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## Markdown for Librarians and Academics

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## **INTERNET CONNECTION**

### **Markdown for Librarians and Academics**

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Markdown is simple syntax that makes it easy to build documents using basic markup. Users format a document using Markdown and the document can then be transformed into a wide variety of document formats, either with a dedicated Markdown editor or via a third-party tool. Markdown works much like HTML. An HTML document can be built using nothing more than a text editor, with the author using HTML tags to format the document and a Web browser to interpret and render the tags. Markdown does this same thing using a simpler syntax and rendering in a wider range of file formats. Markdown has gained some popularity within academia as part of the plain text movement, which keeps content readable and editable across platforms and devices, while also leaving the content easy to manipulate (Mullen 2011).

One example of the simplicity of the Markdown syntax is paragraph breaks. In HTML these require the use of tags around content. Markdown does the same thing with a hard return, much like a word processor. Another examples is italics: In a word processor, these require either a button push or a combination of keys, where in Markdown the user puts an asterisk at the beginning and end of the text to be italicized. It's a very flexible markup that allows users to convert it into other document formats, from PDF to various word-processing formats. This flexibility is what makes Markdown such an effective tool for academics. It makes content reusable, so a blog post can easily be transformed into a word-processed paper or class handout without having to reformat the text each time. Markdown does not give you the granular control of LaTeX, another markup language popular within certain academic disciplines, but it is a solid compromise. Plus, Markdown can be converted into LaTeX.

Markdown was created by blogger John Gruber. It caught on in the coding world, as it's used in programming-centric communities like GitHub,

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a popular version-control system for software projects, and Stack Overflow, a question and answer site for programmers (Atwood 2012). The syntax can be viewed here: <http://daringfireball.net/projects/markdown/syntax>.

The ability to convert Markdown is probably its greatest strength. Many Markdown editors will handle conversion natively, but for users not interested in using a Markdown editor, pandoc (<http://johnmacfarlane.net/pandoc>) is a cross-platform utility that converts documents from one format to another, using a simple command-line syntax. This gives content creators the ability to easily edit and modify the format of their work, but it also gives Markdown readers the same ability. Academic work has traditionally been read-only—someone writes something and someone else reads it, but the reader cannot make any changes or modifications; the reader can only cite, quote, or paraphrase the work. There's no mechanism to easily enhance the existing work, though. Within certain disciplines there are movements to share data, making it public and reusable (Wallis, Rolando, and Borgman 2013). Borgman (2012) has written about the importance of sharing data in science, focusing on three potential benefits: reproducing and verifying work; using the data for new research questions; and advancing the state of research and innovation. While these benefits are all data specific, these rationales could also apply to text-based content, which is what would be produced by Markdown.

Markdown also has pedagogical applications. Open educational resources are so-called learning objects—anything from textbooks to chapters to articles to lessons—that are cost-free and open, with openness defined by four Rs: reuse, redistribution, revision, and remixing (Hilton, Wiley, Stein, and Johnson 2010, 39). The flexible nature of Markdown makes it ideal for revision and remixing (licensing permitting). A Markdown book chapter can easily be converted to an e-book (via the EPUB standard), which would be helpful for users reading the work on an e-reader. It can also be easily converted to a PDF, which might make more sense for a class handout. The strength of the Markdown format is that it can always be easily edited in Markdown and then exported into a format or formats that make sense. This type of flexibility is not always possible or convenient with other document formats.

Sefton also addressed this in his consideration of scholarly HTML. Sefton (2009) reported on the work of the Australian Digital Futures Institute, explaining its work on content format flexibility and reuse. One of the group's goals included:

Empowering authors with content creation tools that are not constrained by the paper metaphor so that, no matter what happens on the publisher's side of the transaction, authors can use and re-use their work as flexibly as possible. (155)

Another reason academics might gravitate toward Markdown is the level of control it gives users. Word processors can sometimes be overwhelming, introducing formatting and styles the user might not want. Markdown allows the user to control what the final document looks like by limiting the user to a few simple formatting options. Also, because Markdown can be constructed within a text editor, many users like Markdown because of the way it lets the writer focus on content and not code, formatting, or interfaces. Tennant (2013) made the argument that librarians no longer need to learn HTML, mentioning a few reasons, including that most content management software handles the actual coding and that many systems use idiosyncratic syntax conventions. Markdown is an extension of Tennant's rationale, in that it lets users escape the minutiae of code and formatting, instead focusing on ideas, with the conversion handled by another tool.

The discussion around Markdown to this point has been focused on text-based documents. But Markdown can also convert text to a presentation format. Lawson (2013) covered the particulars of the process, but suffice it to say that there are several tools that convert Markdown documents into browser-based presentations that visually resemble traditional PowerPoint presentations. Many users might be intrigued and excited by the idea of creating PowerPoint presentations without PowerPoint. Users might also imagine a scenario where a presentation is eventually transformed into a more formal work. Markdown allows a user to easily shift the presentation content into more of a traditional long-form academic work, without having to export or copy-and-paste out of a presentation program like PowerPoint or Keynote.

One challenge of Markdown is that there is no formal specification for it. Instead, it is more a convention that different Markdown implementations obey to varying degrees. Formal specifications make implementations uniform. For instance, the World Wide Web Consortium is the group responsible for Web standards and specifications, which is why, for the most part, webpages render in similar ways across Web browsers. Conceptually, it is also similar to the way Library of Congress maintains the MARC cataloging standard, which allows catalog records to be shared between institutions. Without that kind of rigid structure, it is very easy for syntax to diverge depending upon the implementation, meaning that the same Markdown might render differently, depending upon how the site or project interprets the syntax. Atwood (2012) discussed this challenge, noting the slightly different Markdown implementations across websites like GitHub and StackOverflow, and recommending a standard. However, to date, this kind of standardization has not happened, resulting in projects like MultiMarkdown (<http://fletcherpenney.net/multimarkdown>), which is based on Markdown but offers more functionality, like tables and citations.

Despite this limitation, Markdown seems to have a strong foothold in Web-based content. Besides the aforementioned GitHub and StackOverflow,

the reddit ([www.reddit.com](http://www.reddit.com)) community uses Markdown for its comment formatting, and WordPress, the blogging software, recently announced native Markdown support in its hosted service (Wiebe 2013). Tumblr, another blogging platform, also supports Markdown. So despite a lack of formal consensus on what Markdown is and is not, most users, especially those doing basic formatting, will probably see more similarities than differences across implementations.

Anyone interested in experimenting with Markdown has a number of options. Coding in Markdown requires nothing more than a text editor. However, transforming Markdown requires pandoc. There are also a number of Markdown editors that also transform Markdown into other file formats. The advantage of an editor is that most will format as the user types, allowing the user to see whether the syntax is working as intended. The feature is usually called live preview and allows the writer to see how his or her Markdown is rendering as HTML. Live preview can be especially helpful when first using Markdown, as it lets the writer identify incorrect syntax. There are many Markdown editors for many platforms. OS X users have Mou (<http://mouapp.com/>), a free Markdown editor. Windows users have MarkdownPad 2 (<http://www.markdownpad.com>), which is also free. Linux users might wish to explore UberWriter (<http://uberwriter.wolfvollprecht.de>). There are also many Web-based tools to help create Markdown. Gruber hosts a conversion tool on his website: <http://daringfireball.net/projects/markdown/dingus>. StackEdit (<https://stackedit.io>) is a Web-based writing tool that supports Markdown and even transforms it. Any of these resources is a good place to begin working with Markdown, getting a feel for the syntax and for the process of changing Markdown files into other formats.

Many academics are gravitating toward Markdown because of its flexibility and ease of use. While learning a new syntax seems prohibitively difficult, Markdown is simple enough that most users will pick it up very quickly, soon discovering the benefits of content that is not tied up in a particular format. Markdown allows users to easily toggle between file formats without having to reformat text each and every time. It's a convenient method of divorcing content from formatting.

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