

Digital Document Discourse

Academic discourse is document-citation based: Someone publishes a document' (paper' or a book) and someone comments on it by publishing a new document which cites/refers to the original document. This has worked well in the analog world for over seven hundred years. The transition to digital academic documents are still rooted in this past whereas other digital communication has moved along the path of connecting texts by their named document's location; the DNS system. This makes for fast retrieval—if the document is where the address specifies so over time the system becomes brittle. I believe that we can create a digital discourse environment taking the best of digital and the best of citing by providing instant access to cited documents if you already have them and also awareness of documents citing the documents you have in the future.

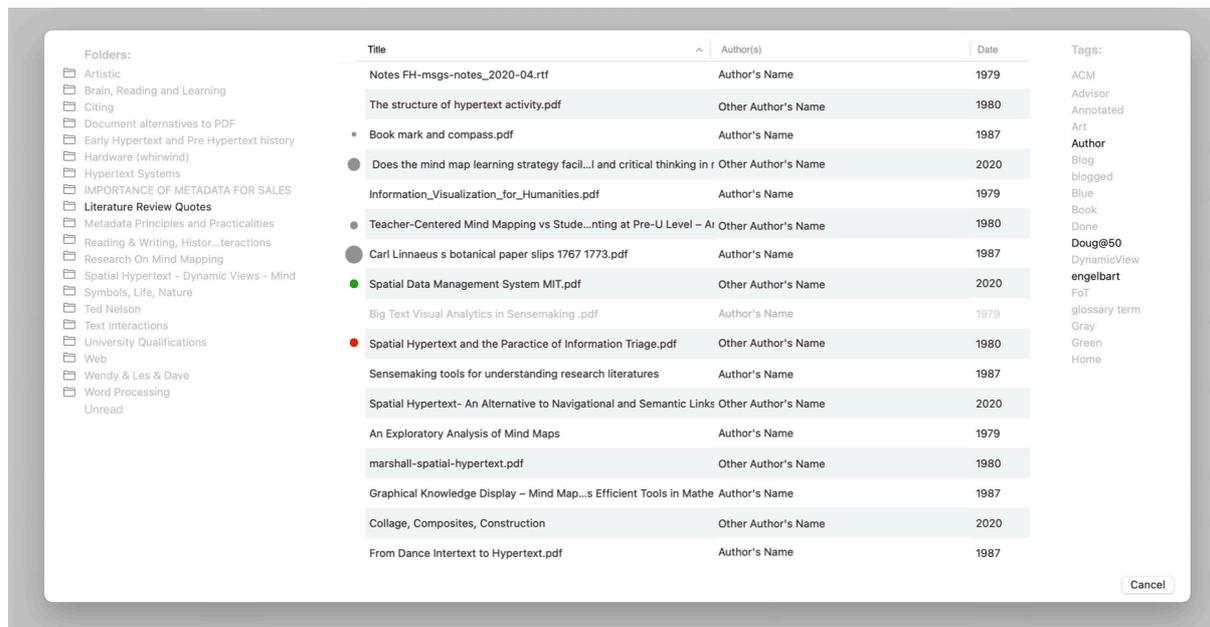
My dream is to improve academic discourse by taking advantage of digital opportunities while not introducing digital fragility. The dream is further to allow anyone to be able to take part in a dialog where they have the full toolset of modern word processing applications available for their writing—giving them time, space and interaction to really think and reflect—while still being in a digitally alive thread of dialog. Not just little boxes for comments at the end of blog posts or in social media.

How can we implement a system where we publish to documents (initially PDF), cite documents with two magical things can happen: First, if you read a citation in a document and the cited PDF is on your system, you can click to open it, without going to the web. Second, if someone cites your document, you are somehow notified that it has been cited, making a citation path for discourse. Maybe block chain or maybe Twitter? Twitter is good since it can distinguish between notes someone you follow has made from those you don't. Questions include: How can we implement this? What to publish to Twitter and how to read it?

However, having written the above, slept, listened to some great music, had breakfast, worn a cowboy hat and sat down to write this out, it strikes me that the first is the solution to the second: If the document is already on the user's system (hard drive or cloud) then it should be trivial, if the documents have Visual-Meta, to alert the user to what documents cite it, in effect we have a backlink database in the documents themselves.

Therefore, what we need is simply a document distribution system. This could be as simple as emailing friends and associates and it would be quite automatic for academic publishers to distribute. For ad-hoc groups though, maybe an app watching the user's email download folder and copies any PDF with Visual-Meta into the user's library. The opportunities are very good for how a document which knows what it is and how it connects can be presented and interacted with.

Here is a rendering of how this might appear, though this is an open system and so anyone can make any kind of library. Imagine the dots to the left of the documents in the library indicate that the document has been cited in documents you have not yet opened. Grey means anyone cited it, green means it is cited by someone you cited and red means it is your document and someone cited it.



Library. Hegland, 2021.

References

[1] Hegland, F. 2021. *Library*. [image].

Visual-Meta

@description 1

This appendix to the document is called Visual-Meta. The purpose is to add useful metadata to the document in order that the reader software can provide useful interactions to the user, such as letting the user copy or citation, fold the document into a table of content and more.

It is based on the academic Bib-Tex citation information standard in LaTeX with added (optional) JSON to describe the document you are reading, in order to enable rich interactions which are otherwise stripped from the document when exported to PDF or other delivery documents.

The way reader software looks for Visual-Meta in the PDF is to parse it from the end of the document and look for the @visual-meta-end tag. If this is found, the software then looks for the @visual-meta-start tag and uses the data found between these marker tags.

The introductory section, @visual-meta, specifies which version of Visual-Meta is used, followed by what software generated the Visual-Meta. This can be the software which created the document, 'generator' or software which appended the Visual-Meta onto the back of a previously created document, which would be labeled 'appended by'. For example, our 'Reader' application looks for a DOI on the first page of the document if no Visual-Meta is found, and asks the user for permission to resolve the DOI into a BibTeX entry which can be inserted into the document.

The first informational section is usually prefaced by @article for articles/papers or @book for books. The difference is useful to determine how to display the document, for example, in our 'Reader' software @book opens to a single front page in full screen. This section further includes standard BibTeX information which should be appended to the clipboard/copy space when copying any text from the document, in order to allow the software—for example a word processor—the user pastes into to paste as a full citation, which the software can then automatically list in a Reference section on export.

> The above is core and the following is optional <

The @headings section is in the <json> format and specifies what text in the document is a heading, what level heading it is as well as the name of the author for that section, if the section was authored by someone else than other than the main document, in the following way ("name": "Heading", "level": "level2", "author": "Author", "Name": "Name"). This is valid until a following section is marked as being authored by someone else.

This information should also be added when copying text from that section, to allow the pasted citation to correctly cite the author.

@glossary This sections lists what terms are in the glossary.

Feel free to add your own tags but please describe them in this introduction section in order for others to derive value from them now and in the future.

This was written March 2021 by Frode Alexander Hegland. More information is available from <https://visual-meta.info> or from emailing fh@heglund.com Visual-Meta was initially implemented in the 'Author' word processor and the 'Reader' PDF viewer: <https://www.augmenttext.info>

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month = apr,

year = [2021],

institution = [University of Southampton],

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