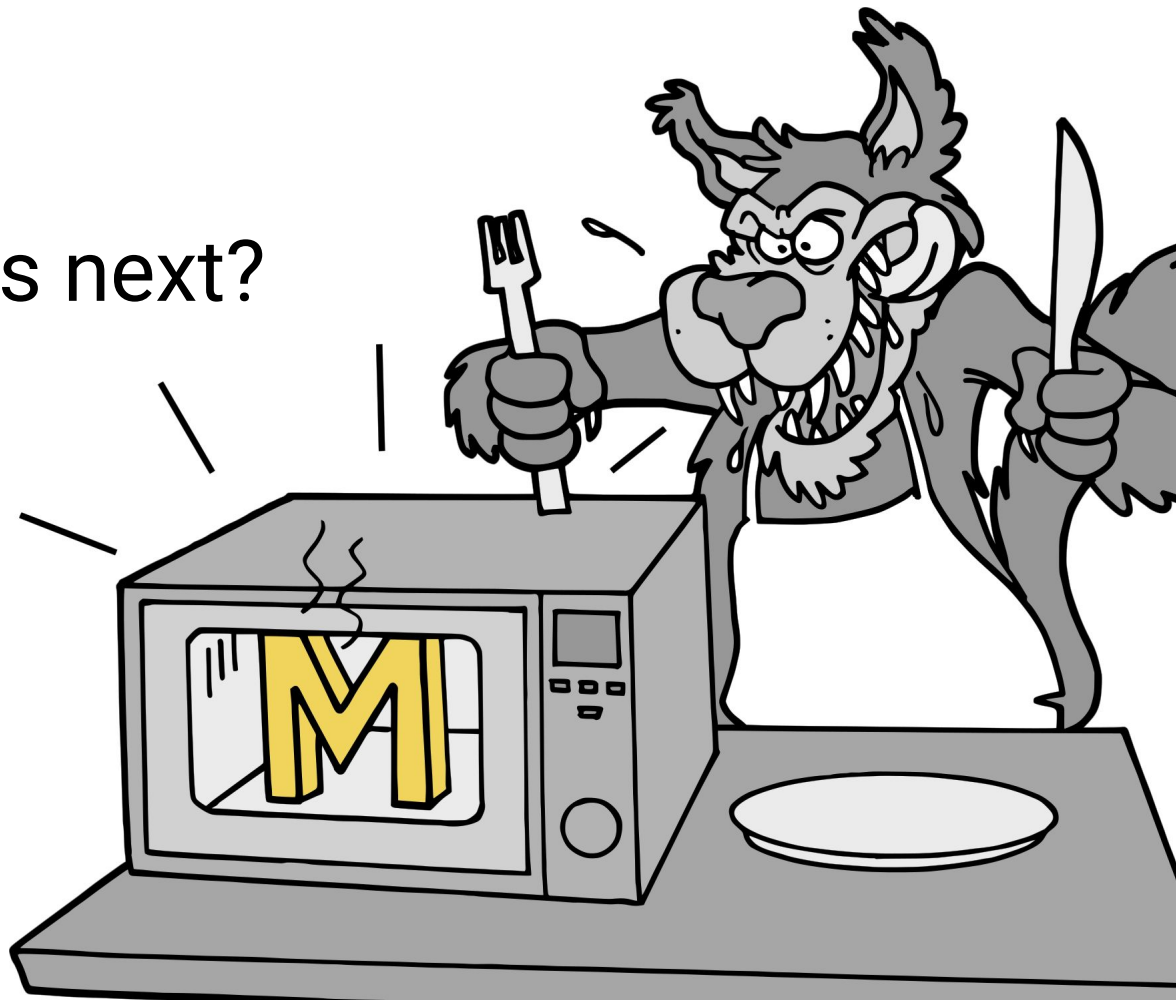


Markdown 3

What's new, what's next?



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Introduction

Why do authors care?

- TeX is moderately easy to write, but difficult to read and think about:
- Markdown is a lightweight markup language that is easy to both read & write:

First Level Header

Second Level Header

Now is the time for **all**
good men to come to the aid
of their country.

It is strangely difficult to get people to see the point, but the defects of LaTeX for concentration, writing and thought, are at least as great as those of Word, for the simple reason that it gives the writer too much power; there is always another package to call in the preamble, as there is always another drop down menu in Word. [...]

In markdown – not to put too fine a point on it – the writer is only ever faced with one question, and it is the right one: what the next sentence should be.

(Thompson, 2010)

Introduction

Why do TeXperts care?

- All markdown elements can be formatted using TeX macros [1].

```
\markdownRendererHeadingOne{First Level Header}
```

```
\markdownRendererHeadingTwo{Second Level Header}
```

```
\markdownRendererInterblockSeparator
```

```
Now is the time for \markdownRendererEmphasis{all}
```

```
good men to come to the aid of their country.
```

- Publishers may hire TeXperts to prepare markdown support for TeX templates.
- Various TeX formats are supported: Plain TeX, LaTeX, ConTeXt, ...

[1]: V. Novotný. Using Markdown inside TeX Documents. TUGboat 38(2):214–217, 2017.

Introduction

Why do developers care?

- Heterogeneous code base in more than six different programming languages.
- Participate in development and governance of an open-source project.
- Opportunities for research and development grant projects.
- Publishers may hire developers to add new markdown elements [2]:

First Level Header

Second Level Header

Now is the time for ~~no~~**all** good men to come to the aid of their country.

[2]: V. Novotný. Markdown 2.17.1: What's new, what's next? TUGboat 43(3):276–278, 2022.

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What's new?

CommonMark

- The original specification of the markdown language is ambiguous:

Input	Output	Expected?
- first 1. second?	■ first ■ second?	■ first 1. second?
*a *b* c*	<i>a *b c*</i>	<i>a b c</i>

- To improve interoperability, the CommonMark standard was introduced.
- Undergraduate thesis [3] implemented CommonMark to Markdown Package.

[3]: A. Genčur. An implementation of the CommonMark standard into the Markdown package for TeX. 2023. Masaryk University. Available at WWW: <https://is.muni.cz/th/r7z7l/?lang=en>

What's new?

Syntax extensions: Metadata

- What markdown is to document text, YAML is to document metadata:

title: "Markdown 3: What's new, what's next?"

authors: [Vít Starý Novotný]

year: 2023

- Authors can type both YAML and markdown in a single file.
- TeXperts can specify the formatting of different YAML keys [4, 2].

[2]: V. Novotný. Markdown 2.17.1: What's new, what's next? TUGboat 43(3):276–278, 2022.

[4]: V. Novotný, D. Reháček, M. Hoftich, T. Vrabcová. Markdown 2.15.0: What's new? TUGboat 43(1):10–15, 2022.

What's new?

Syntax extensions: Attributes

- Authors can add information by attaching attributes to markdown elements:

The package `mwe` by [Martin Scharrer]{`.index`} provides images for creating minimal working examples ([MWE]{`.abbr`}s), see Figure `<#example>`:

```
![example](example-image){#example width=3cm height=2cm}
```

- TeXperts can specify the formatting of attributes [5].

[5]: V. Novotný. Attributes in Markdown. TUGboat 44(1): 99–101, 2023.

What's new? Syntax extensions: Hybrid markup I

- Authors could always freely mix TeX & markdown at the cost of interoperability.
- Authors can now denote TeX blocks and spans in markdown:

```
`$H_2 O$`{=tex} is water:
```

```
``` {=tex}  
\begin{tikzpicture}
 \draw (0,0) -- ({sqrt(3)},1); \draw (0,0) -- ({sqrt(3)},-1);
 \draw[fill=red] (0,0) circle (1cm);
 \draw[fill=white] ({sqrt(3)},1) circle (0.6cm);
 \draw[fill=white] ({sqrt(3)},-1) circle (0.6cm);
\end{tikzpicture}
```

## What's new?      Syntax extensions: Hybrid markup II

- Authors can also move TeX code to external files and include them in markdown:

`/tikz-h2o.tex` (A water molecule)

- Furthermore, authors can type math between pairs of delimiters:

`$H_2 O$` is water and `\[ \lim_{x \to \infty} \exp(-x) = 0. \]`

- All these options are more interoperable than just mixing TeX with markdown.

# What's new?

# Syntax extensions: Other

- Here are some other markdown elements authors can use [2, 4]:

- Task lists:

- [x] Draft title.
- [.] Draft outline.
- [ ] Copy edit.

- Emphatic line breaks:

Memory and desire, stirring `□ □`  
Dull roots with spring rain.

- Subscripts and superscripts:

`2^10^` is 1024.  
`H~2~0` is water.

- Strike-through:

Under his pillow P'raps found  
~~~A cake that weighed a half a pound.~~~  
A plenty of space to roll around.

[2]: V. Novotný. Markdown 2.17.1: What's new, what's next? TUGboat 43(3):276–278, 2022.

[4]: V. Novotný, D. Reháč, M. Hoftich, T. Vrabcová. Markdown 2.15.0: What's new?  
TUGboat 43(1):10–15, 2022.

# What's new?

## New TeX formats

- TeXperts could always use Plain TeX, LaTeX, and ConTeXt.
- TeXperts can now use new TeX formats to typeset markdown documents:
  - TeX4ht produces websites instead of PDF documents.
  - OPTeX is a minimalistic TeX format based on Plain TeX.
- Examples available at <https://github.com/witiko/markdown/tree/main/examples>:
  - To typeset the TeX4ht example, run `make4ht latex-tex4ht.tex fn-in`.
  - To typeset the OPTeX example, run `optex optex.tex`.

# What's new?

# External bindings: Pandoc

- Pandoc can typeset many document formats with limited formatting options.
- Markdown package can typeset just markdown with many formatting options.
- Undergraduate thesis [4, 6] allows TeXperts to combine strengths of both tools:

```
\documentclass{article}
\usepackage{pandoc-to-markdown, emoji}
\markdownSetup{renderers = {
 headingOne = {\section*{\emoji{wolf}#1}}}}
\begin{document}
\pandocInput[format=man]{wolf.1}
```

 **NAME**

wolf - tool for befriending grandmas

 **SYNOPSIS**

wolf [-b|--befriend] [-s|--scare] <grandma>

[6]: D. Reháček. Generic TeX Writer for the Pandoc Document Converter. 2022.

Masaryk University. Available at WWW: <https://is.muni.cz/th/umhg5/?lang=en>

# What's new?

## Independent packages

- Developers can use `tinyyaml` package to parse YAML anywhere:

```
local tinyyaml = require("tinyyaml")
local text = "authors: [Vít Starý Novotný]"
local data = tinyyaml.parse(text, {timestamps=false})
print(data.authors[1])
```

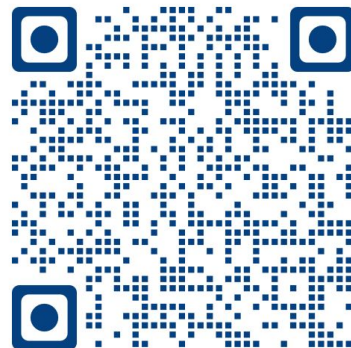
- TeXperts can use `lt3luabridge` package to execute Lua in non-LuaTeX engines:

```
\documentclass{standalone}
\usepackage{lt3luabridge}
\begin{document}
$ 1 + 2 = \luabridgeExecute{ print(1 + 2) } $
```

# What's new?

## Social platforms, governance

- Previously, developers could discuss at <https://github.com/witiko/markdown>.
- Now, authors, TeXpers, and developers can join instant messaging platforms:
  - Discord: <https://discord.gg/8xJsPghzSH>
  - Matrix.org: <https://matrix.to/#/#witiko-markdown:matrix.org>



## What's next?

## Roadmap to 3.0.0: Open issues

- The implementation of CommonMark contains a memory leak, see issue 308.
- Too many unit tests are timing out continuous integration, see issue 245.
- Our attributes are not fully compatible with other implementations, see issue 304.



# What's next?

# Roadmap to 3.0.0: New features I

- Authors will be able to reference not just figures but also tables, see issue 310:

See Table `<#example>`.

| Right | Left | Default | Center |
|-------|------|---------|--------|
| 12    | 12   | 12      | 12     |
| 123   | 123  | 123     | 123    |
| 1     | 1    | 1       | 1      |

: Example table `{#example}`

# What's next?      Roadmap to 3.0.0: New features II

- In markdown, authors can't type block elements such as lists in a paragraph.
- In TeX, authors can typeset lists in a paragraph:

Both

```
\begin{itemize}
\item apples and
\item oranges
\end{itemize}
are fruits.
```

- Authors will be able to end a markdown paragraph with blank lines, see issue 30.

# What's next?

## Roadmap to 3.0.0: Deprecations

- Markdown 3 introduces a number of breaking changes for TeXperts:
  - An option to typeset all line breaks was replaced by soft line break element.
  - Footnotes were renamed to notes, horizontal rules to thematic breaks.
  - Heading attributes now span just headings, not sections implied by headings.
- Here are some options available to publishers with templates for Markdown 2:
  - Use TeX Live 2023 or earlier.
  - Distribute your template together with Markdown 2 and use current TeX Live.
  - Ask a TeXpert to update your template.

# What's next?

## Past 3.0.0: Syntax extensions

- Authors will be able to reference sections using implicit identifiers:

We list previous work in Section `<#previous-work>`.

### `# Previous work`

We previously worked on the previous sections.

Now, we are hard at work on this one.

- See issues 237 and 238.

# What's next?

## Past 3.0.0: Hybrid alternatives

- TeXperts will be able to control whether authors can use inline / block elements:

```
\markdownInput[contentLevel=inline]{footer-text.md}
```

- Authors will be able to sprinkle inline markdown code in TeX documents:

```
Now is the time for \markinline|*all*| good men
to come to the aid of their country.
```

- See issue 300.

## What's next?      Past 3.0.0: TeX formats & bindings

- OPTeX example contains support code, which will be a module, see issue 215.
- Pandoc-to-Markdown is a proof-of-concept, should become part of Pandoc.

## Past 3.0.0: Formatting defaults

- Without a template, authors use default formatting, which is often insufficient.
- Default formatting will be separate package to allow a serious implementation.

## **What's next?    Past 3.0.0: Mailing lists, governance**

- A mailing list should be added for long-form discussions about the package.
- Future growth of the package will require more decentralized governance.

# Conclusion

- Authors, TeXperts, and developers can all look forward to Markdown 3.
- Questions?