred, or sold, their copyright to a publisher in return for distribution of their work, or for the promise of financial gain.

2.2 Open Licenses

Copyright allows an author to place a license on their work, granting others greater freedoms, sometimes along with certain specific obligations. So it is important to understand that copyright allows an author or publisher to be very restrictive, and it also allows an author or publisher to be less restrictive. A license makes these less restrictive terms explicit, and the ability to control these terms is made possible by copyright.

Generally an open license allows unlimited copying. It often allows the creation of derivative works, and the mixing of material from a variety of openly licensed documents. A **viral license** obliges the author of

a derivative work to grant the same license to the derivative work, rather than asserting more restrictive terms. The licenses are usually perpetual, so they do not expire at a fixed term.

It is easy to get distracted by legal jargon, obtuse arguments, and misunderstandings. We view an open license as statement of intent. The work is free to use forever. It will not go out of print. If you send the author a correction, suggestion, or contribution, it can be incorporated and enjoyed by others freely. And should an author lose interest in a project, or become unable to continue working on it, another individual may take it up and continue to maintain it.

2.3 Creative Commons Licenses

We describe the Creative Commons (CC) licenses first, since they have various options, which are a convenient way to compartmentalize and describe the features of other open licenses. They are known by abbreviations, so a license might be shortened to something like just CC BY-SA.

- Creative Commons, CC** All Creative Commons licenses allows unlimited copying, forever. Unless restricted, derivative works are allowed with no obligation.
- Attribution, BY** A derivative work must make clear the contribution of the original author.
- Share Alike, SA** A derivative work must be licensed with the same license as the original.
- Non-Commercial, NC** Bans commercial uses. (Without this clause an open license would allow the sale of copies.)
- No Derivatives, ND** Derivative works are not allowed.

List 2.3.1: Creative Commons Options

Source versus Output Creative Commons licenses are designed for a variety of media, and so are very popular. For example, images are often licensed with a Creative Commons license.

However, consider the case of a document distributed as a PDF which has been created from source, such as PreTeXt or L^AT_EX or Markdown. An author may put a CC BY-SA license on the PDF while retaining traditional copyright on the source file(s). While the license allows modification, how practical is it to modify a PDF? Worse, we have seen this situation for projects described as “open source.” This explains our use sometimes of the term “openly licensed content.”

If you are serious about your project being open source, and you want to send that signal to your readers, then mark your output with a CC license *and* mark your source files as also having the same CC license. This is usually accomplished by a statement at the top of each source file asserting copyright and then stating the license. Or this statement can point to a top-level text file, often named COPYING or LICENSE, with more precise license information. See the PreTeXt distribution for examples using the GPL software license.

Commercial Consideration It is natural to consider that you have devoted considerable time and effort to your project, and with an open license you will now be donating it to the world to read for free. So you might think, “Why should somebody else profit?” Thus, the NC option is alluring. But think about it for a minute.

Suppose a commercial publisher hires an experienced copy editor to go through your book, correcting errors and tightening the prose. Then the publisher prints the improved version of your book in a nice hardback version, and sells the book for \$250. If you simply put the BY-SA options on your license, that publisher is obligated to (a) give you credit for authoring the original version of the book, and (b) make the copy-edited version available again with a CC BY-SA license. Now there is a business opportunity for anybody in the world: make a print-on-demand version of the copy-edited version, and sell it for \$200. Then it is

a race to the bottom. Eventually the price will come down to the cost of manufacturing, plus some small compensation for managing the relationship with a print-on-demand service [Chapter 11](#). Just how much profit potential is there really available for others?

We assume you have written a book because you have something to say, and chosen an open license because you want to be read. If you do place an NC option on your CC license, then you have made it impossible for anybody else to help you distribute your book in physical forms. A CC BY-SA license already makes your work unattractive to a commercial publisher who wants to charge an unreasonable price, and adding an NC clause simply chokes off some distribution options, limiting the reach of your work.

Derivative Works Will your monograph on the reptiles of the Mongolian steppes ever become a screenplay? As exciting as the topic is to you, we think Hollywood feels otherwise. An ND option probably makes little sense for scholarly works. An conversely, if you get hit by a pie truck tomorrow, it will be a lot easier for an enthusiastic reader to take over custody and maintenance of your project, and they will be *required* to continue with the same license if you have employed the SA option.

So in PreTeXt you can go

```
<frontmatter>
  <colophon>
    <copyright>
      <holder>Steve Jobs</holder>
      <year>1984</year>
      <minilicense>Creative Commons BY-SA</minilicense>
    </copyright>
  </colophon>
</frontmatter>
```

for a CC license with the Attribution and Share-Alike options. If it was not obvious already, this is our recommendation for scholarly work if you choose to use a Creative Commons license. This is an example of what is known as a **copyleft** license.

2.4 GNU Free Documentation License

The GNU Free Documentation License (GFDL) is a license designed for documentation of open source computer programs licensed by the GNU Public License (GPL). However, it explicitly mentions textbooks as one possible use. (GNU is a recursive acronym for “GNU’s Not Unix” and is the software project that originally built all the utilities which complement the Linux Kernel to make up an operating system.)

The GFDL is similar to a CC BY-SA license. It allows unlimited copying, forever. Modified versions that are distributed must acknowledge the original contributions and must also carry a GFDL license. So this is a viral license, always. And another example of copyleft.

However, the GFDL does not employ options like a Creative Commons license. More importantly, the GFDL is very explicit about source (“transparent” copies) and derived output (“opaque” copies), and the license applies to both versions. So the GFDL would say PreTeXt source is transparent, and a resulting PDF is opaque, and the license largely treats them identically.

Because the GFDL has the essential characteristics of CC BY-SA, and is so explicit about simultaneously licensing document source authored with a markup language along with output formats, it is our choice for textbook projects.

So in PreTeXt we might go something like

```

<frontmatter>
  <colophon>
    <copyright>
      <holder>Richard Stallman</holder>
      <year>1985</year>
      <minilicense>GNU Free Documentation License</minilicense>
    </copyright>
  </colophon>
</frontmatter>

```

The GFDL is also explicit about including the complete license with your document. You can find various places a version formatted for inclusion in a PreTeXt project, including as part of the source for this document.

2.5 Public Domain

Stating that your work is in the **public domain** basically means you relinquish all the rights you receive via your automatic copyright. So it is a very different situation from using copyright to provide an open license. Creative Commons uses CC0, “No Rights Reserved” to indicate this choice.

2.6 Remixing and License Compatibility

It is popular to describe the potential of remixing parts of open educational resources. For example, a literature professor might collect a variety of openly licensed poems into a reader for students in a course. When the licenses are viral, and different, there arises the problem of what license to put on the collection. Worse, one license might prohibit commercial uses, and another allow it, meaning the licenses are incompatible.

So some thought should go into the choice of a license when the work has the very real potential to be included in another, such as would be the case with a photograph. One solution is to provide more than one license (nothing about copyright prohibits this). Another solution is to avoid licenses with overly restrictive terms, such as restricting commercial use or derivative works.

Remember too, that in addition to multiple licenses, as the copyright holder you may offer your work to another project on different terms. So another author might ask if a chapter of your work may be included in their project, which might use a different license than yours (more or less restrictive), and you can grant permission for that use under that license. Now there are two versions of your chapter, which could diverge over time if derivatives are allowed, available to others on different terms.

For mathematics books, we do not concern ourselves too much with the potential for remixing. Notation and dependencies make it hard to collect parts of various textbooks and assemble them into something new (and coherent).

Creative Commons maintains a matrix showing compatibility between their own licenses at their FAQ question, [Can I combine material under different Creative Commons licenses in my work?](#), illustrating just how complicated this can become.

Finally, recognize that you can begin with a restrictive license and as you become more comfortable with the idea, change it to a more liberal license that applies to the work at the time of the change. Further, you can always change your license to a more restrictive version, but invariably, you cannot revoke an open license once granted. You could even stop offering an open license all together, and return to traditional copyright as you continue to improve your document. But the version that existed when you made that decision is still available for anyone to use, and possibly improve, independent of your own closed version.

After a while, you realize that openly licensing your writing project gives it an independence and freedom all of its own. It seems to be owned by everybody, and by nobody—at the same time.

2.7 A Final Comment

These discussions remind us of a letter by Thomas Jefferson, the principal author of the United States' *Declaration of Independence*, writing about another monopoly granted by governments—patents.

If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of every one, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density in any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement or exclusive appropriation.

—Thomas Jefferson
Letter to Isaac McPherson
August 13, 1813

Chapter 3

Conversions, Generally

A main goal of PreTeXt is to provide a language for describing a scholarly document by its structure, with contained content, and with no description of the presentation. It then becomes possible to use software to produce different formats, where the presentation takes advantage of that format and enhances the meaning of the content through the expression of the structure.

But different output formats have different capabilities. For example, a conversion to HTML can take advantage of knows to organize smaller chunks of content, while a conversion to PDF can take advantage of page numbers for cross-references. And in these two examples, the capability of the one output format is mostly impossible or silly in the other. Look here for notes that are independent of the PreTeXt vocabulary, and specific to the format produced by a conversion.

3.1 Processing Parameters

Many of the options for different conversions are accomplished by command-line options, which are fed to `xsltproc` by what that program calls **string parameters**. Here are two examples:

```
xsltproc -stringparam html.knowl.example no mathbook-html.xsl fauna.xml
xsltproc -stringparam latex.font.size 14pt mathbook-latex.xsl fauna.xml
```

The first will make `<example>` content render on a page, rather than hidden in a knowl, which is the default for a conversion to HTML. And the second will use a larger overall font size, while trying to preserve the same number of characters per line (with consequent smaller margins).

Notice that these two examples do nothing to change the *words* that a conversion produces, which is why you do not specify them in your source, and why they are documented here in the *Publisher's Guide*. They are conversion options that do not affect your content in significant ways, and are related to the particular output format.

Chapter 4

(*) Conversion to Electronic PDFs

Similar to the case for HTML conversion ([Chapter 5](#)) there is a variety of command-line processing parameters available ([Section 3.1](#)). Until we are ready to document these carefully, open `xsl/mathbook-latex.xsl` and poke around to see what is available.

Chapter 5

(*) Conversion to Online HTML

Similar to the case for \LaTeX conversion ([Chapter 4](#)) there is a variety of command-line processing parameters available ([Section 3.1](#)). Until we are ready to document these carefully, open `xsl/mathbook-html.xsl` and poke around to see what is available.

5.1 Knowled Content

We knowl examples, proofs, and inline exercises by default, mostly so a new author knows that presentation is an option. The knowlization of items can be controlled by a variety of command-line processing parameters ([Section 3.1](#)). While these are in flux, we do not list them here, but instead suggest you open `xsl/mathbook-html.xsl` and search on `html.knowl` to see what is available.

Note that some of these switches are for broad categories of items, for example, `html.knowl.theorem` will also knowl `<lemma>`s, `<corollary>`s, `<fact>`s, and more. This choice applies document-wide, there is no plan to support electing this on a case-by-case basis.

Chapter 6

(* Conversion to Print

TODO

Chapter 7

(*) Conversion to EPUB

TODO

Chapter 8

(*) Conversion to Jupyter Notebooks

TODO

Chapter 9

Hosting Your Online Version

You have HTML output, and now where do you put it? A fundamental design decision is that you only need to simply upload your HTML files to a hosting service and since all the links are relative, readers should be able to read your whole book with no more effort than that from you. By design, no extraordinary configuration or privileges are necessary on the server.

For the choice of a **hosting service** you may have a fundamental decision to make. Mostly this applies to authors who are employees of an institution, yet have the freedom to control the copyright on their scholarly work. But there is information here for independent scholars and for other employees.

- You love your institution, and plan to stay for a good long time. They have implicitly (or explicitly) supported your project with time and/or money. A URL with the institution's domain name on a freely-accessible project is good advertising for the institution. Bandwidth is huge, IT is super reliable and helpful, all this is no-cost to you. Read the next scenario, but you have a good situation, so you might as well use it.
- You are not really attached to your institution, and five years from now you may be somewhere else. Consider hosting your project externally, so it is not tied to your institution.

Or maybe policy on faculty web pages, or crummy content management systems, make it difficult or impossible to host your project. Or it is buried five levels deep with an impossible URL. Point out the situation to your Provost or Dean, with examples of how *other institutions* do it right. Remember that your colleagues may be writing monographs and textbooks for commercial publishers, likely with institutional support, and selling their copyright. Your institution should be *proud* to host your project prominently. If a reasoned, rational approach does not improve the situation, then consider hosting your work elsewhere.

If you are hosting at your institution, that is a great outcome. There is no cost to you, and everybody is happy. Lobby for a great URL, like `platypus.mammal-institute.org` and the rest should take care of itself. The rest of this section is about the second situation.

To arrange hosting yourself,

1. Purchase a domain name, it should not be a real big annual expense. Choose something professional, rather than just your name (though your name does have a natural appeal). And maybe something general enough that you can host your next book under that same domain name. The idea here is to *own* the domain name, so your book can move anywhere, but that domain name will always point to the book. This name should be *owned and controlled by you*, not your institution, not GitHub, not 5GBFree.com.
2. Sign up for, and perhaps pay for, a hosting service that lets you point your domain name at the site.
 - Oscar Levin explains that [GitHub Pages](https://pages.github.com) (`pages.github.com`) is free, super-easy to use if you already use `git`, and makes using your domain name (“custom URL”) nearly trivial. (2017-09-08)

- Mitch Keller likes the “Swift” plan at [A2 Hosting](http://a2hosting.com) (a2hosting.com) at about \$60 annually. (2017-07-05)

Now you are set, and control distribution of your scholarly publication. If you are bothered by the thought of having expenses while you make your work freely available to the world, then consider generating some modest income. For example, sell Google ads against your pages. (Why should *this* disturb anybody? I don't get it.) Or roll a small royalty into the print-on-demand version, see [Chapter 11](#).

Chapter 10

(* Cover Design

Rationale (promotion). Procedures for print-on-demand (generally). Tools (Illustrator, GIMP, Inkscape). PreTeXt support. ISBN placement. Capable students can do design for you.

Chapter 11

Print-On-Demand

If you are both author and publisher, you may wish to make your book available in a physical form, but may be reluctant to purchase and store thousands of copies, or to take orders and arrange shipments. Then **print-on-demand** might be the solution for you.

A print-on-demand service is a manufacturer and distributor of printed books, which are typically only printed once ordered, or in extremely small quantities. They can provide many of the manufacturing and fulfillment services a traditional supplies. Some provide services you pay for that will produce a cover, provide editorial services, or assist with marketing.

We list three such services below, but first describe some commonalities, pro and con.

Updates Generally, you provide a PDF of your text, and we have tried, with the `latex.print` option, to make output that is amenable to this situation. A real advantage of print-on-demand is that you can usually update this PDF at any time, without much trouble. You will need to decide how to indicate versions (or printings?) of your work. Perhaps we will have tools and advice about this soon.

Covers You may need to provide a cover, typically as a PDF meeting some exact specifications. Though you may be able to choose a fairly generic look through a template or wizard. Or pay to have one created for you.

Price You may choose to sell at your cost, or you may wish to make a profit on each sale. (Note: as copyright-holder you can do this, no matter what license you have chosen, review [Chapter 2](#)). A 450-page hardcover book might be sold by a print-on-demand manufacturer to an online bookstore, including some profit for the manufacturer, for \$23. If you, as author, want \$5 profit, and the online bookstore wants \$7 for fulfillment, shipping, and profit, the cost to your reader is now \$35. In order for the online bookstore to give the appearance of discounting your book to \$35, you may need to declare a suggested retail price of \$49.95. So pricing takes a bit of thought. Or guesswork, since the discounting algorithm is not public.

Note in the above scenario, the print-on-demand manufacturer may sell you, the publisher, small quantities at a better price, such as ten copies for \$170, shipping included.

ISBN An **International Standard Book Number** is a unique identifier of books and necessary for others to distribute and sell your book. See details for each manufacturer below. Much like a domain name for your book's website (see [Chapter 9](#)), this may be something you wish to control and own, foregoing the convenience of somebody else providing and owning it for you.

In order of increasing professionalism and decreasing convenience, we describe three print-on-demand manufacturers we are familiar with, plus two others. Additions, corrections, updates, and alternatives are all welcome.

Lulu.com This site caters to people making photo books for relatives, in addition to more serious projects. Account setup may be trivial, an ISBN number may not even be needed, and you may have options for distribution beyond readers simply ordering direct from the site. This might be a good choice for

drafts you will use in your own classes, if having your university bookstore print copies is not a good alternative. (2017-11-25)

Create Space This company is owned by Amazon.com. They manufacture and distribute serious books, in addition to music and film. Distribution through Amazon is nearly automatic. There is also “Expanded Distribution”, which starts to look more like Ingram (next). (2017-11-25)

CreateSpace attempts to make sure you have the rights to your content. So if they find your book freely available on the Internet, their “Content Validation Request Team” becomes suspicious and investigates. This has caused a few authors a few headaches and delays in making their book available for sale, though all have been successful eventually. (2018-03-06)

Ingram Spark IngramSpark (formerly Lightning Source) is a division of Ingram, which is a very large printer, also providing services to major publishers. Creating an account is not trivial, and you need to provide your own ISBN number. In return, your book is available at Amazon.com and many other online bookstores automatically, and is in many ways indistinguishable from offerings of large commercial publishers. There are also options for international distribution. You can also control settings for discounts and returns. (2018-03-06)

Blurb Blurb specializes in photo books, and uses Ingram for printing. Sizes are limited, and costs are more than the other services. Direct experiences would be a welcome addition. (2018-03-06)

Nook Press Nook Press is a service of Barnes & Noble, and books appear only through their online store. We have no additional information, so direct experiences would be a welcome addition. (2018-03-06)

We currently have no good information about distributing EPUB or Kindle electronic versions for profit. (2017-11-25).

Appendix A

FAQ: Frequently Asked Questions

This is a list of answers to frequent questions, in no particular order.

Why does the conversion to HTML use a fixed width for the text? There is an optimal number of characters per line for human readers, based on research and centuries of book design. So we set a fixed width such that the default font comes close to achieving this optimal value. We also use responsive design to accommodate the constraints of a small screen as best as possible. A reader will not want to have to carefully resize a browser window to achieve the optimal width, nor should a line of text spread to many, many characters across a very expansive screen. See [Principle B.0.1:4](#).

I do not want my examples in knowls. You can change that! See [Section 5.1](#).

Why are my knowls empty? When viewing the HTML version on your laptop or local computer as files, do not expect knowls to render properly. This is a known bug/feature, and there is nothing to be done about it, unless you run a web server on your own machine, which fortunately is a very easy thing to do (see the section of the Author's Guide about testing HTML output locally). Think of it this way: the knowl content comes from a server, but on your laptop there is no web server. You are just looking at files.

How can I change the colors in the HTML version? There are several colors schemes available. They (currently) have a name in the form `mathbook-X.css`, where $X \in \{0, 1, 2, 3, 4, 5, 6, 7, \text{ups}, \text{manitoba}, \text{bucknell}\}$. The options for colors are currently being revised, and soon it will be easier to create your own color scheme.

To use one of the above color schemes, you can use a `stringparam` on the command line, like this:

```
--stringparam html.css.file "mathbook-X.css"
```

where X is chosen from the list above. Or in your thin XSL stylesheet you can add the line

```
<xsl:param name="html.css.file" select="'mathbook-X.css'" />
```

Something looks wrong in the HTML output. How can I customize the layout of the HTML version?

If there are some anomalies in the HTML version of your book, probably that was just an oversight and can be fixed easily. Send a message to pretext-support@googlegroups.com describing the problem and *including a live link to the page showing the error*. Do not make a minimal example. (CSS issues are handled in a completely different way than other software issues.)

The long-term plan is to have a variety of different layout options, which can be chosen as easily as choosing a color scheme. See [Principle B.0.1:7](#). The first step is to rewrite the current CSS so that it is easy to develop alternate layouts. That should be done by the end of Spring, 2018. Then people can develop new styles! Until that happens, either suffer with the current style, or hack away at your own peril. (Note that the PreTeXt support groups will not provide any help with hacking the layout, but a lot of help will be available when it is time to develop alternate layouts.)

Why does the HTML output load so many external resources? The subtext perhaps being, “Why shouldn’t I host these on my own server?” A main goal for PreTeXt is to spare authors the headaches of learning new technologies just so they can get their content in front of readers. That knowledge should be built into software, so an author can work at a higher level, explaining the intricacies of their discipline. So we only assume an author can place locally-built HTML output onto some public server they have permission to use. Any extra enabling technology we do not want to create ourselves gets pulled from other public servers. MathJax, both code and fonts, is a good example, as one of the enabling projects. Perhaps it is *the* enabling project.

This way,

- Authors can concentrate on their writing, not updating services on their server.
- Servers that are hostile to ad-hoc configurations (think “learning management systems”) are not an impediment to hosting projects.
- For the most part, updates to external resources happen automatically. This allows authors and PreTeXt developers to concentrate on other aspects of their work.

We get MathJax from a **content delivery network** (CDN). Once we have that dependency, then fonts and search from Google, CSS and Javascript from the American Institute of Mathematics, and other components, all have the same dependency: a decent internet connection. Our experience over several years is that these resources have good uptimes and good bandwidth, and so are not a source of problems. A good offline version, with resources packaged via a script, would be a good long-term project.

Finally, we do not load minor resources indiscriminately. Something in your source should suggest they are necessary and we perform those checks, document-wide. However, since a cross-reference is usually implemented as a knowl, and we cannot be sure what a knowl might contain, we do tend to load resources on *every* page, even if only needed once. We hope to improve this situation. And you are encouraged to help if you have technical skills in these areas.

Searching my PDF output is broken. PreTeXt goes to great lengths to make a high-quality PDF, but if you manipulate it by adding in new pages, or adjust the intermediate L^AT_EX to use other fonts, you run the risk of breaking some of the features.

A ligature is a combination of two characters into one, like a lower-case “f” followed closely by a lower-case i without a dot. These can confuse a search. Verbatim text sometimes ends up with “smart” quotes, where left and right versions are inverted. This frustrates copying source code into an actual program. And so on. If you see problems like this with un-customized PDF output, we would like to hear about it.

Appendix B

PreTeXt Principles

The development of PreTeXt is guided by a list of principles, which appear early in the Author's Guide. We duplicate them here so we can reference them as motivation for various decisions described here.

1. PreTeXt is a markup language that captures the structure of textbooks and research papers.
2. PreTeXt is human-readable and human-writable.
3. PreTeXt documents serve as a single source which can be easily converted to multiple other formats, current and future.
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