Agile editing of scientific manuscripts with multiple output formats

Robert Winkler

**Correspondence**: [robert.winkler@cinvestav.mx](mailto:robert.winkler@cinvestav.mx), CINVESTAV Unidad Irapuato, Department of Biochemistry and Biotechnology, Laboratory of Biochemical and Instrumental Analysis (labABI, <http://www.ira.cinvestav.mx/lababi.aspx>), Km. 9.6 Libramiento Norte Carr. Irapuato-León 36821 Irapuato, Gto. Mexico, Tel.: +52 (462) 623 96 35, Fax +52 (462) 624 58 46

**Keywords**: databases, open data

# Abstract

Scientific manuscripts consist of contents, including text, figures, formulas, tables and citations, which are presented in a certain format. This format depends on the intended use, e.g. for for submission to a particular journal, publication as a printed or electronic book, or for a webpage. Incompatible file formats, markdown with different target formats.

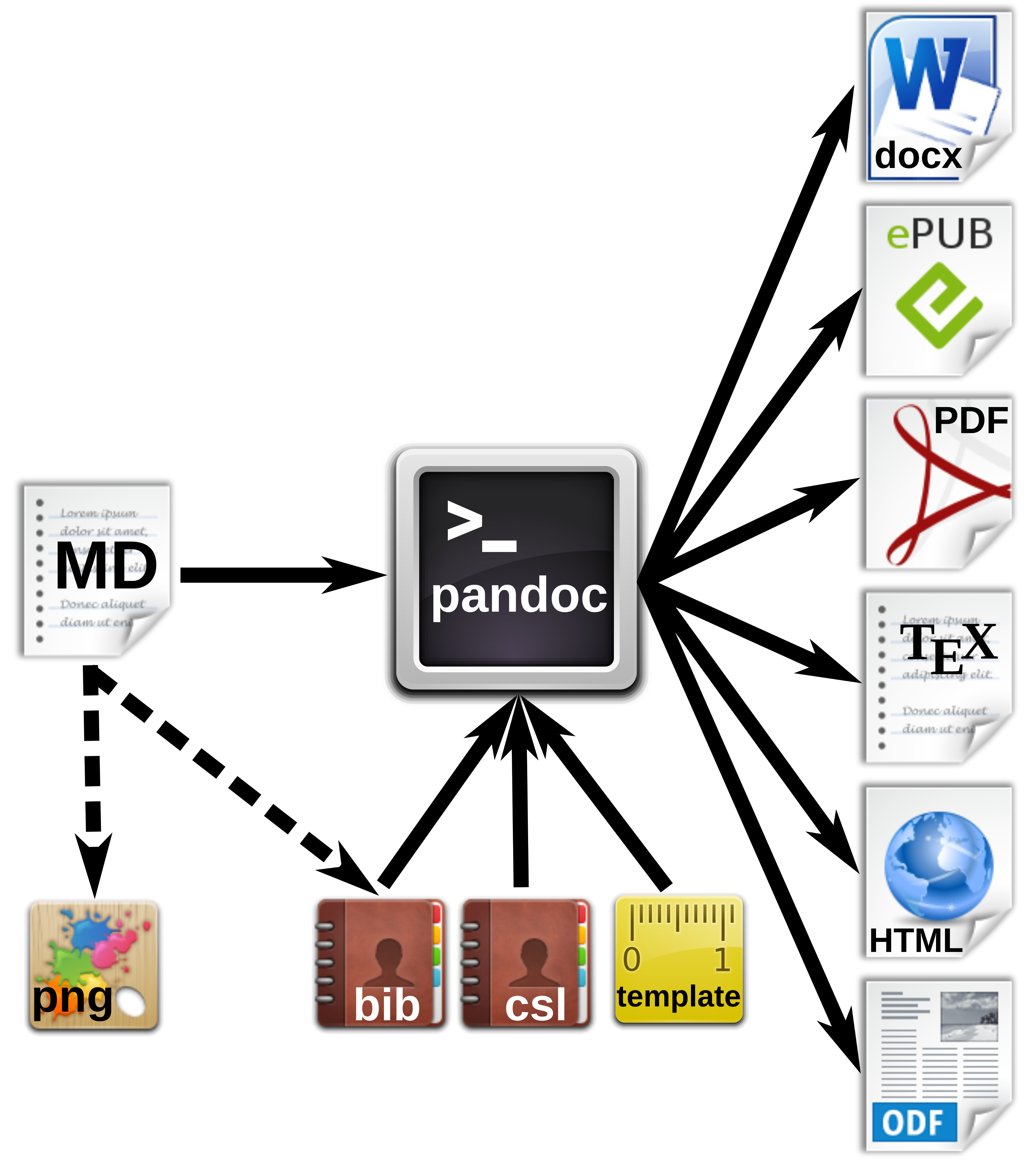
# Introduction

# Formatting elements and syntax

**Table 1.** Formatting elements and their implementation in different document types.

|  |  |  |  |
| --- | --- | --- | --- |
| element | markdown |  | HTML |
| **structure** |  |  |  |
| section | # Introduction | \section{Introduction} | <h1><Introduction></h1> |
| subsection | ## History | \subsection{History} | <h2><History></h2> |
| **text format** |  |  |  |
| bold | \*\*text\*\* | \textbf{text} | text |
| **cross references** |  |  |  |
| to section |  |  | text |
| http link |  |  | text |

Mardown has the simpliest structure.

  
**Figure 1.** Workfow for the generation of multiple document formats with Pandoc.

# Source code and software availability

The source code of this manuscript, as well as templates and the Pandoc script have been deposited to xx. The software used was cited according to (Smith, Katz & Niemeyer, 2016). Since unique identifiers are missing for most software projects, we only refer to the project homepages or software repositories:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Software | Use | Authors | Version | Release date | Homepage/ repository |
| Pandoc | universal markup converter | John MacFarlane | 1.16.0.2 | 2016/01/13 | [http://www.pandoc.org](http://www.pandoc.org/) |
| pandoc-citeproc | library for CSL citations with Pandoc | John MacFarlane, Andrea Rossato | 0.9.1 | 2016/03/19 | <https://github.com/jgm/pandoc-citeproc> |
| ownCloud | personal cloud software | ownCloud GmbH, Community | 9.1.1 | 2016/09/20 | <https://owncloud.org/> |
| Markdown Editor | plugin for ownCloud | Robin Appelman | 0.1 | 2016/03/08 | https://github.com/icewind1991/files\_markdown |

Pandoc is available for Windows, Mac OS X, Linux, BSD and as source code.

**Figure 2.** Direct online editing of a markdown manuscript with live preview using the ownCloud Markdown Editor plugin by Robin Appelman.

# Example: Manuscript with output of TEX/PDF for PeerJ Preprint and DOCX

# Conclusions

Writing scientific manuscripts in markdown format helps to focus on the content rather than on the format. Lightweight format facilitates file editing and handling. With the same source file, multiple output files for different uses or publisher’s specifications c can be generated with Pandoc. Therefore, a workflow based on markdown format is certainly an attractive option for scientific writers. But also Journals should consider the support of markdown format.

# Acknowledgments

The work was funded by the Consejo Nacional de Ciencia y Tecnología (CONACyT) Mexico with the grant FRONTERAS 2015-2/814 and CINVESTAV.

# Bibliography

Smith AM., Katz DS., Niemeyer KE. 2016. Software citation principles. *PeerJ Computer Science* 2:e86. DOI: [10.7717/peerj-cs.86](https://doi.org/10.7717/peerj-cs.86).