glosmathtools documentation and sample in ulthese

v1.0.0

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Sous la direction de:

Nomenclature

Latin symbols (*Symboles latins*)

D	molecular diffusion coefficient (*coefficient de diffusion moléculaire*), $\mathrm{m^2\,s^{-1}}$
d	diameter (*diamètre*), m
k	discrete time (*temps discret*)
m	mass (*masse*), kg
T	temperature (*température*), K
z	height (*hauteur*), m

Greek symbols (*Symboles grecs*)

μ	dynamic viscosity (*viscosité dynamique*), $\mathrm{kg\,m^{-1}\,s^{-1}}$
ρ	density (*masse volumique*), $\mathrm{kg\,m^{-3}}$

Vectors and matrices (*Vecteurs et matrices*)

$\mathbf{A}$	matrix (*matrice*), (2×2)
$\mathbf{b}$	vector (*vecteur*), (2×1)

Subscripts (*Indices*)

a	air (*air*)
v	vessel (*réservoir*)
w	water (*eau*)

Operators (*Opérateurs*)

$\dot{\bullet}$	flow rate of $\bullet$ (*débit de* $\bullet$), $\mathrm{s^{-1}}$
$\bar{\bullet}$	average of $\bullet$ (*moyenne de* $\bullet$)
$\bullet$,$\circ$	in subscript : from $\bullet$ to $\circ$ (*en indice : de* $\bullet$ *vers* $\circ$)

Abbreviations (*Abréviations*)

ODE	ordinary differential equation (*équation différentielle ordinaire*)
TL	Laplace transform (*transformation de Laplace*)

1 glosmathtools documentation and sample

1.1 Compilation

The glosmathtools package is based on glossaries included in MiKTeX and TeX Live. Like a bibliography, the glossary compilation is done by executing the commands in the following order:

1. pdflatex
2. makeglossaries
3. pdflatex

The makeglossaries command is directly available in TeXstudio menus or with F9. For other editors, add a custom command. For example, in TexMaker, go to User > User Commands > Edit User Commands:

— Menu Item : glossaries

— Command : makeglossaries %

On Windows with MiKTeX, the makeglossaries script may requires an installation of Perl (see https://tinyurl.com/ybnoyqjp). Once Perl installed, you should run perltex.exe available in the MiKTeX installation directory.

1.2 Package options

The options of the glosmathtools package are summarized by:

qtmarkupright character <"> shortcut for subscript without italics

singlelineskip force single line spacing in nomenclature

nodefop use operators and accents without definitions

[other options] passed to glossaries package

For example, the **toc** option of glossaries can be added to include the nomenclature in the table of contents.

1.3 Using the package

By default, mathematical symbols must be used in the text so that they are added to the nomenclature, which encourages the author to introduce his variables. It is still possible to manually add a symbol without referring to it with the \glsadd{label} macro, or \glsaddall, to add everything.

1.3.1 Symbols, subscripts and accents

The insertion of a simple mathematical symbol with hyperlink is done with the `\gls` macro of `glossaries`: k, $\mathbf{A}$ and $\mathbf{b}$. The same goes for abbreviations: the ordinary differential equation (ODE). Abbreviations are only defined at their first use: the ODE.

Subscripts must be labeled `sub.restOfTheLabel`: the subscript a indicates air. The `\glsub` macro allows to add subscripts to variables: d_v, z_v, T_v, D_a, ρ_w and μ_v. By defining mathematical symbols with `\newglosentrymath`, all macros can be used in text mode and math mode (with `$$`). Still, it is better to write explicit symbols in equations to ease code reading (no hyperlink):

$$d_\mathrm{v} + d_\mathrm{v} = 10.0\,\mathrm{cm} = 3.937\text{”} \tag{1}$$

The package can be loaded with the `qtmarkupright` option. The `<">` character is then configured as a shortcut for writing an index without italics in `math` mode (`<_>` for italic index) [1].

The `\glsvi` macro appends a variable in index to another variable, and `\glsvisub`, an indexed variable to another variable: T_k and T_{z_v}. Finally, it is possible to add two subscripts separated by comma with `\glsubs`: $D_{\mathrm{w,a}}$. In this case, the comma operator is added to the nomenclature, which must be defined in the glossary under `op.comma` label.

Accents can also be added to variables with `\glsac` macro: $\dot{m}$ and $\bar{T}$. At their respective use, an operator is added to the nomenclature. They must therefore be defined at their respective labels. The available accents are:

dot $\dot{\bullet}$ (defined at label `op.dot`)

ddot $\ddot{\bullet}$ (defined at label `op.ddot`)

bar $\bar{\bullet}$ (defined at label `op.bar`)

hat $\widehat{\bullet}$ (defined at label `op.hat`)

vec $\vec{\bullet}$ (defined at label `op.vec`)

tilde $\widetilde{\bullet}$ (defined at label `op.tilde`)

Moreover, an optional argument makes it possible to add accents to all the aforementioned macros: $\bar{T}_\mathrm{v}$ and $\dot{m}_{\mathrm{v,a}}$. There are two optional arguments for `\glsvi` and `\glsvisub` cases: $\dot{m}_k$, $\bar{T}_{\dot{m}}$ and $T_{\dot{m}_\mathrm{w}}$. Finally, the `nodefop` option makes it possible to use accents without nomenclature definitions.

1.3.2 Language, abbreviations and nomenclature

If there are language changes throughout the document, you must change the language for acronyms. The `descseclang` key must be defined in the glossary beforehand. Afterward, the `\setacronymlang` macro allows to choose among 4 language options:

1. The `\qtmark` macro inserts the character <">. In ISO, subscripts representing the abbreviation of a word are written without italics, and those representing a variable, in italics.

L1 main language description (abbreviation) : Laplace transform (TL)

L2 second language description (abbreviation) : transformation de Laplace (TL)

L1L2 bilingual description, main language (abbreviation, *second language*) : Laplace transform (TL, *transformation de Laplace*)

L2L1 bilingual description, second language (abbreviation, *main language*) : transformation de Laplace (TL, *Laplace transform*)

The `acronymlang` environment works in a similar way: Laplace transform (TL, *transformation de Laplace*). The `\glslang` macro displays the acronym in the specified language: Laplace transform (TL, *transformation de Laplace*). Second descriptions are also available with `\glsdescsec`: *le transformation de Laplace*.

For the nomenclature (or list of symbols), the widest entry must be defined in the preamble with `\glssetwidest`. Like abbreviations, it is possible to change your language with 4 style options for `\setglossarystyle`:

nomencl-L1 (or **nomencl**) main language description

nomencl-L2 second language description

nomencl-L1L2 bilingual description, main language (abbreviation, *second language*)

nomencl-L2L1 bilingual description, second language (abbreviation, *main language*)

The `singlespaceglos` package option forces single line spacing in the nomenclature (requires `ulthese`/`memoir` or the `setspace` package). The `\glscatnamefmt` macro can be redefined in the preamble to modify header format for categories. The example on page ii is a bilingual nomenclature **nomencl-L2L1** with single line spacing.

If defined, the content of `symbol` key is appended to descriptions (for units or dimensions). Note that the mathematical symbols are not saved in this key, but at the `name` key.