

Semantic Science: Publication Beyond the PDF

An Example Scientific Article Written in Markdown

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Abstract—The present article is an example pseudo-scientific paper written in Markdown. It contains all elements typically encountered in scientific articles: headed sections, figures, tables, lists, references, etc. The purpose here is to demonstrate the simplicity in writing scientific articles in Markdown for rapid dissemination as pre-prints, before seeking publication in traditional outlets.

Keywords—scientific writing, markdown

I. Introduction

The present article is a demonstration of a minimal protocol proposed in a published paper, *Semantic Science: Publication Beyond the PDF*, presented at IEEE SoutheastCon 2024. It can be viewed in its Markdown source, Pandoc-converted HTML (annotated with RDFa using GPT-4), or Pandoc-converted PDF.

Because the present article is written in Markdown, one can embed links to citation sources as regular hyperlinks. Here is the proposal of Timothy Berners-Lee which started the World Wide Web [1]. While this citation is hosted as a PDF by CERN, many scientific articles are paywalled and inaccessible. If all papers existed first as agnostic pre-prints (such as this one), explicit linking to all cited sources would be possible, allowing researchers to more quickly access content to integrate with their own work.

II. Method

This article is written in Pandoc-style Markdown, so some more esoteric elements, such as insertions and highlights in MultiMarkdown, are not demonstrated.

a. Demonstration of Paper Elements Writing paragraphs in Markdown is done normally. One can also *italicize* text and **bolden** text.

1. Lists Inserting lists, nested to arbitrary depth, is easy with Markdown:

- Semantic Web

- Linked Data
- FAIR Data
 - Ontologies
 - Knowledge Graphs
 - Provenance
 - * Metadata
 - * Etc.

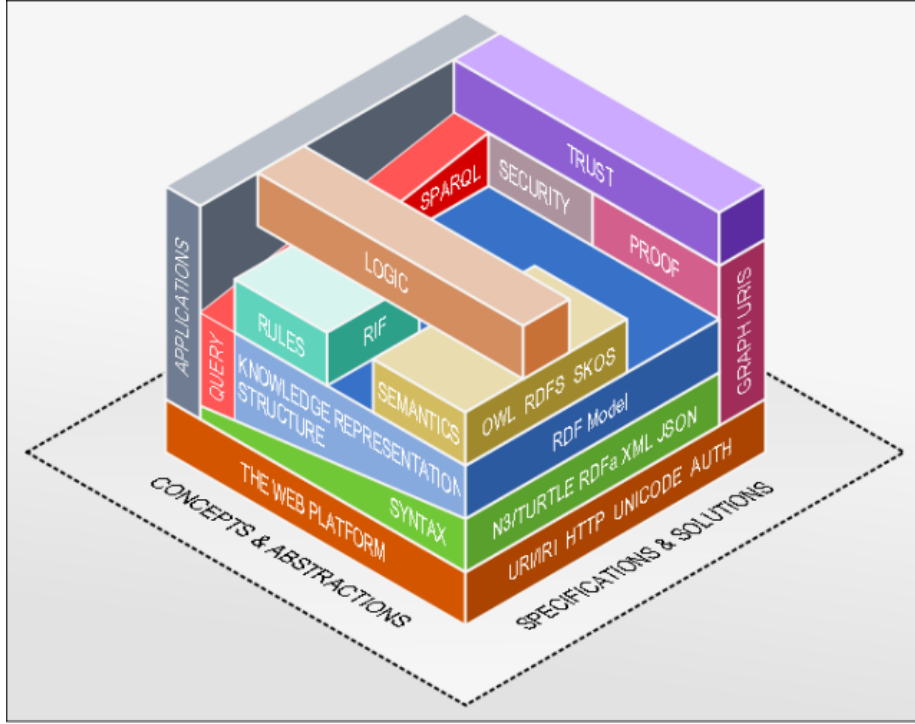
The same can be done for numbered lists:

1. Aristotle
2. Niccolo Macchiavelli
3. Arthur Schopenhauer

2. Tables

Format	Inception
PDF	1992
DOCX	2007
TEX	1984
HTML	1993
MD	2004

3. Figures Figures can be inserted by referencing them with respect to the Markdown file.



4. Other Math equations can also be inserted in Markdown, either inline or as a block, like below:

$$y = mx + b$$

Code blocks can be inserted:

```
public static void main(String args[]){ }
```

III. Conclusion

As can be seen, for the rapid dissemination of early pre-prints, basic Markdown and Pandoc are very effective at drafting simple scientific manuscripts prior to the seeking of formatted publication outlets. To take what is presented here to its extreme, e.g., with more complex Markdown elements, automatic reference management, collaboration, formatting for outlets, exporting to different filetypes, and so on, please refer to the published paper corresponding to this simple example, which is published: *Semantic Science: Publication Beyond the PDF*, presented at IEEE SoutheastCon 2024.

References

- [1] T. Berners-Lee, "Information Management: A Proposal," CERN, 1989.