

# `smglom.cls/sty`: Semantic Multilingual Glossary for Math

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## Abstract

The `smglom` package is part of the  $\text{\LaTeX}$  collection, a version of  $\text{\TeX}/\text{\LaTeX}$  that allows to markup  $\text{\TeX}/\text{\LaTeX}$  documents semantically without leaving the document format, essentially turning  $\text{\TeX}/\text{\LaTeX}$  into a document format for mathematical knowledge management (MKM).

This package supplies an infrastructure for writing OMDoc glossary entries.

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## 1 Introduction

## 2 The User Interface

### 2.1 Package and Class Options

`smglom.cls` accepts all options of the `omdoc.cls` and `article.cls` and just passes them on to these.

### 2.2 Convenience Macros for SMGloM Modules

<sup>1</sup>

### 2.3 Terminological Relations

<sup>2</sup>

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<sup>1</sup>EdNOTE: document them

<sup>2</sup>EdNOTE: document them

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### 3 Implementation: The SMGloM Class

#### 3.1 Class Options

To initialize the `smglom` class, we pass on all options to `omdoc.cls` as well as the `stex` and `smglom` packages.

```

1 <*cls>
2 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{omdoc}}
3                                     \PassOptionsToPackage{\CurrentOption}{stex}
4                                     \PassOptionsToPackage{\CurrentOption}{smglom}}
5 \ProcessOptions

```

We load `omdoc.cls`, the `smglom` package that provides the SMGloM-specific functionality<sup>3</sup>, and the `stex` package to allow OMDoc compatibility.

```

6 \LoadClass{omdoc}
7 \RequirePackage{smglom}
8 \RequirePackage{stex}
9 \RequirePackage{amstext}
10 \RequirePackage{amsfonts}
11 </cls>

```

Now we do the same thing for the package; first the options, which we just pass on to the `stex` package.

```

12 <*sty>
13 \DeclareOption*{\PassOptionsToPackage{\CurrentOption}{statements}}
14                                     \PassOptionsToPackage{\CurrentOption}{structview}
15                                     \PassOptionsToPackage{\CurrentOption}{smultiling}}
16 \ProcessOptions

```

We load `omdoc.cls`, and the desired packages. For the L<sup>A</sup>T<sub>E</sub>XML bindings, we make sure the right packages are loaded.

```

17 \RequirePackage{statements}
18 \RequirePackage[langfiles]{smultiling}
19 \RequirePackage{structview}

```

#### 3.2 Convenience Macros for SMGloM Modules

`\gimport` Just a shortcut, we have a starred and unstarred version, the first one is conservative. For example, if we execute:

```
\gimport[smglom/numberfields]{naturalnumbers}
```

First we are redirected to `\@gimport@nostar`, we store the `smglom/numberfields` (*the repo's path*) in `\@test`, then store `\mh@currentrepos` (*current directory*) in `\mh@repos`. If no repo's path is offered, that means the module to import is

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<sup>3</sup>EDNOTE: MK:describe that above

under the same directory, so we let `repos=\mh@repos` and pass bunch of parameters to `\importmhmodule`, which is defined in `module.sty`. If there's a repo's path, then we let `repos=\langle the repo's path \rangle`. Finally we use `\mhcurrentrepos` (defined in `module.sty`) to change the `\mh@currentrepos`.

```

20 \def\gimport{\@ifstar\@gimport@star\@gimport@nostar}%
21 \newrobustcmd\@gimport@star[2] [] {%
22   \def\@test{#1}%
23   \edef\mh@@repos{\mh@currentrepos}%
24   \ifx\@test\@empty%
25     \importmhmodule[conservative, repos=\mh@@repos, ext=tex, path=#2]{#2}%
26   \else%
27     \importmhmodule[conservative, repos=#1, ext=tex, path=#2]{#2}%
28   \fi%
29   \mhcurrentrepos{\mh@@repos}%
30   \ignorespacesandpars%
31 }%
32 \newrobustcmd\@gimport@nostar[2] [] {%
33   \def\@test{#1}%
34   \edef\mh@@repos{\mh@currentrepos}%
35   \ifx\@test\@empty%
36     \importmhmodule[repos=\mh@@repos, ext=tex, path=#2]{#2}%
37   \else%
38     \importmhmodule[repos=#1, ext=tex, path=#2]{#2}%
39   \fi%
40   \mhcurrentrepos{\mh@@repos}%
41   \ignorespacesandpars%
42 }%

```

**guse** just a shortcut

```

43 \newrobustcmd\guse[2] [] {\def\@test{#1}%
44   \edef\mh@@repos{\mh@currentrepos}%
45   \ifx\@test\@empty%
46     \usemhmodule[repos=\mh@@repos, ext=tex, path=#2]{#2}%
47   \else%
48     \usemhmodule[repos=#1, ext=tex, path=#2]{#2}%
49   \fi%
50   \mhcurrentrepos{\mh@@repos}%
51   \ignorespacesandpars%
52 }%

```

**gstructure** we essentially copy over the definition of `mhstructure`, but adapt it to the SM-GloM situation.

```

53 \newenvironment{gstructure}[3] [] {\def\@test{#1}%
54   \xdef\mh@@@repos{\mh@currentrepos}%
55   \ifx\@test\@empty%
56     \gdef\@@doit{\importmhmodule[repos=\mh@@@repos, path=#3, ext=tex]{#3}}%
57   \else%
58     \gdef\@@doit{\importmhmodule[repos=#1, path=#3, ext=tex]{#3}}%
59   \fi%

```

```

60 \ifmod@show\par\noindent structure import "#2" from module #3 \@@doit\fi%
61 \ignorespacesandpars}
62 {\aftergroup\@@doit\ifmod@show end import\fi%
63 \ignorespacesandparsafterend}

```

### 3.3 Terminological Relations

\*nym

```

64 \newrobustcmd\hypernym[3] [] {\if@importing\else\par\noindent #2 is a hypernym of #3\fi}%
65 \newrobustcmd\hyponym[3] [] {\if@importing\else\par\noindent #2 is a hyponym of #3\fi}%
66 \newrobustcmd\meronym[3] [] {\if@importing\else\par\noindent #2 is a meronym of #3\fi}%

```

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\MSC to define the Math Subject Classification, <sup>4</sup>

```

67 \newrobustcmd\MSC[1] {\if@importing\else MSC: #1\fi\ignorespacesandpars}%

```

### 3.4 For Language Bindings

Here we adapt the `smultiling` functionality to the special situation, where the module and file names are identical by design.

**gviewsig** The `gviewsig` environment is just a layer over the `mhviewsig` environment with the keys suitably adapted.

```

68 \newenvironment{gviewsig}[4] [] {%
69 \def\test{#1}%
70 \ifx\@test\@empty%
71 \begin{mhviewsig}[frompath=#3,topath=#4]{#2}{#3}{#4}%
72 \else%
73 \begin{mhviewsig}[frompath=#3,topath=#4,#1]{#2}{#3}{#4}%
74 \fi%
75 \ignorespacesandpars%
76 }{%
77 \end{mhviewsig}%
78 \ignorespacesandparsafterend%
79 }%

```

**gviewnl** The `gviewnl` environment is just a layer over the `mhviewnl` environment with the keys suitably adapted.

```

80 \newenvironment{gviewnl}[5] [] {%
81 \def\@test{#1}\ifx\@test\@empty%
82 \begin{mhviewnl}[frompath=#4,topath=#5]{#2}{#3}{#4}{#5}%
83 \else%
84 \begin{mhviewnl}[frompath=#4,topath=#5,#1]{#2}{#3}{#4}{#5}%
85 \fi%
86 \ignorespacesandpars%
87 }{%
88 \end{mhviewnl}%
89 \ignorespacesandparsafterend%
90 }%

```

---

<sup>4</sup>EdNOTE: MK: what to do for the LaTeXML side?

```
\gincludeview 5
91 \newcommand\gincludeview[2][\ignorespacesandpars]%
```

### 3.5 Authoring States, etc

We add a key to the module environment.

```
92 \addmetakey{module}{state}%
```

### 3.6 Shadowing of repositories

`\repos@macro` `\repos@macro` parses a GitLab repository name  $\langle group \rangle / \langle name \rangle$  and creates an internal macro name from that, which will be used

```
93 \def\repos@macro#1/#2;{#1@shadows@#2}%
```

`\shadow` `\shadow{\langle orig \rangle}{\langle fork \rangle}` declares a that the private repository  $\langle fork \rangle$  shadows the MathHub repository  $\langle orig \rangle$ . Internally, it simply defines an internal macro with the shadowing information.

```
94 \def\shadow#1#2{\@namedef{\repos@macro#1;}{#2}}%
```

`\MathHubPath` `\MathHubPath{\langle repos \rangle}` computes the path of the fork that shadows the MathHub repository  $\langle repos \rangle$  according to the current `\shadow` specification. The computed path can be used for loading modules from the private version of  $\langle repos \rangle$ .

```
95 \def\MathHubPath#1{\@ifundefined{\repos@macro#1;}{#1}{\@nameuse{\repos@macro#1;}}}%
96 \</sty>
```

---

<sup>5</sup>EDNOTE: This is fake for now, needs to be implemented and documented