fmocdmac — FM's OCD LaTeX Macro*

Fabio Mogavero
fm@fabiomogavero.com

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Abstract

This package contains almost all the latex macros I heavily use in my tcs research activity and, in particular, in the writing of conference and journal articles. As few of my co-authors have kindly pointed out, and probably many have thought, they are somehow a clear expression of an underlying ocd-like behavior... hence the name!

1 Implementation & Usage

1 ⟨*package⟩

Required external packages:

```
2
3 \RequirePackage{etoolbox}
4
5 \RequirePackage{xargs}
6 \RequirePackage{xspace}
7 \RequirePackage{stringstrings}
8
```

Package options:

```
9
10 %% Auxiliary packages
11 \newif\ifaux@ \aux@false
12 \DeclareOption{aux}{\aux@true}
13 \DeclareOption{noaux}{\aux@false}
14
15 %% AMS defaults
16 \newif\ifamsdef@ \amsdef@true
17 \DeclareOption{noamsdef}{\amsdef@false}
18
19 %% AMS theorem tools
20 \newif\ifamsthm@ \amsthm@true
21 \DeclareOption{noamsthm}{\amsthm@false}
22
23 %% Extended Theorem tools
24 \newif\ifthmtls@ \thmtls@true
25 \DeclareOption{nothmtls}{\thmtls@false}
26
27 %% Enumeration tools
28 \newif\ifenmtls@ \enmtls@true
29 \DeclareOption{noenmtls}{\enmtls@false}
30
31 %% Hyper reference
32 \newif\ifhypref@ \hypref@true
33 \DeclareOption{nohypref}{\hypref@false}
34
```

*This document describes version v0.31 of the fmocdmac package, last revised 2025/04/21.

```
%% Font tools
\newif\iffnttls@ \fnttls@true
\DeclareOption{nofnttls}{\fnttls@false}

%% Camera-ready version
\newif\ifcrv@ \crv@false
\DeclareOption{crv}{\crv@true}

%% Change bars
\newif\ifchgbar@ \chgbar@false
\DeclareOption{chgbar}{\chgbar@true}

%% Line numbers
\newif\iflinnum@ \linnum@false
\DeclareOption{linnum}{\linnum@true}


%% Text macro generation
\newif\iftxtgen@ \txtgen@false
\DeclareOption{txtgen}{\txtgen@true}
\DeclareOption{notxtgen}
  {\txtgen@false\txt@false\com@false\gam@false\log@false\aut@false}

%% Math macro generation
\newif\ifmthgen@ \mthgen@false
\DeclareOption{mthgen}{\mthgen@true}
\DeclareOption{nomthgen}
  {\mthgen@false\mth@false\gam@false\log@false\aut@false}


%% Elementary macros for text
\newif\iftxt@ \txt@false
\DeclareOption{txt}{\txt@true\txtgen@true}
\DeclareOption{notxt}{\txt@false}

%% Elementary macros for math
\newif\ifmth@ \mth@false
\DeclareOption{mth}{\mth@true\mthgen@true}
\DeclareOption{nomth}{\mth@false}


%% Macros for computational-complexity classes
\newif\ifcom@ \com@false
\DeclareOption{com}{\com@true\txtgen@true}
\DeclareOption{nocom}{\com@false}


%% Macros for graphs
\newif\ifgrp@ \grp@false
\DeclareOption{grp}{\grp@true\txtgen@true\mthgen@true}
\DeclareOption{nogrp}{\grp@false}

%% Macros for games
\newif\ifgam@ \gam@false
\DeclareOption{gam}{\gam@true\txtgen@true\mthgen@true}
\DeclareOption{nogam}{\gam@false}

%% Macros for logics
\newif\iflog@ \log@false
\DeclareOption{log}{\log@true\txtgen@true\mthgen@true}
\DeclareOption{nolog}{\log@false}

%% Macros for automata
```

```
\newif\ifaut@ \aut@false
\DeclareOption{aut}{\aut@true\txtgen@true\mthgen@true}
\DeclareOption{noaut}{\aut@false}


%% Format-related tricks
\newif\iffrm@ \frm@false
\DeclareOption{frm}{\frm@true}
\DeclareOption{nofrm}{\frm@false}


%% Figure-related tricks
\newif\iffig@ \fig@false
\DeclareOption{fig}{\fig@true}
\DeclareOption{nofig}{\fig@false}

%% Wrapfig package
\newif\ifwrpfig@ \wrpfig@true
\DeclareOption{nowrpfig}{\wrpfig@false}


%% Table-related tricks
\newif\iftab@ \tab@false
\DeclareOption{tab}{\tab@true}
\DeclareOption{notab}{\tab@false}


%% Algorithm-related tricks
\newif\ifalg@ \alg@false
\DeclareOption{alg}{\alg@true}
\DeclareOption{noalg}{\alg@false}

```

Option-processing code:

```

\DeclareOption*{\PackageWarning{fmocdmac}{Unknown~`\CurrentOption'}}%

\ExecuteOptions{aux,txtgen,mthgen,txt,mth,com,grp,gam,log,aut}%

\ProcessOptions\relax%

\ifcsdef{if@twocolumn}{}{\newif\if@twocolumn}

```

Package main body:

```

%%*****************************************************************************%%
%%** Auxiliary Alphabet Letters ************************************************%%
%%*****************************************************************************%%
```

\omicron **Auxiliary Greek lowercase letter:** ... to do!

```
\csdef{omicron}{o}
```

\Alpha **Auxiliary Greek uppercase letters:** ... to do!

...
```
\csdef{Alpha}{A} \csdef{Beta}{B} \csdef{Epsilon}{E} \csdef{varEpsilon}{E}
\csdef{Zeta}{Z} \csdef{Eta}{H} \csdef{Iota}{I} \csdef{Kappa}{K}
\csdef{varKappa}{K} \csdef{Mu}{M} \csdef{Nu}{N} \csdef{Omicron}{O}
\csdef{Rho}{P} \csdef{varRho}{P} \csdef{Tau}{T} \csdef{Chi}{X}

%%*****************************************************************************%%

%%*****************************************************************************%%
%%** Tools *********************************************************************%%
%%*****************************************************************************%%
```

`\empchk` **Emptiness check:** `\empchk{`$\langle A\rangle$`}{`$\langle B\rangle$`}` evaluates to the empty string, if Argument $\langle A\rangle$ is empty, and to Argument $\langle B\rangle$, otherwise.

- `\empchk{}{B}` = “”
- `\empchk{A}{B}` = “B”

```
\newrobustcmd{\empchk}[2]
  {\if&#1&\else#2\fi}
```

`\defval` **Default value:** `\defval{`$\langle A\rangle$`}{`$\langle B\rangle$`}` evaluates to Argument $\langle B\rangle$, if Argument $\langle A\rangle$ is empty, and to Argument $\langle A\rangle$ itself, otherwise.

- `\defval{}{B}` = “B”
- `\defval{A}{B}` = “A”

```
\newrobustcmd{\defval}[2]
  {\if&#1&#2\else#1\fi}
```

```
%%*************************************************************************%%
```

`\arglef` **Left extension:** `\arglef{`$\langle A\rangle$`}{`$\langle B\rangle$`}` evaluates to the concatenation $\langle AB\rangle$ of the two arguments, if Argument $\langle B\rangle$ is non-empty, and to the empty string, otherwise.

- `\arglef{A}{}` = “”
- `\arglef{A}{B}` = “AB”

```
\newrobustcmd{\arglef}[2]
  {\empchk{#2}{#1#2}}
```

`\argrig` **Right extension:** `\argrig{`$\langle A\rangle$`}{`$\langle B\rangle$`}` evaluates to the concatenation $\langle AB\rangle$ of the two arguments, if Argument $\langle A\rangle$ is non-empty, and to the empty string, otherwise.

- `\argrig{}{B}` = “”
- `\argrig{A}{B}` = “AB”

```
\newrobustcmd{\argrig}[2]
  {\empchk{#1}{#1#2}}
```

`\argmid` **Middle extension:** `\argmid{`$\langle A\rangle$`}{`$\langle B\rangle$`}{`$\langle C\rangle$`}` evaluates to the concatenation $\langle ABC\rangle$ of the three arguments, if Argument $\langle B\rangle$ is non-empty, and to the empty string, otherwise.

- `\argmid{A}{}{C}` = “”
- `\argmid{A}{B}{C}` = “ABC”

```
\newrobustcmd{\argmid}[3]
  {\empchk{#2}{#1#2#3}}
```

`\argsep` **Separators:** `\argsep{`$\langle A\rangle$`}{`$\langle B\rangle$`}{`$\langle C\rangle$`}` evaluates to Argument $\langle C\rangle$, if Argument $\langle A\rangle$ is empty, to Argument $\langle A\rangle$, if Argument $\langle C\rangle$ is empty, and to the concatenation $\langle ABC\rangle$, otherwise.

- `\argsep{}{B}{C}` = “C”
- `\argsep{A}{B}{}` = “A”
- `\argsep{A}{}{C}` = “AC”
- `\argsep{A}{B}{C}` = “ABC”

```
\newrobustcmd{\argsep}[3]
  {\if&#1&#3\else#1\arglef{#2}{#3}\fi}
```

```
%%*************************************************************************%%
```

`\ifstarvar` **Command star variants:** `\ifstarvar{`$\langle A\rangle$`}{`$\langle B\rangle$`}` ... to do!

```
\newrobustcmd{\ifstarvar}
  {\@ifstar}
```

`\ifexclavar` **Command exclamation variants:** `\ifexclavar{`$\langle A\rangle$`}{`$\langle B\rangle$`}` ... to do!

```
\newrobustcmd{\ifexclavar}[1]
  {\@ifnextchar!{\@firstoftwo{#1}}}
```

\ifquestvar **Command questionmark variants:** \ifquestvar{⟨A⟩}{⟨B⟩} ... to do!

```
\newrobustcmd{\ifquestvar}[1]
  {\@ifnextchar?{\@firstoftwo{#1}}}

%%*************************************************************************%%
```

\varcmd **Variadic commands:** \varcmd{⟨A⟩}{⟨B⟩}{⟨C⟩}{⟨D⟩}{⟨E⟩}{⟨F⟩} ... to do!

```
\newrobustcmd{\varcmd}[6]
  {\expandafter\newcommand\csname gobble#1arg\endcsname[2]
    {\csname check#1arg\endcsname%
      {\argsep{##1}{#4\allowbreak}{\empchk{##2}{{##2}}}}}%
  \expandafter\newcommand\csname check#1arg\endcsname[1]
    {\csname @ifnextchar\endcsname%
      \bgroup{\csname gobble#1arg\endcsname{##1}}{#2{##1#5}#6}}%
  \expandafter\newcommand\csname#1\endcsname[1]
    {\csname check#1arg\endcsname{#3##1}}}

%%*************************************************************************%%
```

\seqoftag **Sequence of tags:** \seqoftag{⟨A⟩}{⟨B⟩}{⟨C⟩} ... to do!

```
\newrobustcmd{\seqoftag}[3]
  {\@for\itr:={#1}\do%
    {\expandafter\csedef{\itr#2}%
      {\noexpand\csname #3\endcsname{\itr}}}}
```

\seqofcmd **Sequence of commands:** \seqofcmd{⟨A⟩}{⟨B⟩}{⟨C⟩} ... to do!

```
\newrobustcmd{\seqofcmd}[3]
  {\@for\itr:={#1}\do%
    {\expandafter\csedef{\itr#2}%
      {\noexpand\csname #3\endcsname{\csname \itr\endcsname}}}}

%%*************************************************************************%%
```

\seqoflatlow **Sequence of Latin lowercase letters:** \seqoflatlow{⟨A⟩}{⟨B⟩} ... to do!

```
\newrobustcmd{\seqoflatlow}
  {\seqoftag{a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z}}
```

\seqoflatupp **Sequence of Latin uppercase letters:** \seqoflatupp{⟨A⟩}{⟨B⟩} ... to do!

```
\newrobustcmd{\seqoflatupp}
  {\seqoftag{A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S,T,U,V,W,X,Y,Z}}
```

\seqoflatlet **Sequence of Latin letters:** \seqoflatlet{⟨A⟩}{⟨B⟩} ... to do!

```
\newrobustcmd{\seqoflatlet}[2]
  {\seqoflatlow{#1}{#2}\seqoflatupp{#1}{#2}}

%%*************************************************************************%%
```

\seqofgrklow **Sequence of Greek lowercase letters:** \seqofgrklow{⟨A⟩}{⟨B⟩} ... to do!

```
\newrobustcmd{\seqofgrklow}
  {\seqofcmd{alpha,beta,gamma,delta,epsilon,varepsilon,zeta,eta,theta,vartheta,%
  iota,kappa,varkappa,lambda,mu,nu,xi,omicron,pi,varpi,rho,varrho,sigma,%
  varsigma,tau,upsilon,phi,varphi,chi,psi,omega}}
```

\seqofgrkupp **Sequence of Greek uppercase letters:** \seqofgrkupp{⟨A⟩}{⟨B⟩} ... to do!

```
\newrobustcmd{\seqofgrkupp}
  {\seqofcmd{Alpha,Beta,Gamma,Delta,Epsilon,varEpsilon,Zeta,Eta,Theta,varTheta,%
  Iota,Kappa,varKappa,Lambda,Mu,Nu,Xi,Omicron,Pi,varPi,Rho,varRho,Sigma,%
  varSigma,Tau,Upsilon,Phi,varPhi,Chi,Psi,Omega}}
```

\seqofgrklet **Sequence of Greek letters:** \seqofgrklet{⟨A⟩}{⟨B⟩} ... to do!

```
\newrobustcmd{\seqofgrklet}[2]
  {\seqofgrklow{#1}{#2}\seqofgrkupp{#1}{#2}}
```

```
%%****************************************************************************%%
```

\seqoflow **Sequence of lowercase letters:** \seqoflow{⟨A⟩}{⟨B⟩} ... to do!

```
\newrobustcmd{\seqoflow}[2]
  {\seqoflatlow{#1}{#2}\seqofgrklow{#1}{#2}}
```

\seqofupp **Sequence of uppercase letters:** \seqofupp{⟨A⟩}{⟨B⟩} ... to do!

```
\newrobustcmd{\seqofupp}[2]
  {\seqoflatupp{#1}{#2}\seqofgrkupp{#1}{#2}}
```

\seqoflet **Sequence of all letters:** \seqoflet{⟨A⟩}{⟨B⟩} ... to do!

```
\newrobustcmd{\seqoflet}[2]
  {\seqoflow{#1}{#2}\seqofupp{#1}{#2}}

%%****************************************************************************%%
%%****************************************************************************%%
%%** Auxiliary Packages ******************************************************%%
%%****************************************************************************%%
\ifaux@

\ifamsdef@
  % AMS Packages
  \RequirePackage{mathtools}
  \RequirePackage{amssymb}
  \RequirePackage{stmaryrd}
  \interdisplaylinepenalty=2500
\fi

\ifamsthm@
  % AMS Theorem Tools
  \RequirePackage{amsthm}
\fi

\ifthmtls@
  % Extended Theorem Tools
  \RequirePackage{thmtools}
  \RequirePackage{thm-restate}
\fi

\ifenmtls@
  % Enumeration Tools
  \RequirePackage{paralist}
\fi

\ifhypref@
  % Hyper References
  \RequirePackage{hyperref}
  \hypersetup {
    pdfsubject    = {},
    pdfkeywords   = {},
    pdfproducer   = {},
    pdfcreator    = {},
    pdfpagemode   = {UseNone},
    pdfstartview  = {FitH},
    urlcolor      = {blue},
    colorlinks
  }
\fi

\iffnttls@
  % Font Tools
  \RequirePackage[final]{microtype}
\fi
```

```
\ifcrv@
  % Camera-Ready Version

  %%...

\else
  % Draft Version

  %%...

  \ifchgbar@
    % Change Bars
    \RequirePackage{changebar}
  \fi

  \iflinnum@
    % Line Numbers
    \if@twocolumn
      \RequirePackage[switch, columnwise, mathlines]{lineno}\linenumbers
    \else
      \RequirePackage[columnwise, mathlines]{lineno}\linenumbers
    \fi
  \fi

  %%...

\fi

\fi
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Auxiliary Font Declarations ***********************************************%%
%%*****************************************************************************%%
```

`\mathbbo` **Bbo Math Font:** ... to do!

```
\ifdef{\mathbbo}{}{\DeclareMathAlphabet{\mathbbo}{U}{bbold}{m}{n}}
```

`\matheus` **Eus Math Font:** ... to do!

```
\ifdef{\matheus}{}{\DeclareMathAlphabet{\matheus}{U}{eus}{m}{n}}
```

`\mathpzc` **Pzc Math Font:** ... to do!

```
\ifdef{\mathpzc}{}{\DeclareMathAlphabet{\mathpzc}{T1}{pzc}{m}{it}}
```

`\mathscr` **Scr Math Font:** ... to do!

```
\ifdef{\mathscr}{}{\DeclareMathAlphabet{\mathscr}{U}{rsfs}{m}{n}}
```

```
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Text Meta Commands ********************************************************%%
%%*****************************************************************************%%
```

`\newtxt` ... to do!

- `\newtxt[\rmfamily]{Name}[sub][sup][Ext]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$"
- `\newtxt[\sffamily]{Name}[sub][sup][Ext]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext}$"
- `\newtxt[\ttfamily]{Name}[sub][sup][Ext]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext}$"
- `\newtxt![\rmfamily]{Name}[sub][sup][Ext]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$"
- `\newtxt![\sffamily]{Name}[sub][sup][Ext]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext}$"
- `\newtxt![\ttfamily]{Name}[sub][sup][Ext]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext}$"

```
\DeclareRobustCommand{\newtxt}
  {\ifexclavar{\@snewtxt}{\@newtxt}}
\DeclareRobustCommandx{\@newtxt}[5][1=, 3=, 4=, 5=]
  {\text{#1#2\txtsubsup[#1]{#3}{#4}#5}\xspace}
\DeclareRobustCommandx{\@snewtxt}[5][1=, 3=, 4=, 5=]
  {#1#2\txtsubsup[#1]{#3}{#4}#5\normalfont\xspace}
```

`\newtxtsty` ... to do!

- `\newtxtsty{\rmfamily}{Name}[sub][sup][Ext]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$"
- `\newtxtsty{\rmfamily}[\sffamily]{Name}[sub][sup][Ext]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext}$"
- `\newtxtsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext}$"
- `\newtxtsty!{\rmfamily}{Name}[sub][sup][Ext]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$"
- `\newtxtsty!{\rmfamily}[\sffamily]{Name}[sub][sup][Ext]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext}$"
- `\newtxtsty!{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext}$"

```
\DeclareRobustCommand{\newtxtsty}
  {\ifexclavar{\@snewtxtsty}{\@newtxtsty}}
\DeclareRobustCommandx{\@newtxtsty}[2][2=]
  {\newtxt[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewtxtsty}[2][2=]
  {\newtxt![\defval{#2}{#1}]}
```

`\newtxtarg` ... to do!

- `\newtxtarg[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1(Arg)Ext2}$"
- `\newtxtarg[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext1(Arg)Ext2}$"
- `\newtxtarg[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1(Arg)Ext2}$"
- `\newtxtarg![\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1(Arg)Ext2}$"
- `\newtxtarg![\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext1(Arg)Ext2}$"
- `\newtxtarg![\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1(Arg)Ext2}$"

```
\DeclareRobustCommand{\newtxtarg}
  {\ifexclavar{\@snewtxtarg}{\@newtxtarg}}
\DeclareRobustCommandx{\@newtxtarg}[7][1=, 3=, 4=, 5=, 7=]
  {\newtxt[#1]{#2}[#3][#4][\argmid{#5(){#6}{)#7}]}
\DeclareRobustCommandx{\@snewtxtarg}[7][1=, 3=, 4=, 5=, 7=]
  {\newtxt![#1]{#2}[#3][#4][\argmid{#5(){#6}{)#7}]}
```

`\newtxtargsty` ... to do!

- `\newtxtargsty{\rmfamily}{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1(Arg)Ext2}$"
- `\newtxtargsty{\rmfamily}[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext1(Arg)Ext2}$"
- `\newtxtargsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1(Arg)Ext2}$"
- `\newtxtargsty!{\rmfamily}{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1(Arg)Ext2}$"
- `\newtxtargsty!{\rmfamily}[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext1(Arg)Ext2}$"
- `\newtxtargsty!{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1(Arg)Ext2}$"

```
\DeclareRobustCommand{\newtxtargsty}
  {\ifexclavar{\@snewtxtargsty}{\@newtxtargsty}}
\DeclareRobustCommandx{\@newtxtargsty}[2][2=]
  {\newtxtarg[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewtxtargsty}[2][2=]
  {\newtxtarg![\defval{#2}{#1}]}
```

`\newtxtoarg` ... to do!

- `\newtxtoarg[\rmfamily]{Name}[sub][sup][Arg]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{(Arg)}$"
- `\newtxtoarg[\sffamily]{Name}[sub][sup][Arg]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{(Arg)}$"
- `\newtxtoarg[\ttfamily]{Name}[sub][sup][Arg]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{(Arg)}$"
- `\newtxtoarg![\rmfamily]{Name}[sub][sup][Arg]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{(Arg)}$"
- `\newtxtoarg![\sffamily]{Name}[sub][sup][Arg]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{(Arg)}$"

- `\newtxtoarg![\ttfamily]{Name}[sub][sup][Arg]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{(Arg)}$"

```
\DeclareRobustCommand{\newtxtoarg}
  {\ifexclavar{\@snewtxtoarg}{\@newtxtoarg}}
\DeclareRobustCommandx{\@newtxtoarg}[5][1=, 3=, 4=, 5=]
  {\newtxtarg[#1]{#2}[#3][#4][]{#5}[]}
\DeclareRobustCommandx{\@snewtxtoarg}[5][1=, 3=, 4=, 5=]
  {\newtxtarg![#1]{#2}[#3][#4][]{#5}[]}
```

`\newtxtoargsty` ... to do!

- `\newtxtoargsty{\rmfamily}{Name}[sub][sup][Arg]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{(Arg)}$"
- `\newtxtoargsty{\rmfamily}[\sffamily]{Name}[sub][sup][Arg]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{(Arg)}$"
- `\newtxtoargsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Arg]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{(Arg)}$"
- `\newtxtoargsty!{\rmfamily}{Name}[sub][sup][Arg]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{(Arg)}$"
- `\newtxtoargsty!{\rmfamily}[\sffamily]{Name}[sub][sup][Arg]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{(Arg)}$"
- `\newtxtoargsty!{\rmfamily}[\ttfamily]{Name}[sub][sup][Arg]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{(Arg)}$"

```
\DeclareRobustCommand{\newtxtoargsty}
  {\ifexclavar{\@snewtxtoargsty}{\@newtxtoargsty}}
\DeclareRobustCommandx{\@newtxtoargsty}[2][2=]
  {\newtxtoarg[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewtxtoargsty}[2][2=]
  {\newtxtoarg![\defval{#2}{#1}]}
```

`\newtxtpar` ... to do!

- `\newtxtpar[\rmfamily]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1[Par]Ext2}$"
- `\newtxtpar[\sffamily]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext1[Par]Ext2}$"
- `\newtxtpar[\ttfamily]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1[Par]Ext2}$"
- `\newtxtpar![\rmfamily]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1[Par]Ext2}$"
- `\newtxtpar![\sffamily]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext1[Par]Ext2}$"
- `\newtxtpar![\ttfamily]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1[Par]Ext2}$"

```
\DeclareRobustCommand{\newtxtpar}
  {\ifexclavar{\@snewtxtpar}{\@newtxtpar}}
\DeclareRobustCommandx{\@newtxtpar}[7][1=, 3=, 4=, 5=, 7=]
  {\newtxt[#1]{#2}[#3][#4][\argmid{#5[}{#6}{]#7}]}
\DeclareRobustCommandx{\@snewtxtpar}[7][1=, 3=, 4=, 5=, 7=]
  {\newtxt![#1]{#2}[#3][#4][\argmid{#5[}{#6}{]#7}]}
```

`\newtxtparsty` ... to do!

- `\newtxtparsty{\rmfamily}{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1[Par]Ext2}$"
- `\newtxtparsty{\rmfamily}[\sffamily]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext1[Par]Ext2}$"
- `\newtxtparsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1[Par]Ext2}$"
- `\newtxtparsty!{\rmfamily}{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1[Par]Ext2}$"
- `\newtxtparsty!{\rmfamily}[\sffamily]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext1[Par]Ext2}$"
- `\newtxtparsty!{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1[Par]Ext2}$"

```
\DeclareRobustCommand{\newtxtparsty}
  {\ifexclavar{\@snewtxtparsty}{\@newtxtparsty}}
\DeclareRobustCommandx{\@newtxtparsty}[2][2=]
  {\newtxtpar[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewtxtparsty}[2][2=]
  {\newtxtpar![\defval{#2}{#1}]}
```

`\newtxtopar` ... to do!

- `\newtxtopar[\rmfamily]{Name}[sub][sup][Par]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{[Par]}$"
- `\newtxtopar[\sffamily]{Name}[sub][sup][Par]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{[Par]}$"
- `\newtxtopar[\ttfamily]{Name}[sub][sup][Par]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{[Par]}$"
- `\newtxtopar![\rmfamily]{Name}[sub][sup][Par]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{[Par]}$"

- `\newtxtopar![\sffamily]{Name}[sub][sup][Par]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}$[Par]"
- `\newtxtopar![\ttfamily]{Name}[sub][sup][Par]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}$[Par]"

```
\DeclareRobustCommand{\newtxtopar}
  {\ifexclavar{\@snewtxtopar}{\@newtxtopar}}
\DeclareRobustCommandx{\@newtxtopar}[5][1=, 3=, 4=, 5=]
  {\newtxtpar[#1]{#2}[#3][#4][]{#5}[]}
\DeclareRobustCommandx{\@snewtxtopar}[5][1=, 3=, 4=, 5=]
  {\newtxtpar![#1]{#2}[#3][#4][]{#5}[]}
```

`\newtxtoparsty` ... to do!

- `\newtxtoparsty{\rmfamily}{Name}[sub][sup][Par]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}$[Par]"
- `\newtxtoparsty{\rmfamily}[\sffamily]{Name}[sub][sup][Par]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}$[Par]"
- `\newtxtoparsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Par]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}$[Par]"
- `\newtxtoparsty!{\rmfamily}{Name}[sub][sup][Par]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}$[Par]"
- `\newtxtoparsty!{\rmfamily}[\sffamily]{Name}[sub][sup][Par]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}$[Par]"
- `\newtxtoparsty!{\rmfamily}[\ttfamily]{Name}[sub][sup][Par]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}$[Par]"

```
\DeclareRobustCommand{\newtxtoparsty}
  {\ifexclavar{\@snewtxtoparsty}{\@newtxtoparsty}}
\DeclareRobustCommandx{\@newtxtoparsty}[2][2=]
  {\newtxtopar[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewtxtoparsty}[2][2=]
  {\newtxtopar![\defval{#2}{#1}]}
```

`\txtsubsup` ... to do!

- `\txtsubsup{sub}{}` = "$_{\text{sub}}$"; `\txtsubsup{}{sup}` = "$^{\text{sup}}$"; `\txtsubsup{sub}{sup}` = "$_{\text{sub}}^{\text{sup}}$"
- `\txtsubsup[\sffamily]{Aa}{Bb}` = "$^{\mathsf{Bb}}_{\mathsf{Aa}}$"
- `\txtsubsup[\ttfamily]{Aa}{Bb}` = "$^{\mathtt{Bb}}_{\mathtt{Aa}}$"

```
\DeclareRobustCommand{\txtsubsup}[3][]
  {\ensuremath{\empchk{#2}{_{\text{#1#2}}}\empchk{#3}{^{\text{#1#3}}}}}
```

```
%%*************************************************************************%%
```

`\txt` ... to do!

- `\txt{Name}[sub][sup][Ext]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$"
- `\txt[\scshape]{Name}[sub][sup][Ext]` = "$\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext}$"
- `\txt[\bfseries]{Name}[sub][sup][Ext]` = "$\mathbf{Name}_{\mathbf{sub}}^{\mathbf{sup}}\mathbf{Ext}$"
- `\txt!{Name}[sub][sup][Ext]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$"
- `\txt![\scshape]{Name}[sub][sup][Ext]` = "$\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext}$"
- `\txt![\bfseries]{Name}[sub][sup][Ext]` = "$\mathbf{Name}_{\mathbf{sub}}^{\mathbf{sup}}\mathbf{Ext}$"

```
\DeclareRobustCommand{\txt}
  {\ifexclavar{\newtxtsty!{\txtsty}}{\newtxtsty{\txtsty}}}
```

`\txtarg` ... to do!

- `\txtarg{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1(Arg)Ext2}$"
- `\txtarg[\scshape]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1}(\textsc{Arg})\textsc{Ext2}$"
- `\txtarg[\bfseries]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathbf{Name}_{\mathbf{sub}}^{\mathbf{sup}}\mathbf{Ext1(Arg)Ext2}$"
- `\txtarg!{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1(Arg)Ext2}$"
- `\txtarg![\scshape]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1}(\textsc{Arg})\textsc{Ext2}$"
- `\txtarg![\bfseries]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathbf{Name}_{\mathbf{sub}}^{\mathbf{sup}}\mathbf{Ext1(Arg)Ext2}$"

```
\DeclareRobustCommand{\txtarg}
  {\ifexclavar{\newtxtargsty!{\txtsty}}{\newtxtargsty{\txtsty}}}
```

`\txtoarg` ... to do!

- `\txtoarg{Name}[sub][sup][Arg]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{(Arg)}$"
- `\txtoarg[\scshape]{Name}[sub][sup][Arg]` = "$\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}(\textsc{Arg})$"

- `\txtoarg[\bfseries]{Name}[sub][sup][Arg]` = "$\mathbf{Name_{sub}^{sup}(Arg)}$"
- `\txtoarg!{Name}[sub][sup][Arg]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}(\mathrm{Arg})$"
- `\txtoarg![\scshape]{Name}[sub][sup][Arg]` = "$\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}(\textsc{Arg})$"
- `\txtoarg![\bfseries]{Name}[sub][sup][Arg]` = "$\mathbf{Name_{sub}^{sup}(Arg)}$"

```
\DeclareRobustCommand{\txtoarg}
  {\ifexclavar{\newtxtoargsty!{\txtsty}}{\newtxtoargsty{\txtsty}}}
```

`\txtpar` ... to do!

- `\txtpar{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1[Par]Ext2}$"
- `\txtpar[\scshape]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1[Par]Ext2}$"
- `\txtpar[\bfseries]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathbf{Name_{sub}^{sup}Ext1[Par]Ext2}$"
- `\txtpar!{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1[Par]Ext2}$"
- `\txtpar![\scshape]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1[Par]Ext2}$"
- `\txtpar![\bfseries]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathbf{Name_{sub}^{sup}Ext1[Par]Ext2}$"

```
\DeclareRobustCommand{\txtpar}
  {\ifexclavar{\newtxtparsty!{\txtsty}}{\newtxtparsty{\txtsty}}}
```

`\txtopar` ... to do!

- `\txtopar{Name}[sub][sup][Par]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{[Par]}$"
- `\txtopar[\scshape]{Name}[sub][sup][Par]` = "$\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{[Par]}$"
- `\txtopar[\bfseries]{Name}[sub][sup][Par]` = "$\mathbf{Name_{sub}^{sup}[Par]}$"
- `\txtopar!{Name}[sub][sup][Par]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{[Par]}$"
- `\txtopar![\scshape]{Name}[sub][sup][Par]` = "$\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{[Par]}$"
- `\txtopar![\bfseries]{Name}[sub][sup][Par]` = "$\mathbf{Name_{sub}^{sup}[Par]}$"

```
\DeclareRobustCommand{\txtopar}
  {\ifexclavar{\newtxtoparsty!{\txtsty}}{\newtxtoparsty{\txtsty}}}
```

`\txtsty` ... to do!

```
\DeclareRobustCommand{\txtsty}
  {\mdseries\upshape\rmfamily}

%%*************************************************************************%%
```

`\cmdtxt` ... to do!

- `\cmdtxt{NewCmd}`; `\newcommand{txtstyNewCmd}{\scshape\ttfamily}`;
  `\txtNewCmd{Name}[sub][sup][Ext]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext}$
  `\txtNewCmd!{Name}[sub][sup][Ext]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext}$

```
\DeclareRobustCommand{\cmdtxt}[1]
  {\csdef{txt#1}%
    {\protect\ifexclavar%
      {\newtxtsty!{\csname txtsty#1\endcsname}}%
      {\newtxtsty{\csname txtsty#1\endcsname}}}}
```

`\cmdtxtarg` ... to do!

- `\cmdtxtarg{NewCmd}`; `\newcommand{txtstyNewCmd}{\scshape\ttfamily}`;
  `\txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1(Arg)Ext2}$
  `\txtargNewCmd!{Name}[sub][sup][Ext1]{Arg}[Ext2]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1(Arg)Ext2}$

```
\DeclareRobustCommand{\cmdtxtarg}[1]
  {\csdef{txtarg#1}%
    {\protect\ifexclavar%
      {\newtxtargsty!{\csname txtsty#1\endcsname}}%
      {\newtxtargsty{\csname txtsty#1\endcsname}}}}
```

`\cmdtxtoarg` ... to do!

- `\cmdtxtoarg{NewCmd}`; `\newcommand{txtstyNewCmd}{\scshape\ttfamily}`;
  `\txtoargNewCmd{Name}[sub][sup][Arg]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{(Arg)}$
  `\txtoargNewCmd!{Name}[sub][sup][Arg]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{(Arg)}$

```
\DeclareRobustCommand{\cmdtxtoarg}[1]
  {\csdef{txtoarg#1}%
    {\protect\ifexclavar%
      {\newtxtoargsty!{\csname txtsty#1\endcsname}}%
      {\newtxtoargsty{\csname txtsty#1\endcsname}}}}
```

`\cmdtxtpar` ... to do!

- `\cmdtxtpar{NewCmd}`; `\newcommand{txtstyNewCmd}{\scshape\ttfamily}`;
  `\txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1}[\textsc{Par}]\textsc{Ext2}$
  `\txtparNewCmd!{Name}[sub][sup][Ext1]{Par}[Ext2]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1}[\textsc{Par}]\textsc{Ext2}$

```
\DeclareRobustCommand{\cmdtxtpar}[1]
  {\csdef{txtpar#1}%
    {\protect\ifexclavar%
      {\newtxtparsty!{\csname txtsty#1\endcsname}}%
      {\newtxtparsty{\csname txtsty#1\endcsname}}}}
```

`\cmdtxtopar` ... to do!

- `\cmdtxtopar{NewCmd}`; `\newcommand{txtstyNewCmd}{\scshape\ttfamily}`;
  `\txtoparNewCmd{Name}[sub][sup][Par]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}[\textsc{Par}]$
  `\txtoparNewCmd!{Name}[sub][sup][Par]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}[\textsc{Par}]$

```
\DeclareRobustCommand{\cmdtxtopar}[1]
  {\csdef{txtopar#1}%
    {\protect\ifexclavar%
      {\newtxtoparsty!{\csname txtsty#1\endcsname}}%
      {\newtxtoparsty{\csname txtsty#1\endcsname}}}}
```

`\cmdtxtall` ... to do!

- `\cmdtxtall{NewCmd}`; `\newcommand{txtstyNewCmd}{\scshape\ttfamily}`;
  `\txtNewCmd{Name}[sub][sup][Ext]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext}$
  `\txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1}(\textsc{Arg})\textsc{Ext2}$
  `\txtoargNewCmd{Name}[sub][sup][Arg]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}(\textsc{Arg})$
  `\txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1}[\textsc{Par}]\textsc{Ext2}$
  `\txtoparNewCmd{Name}[sub][sup][Par]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}[\textsc{Par}]$

```
\DeclareRobustCommand{\cmdtxtall}[1]
  {\cmdtxt{#1}\cmdtxtarg{#1}\cmdtxtoarg{#1}\cmdtxtpar{#1}\cmdtxtopar{#1}}

%%*************************************************************************%%
```

`\usrtxt` ... to do!

- `\usrtxt{cmdName}{Suf}{}`;
  `\cmdNameSuf` = cmdName
  `\cmdNameSuf*` = cmdName *
  `\usrtxt{cmdName}{Suf}{arg}`;
  `\cmdNameSuf{Arg}` = cmdName(Arg)
  `\cmdNameSuf!{Arg}` = cmdName(Arg)
  `\usrtxt{cmdName}{Suf}{par}`;
  `\cmdNameSuf{Par}` = cmdName[Par]
  `\cmdNameSuf!{Par}` = cmdName[Par]
- `\usrtxt{cmdName}{Suf}{}[newName]`;
  `\cmdNameSuf` = newName
  `\cmdNameSuf*` = newName *
  `\usrtxt{cmdName}{Suf}{arg}[newName]`;
  `\cmdNameSuf{Arg}` = newName(Arg)
  `\cmdNameSuf!{Arg}` = newName(Arg)
  `\usrtxt{cmdName}{Suf}{par}[newName]`;
  `\cmdNameSuf{Par}` = newName[Par]
  `\cmdNameSuf!{Par}` = newName[Par]

```
\DeclareRobustCommandx{\usrtxt}[4][4=]
  {\csdef{#1#2}%
    {\protect\ifexclavar%
      {\csname txt#3\endcsname!{\defval{#4}{#1}}}%
      {\csname txt#3\endcsname{\defval{#4}{#1}}}}}
```

```
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Math Meta Commands ******************************************************%%
%%*****************************************************************************%%
```

`\newmth` ... to do!

- `\newmth[mathrm]{Name}[sub][sup][Ext]` = "$\mathrm{Name}_{sub}^{sup}Ext$"
- `\newmth[mathsf]{Name}[sub][sup][Ext]` = "$\mathsf{Name}_{sub}^{sup}Ext$"
- `\newmth[mathtt]{Name}[sub][sup][Ext]` = "$\mathtt{Name}_{sub}^{sup}Ext$"
- `\newmth![mathrm]{Name}[sub][sup][Ext]` = "$\mathrm{N}ame_{sub}^{sup}Ext$"
- `\newmth![mathsf]{Name}[sub][sup][Ext]` = "$\mathsf{N}ame_{sub}^{sup}Ext$"
- `\newmth![mathtt]{Name}[sub][sup][Ext]` = "$\mathtt{N}ame_{sub}^{sup}Ext$"

```
\DeclareRobustCommand{\newmth}
  {\ifexclavar{\@snewmth}{\@newmth}}
\DeclareRobustCommandx{\@newmth}[5][1=, 3=, 4=, 5=]
  {\ensuremath{\csname#1\endcsname{#2}\mthsubsup{#3}{#4}#5}}
\DeclareRobustCommandx{\@snewmth}[5][1=, 3=, 4=, 5=]
  {\ensuremath{\csname#1\endcsname #2\mthsubsup{#3}{#4}#5}}
```

`\newmthsty` ... to do!

- `\newmthsty{mathrm}{Name}[sub][sup][Ext]` = "$\mathrm{Name}_{sub}^{sup}Ext$"
- `\newmthsty{mathrm}[mathsf]{Name}[sub][sup][Ext]` = "$\mathsf{Name}_{sub}^{sup}Ext$"
- `\newmthsty{mathrm}[mathtt]{Name}[sub][sup][Ext]` = "$\mathtt{Name}_{sub}^{sup}Ext$"
- `\newmthsty!{mathrm}{Name}[sub][sup][Ext]` = "$\mathrm{N}ame_{sub}^{sup}Ext$"
- `\newmthsty!{mathrm}[mathsf]{Name}[sub][sup][Ext]` = "$\mathsf{N}ame_{sub}^{sup}Ext$"
- `\newmthsty!{mathrm}[mathtt]{Name}[sub][sup][Ext]` = "$\mathtt{N}ame_{sub}^{sup}Ext$"

```
\DeclareRobustCommand{\newmthsty}
  {\ifexclavar{\@snewmthsty}{\@newmthsty}}
\DeclareRobustCommandx{\@newmthsty}[2][2=]
  {\newmth[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewmthsty}[2][2=]
  {\newmth![\defval{#2}{#1}]}
```

`\newmtharg` ... to do!

- `\newmtharg[mathrm]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathrm{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$"
- `\newmtharg[mathsf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathsf{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$"
- `\newmtharg[mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$"
- `\newmtharg![mathrm]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathrm{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$"
- `\newmtharg![mathsf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathsf{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$"
- `\newmtharg![mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$"

```
\DeclareRobustCommand{\newmtharg}
  {\ifexclavar{\@snewmtharg}{\@newmtharg}}
\DeclareRobustCommandx{\@newmtharg}[7][1=, 3=, 4=, 5=, 7=]
  {\newmth[#1]{#2}[#3][#4][\argmid{#5\!\left(}{#6}{\right)\arglef{\!}{#7}}]}
\DeclareRobustCommandx{\@snewmtharg}[7][1=, 3=, 4=, 5=, 7=]
  {\newmth[#1]{#2}[#3][#4][\argmid{#5(}{#6}{)#7}]}
```

`\newmthargsty` ... to do!

- `\newmthargsty{mathrm}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathrm{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$"
- `\newmthargsty{mathrm}[mathsf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathsf{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$"
- `\newmthargsty{mathrm}[mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$"

- `\newmthargsty!{mathrm}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathrm{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$"
- `\newmthargsty!{mathrm}[mathsf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathsf{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$"
- `\newmthargsty!{mathrm}[mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$"

```
\DeclareRobustCommand{\newmthargsty}
  {\ifexclavar{\@snewmthargsty}{\@newmthargsty}}
\DeclareRobustCommandx{\@newmthargsty}[2][2=]
  {\newmtharg[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewmthargsty}[2][2=]
  {\newmtharg![\defval{#2}{#1}]}
```

`\newmthoarg` ... to do!

- `\newmthoarg[mathrm]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}\left(Arg^{Ex^{Ex}}\right)$"
- `\newmthoarg[mathsf]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}\left(Arg^{Ex^{Ex}}\right)$"
- `\newmthoarg[mathtt]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}\left(Arg^{Ex^{Ex}}\right)$"
- `\newmthoarg![mathrm]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$"
- `\newmthoarg![mathsf]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$"
- `\newmthoarg![mathtt]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$"

```
\DeclareRobustCommand{\newmthoarg}
  {\ifexclavar{\@snewmthoarg}{\@newmthoarg}}
\DeclareRobustCommandx{\@newmthoarg}[5][1=, 3=, 4=, 5=]
  {\newmtharg[#1]{#2}[#3][#4][]{#5}[]}
\DeclareRobustCommandx{\@snewmthoarg}[5][1=, 3=, 4=, 5=]
  {\newmtharg![#1]{#2}[#3][#4][]{#5}[]}
```

`\newmthoargsty` ... to do!

- `\newmthoargsty{mathrm}{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}\left(Arg^{Ex^{Ex}}\right)$"
- `\newmthoargsty{mathrm}[mathsf]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}\left(Arg^{Ex^{Ex}}\right)$"
- `\newmthoargsty{mathrm}[mathtt]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}\left(Arg^{Ex^{Ex}}\right)$"
- `\newmthoargsty!{mathrm}{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$"
- `\newmthoargsty!{mathrm}[mathsf]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$"
- `\newmthoargsty!{mathrm}[mathtt]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$"

```
\DeclareRobustCommand{\newmthoargsty}
  {\ifexclavar{\@snewmthoargsty}{\@newmthoargsty}}
\DeclareRobustCommandx{\@newmthoargsty}[2][2=]
  {\newmthoarg[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewmthoargsty}[2][2=]
  {\newmthoarg![\defval{#2}{#1}]}
```

`\newmthpar` ... to do!

- `\newmthpar[mathrm]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathrm{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$"
- `\newmthpar[mathsf]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathsf{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$"
- `\newmthpar[mathtt]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$"
- `\newmthpar![mathrm]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathrm{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$"
- `\newmthpar![mathsf]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathsf{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$"
- `\newmthpar![mathtt]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$"

```
\DeclareRobustCommand{\newmthpar}
  {\ifexclavar{\@snewmthpar}{\@newmthpar}}
\DeclareRobustCommandx{\@newmthpar}[7][1=, 3=, 4=, 5=, 7=]
  {\newmth[#1]{#2}[#3][#4][\argmid{#5\!\left[}{#6}{\right]\arglef{\!}{#7}}]}
\DeclareRobustCommandx{\@snewmthpar}[7][1=, 3=, 4=, 5=, 7=]
  {\newmth[#1]{#2}[#3][#4][\argmid{#5[}{#6}{]#7}]}
```

`\newmthparsty` ... to do!

- `\newmthparsty{mathrm}{Name}[sub][sup] [Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathrm{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$"
- `\newmthparsty{mathrm}[mathsf]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathsf{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$"
- `\newmthparsty{mathrm}[mathtt]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$"
- `\newmthparsty!{mathrm}{Name}[sub][sup] [Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathrm{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$"
- `\newmthparsty!{mathrm}[mathsf]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathsf{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$"
- `\newmthparsty!{mathrm}[mathtt]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$"

```
\DeclareRobustCommand{\newmthparsty}
  {\ifexclavar{\@snewmthparsty}{\@newmthparsty}}
\DeclareRobustCommandx{\@newmthparsty}[2][2=]
  {\newmthpar[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewmthparsty}[2][2=]
  {\newmthpar![\defval{#2}{#1}]}
```

`\newmthopar` ... to do!

- `\newmthopar[mathrm]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$"
- `\newmthopar[mathsf]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$"
- `\newmthopar[mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$"
- `\newmthopar![mathrm]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$"
- `\newmthopar![mathsf]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$"
- `\newmthopar![mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$"

```
\DeclareRobustCommand{\newmthopar}
  {\ifexclavar{\@snewmthopar}{\@newmthopar}}
\DeclareRobustCommandx{\@newmthopar}[5][1=, 3=, 4=, 5=]
  {\newmthpar[#1]{#2}[#3][#4][]{#5}[]}
\DeclareRobustCommandx{\@snewmthopar}[5][1=, 3=, 4=, 5=]
  {\newmthpar![#1]{#2}[#3][#4][]{#5}[]}
```

`\newmthoparsty` ... to do!

- `\newmthoparsty{mathrm}{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$"
- `\newmthoparsty{mathrm}[mathsf]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$"
- `\newmthoparsty{mathrm}[mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$"
- `\newmthoparsty!{mathrm}{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$"
- `\newmthoparsty!{mathrm}[mathsf]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$"
- `\newmthoparsty!{mathrm}[mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$"

```
\DeclareRobustCommand{\newmthoparsty}
  {\ifexclavar{\@snewmthoparsty}{\@newmthoparsty}}
\DeclareRobustCommandx{\@newmthoparsty}[2][2=]
  {\newmthopar[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewmthoparsty}[2][2=]
  {\newmthopar![\defval{#2}{#1}]}
```

`\mthsubsup` ... to do!

```
\DeclareRobustCommand{\mthsubsup}[2]
  {\empchk{#1}{_{#1}}\empchk{#2}{^{#2}}}
%%*************************************************************************%%
```

`\mth` ... to do!

- `\mth{Name}[sub][sup][Ext]` = "$Name_{sub}^{sup}Ext$"
- `\mth[mathbf]{Name}[sub][sup][Ext]` = "$\mathbf{Name}_{sub}^{sup}Ext$"
- `\mth[mathtt]{Name}[sub][sup][Ext]` = "$\mathtt{Name}_{sub}^{sup}Ext$"
- `\mth!{Name}[sub][sup][Ext]` = "$Name_{sub}^{sup}Ext$"
- `\mth![mathbf]{Name}[sub][sup][Ext]` = "$\mathbf{N}ame_{sub}^{sup}Ext$"
- `\mth![mathtt]{Name}[sub][sup][Ext]` = "$\mathtt{N}ame_{sub}^{sup}Ext$"

```
\DeclareRobustCommand{\mth}
  {\ifexclavar{\newmthsty!{\mthsty}}{\newmthsty{\mthsty}}}
```

`\mtharg` ... to do!

- `\mtharg{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$Name_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$"
- `\mtharg[mathbf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathbf{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$"
- `\mtharg[mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$"
- `\mtharg![Name][sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$"
- `\mtharg![mathbf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathbf{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$"
- `\mtharg![mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$"

```
\DeclareRobustCommand{\mtharg}
  {\ifexclavar{\newmthargsty!{\mthsty}}{\newmthargsty{\mthsty}}}
```

`\mthoarg` ... to do!

- `\mthoarg{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$Name_{sub}^{sup}\left(Arg^{Ex^{Ex}}\right)$"
- `\mthoarg[mathbf]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathbf{Name}_{sub}^{sup}\left(Arg^{Ex^{Ex}}\right)$"
- `\mthoarg[mathtt]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}\left(Arg^{Ex^{Ex}}\right)$"
- `\mthoarg!{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$Name_{sub}^{sup}(Arg^{Ex^{Ex}})$"
- `\mthoarg![mathbf]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathbf{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$"
- `\mthoarg![mathtt]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$"

```
\DeclareRobustCommand{\mthoarg}
  {\ifexclavar{\newmthoargsty!{\mthsty}}{\newmthoargsty{\mthsty}}}
```

`\mthpar` ... to do!

- `\mthpar{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$Name_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$"
- `\mthpar[mathbf]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathbf{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$"
- `\mthpar[mathtt]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$"
- `\mthpar![Name][sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$"
- `\mthpar![mathbf]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathbf{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$"
- `\mthpar![mathtt]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = "$\mathtt{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$"

```
\DeclareRobustCommand{\mthpar}
  {\ifexclavar{\newmthparsty!{\mthsty}}{\newmthparsty{\mthsty}}}
```

`\mthopar` ... to do!

- \mthopar{Name}[sub][sup][Par^{Ex^{Ex}}] = "$Name_{sub}^{sup}\Big[Par^{Ex^{Ex}}\Big]$"
- \mthopar[mathbf]{Name}[sub][sup][Par^{Ex^{Ex}}] = "$\mathbf{Name}_{sub}^{sup}\Big[Par^{Ex^{Ex}}\Big]$"
- \mthopar[mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}] = "$\mathtt{Name}_{sub}^{sup}\Big[Par^{Ex^{Ex}}\Big]$"
- \mthopar!{Name}[sub][sup][Par^{Ex^{Ex}}] = "$Name_{sub}^{sup}[Par^{Ex^{Ex}}]$"
- \mthopar![mathbf]{Name}[sub][sup][Par^{Ex^{Ex}}] = "$\mathbf{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$"
- \mthopar![mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}] = "$\mathtt{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$"

```
\DeclareRobustCommand{\mthopar}
  {\ifexclavar{\newmthoparsty!{\mthsty}}{\newmthoparsty{\mthsty}}}
```

\mthsty ... to do!

```
\def\mthsty
  {}
```

```
%%*************************************************************************%%
```

\cmdmth ... to do!

- \cmdmth{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthNewCmd{Name}[sub][sup][Ext] = $\mathtt{Name}_{sub}^{sup}Ext$
  \mthNewCmd!{Name}[sub][sup][Ext] = $Name_{sub}^{sup}Ext$

```
\DeclareRobustCommand{\cmdmth}[1]
  {\csdef{mth#1}%
    {\protect\ifexclavar{\newmthsty!{mthsty#1}}{\newmthsty{mthsty#1}}}}
```

\cmdmtharg ... to do!

- \cmdmtharg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthargNewCmd{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathtt{Name}_{sub}^{sup}Ext1\Big(Arg^{Ex^{Ex}}\Big)Ext2$
  \mthargNewCmd!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathtt{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$

```
\DeclareRobustCommand{\cmdmtharg}[1]
  {\csdef{mtharg#1}%
    {\protect\ifexclavar{\newmthargsty!{mthsty#1}}{\newmthargsty{mthsty#1}}}}
```

\cmdmthoarg ... to do!

- \cmdmthoarg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}] = $\mathtt{Name}_{sub}^{sup}\Big(Arg^{Ex^{Ex}}\Big)$
  \mthoargNewCmd!{Name}[sub][sup][Arg^{Ex^{Ex}}] = $\mathtt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$

```
\DeclareRobustCommand{\cmdmthoarg}[1]
  {\csdef{mthoarg#1}%
    {\protect\ifexclavar{\newmthoargsty!{mthsty#1}}{\newmthoargsty{mthsty#1}}}}
```

\cmdmthpar ... to do!

- \cmdmthpar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathtt{Name}_{sub}^{sup}Ext1\Big[Par^{Ex^{Ex}}\Big]Ext2$
  \mthparNewCmd!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathtt{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
\DeclareRobustCommand{\cmdmthpar}[1]
  {\csdef{mthpar#1}%
    {\protect\ifexclavar{\newmthparsty!{mthsty#1}}{\newmthparsty{mthsty#1}}}}
```

\cmdmthopar ... to do!

- \cmdmthopar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = $\mathtt{Name}_{sub}^{sup}\Big[Par^{Ex^{Ex}}\Big]$
  \mthoparNewCmd!{Name}[sub][sup][Par^{Ex^{Ex}}] = $\mathtt{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$

```
\DeclareRobustCommand{\cmdmthopar}[1]
  {\csdef{mthopar#1}%
    {\protect\ifexclavar{\newmthoparsty!{mthsty#1}}{\newmthoparsty{mthsty#1}}}}
```

`\cmdmthall` ... to do!

- `\cmdmthall{NewCmd}`; `\newcommand{mthstyNewCmd}{\mathtt}`;
  `\mthNewCmd{Name}[sub][sup][Ext]` = $\texttt{Name}_{sub}^{sup}Ext$
  `\mthargNewCmd{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\texttt{Name}_{sub}^{sup}Ext1\Big(Arg^{Ex^{Ex}}\Big)Ext2$
  `\mthargNewCmd!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\texttt{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
  `\mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}]` = $\texttt{Name}_{sub}^{sup}\Big(Arg^{Ex^{Ex}}\Big)$
  `\mthoargNewCmd!{Name}[sub][sup][Arg^{Ex^{Ex}}]` = $\texttt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$
  `\mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\texttt{Name}_{sub}^{sup}Ext1\Big[Par^{Ex^{Ex}}\Big]Ext2$
  `\mthparNewCmd!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\texttt{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$
  `\mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}]` = $\texttt{Name}_{sub}^{sup}\Big[Par^{Ex^{Ex}}\Big]$
  `\mthoparNewCmd!{Name}[sub][sup][Par^{Ex^{Ex}}]` = $\texttt{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$

```
\DeclareRobustCommand{\cmdmthall}[1]
  {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#1}}

%%*************************************************************************%%
```

`\usrmth` ... to do!

- `\usrmth{cmdName}{Suf}{}`;
  `\cmdNameSuf` = $cmdName$
  `\cmdNameSuf*` = $cmdName*$
  `\usrmth{cmdName}{Suf}{arg}`;
  `\cmdNameSuf{Arg^{Ex^{Ex}}}` = $cmdName\Big(Arg^{Ex^{Ex}}\Big)$
  `\cmdNameSuf!{Arg^{Ex^{Ex}}}` = $cmdName(Arg^{Ex^{Ex}})$
  `\usrmth{cmdName}{Suf}{par}`;
  `\cmdNameSuf{Par^{Ex^{Ex}}}` = $cmdName\Big[Par^{Ex^{Ex}}\Big]$
  `\cmdNameSuf!{Par^{Ex^{Ex}}}` = $cmdName[Par^{Ex^{Ex}}]$
- `\usrmth{cmdName}{Suf}{}[newName]`;
  `\cmdNameSuf` = $newName$
  `\cmdNameSuf*` = $newName*$
  `\usrmth{cmdName}{Suf}{arg}[newName]`;
  `\cmdNameSuf{Arg^{Ex^{Ex}}}` = $newName\Big(Arg^{Ex^{Ex}}\Big)$
  `\cmdNameSuf!{Arg^{Ex^{Ex}}}` = $newName(Arg^{Ex^{Ex}})$
  `\usrmth{cmdName}{Suf}{par}[newName]`;
  `\cmdNameSuf{Par^{Ex^{Ex}}}` = $newName\Big[Par^{Ex^{Ex}}\Big]$
  `\cmdNameSuf!{Par^{Ex^{Ex}}}` = $newName[Par^{Ex^{Ex}}]$

```
\DeclareRobustCommandx{\usrmth}[4][4=]
  {\csdef{#1#2}%
    {\protect\ifexclavar%
      {\csname mth#3\endcsname!{\defval{#4}{#1}}}%
      {\csname mth#3\endcsname{\defval{#4}{#1}}}}}

%%*************************************************************************%%
```

`\usrmthlatlow` ... to do!

```
\DeclareRobustCommandx{\usrmthlatlow}[4][4=]
  {\usrmth{#1}{#2}{#3}[#4]\seqoflatlow{#1#2}{mth#3}}
```

`\usrmthlatupp` ... to do!

```
\DeclareRobustCommandx{\usrmthlatupp}[4][4=]
  {\usrmth{#1}{#2}{#3}[#4]\seqoflatupp{#1#2}{mth#3}}
```

`\usrmthlatlet` ... to do!

```
\DeclareRobustCommandx{\usrmthlatlet}[4][4=]
  {\usrmth{#1}{#2}{#3}[#4]\seqoflatlet{#1#2}{mth#3}}
```

\usrmthgrklow ... to do!

```
\DeclareRobustCommandx{\usrmthgrklow}[4][4=]
  {\usrmth{#1}{#2}{#3}[#4]\seqofgrklow{#1#2}{mth#3}}
```

\usrmthgrkupp ... to do!

```
\DeclareRobustCommandx{\usrmthgrkupp}[4][4=]
  {\usrmth{#1}{#2}{#3}[#4]\seqofgrkupp{#1#2}{mth#3}}
```

\usrmthgrklet ... to do!

```
\DeclareRobustCommandx{\usrmthgrklet}[4][4=]
  {\usrmth{#1}{#2}{#3}[#4]\seqofgrklet{#1#2}{mth#3}}
```

\usrmthlow ... to do!

```
\DeclareRobustCommandx{\usrmthlow}[4][4=]
  {\usrmth{#1}{#2}{#3}[#4]\seqoflow{#1#2}{mth#3}}
```

\usrmthupp ... to do!

```
\DeclareRobustCommandx{\usrmthupp}[4][4=]
  {\usrmth{#1}{#2}{#3}[#4]\seqofupp{#1#2}{mth#3}}
```

\usrmthlet ... to do!

```
\DeclareRobustCommandx{\usrmthlet}[4][4=]
  {\usrmth{#1}{#2}{#3}[#4]\seqoflet{#1#2}{mth#3}}
```

```
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Text Macro Generators ****************************************************%%
%%*****************************************************************************%%
\iftxtgen@
```

\txtdef ... to do!
\txtargdef
\txtpardef

- `\txtdef{Name}[sub][sup][Ext]` = $Name_{sub}^{sup}Ext$
- `\txtargdef{Name}[sub][sup][Ext1]{Arg}[Ext2]` = $Name_{sub}^{sup}Ext1(Arg)Ext2$
- `\txtpardef{Name}[sub][sup][Ext1]{Par}[Ext2]` = $Name_{sub}^{sup}Ext1[Par]Ext2$

```
%% Style for Definitions
\cmdtxtall{def}
\DeclareRobustCommand{\txtstydef}{\normalfont\bfseries\em}
```

\cmdtxtdef ... to do!

- `\cmdtxtdef{cmdName}`;
  `\cmdName[sub][sub][ext]` = $cmdName_{sub}^{sub}ext$
- `\cmdtxtdef{cmdName}[newName]`;
  `\cmdName[sub][sub][ext]` = $newName_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdtxtdef}[2][2=]
  {\usrtxt{#1}{}{def}[#2]}
```

\cmdtxtargdef ... to do!

- `\cmdtxtargdef{cmdName}`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` = $cmdName_{sub}^{sub}ext1(arg)ext2$
- `\cmdtxtargdef{cmdName}[newName]`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` = $newName_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdtxtargdef}[2][2=]
  {\usrtxt{#1}{}{argdef}[#2]}
```

\cmdtxtoargdef ... to do!

- `\cmdtxtoargdef{cmdName}`;
  `\cmdName[sub][sub][arg]` = $cmdName_{sub}^{sub}(arg)$
- `\cmdtxtoargdef{cmdName}[newName]`;
  `\cmdName[sub][sub][arg]` = $newName_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdtxtoargdef}[2][2=]
  {\usrtxt{#1}{}{oargdef}[#2]}
```

`\cmdtxtpardef` ... to do!

- `\cmdtxtpardef{cmdName}`;
  `\cmdName[sub][sub][ext1]{par}[ext2]` = $\boldsymbol{cmdName^{sub}_{sub}ext1[par]ext2}$
- `\cmdtxtpardef{cmdName}[newName]`;
  `\cmdName[sub][sub][ext1]{par}[ext2]` = $\boldsymbol{newName^{sub}_{sub}ext1[par]ext2}$

```
\DeclareRobustCommandx{\cmdtxtpardef}[2][2=]
  {\usrtxt{#1}{}{pardef}[#2]}
```

`\cmdtxtopardef` ... to do!

- `\cmdtxtopardef{cmdName}`;
  `\cmdName[sub][sub][par]` = $\boldsymbol{cmdName^{sub}_{sub}[par]}$
- `\cmdtxtopardef{cmdName}[newName]`;
  `\cmdName[sub][sub][par]` = $\boldsymbol{newName^{sub}_{sub}[par]}$

```
\DeclareRobustCommandx{\cmdtxtopardef}[2][2=]
  {\usrtxt{#1}{}{opardef}[#2]}
```

`\txtabr` `\txtargabr` `\txtparabr` ... to do!

- `\txtabr{Name}[sub][sup][Ext]` = $Name^{\text{sup}}_{\text{sub}}Ext$
- `\txtargabr{Name}[sub][sup][Ext1]{Arg}[Ext2]` = $Name^{\text{sup}}_{\text{sub}}Ext1(Arg)Ext2$
- `\txtparabr{Name}[sub][sup][Ext1]{Par}[Ext2]` = $Name^{\text{sup}}_{\text{sub}}Ext1[Par]Ext2$

```
%% Style for Abbreviations
\cmdtxtall{abr}
\DeclareRobustCommand{\txtstyabr}{\em}
```

`\cmdtxtabr` ... to do!

- `\cmdtxtabr{cmdName}`;
  `\cmdName[sub][sub][ext]` = $cmdName^{\text{sub}}_{\text{sub}}ext$
- `\cmdtxtabr{cmdName}[newName]`;
  `\cmdName[sub][sub][ext]` = $newName^{\text{sub}}_{\text{sub}}ext$

```
\DeclareRobustCommandx{\cmdtxtabr}[2][2=]
  {\usrtxt{#1}{}{abr}[#2]}
```

`\cmdtxtargabr` ... to do!

- `\cmdtxtargabr{cmdName}`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` = $cmdName^{\text{sub}}_{\text{sub}}ext1(arg)ext2$
- `\cmdtxtargabr{cmdName}[newName]`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` = $newName^{\text{sub}}_{\text{sub}}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdtxtargabr}[2][2=]
  {\usrtxt{#1}{}{argabr}[#2]}
```

`\cmdtxtoargabr` ... to do!

- `\cmdtxtoargabr{cmdName}`;
  `\cmdName[sub][sub][arg]` = $cmdName^{\text{sub}}_{\text{sub}}(arg)$
- `\cmdtxtoargabr{cmdName}[newName]`;
  `\cmdName[sub][sub][arg]` = $newName^{\text{sub}}_{\text{sub}}(arg)$

```
\DeclareRobustCommandx{\cmdtxtoargabr}[2][2=]
  {\usrtxt{#1}{}{oargabr}[#2]}
```

`\cmdtxtparabr` ... to do!

- `\cmdtxtparabr{cmdName}`;
  `\cmdName[sub][sub][ext1]{par}[ext2]` = $cmdName^{\text{sub}}_{\text{sub}}ext1[par]ext2$
- `\cmdtxtparabr{cmdName}[newName]`;
  `\cmdName[sub][sub][ext1]{par}[ext2]` = $newName^{\text{sub}}_{\text{sub}}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdtxtparabr}[2][2=]
  {\usrtxt{#1}{}{parabr}[#2]}
```

\cmdtxtoparabr ... to do!

- `\cmdtxtoparabr{cmdName}`;
  `\cmdName[sub][sub][par]` = $cmdName^{\text{sub}}_{\text{sub}}[par]$
- `\cmdtxtoparabr{cmdName}[newName]`;
  `\cmdName[sub][sub][par]` = $newName^{\text{sub}}_{\text{sub}}[par]$

```
\DeclareRobustCommandx{\cmdtxtoparabr}[2][2=]
  {\usrtxt{#1}{}{oparabr}[#2]}

%%*************************************************************************%%
```

\txtname ... to do!
\txtargname
\txtparname

- `\txtname{Name}[sub][sup][Ext]` = $\text{Name}^{\text{SUP}}_{\text{SUB}}\text{Ext}$
- `\txtargname{Name}[sub][sup][Ext1]{Arg}[Ext2]` = $\text{Name}^{\text{SUP}}_{\text{SUB}}\text{Ext1(Arg)Ext2}$
- `\txtparname{Name}[sub][sup][Ext1]{Par}[Ext2]` = $\text{Name}^{\text{SUP}}_{\text{SUB}}\text{Ext1[Par]Ext2}$

```
%% Style for Names
\cmdtxtall{name}
\DeclareRobustCommand{\txtstyname}{\normalfont\mdseries\scshape\sffamily}
```

\cmdtxtname ... to do!

- `\cmdtxtname{cmdName}`;
  `\cmdName[sub][sub][ext]` = $\text{cmdName}^{\text{SUB}}_{\text{SUB}}\text{ext}$
- `\cmdtxtname{cmdName}[newName]`;
  `\cmdName[sub][sub][ext]` = $\text{newName}^{\text{SUB}}_{\text{SUB}}\text{ext}$

```
\DeclareRobustCommandx{\cmdtxtname}[2][2=]
  {\usrtxt{#1}{}{name}[#2]}
```

\cmdtxtargname ... to do!

- `\cmdtxtargname{cmdName}`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` = $\text{cmdName}^{\text{SUB}}_{\text{SUB}}\text{ext1(arg)ext2}$
- `\cmdtxtargname{cmdName}[newName]`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` = $\text{newName}^{\text{SUB}}_{\text{SUB}}\text{ext1(arg)ext2}$

```
\DeclareRobustCommandx{\cmdtxtargname}[2][2=]
  {\usrtxt{#1}{}{argname}[#2]}
```

\cmdtxtoargname ... to do!

- `\cmdtxtoargname{cmdName}`;
  `\cmdName[sub][sub][arg]` = $\text{cmdName}^{\text{SUB}}_{\text{SUB}}\text{(arg)}$
- `\cmdtxtoargname{cmdName}[newName]`;
  `\cmdName[sub][sub][arg]` = $\text{newName}^{\text{SUB}}_{\text{SUB}}\text{(arg)}$

```
\DeclareRobustCommandx{\cmdtxtoargname}[2][2=]
  {\usrtxt{#1}{}{oargname}[#2]}
```

\cmdtxtparname ... to do!

- `\cmdtxtparname{cmdName}`;
  `\cmdName[sub][sub][ext1]{par}[ext2]` = $\text{cmdName}^{\text{SUB}}_{\text{SUB}}\text{ext1[par]ext2}$
- `\cmdtxtparname{cmdName}[newName]`;
  `\cmdName[sub][sub][ext1]{par}[ext2]` = $\text{newName}^{\text{SUB}}_{\text{SUB}}\text{ext1[par]ext2}$

```
\DeclareRobustCommandx{\cmdtxtparname}[2][2=]
  {\usrtxt{#1}{}{parname}[#2]}
```

\cmdtxtoparname ... to do!

- `\cmdtxtoparname{cmdName}`;
  `\cmdName[sub][sub][par]` = $\text{cmdName}^{\text{SUB}}_{\text{SUB}}\text{[par]}$
- `\cmdtxtoparname{cmdName}[newName]`;
  `\cmdName[sub][sub][par]` = $\text{newName}^{\text{SUB}}_{\text{SUB}}\text{[par]}$

```
\DeclareRobustCommandx{\cmdtxtoparname}[2][2=]
  {\usrtxt{#1}{}{oparname}[#2]}
```

\txtcom ... to do!

\txtargcom

\txtparcom

- `\txtcom{Name}[sub][sup][Ext]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext}$
- `\txtargcom{Name}[sub][sup][Ext1]{Arg}[Ext2]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1}(\textsc{Arg})\textsc{Ext2}$
- `\txtparcom{Name}[sub][sup][Ext1]{Par}[Ext2]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1}[\textsc{Par}]\textsc{Ext2}$

```
%% Style for Complexities
\cmdtxtall{com}
\DeclareRobustCommand{\txtstycom}{\normalfont\mdseries\scshape\rmfamily}
```

\cmdtxtcom ... to do!

- `\cmdtxtcom{cmdName};`
  `\cmdName[sub][sub][ext]` = $\textsc{cmdName}_{\textsc{sub}}^{\textsc{sub}}\textsc{ext}$
- `\cmdtxtcom{cmdName}[newName];`
  `\cmdName[sub][sub][ext]` = $\textsc{newName}_{\textsc{sub}}^{\textsc{sub}}\textsc{ext}$

```
\DeclareRobustCommandx{\cmdtxtcom}[2][2=]
  {\usrtxt{#1}{}{com}[#2]}
```

\cmdtxtargcom ... to do!

- `\cmdtxtargcom{cmdName};`
  `\cmdName[sub][sub][ext1]{arg}[ext2]` = $\textsc{cmdName}_{\textsc{sub}}^{\textsc{sub}}\textsc{ext1}(\textsc{arg})\textsc{ext2}$
- `\cmdtxtargcom{cmdName}[newName];`
  `\cmdName[sub][sub][ext1]{arg}[ext2]` = $\textsc{newName}_{\textsc{sub}}^{\textsc{sub}}\textsc{ext1}(\textsc{arg})\textsc{ext2}$

```
\DeclareRobustCommandx{\cmdtxtargcom}[2][2=]
  {\usrtxt{#1}{}{argcom}[#2]}
```

\cmdtxtoargcom ... to do!

- `\cmdtxtoargcom{cmdName};`
  `\cmdName[sub][sub][arg]` = $\textsc{cmdName}_{\textsc{sub}}^{\textsc{sub}}(\textsc{arg})$
- `\cmdtxtoargcom{cmdName}[newName];`
  `\cmdName[sub][sub][arg]` = $\textsc{newName}_{\textsc{sub}}^{\textsc{sub}}(\textsc{arg})$

```
\DeclareRobustCommandx{\cmdtxtoargcom}[2][2=]
  {\usrtxt{#1}{}{oargcom}[#2]}
```

\cmdtxtparcom ... to do!

- `\cmdtxtparcom{cmdName};`
  `\cmdName[sub][sub][ext1]{par}[ext2]` = $\textsc{cmdName}_{\textsc{sub}}^{\textsc{sub}}\textsc{ext1}[\textsc{par}]\textsc{ext2}$
- `\cmdtxtparcom{cmdName}[newName];`
  `\cmdName[sub][sub][ext1]{par}[ext2]` = $\textsc{newName}_{\textsc{sub}}^{\textsc{sub}}\textsc{ext1}[\textsc{par}]\textsc{ext2}$

```
\DeclareRobustCommandx{\cmdtxtparcom}[2][2=]
  {\usrtxt{#1}{}{parcom}[#2]}
```

\cmdtxtoparcom ... to do!

- `\cmdtxtoparcom{cmdName};`
  `\cmdName[sub][sub][par]` = $\textsc{cmdName}_{\textsc{sub}}^{\textsc{sub}}[\textsc{par}]$
- `\cmdtxtoparcom{cmdName}[newName];`
  `\cmdName[sub][sub][par]` = $\textsc{newName}_{\textsc{sub}}^{\textsc{sub}}[\textsc{par}]$

```
\DeclareRobustCommandx{\cmdtxtoparcom}[2][2=]
  {\usrtxt{#1}{}{oparcom}[#2]}

\fi
%%*************************************************************************%%
%%*************************************************************************%%
%%** Math Macro Generators ************************************************%%
%%*************************************************************************%%
\ifmthgen@
```

\mthname ... to do!

\mthargname

\mthparname

- \mthname{NAME}[sub][sup][Ext] $= \mathcal{NAME}^{sup}_{sub}Ext$
- \mthargname{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] $= \mathcal{NAME}^{sup}_{sub}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
- \mthargname!{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] $= \mathcal{NAME}^{sup}_{sub}Ext1(Arg^{Ex^{Ex}})Ext2$
- \mthparname{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] $= \mathcal{NAME}^{sup}_{sub}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- \mthparname!{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] $= \mathcal{NAME}^{sup}_{sub}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Names
\cmdmthall{name}
\DeclareRobustCommand{\mthstyname}{\mathcal}
```

\AName ... to do!

... $\mathcal{A}$, $\mathcal{B}$, $\mathcal{C}$, $\mathcal{D}$, $\mathcal{E}$, $\mathcal{F}$, $\mathcal{G}$, $\mathcal{H}$, $\mathcal{I}$, $\mathcal{J}$, $\mathcal{K}$, $\mathcal{L}$, $\mathcal{M}$, $\mathcal{N}$, $\mathcal{O}$, $\mathcal{P}$, $\mathcal{Q}$, $\mathcal{R}$, $\mathcal{S}$, $\mathcal{T}$, $\mathcal{U}$, $\mathcal{V}$, $\mathcal{W}$, $\mathcal{X}$, $\mathcal{Y}$, $\mathcal{Z}$

```
\seqoflatupp{Name}{mthname}
```

\cmdmthname ... to do!

- \cmdmthname{CMDNAME};
  \CMDNAMEName[sub][sub][ext] $= \mathcal{CMDNAME}^{sub}_{sub}ext$
- \cmdmthname{cmdName}[NEWNAME];
  \cmdNameName[sub][sub][ext] $= \mathcal{NEWNAME}^{sub}_{sub}ext$

```
\DeclareRobustCommandx{\cmdmthname}[2][2=]
  {\usrmth{#1}{Name}{name}[#2]}
```

\cmdmthargname ... to do!

- \cmdmthargname{CMDNAME};
  \CMDNAMEName[sub][sub][ext1]{arg}[ext2] $= \mathcal{CMDNAME}^{sub}_{sub}ext1(arg)ext2$
- \cmdmthargname{cmdName}[NEWNAME];
  \cmdNameName[sub][sub][ext1]{arg}[ext2] $= \mathcal{NEWNAME}^{sub}_{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargname}[2][2=]
  {\usrmth{#1}{Name}{argname}[#2]}
```

\cmdmthoargname ... to do!

- \cmdmthoargname{CMDNAME};
  \CMDNAMEName[sub][sub][arg] $= \mathcal{CMDNAME}^{sub}_{sub}(arg)$
- \cmdmthoargname{cmdName}[NEWNAME];
  \cmdNameName[sub][sub][arg] $= \mathcal{NEWNAME}^{sub}_{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargname}[2][2=]
  {\usrmth{#1}{Name}{oargname}[#2]}
```

\cmdmthparname ... to do!

- \cmdmthparname{CMDNAME};
  \CMDNAMEName[sub][sub][ext1]{par}[ext2] $= \mathcal{CMDNAME}^{sub}_{sub}ext1[par]ext2$
- \cmdmthparname{cmdName}[NEWNAME];
  \cmdNameName[sub][sub][ext1]{par}[ext2] $= \mathcal{NEWNAME}^{sub}_{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparname}[2][2=]
  {\usrmth{#1}{Name}{parname}[#2]}
```

\cmdmthoparname ... to do!

- \cmdmthoparname{CMDNAME};
  \CMDNAMEName[sub][sub][par] $= \mathcal{CMDNAME}^{sub}_{sub}[par]$
- \cmdmthoparname{cmdName}[NEWNAME];
  \cmdNameName[sub][sub][par] $= \mathcal{NEWNAME}^{sub}_{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparname}[2][2=]
  {\usrmth{#1}{Name}{oparname}[#2]}
```

\mthfam ... to do!

\mthargfam

\mthparfam

- `\mthfam{NAME}[sub][sup][Ext]` = $\mathcal{NAMES}_{sub}^{sup}Ext$
- `\mthargfam{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathcal{NAMES}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
- `\mthargfam!{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathcal{NAMES}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
- `\mthparfam{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathcal{NAMES}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- `\mthparfam!{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathcal{NAMES}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Families
\cmdmthall{fam}
\DeclareRobustCommand{\mthstyfam}{\mathscr}
```

`\AFam` ... to do!

... $\mathscr{A}$, $\mathscr{B}$, $\mathscr{C}$, $\mathscr{D}$, $\mathscr{E}$, $\mathscr{F}$, $\mathscr{G}$, $\mathscr{H}$, $\mathscr{I}$, $\mathscr{J}$, $\mathscr{K}$, $\mathscr{L}$, $\mathscr{M}$, $\mathscr{N}$, $\mathscr{O}$, $\mathscr{P}$, $\mathscr{Q}$, $\mathscr{R}$, $\mathscr{S}$, $\mathscr{T}$, $\mathscr{U}$, $\mathscr{V}$, $\mathscr{W}$, $\mathscr{X}$, $\mathscr{Y}$, $\mathscr{Z}$

```
\seqoflatupp{Fam}{mthfam}
```

`\cmdmthfam` ... to do!

- `\cmdmthfam{CMDNAME}`;
  `\CMDNAMEFam[sub][sub][ext]` = $\mathscr{CMDNAMES}_{sub}^{sub}ext$
- `\cmdmthfam{cmdName}[NEWNAME]`;
  `\cmdNameFam[sub][sub][ext]` = $\mathscr{NEWNAMES}_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdmthfam}[2][2=]
  {\usrmth{#1}{Fam}{fam}[#2]}
```

`\cmdmthargfam` ... to do!

- `\cmdmthargfam{CMDNAME}`;
  `\CMDNAMEFam[sub][sub][ext1]{arg}[ext2]` = $\mathscr{CMDNAMES}_{sub}^{sub}ext1(arg)ext2$
- `\cmdmthargfam{cmdName}[NEWNAME]`;
  `\cmdNameFam[sub][sub][ext1]{arg}[ext2]` = $\mathscr{NEWNAMES}_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargfam}[2][2=]
  {\usrmth{#1}{Fam}{argfam}[#2]}
```

`\cmdmthoargfam` ... to do!

- `\cmdmthoargfam{CMDNAME}`;
  `\CMDNAMEFam[sub][sub][arg]` = $\mathscr{CMDNAMES}_{sub}^{sub}(arg)$
- `\cmdmthoargfam{cmdFam}[NEWNAME]`;
  `\cmdFamFam[sub][sub][arg]` = $\mathscr{NEWNAMES}_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargfam}[2][2=]
  {\usrmth{#1}{Fam}{oargfam}[#2]}
```

`\cmdmthparfam` ... to do!

- `\cmdmthparfam{CMDNAME}`;
  `\CMDNAMEFam[sub][sub][ext1]{par}[ext2]` = $\mathscr{CMDNAMES}_{sub}^{sub}ext1[par]ext2$
- `\cmdmthparfam{cmdName}[NEWNAME]`;
  `\cmdNameFam[sub][sub][ext1]{par}[ext2]` = $\mathscr{NEWNAMES}_{sub}^{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparfam}[2][2=]
  {\usrmth{#1}{Fam}{parfam}[#2]}
```

`\cmdmthoparfam` ... to do!

- `\cmdmthoparfam{CMDNAME}`;
  `\CMDNAMEFam[sub][sub][par]` = $\mathscr{CMDNAMES}_{sub}^{sub}[par]$
- `\cmdmthoparfam{cmdFam}[NEWNAME]`;
  `\cmdFamFam[sub][sub][par]` = $\mathscr{NEWNAMES}_{sub}^{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparfam}[2][2=]
  {\usrmth{#1}{Fam}{oparfam}[#2]}
```

`\mthcls` ... to do!

`\mthargcls`
`\mthparcls`

- `\mthcls{NAME}[sub][sup][Ext]` = $\mathcal{NAMES}_{sub}^{sup}Ext$

- `\mthargcls{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathcal{NAME}_{sub}^{sup}Ext1\Big(Arg^{Ex^{Ex}}\Big)Ext2$
- `\mthargcls!{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathcal{NAME}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
- `\mthparcls{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathcal{NAME}_{sub}^{sup}Ext1\Big[Par^{Ex^{Ex}}\Big]Ext2$
- `\mthparcls!{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathcal{NAME}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Classes
\cmdmthall{cls}
\DeclareRobustCommand{\mthstycls}{\matheus}
```

`\ACls` ... to do!

... $\mathcal{A}$, $\mathcal{B}$, $\mathcal{C}$, $\mathcal{D}$, $\mathcal{E}$, $\mathcal{F}$, $\mathcal{G}$, $\mathcal{H}$, $\mathcal{I}$, $\mathcal{J}$, $\mathcal{K}$, $\mathcal{L}$, $\mathcal{M}$, $\mathcal{N}$, $\mathcal{O}$, $\mathcal{P}$, $\mathcal{Q}$, $\mathcal{R}$, $\mathcal{S}$, $\mathcal{T}$, $\mathcal{U}$, $\mathcal{V}$, $\mathcal{W}$, $\mathcal{X}$, $\mathcal{Y}$, $\mathcal{Z}$

```
\seqoflatupp{Cls}{mthcls}
```

`\cmdmthcls` ... to do!

- `\cmdmthcls{CMDNAME}`;
  `\CMDNAMECls[sub][sub][ext]` = $\mathcal{CMDNAME}_{sub}^{sub}ext$
- `\cmdmthcls{cmdName}[NEWNAME]`;
  `\cmdNameCls[sub][sub][ext]` = $\mathcal{NEWNAME}_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdmthcls}[2][2=]
  {\usrmth{#1}{Cls}{cls}[#2]}
```

`\cmdmthargcls` ... to do!

- `\cmdmthargcls{CMDNAME}`;
  `\CMDNAMECls[sub][sub][ext1]{arg}[ext2]` = $\mathcal{CMDNAME}_{sub}^{sub}ext1(arg)ext2$
- `\cmdmthargcls{cmdName}[NEWNAME]`;
  `\cmdNameCls[sub][sub][ext1]{arg}[ext2]` = $\mathcal{NEWNAME}_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargcls}[2][2=]
  {\usrmth{#1}{Cls}{argcls}[#2]}
```

`\cmdmthoargcls` ... to do!

- `\cmdmthoargcls{CMDNAME}`;
  `\CMDNAMECls[sub][sub][arg]` = $\mathcal{CMDNAME}_{sub}^{sub}(arg)$
- `\cmdmthoargcls{cmdCls}[NEWNAME]`;
  `\cmdClsCls[sub][sub][arg]` = $\mathcal{NEWNAME}_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargcls}[2][2=]
  {\usrmth{#1}{Cls}{oargcls}[#2]}
```

`\cmdmthparcls` ... to do!

- `\cmdmthparcls{CMDNAME}`;
  `\CMDNAMECls[sub][sub][ext1]{par}[ext2]` = $\mathcal{CMDNAME}_{sub}^{sub}ext1[par]ext2$
- `\cmdmthparcls{cmdName}[NEWNAME]`;
  `\cmdNameCls[sub][sub][ext1]{par}[ext2]` = $\mathcal{NEWNAME}_{sub}^{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparcls}[2][2=]
  {\usrmth{#1}{Cls}{parcls}[#2]}
```

`\cmdmthoparcls` ... to do!

- `\cmdmthoparcls{CMDNAME}`;
  `\CMDNAMECls[sub][sub][par]` = $\mathcal{CMDNAME}_{sub}^{sub}[par]$
- `\cmdmthoparcls{cmdCls}[NEWNAME]`;
  `\cmdClsCls[sub][sub][par]` = $\mathcal{NEWNAME}_{sub}^{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparcls}[2][2=]
  {\usrmth{#1}{Cls}{oparcls}[#2]}
```

`\mthsig` ... to do!

`\mthargsig`
`\mthparsig`

- `\mthsig{Name}[sub][sup][Ext]` = $\mathcal{Name}_{sub}^{sup}Ext$
- `\mthargsig{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathcal{Name}_{sub}^{sup}Ext1\Big(Arg^{Ex^{Ex}}\Big)Ext2$

- `\mthargsig!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathcal{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
- `\mthparsig{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathcal{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- `\mthparsig!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathcal{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Signatures
\cmdmthall{sig}
\DeclareRobustCommand{\mthstysig}{\mathpzc}
```

`\aSig` ... to do!

... a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
$\mathcal{A}$, $\mathcal{B}$, $\mathcal{C}$, $\mathcal{D}$, $\mathcal{E}$, $\mathcal{F}$, $\mathcal{G}$, $\mathcal{H}$, $\mathcal{I}$, $\mathcal{J}$, $\mathcal{K}$, $\mathcal{L}$, $\mathcal{M}$, $\mathcal{N}$, $\mathcal{O}$, $\mathcal{P}$, $\mathcal{Q}$, $\mathcal{R}$, $\mathcal{S}$, $\mathcal{T}$, $\mathcal{U}$, $\mathcal{V}$, $\mathcal{W}$, $\mathcal{X}$, $\mathcal{Y}$, $\mathcal{Z}$
α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, o, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω

```
\seqoflatlet{Sig}{mthsig}\seqofgrklow{Sig}{mthsig}
```

`\cmdmthsig` ... to do!

- `\cmdmthsig{cmdName}`;
  `\cmdNameSig[sub][sub][ext]` = $\mathit{cmd}\mathcal{Name}_{sub}^{sub}ext$
- `\cmdmthsig{cmdName}[NewName]`;
  `\cmdNameSig[sub][sub][ext]` = $\mathcal{NewName}_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdmthsig}[2][2=]
  {\usrmth{#1}{Sig}{sig}[#2]}
```

`\cmdmthargsig` ... to do!

- `\cmdmthargsig{cmdName}`;
  `\cmdNameSig[sub][sub][ext1]{arg}[ext2]` = $\mathit{cmd}\mathcal{Name}_{sub}^{sub}ext1(arg)ext2$
- `\cmdmthargsig{cmdName}[NewName]`;
  `\cmdNameSig[sub][sub][ext1]{arg}[ext2]` = $\mathcal{NewName}_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargsig}[2][2=]
  {\usrmth{#1}{Sig}{argsig}[#2]}
```

`\cmdmthoargsig` ... to do!

- `\cmdmthoargsig{cmdName}`;
  `\cmdNameSig[sub][sub][arg]` = $\mathit{cmd}\mathcal{Name}_{sub}^{sub}(arg)$
- `\cmdmthoargsig{cmdSig}[NewName]`;
  `\cmdSigSig[sub][sub][arg]` = $\mathcal{NewName}_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargsig}[2][2=]
  {\usrmth{#1}{Sig}{oargsig}[#2]}
```

`\cmdmthparsig` ... to do!

- `\cmdmthparsig{cmdName}`;
  `\cmdNameSig[sub][sub][ext1]{par}[ext2]` = $\mathit{cmd}\mathcal{Name}_{sub}^{sub}ext1[par]ext2$
- `\cmdmthparsig{cmdName}[NewName]`;
  `\cmdNameSig[sub][sub][ext1]{par}[ext2]` = $\mathcal{NewName}_{sub}^{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparsig}[2][2=]
  {\usrmth{#1}{Sig}{parsig}[#2]}
```

`\cmdmthoparsig` ... to do!

- `\cmdmthoparsig{cmdName}`;
  `\cmdNameSig[sub][sub][par]` = $\mathit{cmd}\mathcal{Name}_{sub}^{sub}[par]$
- `\cmdmthoparsig{cmdSig}[NewName]`;
  `\cmdSigSig[sub][sub][par]` = $\mathcal{NewName}_{sub}^{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparsig}[2][2=]
  {\usrmth{#1}{Sig}{oparsig}[#2]}
```

`\mthstr` ... to do!
`\mthargstr`
`\mthparstr`

- `\mthstr{Name}[sub][sup][Ext]` = $\mathfrak{Name}_{sub}^{sup}Ext$
- `\mthargstr{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathfrak{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$

- `\mthargstr!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathfrak{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
- `\mthparstr{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathfrak{Name}_{sub}^{sup}Ext1\Big[Par^{Ex^{Ex}}\Big]Ext2$
- `\mthparstr!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathfrak{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Structures
\cmdmthall{str}
\DeclareRobustCommand{\mthstystr}{\mathfrak}
```

`\aStr` ... to do!

... $\mathfrak{a}$, $\mathfrak{b}$, $\mathfrak{c}$, $\mathfrak{d}$, $\mathfrak{e}$, $\mathfrak{f}$, $\mathfrak{g}$, $\mathfrak{h}$, $\mathfrak{i}$, $\mathfrak{j}$, $\mathfrak{k}$, $\mathfrak{l}$, $\mathfrak{m}$, $\mathfrak{n}$, $\mathfrak{o}$, $\mathfrak{p}$, $\mathfrak{q}$, $\mathfrak{r}$, $\mathfrak{s}$, $\mathfrak{t}$, $\mathfrak{u}$, $\mathfrak{v}$, $\mathfrak{w}$, $\mathfrak{x}$, $\mathfrak{y}$, $\mathfrak{z}$
$\mathfrak{A}$, $\mathfrak{B}$, $\mathfrak{C}$, $\mathfrak{D}$, $\mathfrak{E}$, $\mathfrak{F}$, $\mathfrak{G}$, $\mathfrak{H}$, $\mathfrak{I}$, $\mathfrak{J}$, $\mathfrak{K}$, $\mathfrak{L}$, $\mathfrak{M}$, $\mathfrak{N}$, $\mathfrak{O}$, $\mathfrak{P}$, $\mathfrak{Q}$, $\mathfrak{R}$, $\mathfrak{S}$, $\mathfrak{T}$, $\mathfrak{U}$, $\mathfrak{V}$, $\mathfrak{W}$, $\mathfrak{X}$, $\mathfrak{Y}$, $\mathfrak{Z}$
α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, $\mathfrak{o}$, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω

```
\seqoflatlet{Str}{mthstr}\seqofgrklow{Str}{mthstr}
```

`\cmdmthstr` ... to do!

- `\cmdmthstr{cmdName}`;
  `\cmdNameStr[sub][sub][ext]` = $\mathfrak{cmdName}_{sub}^{sub}ext$
- `\cmdmthstr{cmdName}[NewName]`;
  `\cmdNameStr[sub][sub][ext]` = $\mathfrak{NewName}_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdmthstr}[2][2=]
  {\usrmth{#1}{Str}{str}[#2]}
```

`\cmdmthargstr` ... to do!

- `\cmdmthargstr{cmdName}`;
  `\cmdNameStr[sub][sub][ext1]{arg}[ext2]` = $\mathfrak{cmdName}_{sub}^{sub}ext1(arg)ext2$
- `\cmdmthargstr{cmdName}[NewName]`;
  `\cmdNameStr[sub][sub][ext1]{arg}[ext2]` = $\mathfrak{NewName}_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargstr}[2][2=]
  {\usrmth{#1}{Str}{argstr}[#2]}
```

`\cmdmthoargstr` ... to do!

- `\cmdmthoargstr{cmdName}`;
  `\cmdNameStr[sub][sub][arg]` = $\mathfrak{cmdName}_{sub}^{sub}(arg)$
- `\cmdmthoargstr{cmdStr}[NewName]`;
  `\cmdStrStr[sub][sub][arg]` = $\mathfrak{NewName}_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargstr}[2][2=]
  {\usrmth{#1}{Str}{oargstr}[#2]}
```

`\cmdmthparstr` ... to do!

- `\cmdmthparstr{cmdName}`;
  `\cmdNameStr[sub][sub][ext1]{par}[ext2]` = $\mathfrak{cmdName}_{sub}^{sub}ext1[par]ext2$
- `\cmdmthparstr{cmdName}[NewName]`;
  `\cmdNameStr[sub][sub][ext1]{par}[ext2]` = $\mathfrak{NewName}_{sub}^{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparstr}[2][2=]
  {\usrmth{#1}{Str}{parstr}[#2]}
```

`\cmdmthoparstr` ... to do!

- `\cmdmthoparstr{cmdName}`;
  `\cmdNameStr[sub][sub][par]` = $\mathfrak{cmdName}_{sub}^{sub}[par]$
- `\cmdmthoparstr{cmdStr}[NewName]`;
  `\cmdStrStr[sub][sub][par]` = $\mathfrak{NewName}_{sub}^{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparstr}[2][2=]
  {\usrmth{#1}{Str}{oparstr}[#2]}
```

`\mthset` ... to do!

`\mthargset`
`\mthparset`

- `\mthset{Name}[sub][sup][Ext]` = $\mathrm{Name}_{sub}^{sup}Ext$
- `\mthargset{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathrm{Name}_{sub}^{sup}Ext1\Big(Arg^{Ex^{Ex}}\Big)Ext2$

- `\mthargset!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathrm{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
- `\mthparset{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathrm{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- `\mthparset!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathrm{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Sets
\cmdmthall{set}
\DeclareRobustCommand{\mthstyset}{\mathrm}
```

`\aSet` ... to do!

`\mthargset` a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z

`\mthparset` A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, o, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω
A, B, Γ, Δ, E, E, Z, H, Θ, $\varTheta$, I, K, K, Λ, M, N, Ξ, O, Π, $\varPi$, P, P, Σ, $\varSigma$, T, Υ, Φ, $\varPhi$, X, Ψ, Ω

```
\seqoflet{Set}{mthset}
```

`\cmdmthset` ... to do!

- `\cmdmthset{cmdName}`;
  `\cmdNameSet[sub][sub][ext]` = $\mathrm{cmdName}_{sub}^{sub}ext$
- `\cmdmthset{cmdName}[NewName]`;
  `\cmdNameSet[sub][sub][ext]` = $\mathrm{NewName}_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdmthset}[2][2=]
  {\usrmth{#1}{Set}{set}[#2]}
```

`\cmdmthargset` ... to do!

- `\cmdmthargset{cmdName}`;
  `\cmdNameSet[sub][sub][ext1]{arg}[ext2]` = $\mathrm{cmdName}_{sub}^{sub}ext1(arg)ext2$
- `\cmdmthargset{cmdName}[NewName]`;
  `\cmdNameSet[sub][sub][ext1]{arg}[ext2]` = $\mathrm{NewName}_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargset}[2][2=]
  {\usrmth{#1}{Set}{argset}[#2]}
```

`\cmdmthoargset` ... to do!

- `\cmdmthoargset{cmdName}`;
  `\cmdNameSet[sub][sub][arg]` = $\mathrm{cmdName}_{sub}^{sub}(arg)$
- `\cmdmthoargset{cmdSet}[NewName]`;
  `\cmdSetSet[sub][sub][arg]` = $\mathrm{NewName}_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargset}[2][2=]
  {\usrmth{#1}{Set}{oargset}[#2]}
```

`\cmdmthparset` ... to do!

- `\cmdmthparset{cmdName}`;
  `\cmdNameSet[sub][sub][ext1]{par}[ext2]` = $\mathrm{cmdName}_{sub}^{sub}ext1[par]ext2$
- `\cmdmthparset{cmdName}[NewName]`;
  `\cmdNameSet[sub][sub][ext1]{par}[ext2]` = $\mathrm{NewName}_{sub}^{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparset}[2][2=]
  {\usrmth{#1}{Set}{parset}[#2]}
```

`\cmdmthoparset` ... to do!

- `\cmdmthoparset{cmdName}`;
  `\cmdNameSet[sub][sub][par]` = $\mathrm{cmdName}_{sub}^{sub}[par]$
- `\cmdmthoparset{cmdSet}[NewName]`;
  `\cmdSetSet[sub][sub][par]` = $\mathrm{NewName}_{sub}^{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparset}[2][2=]
  {\usrmth{#1}{Set}{oparset}[#2]}
```

\cmdmthsetext ... to do!

```
\DeclareRobustCommandx{\cmdmthsetext}[3][2=, 3=]
  {\cmdmthset{#1}[#2]\caselower[q]{#1}%
  \usrmthlet{\thestring}{Sym}{sym}
    [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}]%
  \usrmthlet{\thestring}{Elm}{elm}
    [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}]}
```

\mthrel ... to do!

\mthhargrel

\mthparrel

- `\mthrel{Name}[sub][sup][Ext]` = $Name_{sub}^{sup}Ext$
- `\mthargrel{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $Name_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
- `\mthargrel!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
- `\mthparrel{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $Name_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- `\mthparrel!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Relations
\cmdmthall{rel}
\DeclareRobustCommand{\mthstyrel}{\mathit}
```

\aRel ... to do!

... a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, L, T, U, V, W, X, Y, Z
α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, o, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω
A, B, Γ, Δ, E, E, Z, H, Θ, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω

```
\seqoflet{Rel}{mthrel}
```

\cmdmthrel ... to do!

- `\cmdmthrel{cmdName}`;
  `\cmdNameRel[sub][sub][ext]` = $cmdName_{sub}^{sub}ext$
- `\cmdmthrel{cmdName}[NewName]`;
  `\cmdNameRel[sub][sub][ext]` = $NewName_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdmthrel}[2][2=]
  {\usrmth{#1}{Rel}{rel}[#2]}
```

\cmdmthargrel ... to do!

- `\cmdmthargrel{cmdName}`;
  `\cmdNameRel[sub][sub][ext1]{arg}[ext2]` = $cmdName_{sub}^{sub}ext1(arg)ext2$
- `\cmdmthargrel{cmdName}[NewName]`;
  `\cmdNameRel[sub][sub][ext1]{arg}[ext2]` = $NewName_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargrel}[2][2=]
  {\usrmth{#1}{Rel}{argrel}[#2]}
```

\cmdmthoargrel ... to do!

- `\cmdmthoargrel{cmdName}`;
  `\cmdNameRel[sub][sub][arg]` = $cmdName_{sub}^{sub}(arg)$
- `\cmdmthoargrel{cmdRel}[NewName]`;
  `\cmdRelRel[sub][sub][arg]` = $NewName_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargrel}[2][2=]
  {\usrmth{#1}{Rel}{oargrel}[#2]}
```

\cmdmthparrel ... to do!

- `\cmdmthparrel{cmdName}`;
  `\cmdNameRel[sub][sub][ext1]{par}[ext2]` = $cmdName_{sub}^{sub}ext1[par]ext2$
- `\cmdmthparrel{cmdName}[NewName]`;
  `\cmdNameRel[sub][sub][ext1]{par}[ext2]` = $NewName_{sub}^{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparrel}[2][2=]
  {\usrmth{#1}{Rel}{parrel}[#2]}
```

\cmdmthoparrel ... to do!

- \cmdmthoparrel{cmdName};
  \cmdNameRel[sub][sub][par] = $cmdName_{sub}^{sub}[par]$
- \cmdmthoparrel{cmdRel}[NewName];
  \cmdRelRel[sub][sub][par] = $NewName_{sub}^{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparrel}[2][2=]
  {\usrmth{#1}{Rel}{oparrel}[#2]}
```

\mthfun ... to do!
\mthargfun
\mthparfun

- \mthfun{Name}[sub][sup][Ext] = $\mathsf{Name}_{sub}^{sup}Ext$
- \mthargfun{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathsf{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
- \mthargfun!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathsf{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
- \mthparfun{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathsf{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- \mthparfun!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathsf{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Functions
\cmdmthall{fun}
\DeclareRobustCommand{\mthstyfun}{\mathsf}
```

\aFun ... to do!
... a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, o, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω
A, B, Γ, Δ, E, E, Z, H, Θ, $\varTheta$, I, K, K, Λ, M, N, Ξ, O, Π, $\varPi$, P, P, Σ, $\varSigma$, T, Υ, Φ, $\varPhi$, X, Ψ, Ω

```
\seqoflet{Fun}{mthfun}
```

\cmdmthfun ... to do!

- \cmdmthfun{cmdName};
  \cmdNameFun[sub][sub][ext] = $\mathsf{cmdName}_{sub}^{sub}ext$
- \cmdmthfun{cmdName}[NewName];
  \cmdNameFun[sub][sub][ext] = $\mathsf{NewName}_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdmthfun}[2][2=]
  {\usrmth{#1}{Fun}{fun}[#2]}
```

\cmdmthargfun ... to do!

- \cmdmthargfun{cmdName};
  \cmdNameFun[sub][sub][ext1]{arg}[ext2] = $\mathsf{cmdName}_{sub}^{sub}ext1(arg)ext2$
- \cmdmthargfun{cmdName}[NewName];
  \cmdNameFun[sub][sub][ext1]{arg}[ext2] = $\mathsf{NewName}_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargfun}[2][2=]
  {\usrmth{#1}{Fun}{argfun}[#2]}
```

\cmdmthoargfun ... to do!

- \cmdmthoargfun{cmdName};
  \cmdNameFun[sub][sub][arg] = $\mathsf{cmdName}_{sub}^{sub}(arg)$
- \cmdmthoargfun{cmdFun}[NewName];
  \cmdFunFun[sub][sub][arg] = $\mathsf{NewName}_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargfun}[2][2=]
  {\usrmth{#1}{Fun}{oargfun}[#2]}
```

\cmdmthparfun ... to do!

- \cmdmthparfun{cmdName};
  \cmdNameFun[sub][sub][ext1]{par}[ext2] = $\mathsf{cmdName}_{sub}^{sub}ext1[par]ext2$
- \cmdmthparfun{cmdName}[NewName];
  \cmdNameFun[sub][sub][ext1]{par}[ext2] = $\mathsf{NewName}_{sub}^{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparfun}[2][2=]
  {\usrmth{#1}{Fun}{parfun}[#2]}
```

\cmdmthoparfun ... to do!

- \cmdmthoparfun{cmdName};
  \cmdNameFun[sub][sub][par] = cmdName$^{sub}_{sub}[par]$
- \cmdmthoparfun{cmdFun}[NewName];
  \cmdFunFun[sub][sub][par] = NewName$^{sub}_{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparfun}[2][2=]
  {\usrmth{#1}{Fun}{oparfun}[#2]}
```

\mthsym ... to do!
\mthargsym
\mthparsym

- \mthsym{Name}[sub][sup][Ext] = Name$^{sup}_{sub}Ext$
- \mthargsym{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name$^{sup}_{sub}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
- \mthargsym!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name$^{sup}_{sub}Ext1(Arg^{Ex^{Ex}})Ext2$
- \mthparsym{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name$^{sup}_{sub}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- \mthparsym!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name$^{sup}_{sub}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Symbols
\cmdmthall{sym}
\DeclareRobustCommand{\mthstysym}{\mathtt}
```

\aSym ... to do!
... a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, o, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω
A, B, Γ, Δ, E, E, Z, H, Θ, $\mathit{\Theta}$, I, K, K, Λ, M, N, Ξ, O, Π, $\mathit{\Pi}$, P, P, Σ, $\mathit{\Sigma}$, T, T, Φ, $\mathit{\Phi}$, X, Ψ, Ω

```
\seqoflet{Sym}{mthsym}
```

\cmdmthsym ... to do!

- \cmdmthsym{cmdName};
  \cmdNameSym[sub][sub][ext] = cmdName$^{sub}_{sub}ext$
- \cmdmthsym{cmdName}[NewName];
  \cmdNameSym[sub][sub][ext] = NewName$^{sub}_{sub}ext$

```
\DeclareRobustCommandx{\cmdmthsym}[2][2=]
  {\usrmth{#1}{Sym}{sym}[#2]}
```

\cmdmthargsym ... to do!

- \cmdmthargsym{cmdName};
  \cmdNameSym[sub][sub][ext1]{arg}[ext2] = cmdName$^{sub}_{sub}ext1(arg)ext2$
- \cmdmthargsym{cmdName}[NewName];
  \cmdNameSym[sub][sub][ext1]{arg}[ext2] = NewName$^{sub}_{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargsym}[2][2=]
  {\usrmth{#1}{Sym}{argsym}[#2]}
```

\cmdmthoargsym ... to do!

- \cmdmthoargsym{cmdName};
  \cmdNameSym[sub][sub][arg] = cmdName$^{sub}_{sub}(arg)$
- \cmdmthoargsym{cmdSym}[NewName];
  \cmdSymSym[sub][sub][arg] = NewName$^{sub}_{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargsym}[2][2=]
  {\usrmth{#1}{Sym}{oargsym}[#2]}
```

\cmdmthparsym ... to do!

- \cmdmthparsym{cmdName};
  \cmdNameSym[sub][sub][ext1]{par}[ext2] = cmdName$^{sub}_{sub}ext1[par]ext2$
- \cmdmthparsym{cmdName}[NewName];
  \cmdNameSym[sub][sub][ext1]{par}[ext2] = NewName$^{sub}_{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparsym}[2][2=]
  {\usrmth{#1}{Sym}{parsym}[#2]}
```

\cmdmthoparsym ... to do!

- \cmdmthoparsym{cmdName};
  \cmdNameSym[sub][sub][par] = $\texttt{cmdName}_{sub}^{sub}[par]$
- \cmdmthoparsym{cmdSym}[NewName];
  \cmdSymSym[sub][sub][par] = $\texttt{NewName}_{sub}^{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparsym}[2][2=]
  {\usrmth{#1}{Sym}{oparsym}[#2]}
```

\mthelm ... to do!
\mthargelm
\mthparelm

- \mthelm{Name}[sub][sup][Ext] = $Name_{sub}^{sup}Ext$
- \mthargelm{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
- \mthargelm!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
- \mthparelm{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- \mthparelm!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Elements
\cmdmthall{elm}
\DeclareRobustCommand{\mthstyelm}{\mathnormal}
```

\aElm ... to do!
... a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, o, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω
A, B, Γ, Δ, E, E, Z, H, Θ, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω

```
\seqoflet{Elm}{mthelm}
```

\cmdmthelm ... to do!

- \cmdmthelm{cmdName};
  \cmdNameElm[sub][sub][ext] = $cmdName_{sub}^{sub}ext$
- \cmdmthelm{cmdName}[NewName];
  \cmdNameElm[sub][sub][ext] = $NewName_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdmthelm}[2][2=]
  {\usrmth{#1}{Elm}{elm}[#2]}
```

\cmdmthargelm ... to do!

- \cmdmthargelm{cmdName};
  \cmdNameElm[sub][sub][ext1]{arg}[ext2] = $cmdName_{sub}^{sub}ext1(arg)ext2$
- \cmdmthargelm{cmdName}[NewName];
  \cmdNameElm[sub][sub][ext1]{arg}[ext2] = $NewName_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargelm}[2][2=]
  {\usrmth{#1}{Elm}{argelm}[#2]}
```

\cmdmthoargelm ... to do!

- \cmdmthoargelm{cmdName};
  \cmdNameElm[sub][sub][arg] = $cmdName_{sub}^{sub}(arg)$
- \cmdmthoargelm{cmdElm}[NewName];
  \cmdElmElm[sub][sub][arg] = $NewName_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargelm}[2][2=]
  {\usrmth{#1}{Elm}{oargelm}[#2]}
```

\cmdmthparelm ... to do!

- \cmdmthparelm{cmdName};
  \cmdNameElm[sub][sub][ext1]{par}[ext2] = $cmdName_{sub}^{sub}ext1[par]ext2$
- \cmdmthparelm{cmdName}[NewName];
  \cmdNameElm[sub][sub][ext1]{par}[ext2] = $NewName_{sub}^{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparelm}[2][2=]
  {\usrmth{#1}{Elm}{parelm}[#2]}
```

\cmdmthoparelm ... to do!

- \cmdmthoparelm{cmdName};
  \cmdNameElm[sub][sub][par] = $cmdName^{sub}_{sub}[par]$
- \cmdmthoparelm{cmdElm}[NewName];
  \cmdElmElm[sub][sub][par] = $NewName^{sub}_{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparelm}[2][2=]
  {\usrmth{#1}{Elm}{oparelm}[#2]}

%%*************************************************************************%%
```

\cmdmthsymelm ... to do!

- \cmdmthsymelm{cmdName};
  \cmdNameSym[sub][sub][ext] = cmdName$^{sub}_{sub}ext$
  \cmdNameElm[sub][sub][ext] = $cmdName^{sub}_{sub}ext$
- \cmdmthsymelm{cmdName}[NewName];
  \cmdNameSym[sub][sub][ext] = NewName$^{sub}_{sub}ext$
  \cmdNameElm[sub][sub][ext] = $NewName^{sub}_{sub}ext$

```
\DeclareRobustCommandx{\cmdmthsymelm}[2][2=]
  {\cmdmthsym{#1}[#2]%
  \cmdmthelm{#1}[#2]}
```

\cmdmthargsymelm ... to do!

- \cmdmthargsymelm{cmdName};
  \cmdNameSym[sub][sub][ext1]{arg}[ext2] = cmdName$^{sub}_{sub}ext1(arg)ext2$
  \cmdNameElm[sub][sub][ext1]{arg}[ext2] = $cmdName^{sub}_{sub}ext1(arg)ext2$
- \cmdmthargsymelm{cmdName}[NewName];
  \cmdNameSym[sub][sub][ext1]{arg}[ext2] = NewName$^{sub}_{sub}ext1(arg)ext2$
  \cmdNameElm[sub][sub][ext1]{arg}[ext2] = $NewName^{sub}_{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargsymelm}[2][2=]
  {\cmdmthargsym{#1}[#2]%
  \cmdmthargelm{#1}[#2]}
```

\cmdmthoargsymelm ... to do!

- \cmdmthoargsymelm{cmdName};
  \cmdNameSym[sub][sub][arg] = cmdName$^{sub}_{sub}(arg)$
  \cmdNameElm[sub][sub][arg] = $cmdName^{sub}_{sub}(arg)$
- \cmdmthoargsymelm{cmdName}[NewName];
  \cmdNameSym[sub][sub][arg] = NewName$^{sub}_{sub}(arg)$
  \cmdNameElm[sub][sub][arg] = $NewName^{sub}_{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargsymelm}[2][2=]
  {\cmdmthoargsym{#1}[#2]%
  \cmdmthoargelm{#1}[#2]}
```

\cmdmthparsymelm ... to do!

- \cmdmthparsymelm{cmdName};
  \cmdNameSym[sub][sub][ext1]{par}[ext2] = cmdName$^{sub}_{sub}ext1[par]ext2$
  \cmdNameElm[sub][sub][ext1]{par}[ext2] = $cmdName^{sub}_{sub}ext1[par]ext2$
- \cmdmthparsymelm{cmdName}[NewName];
  \cmdNameSym[sub][sub][ext1]{par}[ext2] = NewName$^{sub}_{sub}ext1[par]ext2$
  \cmdNameElm[sub][sub][ext1]{par}[ext2] = $NewName^{sub}_{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparsymelm}[2][2=]
  {\cmdmthparsym{#1}[#2]%
  \cmdmthparelm{#1}[#2]}
```

\cmdmthoparsymelm ... to do!

- \cmdmthoparsymelm{cmdName};
  \cmdNameSym[sub][sub][par] = cmdName$^{sub}_{sub}[par]$
  \cmdNameElm[sub][sub][par] = $cmdName^{sub}_{sub}[par]$

- \cmdmthoparsymelm{cmdName}[NewName];
  \cmdNameSym[sub][sub][par] = NewName$^{sub}_{sub}[par]$
  \cmdNameElm[sub][sub][par] = $NewName^{sub}_{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparsymelm}[2][2=]
  {\cmdmthoparsym{#1}[#2]%
   \cmdmthoparelm{#1}[#2]}
```

```
%%*************************************************************************%%
```

\mthluop ... to do!
\mthlbop

- \mthluop{\oplus}[sub][sup][Ext] = $\oplus^{sup}_{sub}\,Ext$
- \mthlbop{\oplus}[sub][sup][Ext] = $\oplus^{sup}_{sub}Ext$

```
%% Style for \LaTex Operators
\cmdmth{luop}
\DeclareRobustCommand{\mthstyluop}[1]{\textstyle\mathop{#1}}
\cmdmth{lbop}
\DeclareRobustCommand{\mthstylbop}[1]{\textstyle\mathbin{#1}}
```

\cmdmthluop ... to do!
\cmdmthlbop

- \cmdmthluop{cmdName};
  \cmdNameUOp[sub][sub][ext] = $cmdName^{sub}_{sub}\,ext$
- \cmdmthluop{cmdName}[\oplus];
  \cmdNameUOp[sub][sub][ext] = $\oplus^{sub}_{sub}\,ext$
- \cmdmthlbop{cmdName};
  \cmdNameBOp[sub][sub][ext] = $cmdName^{sub}_{sub}ext$
- \cmdmthlbop{cmdName}[\oplus];
  \cmdNameBOp[sub][sub][ext] = $\oplus^{sub}_{sub}ext$

```
\DeclareRobustCommandx{\cmdmthluop}[2][2=]
  {\usrmth{#1}{UOp}{luop}[#2]}
\DeclareRobustCommandx{\cmdmthlbop}[2][2=]
  {\usrmth{#1}{BOp}{lbop}[#2]}
```

\mthlrel ... to do!

- \mthlrel{\preceq}[sub][sup][Ext] = $\preceq^{sup}_{sub}\,Ext$

```
%% Style for \LaTex Relations
\cmdmth{lrel}
\DeclareRobustCommand{\mthstylrel}{\mathrel}
```

\cmdmthlrel ... to do!

- \cmdmthlrel{cmdName};
  \cmdNameRel[sub][sub][ext] = $cmdName^{sub}_{sub}\,ext$
- \cmdmthlrel{cmdName}[\preceq];
  \cmdNameRel[sub][sub][ext] = $\preceq^{sub}_{sub}\,ext$

```
\DeclareRobustCommandx{\cmdmthlrel}[2][2=]
  {\usrmth{#1}{Rel}{lrel}[#2]}
```

```
%%*************************************************************************%%
```

\mthsnt ... to do!
\mthargsnt
\mthparsnt

- \mthsnt{Name}[sub][sup][Ext] = Name$^{sup}_{sub}Ext$
- \mthargsnt{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name$^{sup}_{sub}Ext1\Big(Arg^{Ex^{Ex}}\Big)Ext2$
- \mthargsnt!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name$^{sup}_{sub}Ext1(Arg^{Ex^{Ex}})Ext2$
- \mthparsnt{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name$^{sup}_{sub}Ext1\Big[Par^{Ex^{Ex}}\Big]Ext2$
- \mthparsnt!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name$^{sup}_{sub}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Sentences
\cmdmthall{snt}
\DeclareRobustCommand{\mthstysnt}{\mathsf}
```

\aSnt ... to do!

... a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, o, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω
A, B, Γ, Δ, E, E, Z, H, Θ, $\varTheta$, I, K, K, Λ, M, N, Ξ, O, Π, $\varPi$, P, P, Σ, $\varSigma$, T, ϒ, Φ, $\varPhi$, X, Ψ, Ω

```
\seqoflet{Snt}{mthsnt}
```

\cmdmthsnt ... to do!

- \cmdmthsnt{cmdName};
  \cmdNameSnt[sub][sub][ext] = $\mathsf{cmdName}_{sub}^{sub}ext$
- \cmdmthsnt{cmdName}[NewName];
  \cmdNameSnt[sub][sub][ext] = $\mathsf{NewName}_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdmthsnt}[2][2=]
  {\usrmth{#1}{Snt}{snt}[#2]}
```

\cmdmthargsnt ... to do!

- \cmdmthargsnt{cmdName};
  \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = $\mathsf{cmdName}_{sub}^{sub}ext1(arg)ext2$
- \cmdmthargsnt{cmdName}[NewName];
  \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = $\mathsf{NewName}_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargsnt}[2][2=]
  {\usrmth{#1}{Snt}{argsnt}[#2]}
```

\cmdmthoargsnt ... to do!

- \cmdmthoargsnt{cmdName};
  \cmdNameSnt[sub][sub][arg] = $\mathsf{cmdName}_{sub}^{sub}(arg)$
- \cmdmthoargsnt{cmdName}[NewName];
  \cmdNameSnt[sub][sub][arg] = $\mathsf{NewName}_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargsnt}[2][2=]
  {\usrmth{#1}{Snt}{oargsnt}[#2]}
```

\cmdmthparsnt ... to do!

- \cmdmthparsnt{cmdName};
  \cmdNameSnt[sub][sub][ext1]{par}[ext2] = $\mathsf{cmdName}_{sub}^{sub}ext1[par]ext2$
- \cmdmthparsnt{cmdName}[NewName];
  \cmdNameSnt[sub][sub][ext1]{par}[ext2] = $\mathsf{NewName}_{sub}^{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparsnt}[2][2=]
  {\usrmth{#1}{Snt}{parsnt}[#2]}
```

\cmdmthoparsnt ... to do!

- \cmdmthoparsnt{cmdName};
  \cmdNameSnt[sub][sub][par] = $\mathsf{cmdName}_{sub}^{sub}[par]$
- \cmdmthoparsnt{cmdName}[NewName];
  \cmdNameSnt[sub][sub][par] = $\mathsf{NewName}_{sub}^{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparsnt}[2][2=]
  {\usrmth{#1}{Snt}{oparsnt}[#2]}
```

\mthfrm ... to do!
\mthargfrm
\mthparfrm

- \mthfrm{Name}[sub][sup][Ext] = $Name_{sub}^{sup}Ext$
- \mthargfrm{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
- \mthargfrm!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
- \mthparfrm{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- \mthparfrm!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Formulae
\cmdmthall{frm}
\DeclareRobustCommand{\mthstyfrm}{\mathit}
```

\aFrm ... to do!

... a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, o, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω
A, B, Γ, Δ, E, E, Z, H, Θ, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω

```
\seqoflet{Frm}{mthfrm}
```

\cmdmthfrm ... to do!

- `\cmdmthfrm{cmdName}`;
  `\cmdNameFrm[sub][sub][ext]` = $cmdName_{sub}^{sub}ext$
- `\cmdmthfrm{cmdName}[NewName]`;
  `\cmdNameFrm[sub][sub][ext]` = $NewName_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdmthfrm}[2][2=]
  {\usrmth{#1}{Frm}{frm}[#2]}
```

\cmdmthargfrm ... to do!

- `\cmdmthargfrm{cmdName}`;
  `\cmdNameFrm[sub][sub][ext1]{arg}[ext2]` = $cmdName_{sub}^{sub}ext1(arg)ext2$
- `\cmdmthargfrm{cmdName}[NewName]`;
  `\cmdNameFrm[sub][sub][ext1]{arg}[ext2]` = $NewName_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargfrm}[2][2=]
  {\usrmth{#1}{Frm}{argfrm}[#2]}
```

\cmdmthoargfrm ... to do!

- `\cmdmthoargfrm{cmdName}`;
  `\cmdNameFrm[sub][sub][arg]` = $cmdName_{sub}^{sub}(arg)$
- `\cmdmthoargfrm{cmdName}[NewName]`;
  `\cmdNameFrm[sub][sub][arg]` = $NewName_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargfrm}[2][2=]
  {\usrmth{#1}{Frm}{oargfrm}[#2]}
```

\cmdmthparfrm ... to do!

- `\cmdmthparfrm{cmdName}`;
  `\cmdNameFrm[sub][sub][ext1]{par}[ext2]` = $cmdName_{sub}^{sub}ext1[par]ext2$
- `\cmdmthparfrm{cmdName}[NewName]`;
  `\cmdNameFrm[sub][sub][ext1]{par}[ext2]` = $NewName_{sub}^{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparfrm}[2][2=]
  {\usrmth{#1}{Frm}{parfrm}[#2]}
```

\cmdmthoparfrm ... to do!

- `\cmdmthoparfrm{cmdName}`;
  `\cmdNameFrm[sub][sub][par]` = $cmdName_{sub}^{sub}[par]$
- `\cmdmthoparfrm{cmdName}[NewName]`;
  `\cmdNameFrm[sub][sub][par]` = $NewName_{sub}^{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparfrm}[2][2=]
  {\usrmth{#1}{Frm}{oparfrm}[#2]}
```

```
%%*************************************************************************%%
```

\mthmat ... to do!
\mthargmat
\mthparmat

- `\mthmat{Name}[sub][sup][Ext]` = $\mathbf{Name}_{sub}^{sup}Ext$
- `\mthargmat{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathbf{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
- `\mthargmat!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\mathbf{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
- `\mthparmat{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathbf{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- `\mthparmat!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\mathbf{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Matrices
\cmdmthall{mat}
\DeclareRobustCommand{\mthstymat}[1]{\boldsymbol{\mathsf{#1}}}
```

`\aMat` ... to do!

... **a**, **b**, **c**, **d**, **e**, **f**, **g**, **h**, **i**, **j**, **k**, **l**, **m**, **n**, **o**, **p**, **q**, **r**, **s**, **t**, **u**, **v**, **w**, **x**, **y**, **z**
A, **B**, **C**, **D**, **E**, **F**, **G**, **H**, **I**, **J**, **K**, **L**, **M**, **N**, **O**, **P**, **Q**, **R**, **S**, **T**, **U**, **V**, **W**, **X**, **Y**, **Z**
α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, **o**, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω
A, **B**, **Γ**, **Δ**, **E**, **E**, **Z**, **H**, **Θ**, $\boldsymbol{\Theta}$, **I**, **K**, **K**, **Λ**, **M**, **N**, **Ξ**, **O**, **Π**, $\boldsymbol{\Pi}$, **P**, **P**, **Σ**, $\boldsymbol{\Sigma}$, **T**, **Υ**, **Φ**, $\boldsymbol{\Phi}$, **X**, **Ψ**, **Ω**

```
\seqoflet{Mat}{mthmat}
```

`\cmdmthmat` ... to do!

- `\cmdmthmat{cmdName}`;
  `\cmdNameMat[sub][sub][ext]` = $\mathbf{cmdName}^{sub}_{sub}ext$
- `\cmdmthmat{cmdName}[NewName]`;
  `\cmdNameMat[sub][sub][ext]` = $\mathbf{NewName}^{sub}_{sub}ext$

```
\DeclareRobustCommandx{\cmdmthmat}[2][2=]
  {\usrmth{#1}{Mat}{mat}[#2]}
```

`\cmdmthargmat` ... to do!

- `\cmdmthargmat{cmdName}`;
  `\cmdNameMat[sub][sub][ext1]{arg}[ext2]` = $\mathbf{cmdName}^{sub}_{sub}ext1(arg)ext2$
- `\cmdmthargmat{cmdName}[NewName]`;
  `\cmdNameMat[sub][sub][ext1]{arg}[ext2]` = $\mathbf{NewName}^{sub}_{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargmat}[2][2=]
  {\usrmth{#1}{Mat}{argmat}[#2]}
```

`\cmdmthoargmat` ... to do!

- `\cmdmthoargmat{cmdName}`;
  `\cmdNameMat[sub][sub][arg]` = $\mathbf{cmdName}^{sub}_{sub}(arg)$
- `\cmdmthoargmat{cmdName}[NewName]`;
  `\cmdNameMat[sub][sub][arg]` = $\mathbf{NewName}^{sub}_{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargmat}[2][2=]
  {\usrmth{#1}{Mat}{oargmat}[#2]}
```

`\cmdmthparmat` ... to do!

- `\cmdmthparmat{cmdName}`;
  `\cmdNameMat[sub][sub][ext1]{par}[ext2]` = $\mathbf{cmdName}^{sub}_{sub}ext1[par]ext2$
- `\cmdmthparmat{cmdName}[NewName]`;
  `\cmdNameMat[sub][sub][ext1]{par}[ext2]` = $\mathbf{NewName}^{sub}_{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparmat}[2][2=]
  {\usrmth{#1}{Mat}{parmat}[#2]}
```

`\cmdmthoparmat` ... to do!

- `\cmdmthoparmat{cmdName}`;
  `\cmdNameMat[sub][sub][par]` = $\mathbf{cmdName}^{sub}_{sub}[par]$
- `\cmdmthoparmat{cmdName}[NewName]`;
  `\cmdNameMat[sub][sub][par]` = $\mathbf{NewName}^{sub}_{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparmat}[2][2=]
  {\usrmth{#1}{Mat}{oparmat}[#2]}
```

`\mthvec` ... to do!
`\mthargvec`
`\mthparvec`

- `\mthvec{Name}[sub][sup][Ext]` = $\boldsymbol{Name}^{sup}_{sub}Ext$
- `\mthargvec{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\boldsymbol{Name}^{sup}_{sub}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
- `\mthargvec!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = $\boldsymbol{Name}^{sup}_{sub}Ext1(Arg^{Ex^{Ex}})Ext2$
- `\mthparvec{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\boldsymbol{Name}^{sup}_{sub}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$

- `\mthparvec!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = $\boldsymbol{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
%% Style for Vectors
\cmdmthall{vec}
\DeclareRobustCommand{\mthstyvec}[1]{\boldsymbol{\mathit{#1}}}
```

`\aVec` ... to do!

`...` $\boldsymbol{a}, \boldsymbol{b}, \boldsymbol{c}, \boldsymbol{d}, \boldsymbol{e}, \boldsymbol{f}, \boldsymbol{g}, \boldsymbol{h}, \boldsymbol{i}, \boldsymbol{j}, \boldsymbol{k}, \boldsymbol{l}, \boldsymbol{m}, \boldsymbol{n}, \boldsymbol{o}, \boldsymbol{p}, \boldsymbol{q}, \boldsymbol{r}, \boldsymbol{s}, \boldsymbol{t}, \boldsymbol{u}, \boldsymbol{v}, \boldsymbol{w}, \boldsymbol{x}, \boldsymbol{y}, \boldsymbol{z}$
$\boldsymbol{A}, \boldsymbol{B}, \boldsymbol{C}, \boldsymbol{D}, \boldsymbol{E}, \boldsymbol{F}, \boldsymbol{G}, \boldsymbol{H}, \boldsymbol{I}, \boldsymbol{J}, \boldsymbol{K}, \boldsymbol{L}, \boldsymbol{M}, \boldsymbol{N}, \boldsymbol{O}, \boldsymbol{P}, \boldsymbol{Q}, \boldsymbol{R}, \boldsymbol{S}, \boldsymbol{T}, \boldsymbol{U}, \boldsymbol{V}, \boldsymbol{W}, \boldsymbol{X}, \boldsymbol{Y}, \boldsymbol{Z}$
$\boldsymbol{\alpha}, \boldsymbol{\beta}, \boldsymbol{\gamma}, \boldsymbol{\delta}, \boldsymbol{\epsilon}, \boldsymbol{\varepsilon}, \boldsymbol{\zeta}, \boldsymbol{\eta}, \boldsymbol{\theta}, \boldsymbol{\vartheta}, \boldsymbol{\iota}, \boldsymbol{\kappa}, \boldsymbol{\varkappa}, \boldsymbol{\lambda}, \boldsymbol{\mu}, \boldsymbol{\nu}, \boldsymbol{\xi}, \boldsymbol{o}, \boldsymbol{\pi}, \boldsymbol{\varpi}, \boldsymbol{\rho}, \boldsymbol{\varrho}, \boldsymbol{\sigma}, \boldsymbol{\varsigma}, \boldsymbol{\tau}, \boldsymbol{\upsilon}, \boldsymbol{\phi}, \boldsymbol{\varphi}, \boldsymbol{\chi}, \boldsymbol{\psi}, \boldsymbol{\omega}$
$\boldsymbol{A}, \boldsymbol{B}, \boldsymbol{\varGamma}, \boldsymbol{\varDelta}, \boldsymbol{E}, \boldsymbol{E}, \boldsymbol{Z}, \boldsymbol{H}, \boldsymbol{\varTheta}, \boldsymbol{\varTheta}, \boldsymbol{I}, \boldsymbol{K}, \boldsymbol{K}, \boldsymbol{\varLambda}, \boldsymbol{M}, \boldsymbol{N}, \boldsymbol{\varXi}, \boldsymbol{O}, \boldsymbol{\varPi}, \boldsymbol{\varPi}, \boldsymbol{P}, \boldsymbol{P}, \boldsymbol{\varSigma}, \boldsymbol{\varSigma}, \boldsymbol{T}, \boldsymbol{\varUpsilon}, \boldsymbol{\varPhi}, \boldsymbol{\varPhi}, \boldsymbol{X}, \boldsymbol{\varPsi}, \boldsymbol{\varOmega}$

```
\seqoflet{Vec}{mthvec}
```

`\cmdmthvec` ... to do!

- `\cmdmthvec{cmdName};`
  `\cmdNameVec[sub][sub][ext]` = $\boldsymbol{cmdName}_{sub}^{sub}ext$
- `\cmdmthvec{cmdName}[NewName];`
  `\cmdNameVec[sub][sub][ext]` = $\boldsymbol{NewName}_{sub}^{sub}ext$

```
\DeclareRobustCommandx{\cmdmthvec}[2][2=]
  {\usrmth{#1}{Vec}{vec}[#2]}
```

`\cmdmthargvec` ... to do!

- `\cmdmthargvec{cmdName};`
  `\cmdNameVec[sub][sub][ext1]{arg}[ext2]` = $\boldsymbol{cmdName}_{sub}^{sub}ext1(arg)ext2$
- `\cmdmthargvec{cmdName}[NewName];`
  `\cmdNameVec[sub][sub][ext1]{arg}[ext2]` = $\boldsymbol{NewName}_{sub}^{sub}ext1(arg)ext2$

```
\DeclareRobustCommandx{\cmdmthargvec}[2][2=]
  {\usrmth{#1}{Vec}{argvec}[#2]}
```

`\cmdmthoargvec` ... to do!

- `\cmdmthoargvec{cmdName};`
  `\cmdNameVec[sub][sub][arg]` = $\boldsymbol{cmdName}_{sub}^{sub}(arg)$
- `\cmdmthoargvec{cmdName}[NewName];`
  `\cmdNameVec[sub][sub][arg]` = $\boldsymbol{NewName}_{sub}^{sub}(arg)$

```
\DeclareRobustCommandx{\cmdmthoargvec}[2][2=]
  {\usrmth{#1}{Vec}{oargvec}[#2]}
```

`\cmdmthparvec` ... to do!

- `\cmdmthparvec{cmdName};`
  `\cmdNameVec[sub][sub][ext1]{par}[ext2]` = $\boldsymbol{cmdName}_{sub}^{sub}ext1[par]ext2$
- `\cmdmthparvec{cmdName}[NewName];`
  `\cmdNameVec[sub][sub][ext1]{par}[ext2]` = $\boldsymbol{NewName}_{sub}^{sub}ext1[par]ext2$

```
\DeclareRobustCommandx{\cmdmthparvec}[2][2=]
  {\usrmth{#1}{Vec}{parvec}[#2]}
```

`\cmdmthoparvec` ... to do!

- `\cmdmthoparvec{cmdName};`
  `\cmdNameVec[sub][sub][par]` = $\boldsymbol{cmdName}_{sub}^{sub}[par]$
- `\cmdmthoparvec{cmdName}[NewName];`
  `\cmdNameVec[sub][sub][par]` = $\boldsymbol{NewName}_{sub}^{sub}[par]$

```
\DeclareRobustCommandx{\cmdmthoparvec}[2][2=]
  {\usrmth{#1}{Vec}{oparvec}[#2]}
```

```
\fi
%%****************************************************************************%%
```

```
%%****************************************************************************%%
%%** Elementary Macros for Text **********************************************%%
%%****************************************************************************%%
\iftxt@
```

\dotcheck • A\dotcheck A\dotcheck.A = A.A. A

```
\newrobustcmd{\dotcheck}
  {\@ifnextchar.{}{.\@}}
```

```
%%** Latin Abbreviations ******************************************************%%
```

\adhoc • \adhoc = *ad hoc*

```
\cmdtxtabr{adhoc}[ad hoc]
```

\afortiori • \afortiori = *a fortiori*

```
\cmdtxtabr{afortiori}[a fortiori]
```

\apriori • \apriori = *a priori*

```
\cmdtxtabr{apriori}[a priori]
```

\aposteriori • \aposteriori = *a posteriori*

```
\cmdtxtabr{aposteriori}[a posteriori]
```

\cf • \cf = *cf.*

```
\cmdtxtabr{cf}[cf.\@]
```

\dedicto • \dedicto = *de dicto*

```
\cmdtxtabr{dedicto}[de dicto]
```

\defacto • \defacto = *de facto*

```
\cmdtxtabr{defacto}[de facto]
```

\dere • \dere = *de re*

```
\cmdtxtabr{dere}[de re]
```

\divideetimpera • \divideetimpera = *divide et impera*

```
\cmdtxtabr{divideetimpera}[divide et impera]
```

\eg • \eg = *e.g.*

```
\cmdtxtabr{eg}[e.g.\@]
```

\ergo • \ergo = *ergo*

```
\cmdtxtabr{ergo}
```

\errata • \errata = *errata*

```
\cmdtxtabr{errata}
```

\erratum • \erratum = *erratum*

```
\cmdtxtabr{erratum}
```

\etal • \etal = *et al.*

```
\cmdtxtabr{etal}[et al.\@]
```

\etc • \etc = *etc.*

```
\cmdtxtabr{etc}[etc.\@]
```

\ie • \ie = *i.e.*

```
\cmdtxtabr{ie}[i.e.\@]
```

\mutatismutandis • \mutatismutandis = *mutatis mutandis*

```
\cmdtxtabr{mutatismutandis}[mutatis mutandis]
```

\percontra • \percontra = *per contra*

```
\cmdtxtabr{percontra}[per contra]
```

\primafacie • \primafacie = *prima facie*

```
\cmdtxtabr{primafacie}[prima facie]
```

\viceversa • \viceversa = *vice versa*

```
\cmdtxtabr{viceversa}[vice versa]
```

\vs • \vs = *vs.*

```
\cmdtxtabr{vs}[vs.\@]
```

\viz • \viz = *viz.*

```
\cmdtxtabr{viz}[viz.\@]
```

```
%%*****************************************************************************%%
```

\Afortiori • \Afortiori = *A fortiori*

```
\cmdtxtabr{Afortiori}[A fortiori]
```

\Apriori • \Apriori = *A priori*

```
\cmdtxtabr{Apriori}[A priori]
```

\Aposteriori • \Aposteriori = *A posteriori*

```
\cmdtxtabr{Aposteriori}[A posteriori]
```

\Dedicto • \Dedicto = *De dicto*

```
\cmdtxtabr{Dedicto}[De dicto]
```

\Defacto • \Defacto = *De facto*

```
\cmdtxtabr{Defacto}[De facto]
```

\Dere • \Dere = *De re*

```
\cmdtxtabr{Dere}[De re]
```

\Divideetimpera • \Divideetimpera = *Divide et impera*

```
\cmdtxtabr{Divideetimpera}[Divide et impera]
```

\Eg • \Eg = *E.g.*

```
\cmdtxtabr{Eg}[E.g.\@]
```

\Errata • \Errata = *Errata*

```
\cmdtxtabr{Errata}
```

\Erratum • \Erratum = *Erratum*

```
\cmdtxtabr{Erratum}
```

\Mutatismutandis • \Mutatismutandis = *Mutatis mutandis*

```
\cmdtxtabr{Mutatismutandis}[Mutatis mutandis]
```

\Percontra • \Percontra = *Per contra*

```
\cmdtxtabr{Percontra}[Per contra]
```

\Primafacie • \Primafacie = *Prima facie*

```
\cmdtxtabr{Primafacie}[Prima facie]
```

\Viceversa • \Viceversa = *Vice versa*

```
\cmdtxtabr{Viceversa}[Vice versa]
```

```
%%** Italian Abbreviations *************************************************%%
```

...

```
%%*****************************************************************************%%
```

...

```
%%** French Abbreviations ***************************************************%%
```

\ala • \ala = *à la*

```
\cmdtxtabr{ala}[\`a la]
```

\naif • \naif = *naïf*

```
\cmdtxtabr{naif}[na\"{i}f]
```

\naive • \naive = *naïve*

```
\cmdtxtabr{naive}[na\"{i}ve]
```

\role • \role = *rôle*

```
\cmdtxtabr{role}[r\^{o}le]
```

```
%%****************************************************************************%%
```

\Role • \Role = *Rôle*

```
\cmdtxtabr{Role}[R\^{o}le]
```

```
%%** English Abbreviations ***************************************************%%
```

\aka • \aka = *a.k.a.*

```
\cmdtxtabr{aka}[a.k.a.\@]
```

\contd • \contd = *contd.*

```
\cmdtxtabr{contd}[contd.\@]
```

\iff • \iff = *iff*

```
\cmdtxtabr{iff}
```

\iht • \iht = *i.h.t.*

```
\cmdtxtabr{iht}[i.h.t.\@]
```

\stx • \stx = *s.t.*

```
\cmdtxtabr{stx}[s.t.\@]
```

\resp • \resp = *resp.*

```
\cmdtxtabr{resp}[resp.\@]
```

\wrt • \wrt = *w.r.t.*

```
\cmdtxtabr{wrt}[w.r.t.\@]
```

\wlogx • \wlogx = *w.l.o.g.*

```
\cmdtxtabr{wlogx}[w.l.o.g.\@]
```

```
%%****************************************************************************%%
```

\Contd • \Contd = *Contd.*

```
\cmdtxtabr{Contd}[Contd.\@]
```

\Wlogx • \Wlogx = *W.l.o.g.*

```
\cmdtxtabr{Wlogx}[W.l.o.g.\@]

\fi
%%****************************************************************************%%
%%****************************************************************************%%
%%** Elementary Macros for Math ************************************************%%
%%****************************************************************************%%
\ifmth@
```

```
910 %%** General Notation *************************************************%%

      \defeq ...
      \seteq  911 \DeclareRobustCommand{\defeq}
              912   {\ifstarvar%
              913     {\mthlbop{\stackrel{\text{\textup{def}}}{=}}%
              914     {\mthlbop{\triangleq}}}
              915 \DeclareRobustCommand{\seteq}
              916   {\ifstarvar{\mthlbop{\Coloneqq}}{\mthlbop{\coloneqq}}}
              917 %%*************************************************************************%%

       \limp ...
     \lcoimp  918 \DeclareRobustCommand{\limp}
              919   {\mthlbop{\rightarrow}}
              920 \DeclareRobustCommand{\lcoimp}
              921   {\mthlbop{\leftrightarrow}}
              922 %%*************************************************************************%%

     \implies ...
  \notimplies  923 \DeclareRobustCommand{\implies}
              924   {\mthlrel{\Rightarrow}}
              925 \DeclareRobustCommand{\notimplies}
              926   {\mthlrel{\not\Rightarrow}}

     \implied ...
  \notimplied  927 \DeclareRobustCommand{\implied}
              928   {\mthlrel{\Leftarrow}}
              929 \DeclareRobustCommand{\notimplied}
              930   {\mthlrel{\not\Leftarrow}}

   \coimplies ...
\notcoimplies  931 \DeclareRobustCommand{\coimplies}
              932   {\mthlrel{\Leftrightarrow}}
              933 \DeclareRobustCommand{\notcoimplies}
              934   {\mthlrel{\not\!\Leftrightarrow}}
              935 %%*************************************************************************%%

     \cmodels ...
  \notcmodels  936 \DeclareRobustCommand{\cmodels}
              937   {\mthlrel{\models}}
              938 \DeclareRobustCommand{\notcmodels}
              939   {\mthlrel{\not\models}}

      \cequiv ...
   \notcequiv  940 \DeclareRobustCommand{\cequiv}
              941   {\mthlrel{\equiv}}
              942 \DeclareRobustCommand{\notcequiv}
              943   {\mthlrel{\not\equiv}}
              944 %%*************************************************************************%%

       \denot ...
              945 \DeclareRobustCommand{\denot}
              946   {\ifexclavar{\@edenot}{\@denot}}
              947 \DeclareRobustCommand{\@denot}[1]
              948   {\mth{\argmid{\left\llbracket}{#1}{\right\rrbracket}}}
              949 \DeclareRobustCommand{\@edenot}[1]
              950   {\mth!{\argmid{\llbracket}{#1}{\rrbracket}}}

              951 %%*************************************************************************%%
```

```
      \comp ...
      \dual
       \adj
       \der
       \trn
\DeclareRobustCommand{\comp}[1]
  {\mth{\overline{#1}}}
\DeclareRobustCommand{\dual}[1]
  {\mth{\widetilde{#1}}}
\DeclareRobustCommand{\adj}[1]
  {\mth{\mathring{#1}}}
\DeclareRobustCommand{\der}[1]
  {\mth{\widehat{#1}}}
\DeclareRobustCommand{\trn}[1]
  {\mth{\overbrace{#1}}}

       \vec ...
\DeclareRobustCommand{\vec}
  {\ifstarvar{\@svec}{\@vec}}
\DeclareRobustCommand{\@vec}[1]
  {\mth{\mathaccent"017E{#1}}}
\DeclareRobustCommand{\@svec}[1]
  {\mth{\overline{#1}}}

%%*************************************************************************%%

\enumeration ...
\DeclareRobustCommand{\enumeration}
  {\ifstarvar{\@senumeration}{\@enumeration}}
\varcmd{@enumeration}{\mth!}{}{,}{}{}
\varcmd{@senumeration}{\mth!}{}{;}{}{}

   \sequence ...
  \sequencel
  \sequencer
\DeclareRobustCommand{\sequence}
  {\ifstarvar{\@ssequence}{\@sequence}}
\DeclareRobustCommand{\@sequence}
  {\ifexclavar{\@e@sequence}{\@@sequence}}
\DeclareRobustCommand{\@ssequence}
  {\ifexclavar{\@e@ssequence}{\@@ssequence}}
\varcmd{@@sequence}{\mth}{\left[}{,}{\right]}{}
\varcmd{@e@sequence}{\mth!}{[}{,}{]}{}
\varcmd{@@ssequence}{\mth}{\left[}{;}{\right]}{}
\varcmd{@e@ssequence}{\mth!}{[}{;}{]}{}
\DeclareRobustCommand{\sequencel}
  {\ifstarvar{\@ssequencel}{\@sequencel}}
\DeclareRobustCommand{\@sequencel}
  {\ifexclavar{\@e@sequencel}{\@@sequencel}}
\DeclareRobustCommand{\@ssequencel}
  {\ifexclavar{\@e@ssequencel}{\@@ssequencel}}
\varcmd{@@sequencel}{\mth}{\left[}{,}{\right.}{}
\varcmd{@e@sequencel}{\mth!}{[}{,}{}{}
\varcmd{@@ssequencel}{\mth}{\left[}{;}{\right.}{}
\varcmd{@e@ssequencel}{\mth!}{[}{;}{}{}
\DeclareRobustCommand{\sequencer}
  {\ifstarvar{\@ssequencer}{\@sequencer}}
\DeclareRobustCommand{\@sequencer}
  {\ifexclavar{\@e@sequencer}{\@@sequencer}}
\DeclareRobustCommand{\@ssequencer}
  {\ifexclavar{\@e@ssequencer}{\@@ssequencer}}
\varcmd{@@sequencer}{\mth}{\left.}{,}{\right]}{}
\varcmd{@e@sequencer}{\mth!}{}{,}{]}{}
\varcmd{@@ssequencer}{\mth}{\left.}{;}{\right]}{}
\varcmd{@e@ssequencer}{\mth!}{}{;}{]}{}

    \tuple ...
   \tuplel
   \tupler
\DeclareRobustCommand{\tuple}
  {\ifstarvar{\@stuple}{\@tuple}}
```

```
\DeclareRobustCommand{\@tuple}
  {\ifexclavar{\@e@tuple}{\@@tuple}}
\DeclareRobustCommand{\@stuple}
  {\ifexclavar{\@e@stuple}{\@@stuple}}
\varcmd{@@tuple}{\mth}{\left\langle}{,}{\right\rangle}{}
\varcmd{@e@tuple}{\mth!}{\langle}{,}{\rangle}{}
\varcmd{@@stuple}{\mth}{\left\langle}{;}{\right\rangle}{}
\varcmd{@e@stuple}{\mth!}{\langle}{;}{\rangle}{}
\DeclareRobustCommand{\tuplel}
  {\ifstarvar{\@stuplel}{\@tuplel}}
\DeclareRobustCommand{\@tuplel}
  {\ifexclavar{\@e@tuplel}{\@@tuplel}}
\DeclareRobustCommand{\@stuplel}
  {\ifexclavar{\@e@stuplel}{\@@stuplel}}
\varcmd{@@tuplel}{\mth}{\left\langle}{,}{\right.}{}
\varcmd{@e@tuplel}{\mth!}{\langle}{,}{}{}
\varcmd{@@stuplel}{\mth}{\left\langle}{;}{\right.}{}
\varcmd{@e@stuplel}{\mth!}{\langle}{;}{}{}
\DeclareRobustCommand{\tupler}
  {\ifstarvar{\@stupler}{\@tupler}}
\DeclareRobustCommand{\@tupler}
  {\ifexclavar{\@e@tupler}{\@@tupler}}
\DeclareRobustCommand{\@stupler}
  {\ifexclavar{\@e@stupler}{\@@stupler}}
\varcmd{@@tupler}{\mth}{\left.}{,}{\right\rangle}{}
\varcmd{@e@tupler}{\mth!}{}{,}{\rangle}{}
\varcmd{@@stupler}{\mth}{\left.}{;}{\right\rangle}{}
\varcmd{@e@stupler}{\mth!}{}{;}{\rangle}{}
%%** Sets ************************************************************%%
```

```
 \set ...{1^2 | 1^2}{1^2 : 1^2}{1^2 | 1^2}{1^2 : 1^2}
\setl ...{1^2 | 1^2}
\setr ...{1^2 :1^2}
      ...{1^2 |1^2}
      ...{1^2 :1^2}
```

```
\DeclareRobustCommand{\set}
  {\ifstarvar{\@sset}{\@set}}
\DeclareRobustCommand{\@set}
  {\ifexclavar{\@e@xset{\vert}}{\@@xset{\vert}}}
\DeclareRobustCommand{\@sset}
  {\ifexclavar{\@e@xset{\!:\!}}{\@@xset{.\!:\!}}}
\DeclareRobustCommand{\@@xset}[3]
  {\mth{\argmid{\left\lbrace}{\argsep{#2}{\,\middle#1\,}{#3}}{\right\rbrace}}}
\DeclareRobustCommand{\@e@xset}[3]
  {\mth!{\argmid{\lbrace}{\argsep{#2}{\,#1\,}{#3}}{\rbrace}}}
\DeclareRobustCommand{\setl}
  {\ifstarvar{\@ssetl}{\@setl}}
\DeclareRobustCommand{\@setl}
  {\ifexclavar{\@e@xsetl{\,\vert}}{\@@xsetl{\vert}}}
\DeclareRobustCommand{\@ssetl}
  {\ifexclavar{\@e@xsetl{\!:}}{\@@xsetl{.\!\!:}}}
\DeclareRobustCommand{\@@xsetl}[2]
  {\mth{\argmid{\left\lbrace}{#2}{\,\right#1}}}
\DeclareRobustCommand{\@e@xsetl}[2]
  {\mth!{\argmid{\lbrace}{#2}{\,#1}}}
\DeclareRobustCommand{\setr}
  {\ifstarvar{\@setr}{\@setr}}
\DeclareRobustCommand{\@setr}
  {\ifexclavar{\@e@setr}{\@@setr}}
\DeclareRobustCommand{\@@setr}[1]
  {\mth{\argmid{\left.}{#1}{\right\rbrace}}}
\DeclareRobustCommand{\@e@setr}[1]
  {\mth!{\argmid{}{#1}{\rbrace}}}
```

```
    \card ...
          \DeclareRobustCommand{\card}
            {\ifexclavar{\@ecard}{\@card}}
          \DeclareRobustCommand{\@card}[1]
            {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
          \DeclareRobustCommand{\@ecard}[1]
            {\mth!{\argmid{\lvert}{#1}{\rvert}}}

     \pow ...
          \DeclareRobustCommand{\pow}
            {\ifstarvar{\@spow}{\@pow}}
          \DeclareRobustCommand{\@pow}[1]
            {\mth{2^{\defval{#1}{\cdot}}}}
          \DeclareRobustCommand{\@spow}
            {\ifexclavar{\@e@spow}{\@@spow}}
          \DeclareRobustCommand{\@e@spow}[1]
            {\mthargfun![mathscr]{P}{\defval{#1}{\cdot}}}
          \DeclareRobustCommand{\@@spow}[1]
            {\mthargfun[mathscr]{P}{\defval{#1}{\cdot}}}

          %%** Relations ********************************************************%%

\emptyrel ...
          \DeclareRobustCommand{\emptyrel}
            {\mth{\varnothing}}

          %%*************************************************************************%%

     \dom ...
     \cod \usrmth{dom}{}{argfun}
     \rng \usrmth{cod}{}{argfun}
     \img \usrmth{rng}{}{argfun}
          \usrmth{img}{}{argfun}

     \deg ...
          \usrmth{deg}{}{argfun}

          %%*************************************************************************%%

     \prj ...
          \DeclareRobustCommand{\prj}
            {\mthlbop{\downarrow}}

     \rst ...
          \DeclareRobustCommand{\rst}
            {\mthlbop{\upharpoonright}}

     \cmp ...
          \DeclareRobustCommand{\cmp}
            {\mthlbop{\circ}}

          %%** Functions ********************************************************%%

\emptyfun ...
          \DeclareRobustCommand{\emptyfun}
            {\mth{\varnothing}}

          %%*************************************************************************%%

     \pto ...
 \pmapsto \DeclareMathOperator{\pto}
            {\ensuremath{\rightharpoonup}}
          \DeclareMathOperator{\pmapsto}
            {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize${\llcorner}$}%
              \kern-1.5ex\rightharpoonup}}}
```

```
%%***************************************************************************%%

\fix ...
\ifp \usrmth{fix}{}{fun}
\lfp \usrmth{ifp}{}{fun}
\gfp \usrmth{lfp}{}{fun}
     \usrmth{gfp}{}{fun}

%%***************************************************************************%%

\Aomega ...
\AOmega \usrmth{Aomega}{}{argset}[\omega]
        \usrmth{AOmega}{}{argset}[\Omega]

\Atheta ...
\ATheta \usrmth{Atheta}{}{argset}[\theta]
        \usrmth{ATheta}{}{argset}[\Theta]

\Aomicron ...
\AOmicron \usrmth{Aomicron}{}{argset}[\omicron]
          \usrmth{AOmicron}{}{argset}[\Omicron]

%%** Numbers ************************************************************%%

\SetB ...
      \DeclareRobustCommand{\SetB}
        {\mthset[mathbb]{B}}

\SetF ...
      \DeclareRobustCommand{\SetF}
        {\mthset[mathbb]{F}}

\SetN ...
\SetNI \DeclareRobustCommand{\SetN}
         {\mthset[mathbb]{N}}
       \DeclareRobustCommand{\SetNI}[1][]
         {\SetN[\infty #1]}

\SetZ ...
\SetZI \DeclareRobustCommand{\SetZ}
\SetZPI  {\mthset[mathbb]{Z}}
\SetZNI \DeclareRobustCommand{\SetZI}[1][]
         {\SetZ[\pm\infty #1]}
       \DeclareRobustCommand{\SetZPI}[1][]
         {\SetZ[+\infty #1]}
       \DeclareRobustCommand{\SetZNI}[1][]
         {\SetZ[-\infty #1]}

\SetQ ...
\SetQI \DeclareRobustCommand{\SetQ}
\SetQPI  {\mthset[mathbb]{Q}}
\SetQNI \DeclareRobustCommand{\SetQI}[1][]
         {\SetQ[\pm\infty #1]}
       \DeclareRobustCommand{\SetQPI}[1][]
         {\SetQ[+\infty #1]}
       \DeclareRobustCommand{\SetQNI}[1][]
         {\SetQ[-\infty #1]}

\SetR ...
\SetRI \DeclareRobustCommand{\SetR}
\SetRPI  {\mthset[mathbb]{R}}
\SetRNI \DeclareRobustCommand{\SetRI}[1][]
         {\SetR[\pm\infty #1]}
```

```
\DeclareRobustCommand{\SetRPI}[1][]
  {\SetR[+\infty #1]}
\DeclareRobustCommand{\SetRNI}[1][]
  {\SetR[-\infty #1]}

\SetC ...
\SetCI
\DeclareRobustCommand{\SetC}
  {\mthset[mathbb]{C}}
\DeclareRobustCommand{\SetCI}[1][]
  {\SetC[\infty #1]}
%%*************************************************************************%%

 \num ...
\numcc
\numco
\numoc
\numoo
\DeclareRobustCommand{\num}[1]
  {\mth{[#1]}}
\DeclareRobustCommand{\numcc}[2]
  {\mth{[\argsep{#1}{,}{#2}]}}
\DeclareRobustCommand{\numco}[2]
  {\mth{[\argsep{#1}{,}{#2})}}
\DeclareRobustCommand{\numoc}[2]
  {\mth{(\argsep{#1}{,}{#2}]}}
\DeclareRobustCommand{\numoo}[2]
  {\mth{(\argsep{#1}{,}{#2})}}
%%*************************************************************************%%

 \abs ...
\norm
\DeclareRobustCommand{\abs}
  {\ifexclavar{\@eabs}{\@abs}}
\DeclareRobustCommand{\@abs}[1]
  {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
\DeclareRobustCommand{\@eabs}[1]
  {\mth!{\argmid{\lvert}{#1}{\rvert}}}
\DeclareRobustCommand{\norm}
  {\ifexclavar{\@enorm}{\@norm}}
\DeclareRobustCommand{\@norm}[1]
  {\mth{\argmid{\left\lVert}{#1}{\right\rVert}}}
\DeclareRobustCommand{\@enorm}[1]
  {\mth!{\argmid{\lVert}{#1}{\rVert}}}

\floor ...
\ceil
\DeclareRobustCommand{\floor}
  {\ifexclavar{\@efloor}{\@floor}}
\DeclareRobustCommand{\@floor}[1]
  {\mth{\argmid{\left\lfloor}{#1}{\right\rfloor}}}
\DeclareRobustCommand{\@efloor}[1]
  {\mth!{\argmid{\lfloor}{#1}{\rfloor}}}
\DeclareRobustCommand{\ceil}
  {\ifexclavar{\@eceil}{\@ceil}}
\DeclareRobustCommand{\@ceil}[1]
  {\mth{\argmid{\left\lceil}{#1}{\right\rceil}}}
\DeclareRobustCommand{\@eceil}[1]
  {\mth!{\argmid{\lceil}{#1}{\rceil}}}
%%*************************************************************************%%

 \arg ...
\usrmth{arg}{}{fun}

 \evn ...
 \odd
\usrmth{evn}{}{fun}
\usrmth{odd}{}{fun}
```

```
      \bst ...
    \argbst 1192 \usrmth{bst}{}{fun}
            1193 \usrmth{argbst}{}{fun}[arg\,bst]

      \min ...
      \max 1194 \usrmth{min}{}{fun}
    \argmin 1195 \usrmth{max}{}{fun}
    \argmax 1196 \usrmth{argmin}{}{fun}[arg\,min]
            1197 \usrmth{argmax}{}{fun}[arg\,max]

      \inf ...
      \sup 1198 \usrmth{inf}{}{fun}
           1199 \usrmth{sup}{}{fun}

      \gcd ...
      \lcm 1200 \usrmth{gcd}{}{fun}
           1201 \usrmth{lcm}{}{fun}

           1202 %%** Sequences *****************************************************************%%

  \emptyseq ...
           1203 \DeclareRobustCommand{\emptyseq}
           1204   {\mth{\varepsilon}}

      \len ...
           1205 \DeclareRobustCommand{\len}
           1206   {\ifexclavar{\@elen}{\@len}}
           1207 \DeclareRobustCommand{\@len}[1]
           1208   {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
           1209 \DeclareRobustCommand{\@elen}[1]
           1210   {\mth!{\argmid{\lvert}{#1}{\rvert}}}

      \fst ...
      \lst 1211 \usrmth{fst}{}{argfun}
           1212 \usrmth{lst}{}{argfun}

           1213 \fi
           1214 %%*******************************************************************************%%

           1215 %%*******************************************************************************%%
           1216 %%** Macros for Computational-Complexity Classes ***************************%%
           1217 %%*******************************************************************************%%
           1218 \ifcom@
```

`\defcomcls` ... to do!

- `\defcomcls{CompClass}`;

  `\CompClass[sub][sup][arg]` = $\textsc{CompClass}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

- `\defcomcls{CompClass}[NewClass]`;

  `\CompClass[sub][sup][arg]` = $\textsc{NewClass}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

```
           1219 \DeclareRobustCommandx{\defcomcls}[2][2=]
           1220   {\csdef{#1}{\txtoargcom{\defval{#2}{#1}}}}
```

`\defcomclsgrp` ... to do!

- `\defcomclsgrp{CompClass}`;

  `\CompClass[sub][sup][arg]` = $\textsc{CompClass}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
  `\CoCompClass[sub][sup][arg]` = $\textsc{CoCompClass}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
  `\CompClassE[sub][sup][arg]` = $\textsc{CompClass-easy}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
  `\CoCompClassE[sub][sup][arg]` = $\textsc{CoCompClass-easy}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
  `\CompClassH[sub][sup][arg]` = $\textsc{CompClass-hard}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

`\CoCompClassH[sub][sup][arg]` = $\textsc{CoCompClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CompClassC[sub][sup][arg]` = $\textsc{CompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoCompClassC[sub][sup][arg]` = $\textsc{CoCompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

`\DCompClass[sub][sup][arg]` = $\textsc{DCompClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClass[sub][sup][arg]` = $\textsc{CoDCompClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\DCompClassE[sub][sup][arg]` = $\textsc{DCompClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClassE[sub][sup][arg]` = $\textsc{CoDCompClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\DCompClassH[sub][sup][arg]` = $\textsc{DCompClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClassH[sub][sup][arg]` = $\textsc{CoDCompClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\DCompClassC[sub][sup][arg]` = $\textsc{DCompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClassC[sub][sup][arg]` = $\textsc{CoDCompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

`\NCompClass[sub][sup][arg]` = $\textsc{NCompClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoNCompClass[sub][sup][arg]` = $\textsc{CoNCompClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\NCompClassE[sub][sup][arg]` = $\textsc{NCompClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoNCompClassE[sub][sup][arg]` = $\textsc{CoNCompClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\NCompClassH[sub][sup][arg]` = $\textsc{NCompClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoNCompClassH[sub][sup][arg]` = $\textsc{CoNCompClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\NCompClassC[sub][sup][arg]` = $\textsc{NCompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoNCompClassC[sub][sup][arg]` = $\textsc{CoNCompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

`\UCompClass[sub][sup][arg]` = $\textsc{UCompClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoUCompClass[sub][sup][arg]` = $\textsc{CoUCompClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\UCompClassE[sub][sup][arg]` = $\textsc{UCompClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoUCompClassE[sub][sup][arg]` = $\textsc{CoUCompClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\UCompClassH[sub][sup][arg]` = $\textsc{UCompClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoUCompClassH[sub][sup][arg]` = $\textsc{CoUCompClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\UCompClassC[sub][sup][arg]` = $\textsc{UCompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoUCompClassC[sub][sup][arg]` = $\textsc{CoUCompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

`\ACompClass[sub][sup][arg]` = $\textsc{ACompClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoACompClass[sub][sup][arg]` = $\textsc{CoACompClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\ACompClassE[sub][sup][arg]` = $\textsc{ACompClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoACompClassE[sub][sup][arg]` = $\textsc{CoACompClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\ACompClassH[sub][sup][arg]` = $\textsc{ACompClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoACompClassH[sub][sup][arg]` = $\textsc{CoACompClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\ACompClassC[sub][sup][arg]` = $\textsc{ACompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoACompClassC[sub][sup][arg]` = $\textsc{CoACompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

- `\defcomclsgrp{CompClass}[NewClass]`;

`\CompClass[sub][sup][arg]` = $\textsc{NewClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoCompClass[sub][sup][arg]` = $\textsc{CoNewClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CompClassE[sub][sup][arg]` = $\textsc{NewClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoCompClassE[sub][sup][arg]` = $\textsc{CoNewClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CompClassH[sub][sup][arg]` = $\textsc{NewClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoCompClassH[sub][sup][arg]` = $\textsc{CoNewClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CompClassC[sub][sup][arg]` = $\textsc{NewClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoCompClassC[sub][sup][arg]` = $\textsc{CoNewClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

`\DCompClass[sub][sup][arg]` = $\textsc{DNewClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClass[sub][sup][arg]` = $\textsc{CoDNewClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\DCompClassE[sub][sup][arg]` = $\textsc{DNewClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClassE[sub][sup][arg]` = $\textsc{CoDNewClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\DCompClassH[sub][sup][arg]` = $\textsc{DNewClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClassH[sub][sup][arg]` = $\textsc{CoDNewClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\DCompClassC[sub][sup][arg]` = $\textsc{DNewClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClassC[sub][sup][arg]` = $\textsc{CoDNewClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

`\NCompClass[sub][sup][arg]` = $\textsc{NNewClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoNCompClass[sub][sup][arg]` = $\textsc{CoNNewClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\NCompClassE[sub][sup][arg]` = $\textsc{NNewClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoNCompClassE[sub][sup][arg]` = $\textsc{CoNNewClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\NCompClassH[sub][sup][arg]` = $\textsc{NNewClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

\CoNCompClassH[sub][sup][arg] = CoNNewClass-hard$^{\text{SUP}}_{\text{SUB}}$(arg)
\NCompClassC[sub][sup][arg] = NNewClass-complete$^{\text{SUP}}_{\text{SUB}}$(arg)
\CoNCompClassC[sub][sup][arg] = CoNNewClass-complete$^{\text{SUP}}_{\text{SUB}}$(arg)

\UCompClass[sub][sup][arg] = UNewClass$^{\text{SUP}}_{\text{SUB}}$(arg)
\CoUCompClass[sub][sup][arg] = CoUNewClass$^{\text{SUP}}_{\text{SUB}}$(arg)
\UCompClassE[sub][sup][arg] = UNewClass-easy$^{\text{SUP}}_{\text{SUB}}$(arg)
\CoUCompClassE[sub][sup][arg] = CoUNewClass-easy$^{\text{SUP}}_{\text{SUB}}$(arg)
\UCompClassH[sub][sup][arg] = UNewClass-hard$^{\text{SUP}}_{\text{SUB}}$(arg)
\CoUCompClassH[sub][sup][arg] = CoUNewClass-hard$^{\text{SUP}}_{\text{SUB}}$(arg)
\UCompClassC[sub][sup][arg] = UNewClass-complete$^{\text{SUP}}_{\text{SUB}}$(arg)
\CoUCompClassC[sub][sup][arg] = CoUNewClass-complete$^{\text{SUP}}_{\text{SUB}}$(arg)

\ACompClass[sub][sup][arg] = ANewClass$^{\text{SUP}}_{\text{SUB}}$(arg)
\CoACompClass[sub][sup][arg] = CoANewClass$^{\text{SUP}}_{\text{SUB}}$(arg)
\ACompClassE[sub][sup][arg] = ANewClass-easy$^{\text{SUP}}_{\text{SUB}}$(arg)
\CoACompClassE[sub][sup][arg] = CoANewClass-easy$^{\text{SUP}}_{\text{SUB}}$(arg)
\ACompClassH[sub][sup][arg] = ANewClass-hard$^{\text{SUP}}_{\text{SUB}}$(arg)
\CoACompClassH[sub][sup][arg] = CoANewClass-hard$^{\text{SUP}}_{\text{SUB}}$(arg)
\ACompClassC[sub][sup][arg] = ANewClass-complete$^{\text{SUP}}_{\text{SUB}}$(arg)
\CoACompClassC[sub][sup][arg] = CoANewClass-complete$^{\text{SUP}}_{\text{SUB}}$(arg)

```
\DeclareRobustCommandx{\defcomclsgrp}[2][2=]
  {\defcomclsgrpsem{#1}{\defval{#2}{#1}}%
  \defcomclsgrpsem{#1}{\defval{#2}{#1}}[Co]}
\DeclareRobustCommandx{\defcomclsgrpsem}[3][3=]
  {\defcomclsgrpred{#3#1}{#2}[#3]%
  \defcomclsgrpred{#3D#1}{#2}[#3D]%
  \defcomclsgrpred{#3N#1}{#2}[#3N]%
  \defcomclsgrpred{#3U#1}{#2}[#3U]%
  \defcomclsgrpred{#3A#1}{#2}[#3A]}
\DeclareRobustCommandx{\defcomclsgrpred}[3][3=]
  {\defcomclsgrpcmd{#1}{#2}[#3]%
  \defcomclsgrpcmd{#1E}{#2}[#3][-easy]%
  \defcomclsgrpcmd{#1H}{#2}[#3][-hard]%
  \defcomclsgrpcmd{#1C}{#2}[#3][-complete]}%
\DeclareRobustCommandx{\defcomclsgrpcmd}[4][3=, 4=]
  {\csdef{#1}{\txtoargcom{#3#2#4}}}
```

`\defcomhrc` ... to do!

- `\defcomhrc{CompHierarchy}`;

  `CompHierarchy[sub][sup][par]` = CompHierarchy$^{\text{SUP}}_{\text{SUB}}$[par]

- `\defcomhrc{CompHierarchy}[NewHierarchy]`;

  `CompHierarchy[sub][sup][par]` = NewHierarchy$^{\text{SUP}}_{\text{SUB}}$[par]

```
\DeclareRobustCommandx{\defcomhrc}[2][2=]
  {\csdef{#1}{\txtoparcom{\defval{#2}{#1}}}}

%%*************************************************************************%%
```

`\Easy` `\Hard` `\Complete`

```
\cmdtxtcom{Easy}
\cmdtxtcom{Hard}
\cmdtxtcom{Complete}

%%*************************************************************************%%
```

`\FPT` `\FPLin` `\FPQdr` `\FPCub`

- `\FPT[sub][sup][arg]` = FPT$^{\text{SUP}}_{\text{SUB}}$(arg)
- `\FPLin[sub][sup][arg]` = FPL$^{\text{SUP}}_{\text{SUB}}$(arg)
- `\FPQdr[sub][sup][arg]` = FPQ$^{\text{SUP}}_{\text{SUB}}$(arg)

- `\FPCub[sub][sup][arg]` = $\mathrm{FPC}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

```
\defcomcls{FPT}
\defcomcls{FPLin}[FPL]
\defcomcls{FPQdr}[FPQ]
\defcomcls{FPCub}[FPC]
```

```
%%*************************************************************************%%
```

`\Time(E/H/C)` `\DTime(E/H/C)` `\NTime(E/H/C)` `\UTime(E/H/C)` `\ATime(E/H/C)`

- `\Time[sub][sup][arg]` = $\textsc{Time}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\TimeE[sub][sup][arg]` = $\textsc{Time-easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\TimeH[sub][sup][arg]` = $\textsc{Time-hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\TimeC[sub][sup][arg]` = $\textsc{Time-complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\DTime[sub][sup][arg]` = $\mathrm{DTime}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DTimeE[sub][sup][arg]` = $\mathrm{DTime\text{-}easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DTimeH[sub][sup][arg]` = $\mathrm{DTime\text{-}hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DTimeC[sub][sup][arg]` = $\mathrm{DTime\text{-}complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\NTime[sub][sup][arg]` = $\mathrm{NTime}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NTimeE[sub][sup][arg]` = $\mathrm{NTime\text{-}easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NTimeH[sub][sup][arg]` = $\mathrm{NTime\text{-}hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NTimeC[sub][sup][arg]` = $\mathrm{NTime\text{-}complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\UTime[sub][sup][arg]` = $\mathrm{UTime}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\UTimeE[sub][sup][arg]` = $\mathrm{UTime\text{-}easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\UTimeH[sub][sup][arg]` = $\mathrm{UTime\text{-}hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\UTimeC[sub][sup][arg]` = $\mathrm{UTime\text{-}complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\ATime[sub][sup][arg]` = $\mathrm{ATime}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ATimeE[sub][sup][arg]` = $\mathrm{ATime\text{-}easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ATimeH[sub][sup][arg]` = $\mathrm{ATime\text{-}hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ATimeC[sub][sup][arg]` = $\mathrm{ATime\text{-}complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

```
\defcomclsgrp{Time}
```

`\Space(E/H/C)` `\DSpace(E/H/C)` `\NSpace(E/H/C)` `\USpace(E/H/C)` `\ASpace(E/H/C)`

- `\Space[sub][sup][arg]` = $\textsc{Space}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\SpaceE[sub][sup][arg]` = $\textsc{Space-easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\SpaceH[sub][sup][arg]` = $\textsc{Space-hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\SpaceC[sub][sup][arg]` = $\textsc{Space-complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\DSpace[sub][sup][arg]` = $\mathrm{DSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DSpaceE[sub][sup][arg]` = $\mathrm{DSpace\text{-}easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DSpaceH[sub][sup][arg]` = $\mathrm{DSpace\text{-}hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DSpaceC[sub][sup][arg]` = $\mathrm{DSpace\text{-}complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\NSpace[sub][sup][arg]` = $\mathrm{NSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NSpaceE[sub][sup][arg]` = $\mathrm{NSpace\text{-}easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NSpaceH[sub][sup][arg]` = $\mathrm{NSpace\text{-}hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NSpaceC[sub][sup][arg]` = $\mathrm{NSpace\text{-}complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\USpace[sub][sup][arg]` = $\mathrm{USpace}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\USpaceE[sub][sup][arg]` = $\mathrm{USpace\text{-}easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\USpaceH[sub][sup][arg]` = $\mathrm{USpace\text{-}hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\USpaceC[sub][sup][arg]` = $\mathrm{USpace\text{-}complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\ASpace[sub][sup][arg]` = $\mathrm{ASpace}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ASpaceE[sub][sup][arg]` = $\mathrm{ASpace\text{-}easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ASpaceH[sub][sup][arg]` = $\mathrm{ASpace\text{-}hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ASpaceC[sub][sup][arg]` = $\mathrm{ASpace\text{-}complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

```
\defcomclsgrp{Space}
```

`\LogTime(E/H/C)` `\DLogTime(E/H/C)` `\NLogTime(E/H/C)` `\ULogTime(E/H/C)` `\ALogTime(E/H/C)`

- `\LogTime[sub][sup][arg]` = $\textsc{LogTime}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\LogTimeE[sub][sup][arg]` = $\textsc{LogTime-easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\LogTimeH[sub][sup][arg]` = $\textsc{LogTime-hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\LogTimeC[sub][sup][arg]` = $\textsc{LogTime-complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\DLogTime[sub][sup][arg]` = $\mathrm{DLogTime}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DLogTimeE[sub][sup][arg]` = $\mathrm{DLogTime\text{-}easy}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DLogTimeH[sub][sup][arg]` = $\mathrm{DLogTime\text{-}hard}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DLogTimeC[sub][sup][arg]` = $\mathrm{DLogTime\text{-}complete}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

- `\NLogTime[sub][sup][arg]` = $\mathrm{NLogTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\NLogTimeE[sub][sup][arg]` = $\mathrm{NLogTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\NLogTimeH[sub][sup][arg]` = $\mathrm{NLogTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\NLogTimeC[sub][sup][arg]` = $\mathrm{NLogTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- `\ULogTime[sub][sup][arg]` = $\mathrm{ULogTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ULogTimeE[sub][sup][arg]` = $\mathrm{ULogTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ULogTimeH[sub][sup][arg]` = $\mathrm{ULogTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ULogTimeC[sub][sup][arg]` = $\mathrm{ULogTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- `\ALogTime[sub][sup][arg]` = $\mathrm{ALogTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ALogTimeE[sub][sup][arg]` = $\mathrm{ALogTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ALogTimeH[sub][sup][arg]` = $\mathrm{ALogTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ALogTimeC[sub][sup][arg]` = $\mathrm{ALogTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$

1251 `\defcomclsgrp{LogTime}`

`\LogSpace(E/H/C)` `\DLogSpace(E/H/C)` `\NLogSpace(E/H/C)` `\ULogSpace(E/H/C)` `\ALogSpace(E/H/C)`

- `\LogSpace[sub][sup][arg]` = $\mathrm{LogSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\LogSpaceE[sub][sup][arg]` = $\mathrm{LogSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\LogSpaceH[sub][sup][arg]` = $\mathrm{LogSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\LogSpaceC[sub][sup][arg]` = $\mathrm{LogSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- `\DLogSpace[sub][sup][arg]` = $\mathrm{DLogSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\DLogSpaceE[sub][sup][arg]` = $\mathrm{DLogSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\DLogSpaceH[sub][sup][arg]` = $\mathrm{DLogSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\DLogSpaceC[sub][sup][arg]` = $\mathrm{DLogSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- `\NLogSpace[sub][sup][arg]` = $\mathrm{NLogSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\NLogSpaceE[sub][sup][arg]` = $\mathrm{NLogSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\NLogSpaceH[sub][sup][arg]` = $\mathrm{NLogSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\NLogSpaceC[sub][sup][arg]` = $\mathrm{NLogSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- `\ULogSpace[sub][sup][arg]` = $\mathrm{ULogSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ULogSpaceE[sub][sup][arg]` = $\mathrm{ULogSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ULogSpaceH[sub][sup][arg]` = $\mathrm{ULogSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ULogSpaceC[sub][sup][arg]` = $\mathrm{ULogSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- `\ALogSpace[sub][sup][arg]` = $\mathrm{ALogSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ALogSpaceE[sub][sup][arg]` = $\mathrm{ALogSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ALogSpaceH[sub][sup][arg]` = $\mathrm{ALogSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\ALogSpaceC[sub][sup][arg]` = $\mathrm{ALogSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$

1252 `\defcomclsgrp{LogSpace}`

`\PTime(E/H/C)` `\DPTime(E/H/C)` `\NPTime(E/H/C)` `\UPTime(E/H/C)` `\APTime(E/H/C)`

- `\PTime[sub][sup][arg]` = $\mathrm{PTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\PTimeE[sub][sup][arg]` = $\mathrm{PTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\PTimeH[sub][sup][arg]` = $\mathrm{PTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\PTimeC[sub][sup][arg]` = $\mathrm{PTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- `\DPTime[sub][sup][arg]` = $\mathrm{DPTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\DPTimeE[sub][sup][arg]` = $\mathrm{DPTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\DPTimeH[sub][sup][arg]` = $\mathrm{DPTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\DPTimeC[sub][sup][arg]` = $\mathrm{DPTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- `\NPTime[sub][sup][arg]` = $\mathrm{NPTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\NPTimeE[sub][sup][arg]` = $\mathrm{NPTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\NPTimeH[sub][sup][arg]` = $\mathrm{NPTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\NPTimeC[sub][sup][arg]` = $\mathrm{NPTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- `\UPTime[sub][sup][arg]` = $\mathrm{UPTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\UPTimeE[sub][sup][arg]` = $\mathrm{UPTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\UPTimeH[sub][sup][arg]` = $\mathrm{UPTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\UPTimeC[sub][sup][arg]` = $\mathrm{UPTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- `\APTime[sub][sup][arg]` = $\mathrm{APTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\APTimeE[sub][sup][arg]` = $\mathrm{APTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\APTimeH[sub][sup][arg]` = $\mathrm{APTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  `\APTimeC[sub][sup][arg]` = $\mathrm{APTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$

1253 `\defcomclsgrp{PTime}`

\PSpace(E/H/C)
\DPSpace(E/H/C)
\NPSpace(E/H/C)
\UPSpace(E/H/C)
\APSpace(E/H/C)

- \PSpace[sub][sup][arg] = $\text{PSPACE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \PSpaceE[sub][sup][arg] = $\text{PSPACE-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \PSpaceH[sub][sup][arg] = $\text{PSPACE-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \PSpaceC[sub][sup][arg] = $\text{PSPACE-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
- \DPSpace[sub][sup][arg] = $\text{DPSPACE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \DPSpaceE[sub][sup][arg] = $\text{DPSPACE-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \DPSpaceH[sub][sup][arg] = $\text{DPSPACE-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \DPSpaceC[sub][sup][arg] = $\text{DPSPACE-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
- \NPSpace[sub][sup][arg] = $\text{NPSPACE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \NPSpaceE[sub][sup][arg] = $\text{NPSPACE-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \NPSpaceH[sub][sup][arg] = $\text{NPSPACE-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \NPSpaceC[sub][sup][arg] = $\text{NPSPACE-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
- \UPSpace[sub][sup][arg] = $\text{UPSPACE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \UPSpaceE[sub][sup][arg] = $\text{UPSPACE-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \UPSpaceH[sub][sup][arg] = $\text{UPSPACE-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \UPSpaceC[sub][sup][arg] = $\text{UPSPACE-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
- \APSpace[sub][sup][arg] = $\text{APSPACE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \APSpaceE[sub][sup][arg] = $\text{APSPACE-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \APSpaceH[sub][sup][arg] = $\text{APSPACE-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \APSpaceC[sub][sup][arg] = $\text{APSPACE-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$

1254 \defcomclsgrp{PSpace}

\QPTime(E/H/C)
\DQPTime(E/H/C)
\NQPTime(E/H/C)
\UQPTime(E/H/C)
\AQPTime(E/H/C)

- \QPTime[sub][sup][arg] = $\text{QPTIME}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \QPTimeE[sub][sup][arg] = $\text{QPTIME-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \QPTimeH[sub][sup][arg] = $\text{QPTIME-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \QPTimeC[sub][sup][arg] = $\text{QPTIME-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
- \DQPTime[sub][sup][arg] = $\text{DQPTIME}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \DQPTimeE[sub][sup][arg] = $\text{DQPTIME-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \DQPTimeH[sub][sup][arg] = $\text{DQPTIME-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \DQPTimeC[sub][sup][arg] = $\text{DQPTIME-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
- \NQPTime[sub][sup][arg] = $\text{NQPTIME}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \NQPTimeE[sub][sup][arg] = $\text{NQPTIME-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \NQPTimeH[sub][sup][arg] = $\text{NQPTIME-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \NQPTimeC[sub][sup][arg] = $\text{NQPTIME-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
- \UQPTime[sub][sup][arg] = $\text{UQPTIME}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \UQPTimeE[sub][sup][arg] = $\text{UQPTIME-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \UQPTimeH[sub][sup][arg] = $\text{UQPTIME-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \UQPTimeC[sub][sup][arg] = $\text{UQPTIME-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
- \AQPTime[sub][sup][arg] = $\text{AQPTIME}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \AQPTimeE[sub][sup][arg] = $\text{AQPTIME-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \AQPTimeH[sub][sup][arg] = $\text{AQPTIME-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \AQPTimeC[sub][sup][arg] = $\text{AQPTIME-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$

1255 \defcomclsgrp{QPTime}

\QPSpace(E/H/C)
\DQPSpace(E/H/C)
\NQPSpace(E/H/C)
\UQPSpace(E/H/C)
\AQPSpace(E/H/C)

- \QPSpace[sub][sup][arg] = $\text{QPSPACE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \QPSpaceE[sub][sup][arg] = $\text{QPSPACE-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \QPSpaceH[sub][sup][arg] = $\text{QPSPACE-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \QPSpaceC[sub][sup][arg] = $\text{QPSPACE-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
- \DQPSpace[sub][sup][arg] = $\text{DQPSPACE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \DQPSpaceE[sub][sup][arg] = $\text{DQPSPACE-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \DQPSpaceH[sub][sup][arg] = $\text{DQPSPACE-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \DQPSpaceC[sub][sup][arg] = $\text{DQPSPACE-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
- \NQPSpace[sub][sup][arg] = $\text{NQPSPACE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \NQPSpaceE[sub][sup][arg] = $\text{NQPSPACE-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \NQPSpaceH[sub][sup][arg] = $\text{NQPSPACE-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \NQPSpaceC[sub][sup][arg] = $\text{NQPSPACE-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
- \UQPSpace[sub][sup][arg] = $\text{UQPSPACE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \UQPSpaceE[sub][sup][arg] = $\text{UQPSPACE-EASY}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \UQPSpaceH[sub][sup][arg] = $\text{UQPSPACE-HARD}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$
  \UQPSpaceC[sub][sup][arg] = $\text{UQPSPACE-COMPLETE}^{\text{SUP}}_{\text{SUB}}(\text{ARG})$

- `\AQPSpace[sub][sup][arg]` = $\mathrm{AQPSPACE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AQPSpaceE[sub][sup][arg]` = $\mathrm{AQPSPACE\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AQPSpaceH[sub][sup][arg]` = $\mathrm{AQPSPACE\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AQPSpaceC[sub][sup][arg]` = $\mathrm{AQPSPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

1256 `\defcomclsgrp{QPSpace}`

`\ExpTime(E/H/C)` `\DExpTime(E/H/C)` `\NExpTime(E/H/C)` `\UExpTime(E/H/C)` `\AExpTime(E/H/C)`

- `\ExpTime[sub][sup][arg]` = $\mathrm{EXPTIME}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ExpTimeE[sub][sup][arg]` = $\mathrm{EXPTIME\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ExpTimeH[sub][sup][arg]` = $\mathrm{EXPTIME\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ExpTimeC[sub][sup][arg]` = $\mathrm{EXPTIME\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\DExpTime[sub][sup][arg]` = $\mathrm{DEXPTIME}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DExpTimeE[sub][sup][arg]` = $\mathrm{DEXPTIME\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DExpTimeH[sub][sup][arg]` = $\mathrm{DEXPTIME\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DExpTimeC[sub][sup][arg]` = $\mathrm{DEXPTIME\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\NExpTime[sub][sup][arg]` = $\mathrm{NEXPTIME}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NExpTimeE[sub][sup][arg]` = $\mathrm{NEXPTIME\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NExpTimeH[sub][sup][arg]` = $\mathrm{NEXPTIME\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NExpTimeC[sub][sup][arg]` = $\mathrm{NEXPTIME\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\UExpTime[sub][sup][arg]` = $\mathrm{UEXPTIME}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\UExpTimeE[sub][sup][arg]` = $\mathrm{UEXPTIME\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\UExpTimeH[sub][sup][arg]` = $\mathrm{UEXPTIME\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\UExpTimeC[sub][sup][arg]` = $\mathrm{UEXPTIME\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\AExpTime[sub][sup][arg]` = $\mathrm{AEXPTIME}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AExpTimeE[sub][sup][arg]` = $\mathrm{AEXPTIME\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AExpTimeH[sub][sup][arg]` = $\mathrm{AEXPTIME\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AExpTimeC[sub][sup][arg]` = $\mathrm{AEXPTIME\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

1257 `\defcomclsgrp{ExpTime}`

`\ExpSpace(E/H/C)` `\DExpSpace(E/H/C)` `\NExpSpace(E/H/C)` `\UExpSpace(E/H/C)` `\AExpSpace(E/H/C)`

- `\ExpSpace[sub][sup][arg]` = $\mathrm{EXPSPACE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ExpSpaceE[sub][sup][arg]` = $\mathrm{EXPSPACE\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ExpSpaceH[sub][sup][arg]` = $\mathrm{EXPSPACE\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ExpSpaceC[sub][sup][arg]` = $\mathrm{EXPSPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\DExpSpace[sub][sup][arg]` = $\mathrm{DEXPSPACE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DExpSpaceE[sub][sup][arg]` = $\mathrm{DEXPSPACE\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DExpSpaceH[sub][sup][arg]` = $\mathrm{DEXPSPACE\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DExpSpaceC[sub][sup][arg]` = $\mathrm{DEXPSPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\NExpSpace[sub][sup][arg]` = $\mathrm{NEXPSPACE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NExpSpaceE[sub][sup][arg]` = $\mathrm{NEXPSPACE\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NExpSpaceH[sub][sup][arg]` = $\mathrm{NEXPSPACE\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NExpSpaceC[sub][sup][arg]` = $\mathrm{NEXPSPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\UExpSpace[sub][sup][arg]` = $\mathrm{UEXPSPACE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\UExpSpaceE[sub][sup][arg]` = $\mathrm{UEXPSPACE\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\UExpSpaceH[sub][sup][arg]` = $\mathrm{UEXPSPACE\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\UExpSpaceC[sub][sup][arg]` = $\mathrm{UEXPSPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\AExpSpace[sub][sup][arg]` = $\mathrm{AEXPSPACE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AExpSpaceE[sub][sup][arg]` = $\mathrm{AEXPSPACE\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AExpSpaceH[sub][sup][arg]` = $\mathrm{AEXPSPACE\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AExpSpaceC[sub][sup][arg]` = $\mathrm{AEXPSPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

1258 `\defcomclsgrp{ExpSpace}`

1259 `%%**********************************************************************%%`

`\PH`

- `\PH[sub][sup][par]` = $\mathrm{PH}_{\mathrm{SUB}}^{\mathrm{SUP}}[\mathrm{PAR}]$

1260 `\defcomhrc{PH}`

`\WH`

- `\WH[sub][sup][par]` = $\mathrm{W}_{\mathrm{SUB}}^{\mathrm{SUP}}[\mathrm{PAR}]$

1261 `\defcomhrc{WH}[W]`

`\AH`

- `\AH[sub][sup][par]` = $\mathrm{A}_{\mathrm{SUB}}^{\mathrm{SUP}}[\mathrm{PAR}]$

1262 `\defcomhrc{AH}[A]`

\DLH • \DLH[sub][sup][par] = $\Delta_{\mathrm{SUB}}^{\mathrm{SUP}}[\mathrm{PAR}]$
\DBH • \DBH[sub][sup][par] = $\boldsymbol{\Delta}_{\mathrm{SUB}}^{\mathrm{SUP}}[\mathrm{PAR}]$

```
\defcomhrc{DLH}[{\mth{\Delta}}]
\defcomhrc{DBH}[{\mth[mathbf]{\Delta}}]
```

\ELH • \ELH[sub][sup][par] = $\Sigma_{\mathrm{SUB}}^{\mathrm{SUP}}[\mathrm{PAR}]$
\EBH • \EBH[sub][sup][par] = $\boldsymbol{\Sigma}_{\mathrm{SUB}}^{\mathrm{SUP}}[\mathrm{PAR}]$

```
\defcomhrc{ELH}[{\mth{\Sigma}}]
\defcomhrc{EBH}[{\mth[mathbf]{\Sigma}}]
```

\ULH • \ULH[sub][sup][par] = $\Pi_{\mathrm{SUB}}^{\mathrm{SUP}}[\mathrm{PAR}]$
\UBH • \UBH[sub][sup][par] = $\boldsymbol{\Pi}_{\mathrm{SUB}}^{\mathrm{SUP}}[\mathrm{PAR}]$

```
\defcomhrc{ULH}[{\mth{\Pi}}]
\defcomhrc{UBH}[{\mth[mathbf]{\Pi}}]
\fi
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Macros for Graphs ********************************************************%%
%%*****************************************************************************%%
\ifgrp@
%%** Syntax *******************************************************************%%
```

\GrpName ...
...
```
\newcommand{\grpname}{G}
\usrmthlatupp{Grp}{Name}{name}[\grpname]
```

\VerSet ...
...
```
\newcommand{\versym}{v}
\newcommand{\verset}{V}
\cmdmthsetext{Ver}[\verset][\versym]
\cmdmthsymelm{iver}[\versym_{I}]
\cmdmthsymelm{fver}[\versym_{F}]
```

\EdgRel ...
```
\newcommand{\edgrel}{E}
\cmdmthrel{Edg}[\edgrel]
%%** Semantics ****************************************************************%%
```

\PthSet ...
\pthFun
```
\newcommand{\pthsym}{\pi}
\newcommand{\pthset}{Pth}
\cmdmthsetext{Pth}[\pthset][\pthsym]
\usrmth{path}{}{argfun}
```

\pre ...
\suc
```
\usrmth{pre}{}{oargfun}
\usrmth{suc}{}{oargfun}
\fi
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Macros for Games **********************************************************%%
%%*****************************************************************************%%
\ifgam@
%%** Logic Games **************************************************************%%
```

```
  \SATG ...
    ... %% Satisfiability Games
        \cmdtxtoparname{SATG}[Sat]

        %% Validity Games
        \cmdtxtoparname{VALG}[Val]

        %% Evaluation Games
        \cmdtxtoparname{EVLG}[Evl]

        %% Synthesis Games
        \cmdtxtoparname{SYNG}[Syn]

        %% Model-Checking Games
        \cmdtxtoparname{MCG}[MC]

        %% Ehrenfeucht-Fraisse Games
        \cmdtxtoparname{EFG}[EF]

        %%** Syntax ************************************************************%%

  \PlrSym ...
  \OppSym \newcommand{\plrsym}{E}
          \cmdmthsym{Plr}[\plrsym]
          \newcommand{\oppsym}{A}
          \cmdmthsym{Opp}[\oppsym]

\ArenaName ...
    ... \newcommand{\arenaname}{A}
        \usrmthlatupp{Arena}{Name}{name}[\arenaname]

  \PosSet ...
    ... \newcommand{\possym}{v}
        \newcommand{\posset}{Ps}
        \cmdmthsetext{Pos}[\posset][\possym]
        \cmdmthsymelm{ipos}[\possym_{I}]
        \cmdmthsymelm{fpos}[\possym_{F}]
        \cmdmthset{PPos}[\posset_{\PlrSym}]
        \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
        \cmdmthset{OPos}[\posset_{\OppSym}]
        \cmdmthsymelm{opos}[\possym_{\OppSym}]

  \PlrFun ...
        \newcommand{\plrfun}{pl}
        \cmdmthfun{plr}[\plrfun]

  \MovRel ...
        \newcommand{\movrel}{Mv}
        \cmdmthrel{Mov}[\movrel]

 \GameName ...
    ... \newcommand{\gamename}{\Game}
        \usrmthlatupp{Game}{Name}{name}[\gamename]

  \WinSet ...
        \newcommand{\winset}{Wn}
        \cmdmthset{Win}[\winset]

  \ObsSet ...
  \obsFun \newcommand{\obsset}{Ob}
          \cmdmthset{Obs}[\obsset]
          \cmdmthfun{obs}
```

```
%%** Semantics ****************************************************************%%

\HstSet ...
    ... \newcommand{\hstsym}{\varpi}
        \newcommand{\hstset}{Hst}
        \cmdmthsetext{Hst}[\hstset][\hstsym]
        \cmdmthset{PHst}[\hstset_{\PlrSym}]
        \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
        \cmdmthset{OHst}[\hstset_{\OppSym}]
        \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
        \usrmth{play}{}{argfun}

\PlaySet ...
\playFun \newcommand{\playsym}{\pi}
         \newcommand{\playset}{Play}
         \cmdmthsetext{Play}[\playset][\playsym]
         \usrmth{hst}{}{argfun}

\StrSet ...
    ... \newcommand{\strsym}{\sigma}
        \newcommand{\strset}{Str}
        \cmdmthsetext{Str}[\strset][\strsym]
        \cmdmthset{PStr}[\strset_{\PlrSym}]
        \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
        \cmdmthset{OStr}[\strset_{\OppSym}]
        \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet ...
\prfFun \newcommand{\prfsym}{\xi}
        \newcommand{\prfset}{Prf}
        \cmdmthsetext{Prf}[\prfset][\prfsym]

  \ent ...
  \esc \usrmth{ent}{}{oargfun}
       \usrmth{esc}{}{oargfun}

  \int ...
  \out \usrmth{int}{}{oargfun}
       \usrmth{out}{}{oargfun}

  \atr ...
  \rch \usrmth{atr}{}{oargfun}
       \usrmth{rch}{}{oargfun}

 \lift ...
       \usrmth{lift}{}{oargfun}

  \sol ...
       \usrmth{sol}{}{oargfun}

       %%** Qualitative Games on Graph ********************************************%%

   \BG ...
   ... %% Buchi Games
       \cmdtxtoparname{BG}

       %% Co-Buchi Games
       \cmdtxtoparname{CG}

       %% Parity Games
       \cmdtxtoparname{PG}

       %% Rabin Games
```

```
\cmdtxtoparname{RG}

%% Streett Games
\cmdtxtoparname{SG}

%% Muller Games
\cmdtxtoparname{MG}

%%** Syntax ************************************************************%%

\EvnSym ...
\OddSym
\newcommand{\evnsym}{0}
\cmdmthsym{Evn}[\evnsym]
\newcommand{\oddsym}{1}
\cmdmthsym{Odd}[\oddsym]

\PrtSet ...
\prtFun
\newcommand{\prtsym}{p}
\newcommand{\prtset}{Pr}
\cmdmthsetext{Prt}[\prtset][\prtsym]
\cmdmthfun{prt}[pr]

%%** Semantics ************************************************************%%

   ...

%%** Quantitative Games on Graph ******************************************%%

    \EG ...
    ...
%% Energy Games
\cmdtxtoparname{EG}

%% Mean-Payoff Games
\cmdtxtoparname{MPG}

%% Discounted-Payoff Games
\cmdtxtoparname{DPG}

%%** Syntax ************************************************************%%

\MaxSym ...
\MinSym
\newcommand{\maxsym}{\oplus}
\cmdmthsym{Max}[\maxsym]
\newcommand{\minsym}{\boxminus}
\cmdmthsym{Min}[\minsym]

\WghSet ...
\wghFun
\newcommand{\wghsym}{w}
\newcommand{\wghset}{Wg}
\cmdmthsetext{Wgh}[\wghset][\wghsym]
\cmdmthfun{wgh}[wg]

%%** Semantics ************************************************************%%

   ...

\fi
%%*************************************************************************%%

%%*************************************************************************%%
%%** Macros for Logics ****************************************************%%
%%*************************************************************************%%
\iflog@

%%** Propositional Logics ************************************************%%
```

```
    \BF ...
   \QBF 1428 % Boolean Formulae
    ... 1429 \cmdtxtoparname{BF}
        1430
        1431 % Quantified Boolean Formulae
        1432 \DeclareRobustCommand{\QBF}
        1433   {{\txtname{Q}}\BF}
        1434 \DeclareRobustCommand{\EBF}
        1435   {\ensuremath{\exists}\BF}
        1436 \DeclareRobustCommand{\UBF}
        1437   {\ensuremath{\forall}\BF}
        1438 %%** Syntax ************************************************************************%%

\LogSig ...
    ... 1439 \newcommand{\logsig}{L}
        1440 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

    \Tt ...
    \Ff 1441 \newcommand{\ttsym}{\top}
        1442 \usrmth{Tt}{}{sym}[\ttsym]
        1443 \newcommand{\ffsym}{\bot}
        1444 \usrmth{Ff}{}{sym}[\ffsym]

  \LNeg ...
  \LNot 1445 \newcommand{\lnegsym}{\neg}
        1446 \usrmth{LNeg}{}{luop}[\lnegsym]
        1447 \newcommand{\lnotsym}{\sim}
        1448 \usrmth{LNot}{}{luop}[\lnotsym]

  \LCon ...
  \LDis 1449 \newcommand{\lconsym}{\land}
        1450 \usrmth{LCon}{}{lbop}[\lconsym]
        1451 \newcommand{\ldissym}{\lor}
        1452 \usrmth{LDis}{}{lbop}[\ldissym]

  \LImp ...
  \LCoi 1453 \newcommand{\limpsym}{\rightarrow}
        1454 \usrmth{LImp}{}{lbop}[\limpsym]
        1455 \newcommand{\lcoisym}{\leftrightarrow}
        1456 \usrmth{LCoi}{}{lbop}[\lcoisym]

  \LExs ...
  \LAll 1457 \newcommand{\lexssym}{\exists}
        1458 \usrmth{LExs}{}{luop}[\lexssym]
        1459 \newcommand{\lallsym}{\forall}
        1460 \usrmth{LAll}{}{luop}[\lallsym]

 \APSet ...
    ... 1461 \newcommand{\apsym}{p}
        1462 \newcommand{\apset}{AP}
        1463 \cmdmthsetext{AP}[\apset][\apsym]
        1464 \usrmth{ap}{}{argfun}

   \sub ...
        1465 \usrmth{sub}{}{argfun}

   \Cnt ...
   \Qnt 1466 \usrmth{Cnt}{}{sym}[C]
   \Sym 1467 \usrmth{Qnt}{}{sym}[Q]
        1468 \usrmth{Sym}{}{sym}[\odot]
```

```
   \QAE ...
   \QEA 1469 \usrmth{QAE}{}{sym}[\forall\exists]
        1470 \usrmth{QEA}{}{sym}[\exists\forall]

\QntSet ...
    ... 1471 \newcommand{\qntsym}{\wp}
        1472 \newcommand{\qntset}{Qn}
        1473 \cmdmthsetext{Qnt}[\qntset][\qntsym]

  \free ...
 \bound 1474 \usrmth{free}{}{argfun}
        1475 \usrmth{bound}{}{argfun}

   \dep ...
   \alt 1476 \usrmth{dep}{}{argfun}
        1477 \usrmth{alt}{}{argfun}

   \cnf ...
   \dnf 1478 \cmdtxtabr{cnf}
    ... 1479 \cmdtxtabr{dnf}
        1480 \cmdtxtabr{pnf}
        1481 \cmdtxtabr{nnf}

        1482 %%** Semantics *********************************************************%%

\LogStr ...
    ... 1483 \newcommand{\logstr}{L}
        1484 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet ...
    ... 1485 \newcommand{\valsym}{\xi}
        1486 \newcommand{\valset}{Val}
        1487 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet ...
    ... 1488 \newcommand{\asgsym}{\chi}
        1489 \newcommand{\asgset}{Asg}
        1490 \cmdmthsetext{Asg}[\asgset][\asgsym]

        1491 %%** First-Order Logics I ***********************************************%%

   \FOL ...
    ... 1492 % First-Order Logic
        1493 \cmdtxtoparname{FOL}[Fol]
        1494 \cmdtxtoparname{FO}[FO]
        1495
        1496 % Monadic First-Order Logic
        1497 \DeclareRobustCommand{\MFOL}
        1498   {{\txtname{M}}\FOL}
        1499 \DeclareRobustCommand{\MFO}
        1500   {{\txtname{M}}\FO}

        1501 %%** Syntax ***************************************************************%%

\VarSig ...
    ... 1502 \newcommand{\varsig}{V}
        1503 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
        1504 \newcommand{\varsym}{x}
        1505 \newcommand{\varset}{Vr}
        1506 \cmdmthsetext{Var}[\varset][\varsym]
        1507 \usrmth{var}{}{argfun}[vr]
        1508 \usrmth{dim}{}{argfun}[dm]
```

```
\ConSig ...
    ... 1509 \newcommand{\consig}{C}
        1510 \usrmthlatupp{Con}{Sig}{sig}[\consig]
        1511 \newcommand{\consym}{c}
        1512 \newcommand{\conset}{Cn}
        1513 \cmdmthsetext{Con}[\conset][\consym]
        1514 \usrmth{con}{}{argfun}[cn]

\FunSig ...
    ... 1515 \newcommand{\funsig}{F}
        1516 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
        1517 \newcommand{\funsym}{f}
        1518 \newcommand{\funset}{Fn}
        1519 \cmdmthsetext{Fun}[\funset][\funsym]
        1520 \usrmth{fun}{}{argfun}[fn]
        1521 \usrmth{art}{}{argfun}[ar]

\TerSig ...
    ... 1522 \newcommand{\tersig}{T}
        1523 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
        1524 \newcommand{\tersym}{t}
        1525 \newcommand{\terset}{Tr}
        1526 \cmdmthsetext{Ter}[\terset][\tersym]
        1527 \usrmth{ter}{}{argfun}

\RelSig ...
    ... 1528 \newcommand{\relsig}{R}
        1529 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
        1530 \newcommand{\relsym}{r}
        1531 \newcommand{\relset}{Rl}
        1532 \cmdmthsetext{Rel}[\relset][\relsym]
        1533 \usrmth{rel}{}{argfun}[rl]

   \skm ...
        1534 \usrmth{skm}{}{argfun}

        1535 %%** Semantics ********************************************************************%%

\ConStr ...
    ... 1536 \newcommand{\constr}{C}
        1537 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr ...
    ... 1538 \newcommand{\funstr}{F}
        1539 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr ...
    ... 1540 \newcommand{\terstr}{T}
        1541 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr ...
    ... 1542 \newcommand{\relstr}{R}
        1543 \usrmthlatupp{Rel}{Str}{str}[\relstr]

        1544 %%** First-Order Logics II ******************************************************%%

    \DF ...
    \IF 1545 % Dependence-Friendly Logic
    ... 1546 \cmdtxtoparname{DF}
        1547
        1548 % Independence-Friendly Logic
        1549 \cmdtxtoparname{IF}
        1550
```

```
% Dependence/Independence-Friendly Logic
\cmdtxtoparname{DIF}

% Dependence Logic
\cmdtxtoparname{DL}

% Team Logic
\cmdtxtoparname{TL}

% Alternating Dependence-Friendly Logic
\cmdtxtoparname{ADF}

% Alternating Independence-Friendly Logic
\cmdtxtoparname{AIF}

% Alternating Dependence/Independence-Friendly Logic
\cmdtxtoparname{ADIF}
```

...

```
%%** Syntax ***********************************************************%%
```

\LEExs ...

\LAAll

```
\newcommand{\leexssym}{\Sigma}
\usrmth{LEExs}{}{luop}[\leexssym]
\newcommand{\laallsym}{\Pi}
\usrmth{LAAll}{}{luop}[\laallsym]
```

```
%%** Semantics ************************************************************%%
```

...

```
%%** Second-Order Logics I ***********************************************%%
```

\SOL ...

...

```
% Second-Order Logic
\cmdtxtoparname{SOL}[Sol]
\cmdtxtoparname{SO}

% Weak Second-Order Logic
\DeclareRobustCommand{\WSOL}
  {{\txtname{W}}\SOL}
\DeclareRobustCommand{\WSO}
  {{\txtname{W}}\SO}

% coWeak Second-Order Logic
\DeclareRobustCommand{\coWSOL}
  {{\txtname{coW}}\SOL}
\DeclareRobustCommand{\coWSO}
  {{\txtname{coW}}\SO}

% Monadic Second-Order Logic
\DeclareRobustCommand{\MSOL}
  {{\txtname{M}}\SOL}
\DeclareRobustCommand{\MSO}
  {{\txtname{M}}\SO}

% Weak Monadic Second-Order Logic
\DeclareRobustCommand{\WMSOL}
  {{\txtname{W}}\MSOL}
\DeclareRobustCommand{\WMSO}
  {{\txtname{W}}\MSO}

% coWeak Monadic Second-Order Logic
\DeclareRobustCommand{\coWMSOL}
  {{\txtname{coW}}\MSOL}
```

```
\DeclareRobustCommand{\coWMSO}
  {{\txtname{coW}}\MSO}
%%** Syntax ********************************************************************%%
```

\FVarSet ...

...
```
\newcommand{\fvarsym}{x}
\newcommand{\fvarset}{FVr}
\cmdmthsetext{FVar}[\fvarset][\fvarsym]
```

\SVarSet ...

...
```
\newcommand{\svarsym}{X}
\newcommand{\svarset}{SVr}
\cmdmthsetext{SVar}[\svarset][\svarsym]
%%** Semantics ********************************************************************%%
```

...

```
%%** Second-Order Logics II ********************************************************%%
```

\TL ...
\CL
\PL
...
```
% Tree Logic
\cmdtxtoparname{TL}

% Weak Tree Logic
\DeclareRobustCommand{\WTL}
  {{\txtname{W}}\TL}

% coWeak Tree Logic
\DeclareRobustCommand{\coWTL}
  {{\txtname{coW}}\TL}

% Monadic Tree Logic
\DeclareRobustCommand{\MTL}
  {{\txtname{M}}\TL}

% Weak Monadic Tree Logic
\DeclareRobustCommand{\WMTL}
  {{\txtname{W}}\MTL}

% coWeak Monadic Tree Logic
\DeclareRobustCommand{\coWMTL}
  {{\txtname{coW}}\MTL}

% Chain Logic
\cmdtxtoparname{CL}

% Weak Chain Logic
\DeclareRobustCommand{\WCL}
  {{\txtname{W}}\CL}

% coWeak Chain Logic
\DeclareRobustCommand{\coWCL}
  {{\txtname{coW}}\CL}

% Monadic Chain Logic
\DeclareRobustCommand{\MCL}
  {{\txtname{M}}\CL}

% Weak Monadic Chain Logic
\DeclareRobustCommand{\WMCL}
  {{\txtname{W}}\MCL}

% coWeak Monadic Chain Logic
```

```
\DeclareRobustCommand{\coWMCL}
  {{\txtname{coW}}\MCL}

% Path Logic
\cmdtxtoparname{PL}

% Weak Path Logic
\DeclareRobustCommand{\WPL}
  {{\txtname{W}}\PL}

% coWeak Path Logic
\DeclareRobustCommand{\coWPL}
  {{\txtname{coW}}\PL}

% Monadic Path Logic
\DeclareRobustCommand{\MPL}
  {{\txtname{M}}\PL}

% Weak Monadic Path Logic
\DeclareRobustCommand{\WMPL}
  {{\txtname{W}}\MPL}

% coWeak Monadic Path Logic
\DeclareRobustCommand{\coWMPL}
  {{\txtname{coW}}\MPL}
%%** Syntax ************************************************************%%
...
%%** Semantics *********************************************************%%
...
%%** Modal Logics I *****************************************************%%

 \ML ...
\GML
 ... % Modal Logic
\cmdtxtoparname{ML}

% Graded Modal Logic
\DeclareRobustCommand{\GML}
  {{\txtname{G}}\ML}

% Quantified Modal Logic
\DeclareRobustCommand{\QML}
  {{\txtname{Q}}\ML}
\DeclareRobustCommand{\EML}
  {\ensuremath{\exists}\ML}
\DeclareRobustCommand{\UML}
  {\ensuremath{\forall}\ML}
%%** Syntax ************************************************************%%

\Opr ...
\usrmth{Opr}{}{sym}[Op]

\DMod ...
\BMod \usrmth{DMod}{}{sym}[\Diamond]
\usrmth{BMod}{}{sym}[\Box]

\Exs ...
\All \DeclareRobustCommand{\Exs}
  {\ifstarvar{\@sexs}{\@exs}}
\DeclareRobustCommand{\@sexs}[1]
  {\mth{\DMod}[#1]}
```

```
\DeclareRobustCommand{\@exs}[1]
  {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
\DeclareRobustCommand{\All}
  {\ifstarvar{\@sall}{\@all}}
\DeclareRobustCommand{\@sall}[1]
  {\mth{\BMod}[#1]}
\DeclareRobustCommand{\@all}[1]
  {\mth{\defval{\argmid{\left[}{#1}{\right]}}{\BMod}}}
%%** Semantics ************************************************************%%

\KrpStr ...
    ... \newcommand{\krpstr}{K}
        \usrmthlatupp{Krp}{Str}{str}[\krpstr]

\WrlSet ...
    ... \newcommand{\wrlsym}{w}
        \newcommand{\wrlset}{W}
        \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
        \cmdmthsymelm{iwrl}[\wrlsym_{I}]

\AccRel ...
\TrnRel \newcommand{\accsym}{R}
        \cmdmthrel{Acc}[\accsym]
        \cmdmthrel{Trn}[\accsym]

\labFun ...
        \newcommand{\labsym}{\lambda}
        \cmdmthfun{lab}[\labsym]

\PthSet ...
    ... \providecommand{\pthsym}{\pi}
        \providecommand{\pthset}{Pth}
        \cmdmthsetext{Pth}[\pthset][\pthsym]
        \usrmth{path}{}{argfun}
%%** Modal Logics II *****************************************************%%

    \MC ...
   \GMC % Mu Calculus
    ... \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]

        % Graded Mu Calculus
        \DeclareRobustCommand{\GMC}
          {{\txtname{G}}\MC}

        % Quantified Mu Calculus
        \DeclareRobustCommand{\QMC}
          {{\txtname{Q}}\MC}
        \DeclareRobustCommand{\EMC}
          {\ensuremath{\exists}\MC}
        \DeclareRobustCommand{\UMC}
          {\ensuremath{\forall}\MC}

        % Alternation-Free Mu Calculus
        \DeclareRobustCommand{\AFMC}
          {{\txtname{AF}}\MC}

        % Alternation-Free Graded Mu Calculus
        \DeclareRobustCommand{\AFGMC}
          {{\txtname{AF}}\GMC}

        % Quantified Alternation-Free Mu Calculus
        \DeclareRobustCommand{\QAFMC}
```

```
1760   {{\txtname{Q}}\AFMC}
1761 \DeclareRobustCommand{\EAFMC}
1762   {\ensuremath{\exists}\AFMC}
1763 \DeclareRobustCommand{\UAFMC}
1764   {\ensuremath{\forall}\AFMC}
1765
1766 %%** Syntax ************************************************************%%
    ...
1767 %%** Semantics *********************************************************%%
    ...
1768 %%** Temporal Logics I **************************************************%%

\PTL ...
\LTL 1769 % Propositional Temporal Logic
 ... 1770 \cmdtxtoparname{PTL}
     1771
     1772 % Quantified Propositional Temporal Logic
     1773 \DeclareRobustCommand{\QPTL}
     1774   {{\txtname{Q}}\PTL}
     1775 \DeclareRobustCommand{\EPTL}
     1776   {\ensuremath{\exists}\PTL}
     1777 \DeclareRobustCommand{\UPTL}
     1778   {\ensuremath{\forall}\PTL}
     1779
     1780 % Linear Temporal Logic
     1781 \cmdtxtoparname{LTL}
     1782
     1783 % Quantified Linear Temporal Logic
     1784 \DeclareRobustCommand{\QLTL}
     1785   {{\txtname{Q}}\LTL}
     1786 \DeclareRobustCommand{\ELTL}
     1787   {\ensuremath{\exists}\LTL}
     1788 \DeclareRobustCommand{\ULTL}
     1789   {\ensuremath{\forall}\LTL}
     1790 %%** Syntax ************************************************************%%

  \X ...
 ... 1791 \usrmth{X}{}{sym}[X\,]
     1792 \usrmth{F}{}{sym}[F\,]
     1793 \usrmth{G}{}{sym}[G\,]
     1794 \usrmth{U}{}{sym}[\,U\,]
     1795 \usrmth{R}{}{sym}[\,R\,]

  \Y ...
 ... 1796 \usrmth{Y}{}{sym}[G\,]
     1797 \usrmth{P}{}{sym}[P\,]\let\SavePilcrow\P
     1798 \usrmth{H}{}{sym}[H\,]\let\SaveDoubleAcute\H
     1799 \usrmth{S}{}{sym}[\,S\,]\let\SaveSectionSymbol\S
     1800 \usrmth{B}{}{sym}[\,B\,]
     1801 %%** Semantics *********************************************************%%
    ...
     1802 %%** Temporal Logics II *************************************************%%

\PDL ...
\CTL 1803 % Propositional Dynamic Logic
 ... 1804 \cmdtxtoparname{PDL}
     1805
     1806 % Computation Tree Logic
     1807 \cmdtxtoparname{CTL}
```

```
1808
1809 % Weak Computation Tree Logic
1810 \DeclareRobustCommand{\WCTL}
1811   {{\txtname{W}}\CTL}
1812
1813 % Quantified Computation Tree Logic
1814 \DeclareRobustCommand{\QCTL}
1815   {{\txtname{Q}}\CTL}
1816 \DeclareRobustCommand{\ECTL}
1817   {\ensuremath{\exists}\CTL}
1818 \DeclareRobustCommand{\UCTL}
1819   {\ensuremath{\forall}\CTL}
1820
1821 % Improved Computation Tree Logic
1822 \cmdtxtoparname{CTLP}[CTL$^{+}$]
1823
1824 % Weak Improved Computation Tree Logic
1825 \DeclareRobustCommand{\WCTLP}
1826   {{\txtname{W}}\CTLP}
1827
1828 % Quantified Improved Computation Tree Logic
1829 \DeclareRobustCommand{\QCTLP}
1830   {{\txtname{Q}}\CTLP}
1831 \DeclareRobustCommand{\ECTLP}
1832   {\ensuremath{\exists}\CTLP}
1833 \DeclareRobustCommand{\UCTLP}
1834   {\ensuremath{\forall}\CTLP}
1835
1836 % Full Computation Tree Logic
1837 \cmdtxtoparname{CTLS}[CTL*]
1838
1839 % Weak Full Computation Tree Logic
1840 \DeclareRobustCommand{\WCTLS}
1841   {{\txtname{W}}\CTLS}
1842
1843 % Quantified Full Computation Tree Logic
1844 \DeclareRobustCommand{\QCTLS}
1845   {{\txtname{Q}}\CTLS}
1846 \DeclareRobustCommand{\ECTLS}
1847   {\ensuremath{\exists}\CTLS}
1848 \DeclareRobustCommand{\UCTLS}
1849   {\ensuremath{\forall}\CTLS}
1850 %%** Syntax ************************************************************%%
```

\E ...
\A
```
1851 \usrmth{E}{}{sym}
1852 \usrmth{A}{}{sym}
1853 %%** Semantics ********************************************************%%
```

...

```
1854 %%** Game Logics I *****************************************************%%
```

\ATL ...
...
```
1855 % Alternating Temporal Logic
1856 \cmdtxtoparname{ATL}
1857
1858 % Weak Alternating Tree Logic
1859 \DeclareRobustCommand{\WATL}
1860   {{\txtname{W}}\ATL}
1861
1862 % Quantified Alternating Temporal Logic
1863 \DeclareRobustCommand{\QATL}
1864   {{\txtname{Q}}\ATL}
```

```
\DeclareRobustCommand{\EATL}
  {\ensuremath{\exists}\ATL}
\DeclareRobustCommand{\UATL}
  {\ensuremath{\forall}\ATL}

% Improved Alternating Temporal Logic
\cmdtxtoparname{ATLP}[ATL$^{+}$]

% Weak Improved Alternating Tree Logic
\DeclareRobustCommand{\WATLP}
  {{\txtname{W}}\ATLP}

% Quantified Improved Alternating Temporal Logic
\DeclareRobustCommand{\QATLP}
  {{\txtname{Q}}\ATLP}
\DeclareRobustCommand{\EATLP}
  {\ensuremath{\exists}\ATLP}
\DeclareRobustCommand{\UATLP}
  {\ensuremath{\forall}\ATLP}

% Full Alternating Temporal Logic
\cmdtxtoparname{ATLS}[ATL*]

% Weak Full Alternating Tree Logic
\DeclareRobustCommand{\WATLS}
  {{\txtname{W}}\ATLS}

% Quantified Full Alternating Temporal Logic
\DeclareRobustCommand{\QATLS}
  {{\txtname{Q}}\ATLS}
\DeclareRobustCommand{\EATLS}
  {\ensuremath{\exists}\ATLS}
\DeclareRobustCommand{\UATLS}
  {\ensuremath{\forall}\ATLS}
%%** Syntax ************************************************************%%

\EExs ...
\AAll \DeclareRobustCommand{\EExs}[1]
  {\mth{\argmid{\langle\!\langle}{\defval{#1}{\emptyset}}{\rangle\!\rangle}}}
\DeclareRobustCommand{\AAll}[1]
  {\mth{\argmid{\left[\left[}{\defval{#1}{\emptyset}}{\right]\right]}}}
%%** Semantics ********************************************************%%

 \CGS ...
\cmdtxtname{CGS}

\CGSStr ...
    ... \newcommand{\cgsstr}{G}
\usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet ...
    ... \newcommand{\agnsym}{a}
\newcommand{\agnset}{Ag}
\cmdmthsetext{Agn}[\agnset][\agnsym]

\ActSet ...
    ... \newcommand{\actsym}{c}
\newcommand{\actset}{Ac}
\cmdmthsetext{Act}[\actset][\actsym]

\PosSet ...
    ... \providecommand{\possym}{v}
```

```
1915 \providecommand{\posset}{Ps}
1916 \cmdmthsetext{Pos}[\posset][\possym]
1917 \cmdmthsymelm{ipos}[\possym_{I}]
1918 \cmdmthsymelm{fpos}[\possym_{F}]
1919 \cmdmthset{PPos}[\posset_{\PlrSym}]
1920 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1921 \cmdmthset{OPos}[\posset_{\OppSym}]
1922 \cmdmthsymelm{opos}[\possym_{\OppSym}]
```

\SttSet ...

... 1923 \newcommand{\sttsym}{s}
1924 \newcommand{\sttset}{St}
1925 \cmdmthsetext{Stt}[\sttset][\sttsym]
1926 \cmdmthset{IStt}[\sttset_{I}]
1927 \cmdmthsymelm{istt}[\sttsym_{I}]
1928 \cmdmthset{FStt}[\sttset_{F}]
1929 \cmdmthsymelm{fstt}[\sttsym_{F}]

\DecSet ...

... 1930 \newcommand{\decsym}{d}
1931 \newcommand{\decset}{Dc}
1932 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ...

\movRel 1933 \newcommand{\movsym}{\tau}
1934 \cmdmthfun{mov}[\movsym]
1935 \cmdmthrel{mov}[\movsym]

\trnFun ...

\trnRel 1936 \newcommand{\trnsym}{\delta}
1937 \cmdmthfun{trn}[\trnsym]
1938 \cmdmthrel{trn}[\trnsym]

\PrfSet ...

1939 \providecommand{\prfsym}{\xi}
1940 \providecommand{\prfset}{Prf}
1941 \cmdmthsetext{Prf}[\prfset][\prfsym]

\HstSet ...

... 1942 \providecommand{\hstsym}{\varpi}
1943 \providecommand{\hstset}{Hst}
1944 \cmdmthsetext{Hst}[\hstset][\hstsym]
1945 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1946 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1947 \cmdmthset{OHst}[\hstset_{\OppSym}]
1948 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1949 \usrmth{hst}{}{argfun}

\PlaySet ...

... 1950 \providecommand{\playsym}{\pi}
1951 \providecommand{\playset}{Play}
1952 \cmdmthsetext{Play}[\playset][\playsym]
1953 \usrmth{play}{}{argfun}

\PlnSet ...

... 1954 \providecommand{\plnsym}{\rho}
1955 \providecommand{\plnset}{Pln}
1956 \cmdmthsetext{Pln}[\plnset][\plnsym]
1957 \cmdmthset{PPln}[\plnset_{\PlrSym}]
1958 \cmdmthsymelm{pPln}[\plnsym_{\PlrSym}]
1959 \cmdmthset{OPln}[\plnset_{\OppSym}]
1960 \cmdmthsymelm{oPln}[\plnsym_{\OppSym}]

\StrSet ...

```
... 1961 \providecommand{\strsym}{\sigma}
    1962 \providecommand{\strset}{Str}
    1963 \cmdmthsetext{Str}[\strset][\strsym]
    1964 \cmdmthset{PStr}[\strset_{\PlrSym}]
    1965 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
    1966 \cmdmthset{OStr}[\strset_{\OppSym}]
    1967 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]
    1968 %%** Game Logics II ************************************************************%%
```

\PL ...

```
... 1969 % Plan Logic
    1970 \cmdtxtoparname{PL}
    1971
    1972 \DeclareRobustCommand{\EPL}
    1973   {\ensuremath{\exists}\PL}
    1974 \DeclareRobustCommand{\UPL}
    1975   {\ensuremath{\forall}\PL}
    1976
    1977 \DeclareRobustCommand{\FPL}
    1978   {{\txtname{F}}\PL}
    1979
    1980 \DeclareRobustCommand{\EFPL}
    1981   {\ensuremath{\exists}\FPL}
    1982 \DeclareRobustCommand{\UFPL}
    1983   {\ensuremath{\forall}\FPL}
    1984
    1985 % One-Goal Plan Logic
    1986 \DeclareRobustCommandx{\OGPL}[3][1=, 2=, 3=]
    1987   {\PL[#1][#2][1g\arglef{,}{#3}]}
    1988
    1989 \DeclareRobustCommand{\EOGPL}
    1990   {\ensuremath{\exists}\OGPL}
    1991 \DeclareRobustCommand{\UOGPL}
    1992   {\ensuremath{\forall}\OGPL}
    1993
    1994 \DeclareRobustCommand{\FOGPL}
    1995   {{\txtname{F}}\OGPL}
    1996
    1997 \DeclareRobustCommand{\EFOGPL}
    1998   {\ensuremath{\exists}\FOGPL}
    1999 \DeclareRobustCommand{\UFOGPL}
    2000   {\ensuremath{\forall}\FOGPL}
    2001
    2002 % Conjunctive-Goal Plan Logic
    2003 \DeclareRobustCommandx{\CGPL}[3][1=, 2=, 3=]
    2004   {\PL[#1][#2][cg\arglef{,}{#3}]}
    2005
    2006 \DeclareRobustCommand{\ECGPL}
    2007   {\ensuremath{\exists}\CGPL}
    2008 \DeclareRobustCommand{\UCGPL}
    2009   {\ensuremath{\forall}\CGPL}
    2010
    2011 \DeclareRobustCommand{\FCGPL}
    2012   {{\txtname{F}}\CGPL}
    2013
    2014 \DeclareRobustCommand{\EFCGPL}
    2015   {\ensuremath{\exists}\FCGPL}
    2016 \DeclareRobustCommand{\UFCGPL}
    2017   {\ensuremath{\forall}\FCGPL}
    2018
    2019 % Disjunctive-Goal Plan Logic
    2020 \DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]
```

```
  {\PL[#1][#2][dg\arglef{,}{#3}]}

\DeclareRobustCommand{\EDGPL}
  {\ensuremath{\exists}\DGPL}
\DeclareRobustCommand{\UDGPL}
  {\ensuremath{\forall}\DGPL}

\DeclareRobustCommand{\FDGPL}
  {{\txtname{F}}\DGPL}

\DeclareRobustCommand{\EFDGPL}
  {\ensuremath{\exists}\FDGPL}
\DeclareRobustCommand{\UFDGPL}
  {\ensuremath{\forall}\FDGPL}

% Alternating-Goal Plan Logic
\DeclareRobustCommandx{\AGPL}[3][1=, 2=, 3=]
  {\PL[#1][#2][ag\arglef{,}{#3}]}

\DeclareRobustCommand{\EAGPL}
  {\ensuremath{\exists}\AGPL}
\DeclareRobustCommand{\UAGPL}
  {\ensuremath{\forall}\AGPL}

\DeclareRobustCommand{\FAGPL}
  {{\txtname{F}}\AGPL}

\DeclareRobustCommand{\EFAGPL}
  {\ensuremath{\exists}\FAGPL}
\DeclareRobustCommand{\UFAGPL}
  {\ensuremath{\forall}\FAGPL}

% Extended-Goal Plan Logic
\DeclareRobustCommandx{\EGPL}[3][1=, 2=, 3=]
  {\PL[#1][#2][eg\arglef{,}{#3}]}

\DeclareRobustCommand{\EEGPL}
  {\ensuremath{\exists}\EGPL}
\DeclareRobustCommand{\UEGPL}
  {\ensuremath{\forall}\EGPL}

\DeclareRobustCommand{\FEGPL}
  {{\txtname{F}}\EGPL}

\DeclareRobustCommand{\EFEGPL}
  {\ensuremath{\exists}\FEGPL}
\DeclareRobustCommand{\UFEGPL}
  {\ensuremath{\forall}\FEGPL}

% Boolean-Goal Plan Logic
\DeclareRobustCommandx{\BGPL}[3][1=, 2=, 3=]
  {\PL[#1][#2][bg\arglef{,}{#3}]}

\DeclareRobustCommand{\EBGPL}
  {\ensuremath{\exists}\BGPL}
\DeclareRobustCommand{\UBGPL}
  {\ensuremath{\forall}\BGPL}

\DeclareRobustCommand{\FBGPL}
  {{\txtname{F}}\BGPL}

\DeclareRobustCommand{\EFBGPL}
  {\ensuremath{\exists}\FBGPL}
```

```
\DeclareRobustCommand{\UFBGPL}
  {\ensuremath{\forall}\FBGPL}

% Undefined-Goal Plan Logic
\DeclareRobustCommandx{\XGPL}[3][1=, 2=, 3=]
  {\PL[#1][#2][xg\arglef{,}{#3}]}

\DeclareRobustCommand{\EXGPL}
  {\ensuremath{\exists}\XGPL}
\DeclareRobustCommand{\UXGPL}
  {\ensuremath{\forall}\XGPL}

\DeclareRobustCommand{\FXGPL}
  {{\txtname{F}}\XGPL}

\DeclareRobustCommand{\EFXGPL}
  {\ensuremath{\exists}\FXGPL}
\DeclareRobustCommand{\UFXGPL}
  {\ensuremath{\forall}\FXGPL}
```

\SL ...

```
... % Strategy Logic
\cmdtxtoparname{SL}

\DeclareRobustCommand{\ESL}
  {\ensuremath{\exists}\SL}
\DeclareRobustCommand{\USL}
  {\ensuremath{\forall}\SL}

\DeclareRobustCommand{\FSL}
  {{\txtname{F}}\SL}

\DeclareRobustCommand{\EFSL}
  {\ensuremath{\exists}\FSL}
\DeclareRobustCommand{\UFSL}
  {\ensuremath{\forall}\FSL}

% One-Goal Strategy Logic
\DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][1g\arglef{,}{#3}]}

\DeclareRobustCommand{\EOGSL}
  {\ensuremath{\exists}\OGSL}
\DeclareRobustCommand{\UOGSL}
  {\ensuremath{\forall}\OGSL}

\DeclareRobustCommand{\FOGSL}
  {{\txtname{F}}\OGSL}

\DeclareRobustCommand{\EFOGSL}
  {\ensuremath{\exists}\FOGSL}
\DeclareRobustCommand{\UFOGSL}
  {\ensuremath{\forall}\FOGSL}

% Conjunctive-Goal Strategy Logic
\DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][cg\arglef{,}{#3}]}

\DeclareRobustCommand{\ECGSL}
  {\ensuremath{\exists}\CGSL}
\DeclareRobustCommand{\UCGSL}
  {\ensuremath{\forall}\CGSL}

\DeclareRobustCommand{\FCGSL}
```

```
  {{\txtname{F}}\CGSL}

\DeclareRobustCommand{\EFCGSL}
  {\ensuremath{\exists}\FCGSL}
\DeclareRobustCommand{\UFCGSL}
  {\ensuremath{\forall}\FCGSL}

% Disjunctive-Goal Strategy Logic
\DeclareRobustCommandx{\DGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][dg\arglef{,}{#3}]}

\DeclareRobustCommand{\EDGSL}
  {\ensuremath{\exists}\DGSL}
\DeclareRobustCommand{\UDGSL}
  {\ensuremath{\forall}\DGSL}

\DeclareRobustCommand{\FDGSL}
  {{\txtname{F}}\DGSL}

\DeclareRobustCommand{\EFDGSL}
  {\ensuremath{\exists}\FDGSL}
\DeclareRobustCommand{\UFDGSL}
  {\ensuremath{\forall}\FDGSL}

% Alternating-Goal Strategy Logic
\DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][ag\arglef{,}{#3}]}

\DeclareRobustCommand{\EAGSL}
  {\ensuremath{\exists}\AGSL}
\DeclareRobustCommand{\UAGSL}
  {\ensuremath{\forall}\AGSL}

\DeclareRobustCommand{\FAGSL}
  {{\txtname{F}}\AGSL}

\DeclareRobustCommand{\EFAGSL}
  {\ensuremath{\exists}\FAGSL}
\DeclareRobustCommand{\UFAGSL}
  {\ensuremath{\forall}\FAGSL}

% Extended-Goal Strategy Logic
\DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][eg\arglef{,}{#3}]}

\DeclareRobustCommand{\EEGSL}
  {\ensuremath{\exists}\EGSL}
\DeclareRobustCommand{\UEGSL}
  {\ensuremath{\forall}\EGSL}

\DeclareRobustCommand{\FEGSL}
  {{\txtname{F}}\EGSL}

\DeclareRobustCommand{\EFEGSL}
  {\ensuremath{\exists}\FEGSL}
\DeclareRobustCommand{\UFEGSL}
  {\ensuremath{\forall}\FEGSL}

% Boolean-Goal Strategy Logic
\DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][bg\arglef{,}{#3}]}

\DeclareRobustCommand{\EBGSL}
```

```
  {\ensuremath{\exists}\BGSL}
\DeclareRobustCommand{\UBGSL}
  {\ensuremath{\forall}\BGSL}

\DeclareRobustCommand{\FBGSL}
  {{\txtname{F}}\BGSL}

\DeclareRobustCommand{\EFBGSL}
  {\ensuremath{\exists}\FBGSL}
\DeclareRobustCommand{\UFBGSL}
  {\ensuremath{\forall}\FBGSL}

% Nested-Goal Strategy Logic
\DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][ng\arglef{,}{#3}]}

\DeclareRobustCommand{\ENGSL}
  {\ensuremath{\exists}\NGSL}
\DeclareRobustCommand{\UNGSL}
  {\ensuremath{\forall}\NGSL}

\DeclareRobustCommand{\FNGSL}
  {{\txtname{F}}\NGSL}

\DeclareRobustCommand{\EFNGSL}
  {\ensuremath{\exists}\FNGSL}
\DeclareRobustCommand{\UFNGSL}
  {\ensuremath{\forall}\FNGSL}

% Undefined-Goal Strategy Logic
\DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][xg\arglef{,}{#3}]}

\DeclareRobustCommand{\EXGSL}
  {\ensuremath{\exists}\XGSL}
\DeclareRobustCommand{\UXGSL}
  {\ensuremath{\forall}\XGSL}

\DeclareRobustCommand{\FXGSL}
  {{\txtname{F}}\XGSL}

\DeclareRobustCommand{\EFXGSL}
  {\ensuremath{\exists}\FXGSL}
\DeclareRobustCommand{\UFXGSL}
  {\ensuremath{\forall}\FXGSL}
%%** Syntax ***************************************************************%%

\BndSet ...
    ... \newcommand{\bndsym}{\flat}
\newcommand{\bndset}{Bn}
\cmdmthsetext{Bnd}[\bndset][\bndsym]
\cmdmthsymelm{idbnd}[\bndsym_{\text{id}}]
\usrmth{bnd}{}{argfun}

  \psn ...
\usrmth{psn}{}{argfun}

%%** Semantics ************************************************************%%

  \nxt ...
\usrmth{nxt}{}{argfun}

\fi
%%*************************************************************************%%
```

```
%%*************************************************************************%%
%%** Macros for Automata ***************************************************%%
%%*************************************************************************%%
\ifaut@
%%** Finite Word Automata *************************************************%%

\DFA ...
 ... \cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}

\cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}

\cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
\cmdtxtoparname{DWW}\cmdtxtoparname{NWW}\cmdtxtoparname{UWW}\cmdtxtoparname{AWW}
\cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
\cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
\cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
\cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
\cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
\cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

\GFG ...
 ... \cmdtxtoparname{GFG}

\cmdtxtoparname{PD}
\cmdtxtoparname{PN}

\cmdtxtoparname{LD}
\cmdtxtoparname{LN}
%%** Syntax ***************************************************************%%

\AutName ...
 ... \newcommand{\autname}{A}
\usrmthlatupp{Aut}{Name}{name}[\autname]
\newcommand{\autset}{Aut}
\cmdmthset{Aut}[\autset]

\WAutSet ...
\newcommand{\wautset}{WAut}
\cmdmthset{WAut}[\wautset]

\SymSet ...
 ... \newcommand{\symsym}{\sigma}
\newcommand{\symset}{\Sigma}
\cmdmthsetext{Sym}[\symset][\symsym]

\SttSet ...
 ... \providecommand{\sttsym}{q}
\providecommand{\sttset}{Q}
\cmdmthsetext{Stt}[\sttset][\sttsym]
\cmdmthset{IStt}[\sttset_{I}]
\cmdmthsymelm{istt}[\sttsym_{I}]
\cmdmthset{FStt}[\sttset_{F}]
\cmdmthsymelm{fstt}[\sttsym_{F}]

\trnFun ...
\trnRel \providecommand{\trnsym}{\delta}
\cmdmthfun{trn}[\trnsym]
\cmdmthrel{trn}[\trnsym]
%%** Semantics ************************************************************%%
```

```
\WrdSet ...
    ... 2310 \newcommand{\wrdsym}{w}
        2311 \newcommand{\wrdset}{Wr}
        2312 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

  \Lang ...
        2313 \usrmth{Lang}{}{argfun}[L]

        2314 %%** Finite Tree Automata ****************************************************%%

   \DTA ...
    ... 2315 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
        2316
        2317 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
        2318 \cmdtxtoparname{DWT}\cmdtxtoparname{NWT}\cmdtxtoparname{UWT}\cmdtxtoparname{AWT}
        2319 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
        2320 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
        2321 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
        2322 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
        2323 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
        2324 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}
        2325 %%** Syntax ********************************************************************%%

\TAutSet ...
        2326 \newcommand{\tautset}{TAut}
        2327 \cmdmthset{TAut}[\tautset]

 \DirSet ...
    ... 2328 \newcommand{\dirsym}{d}
        2329 \newcommand{\dirset}{\Lambda}
        2330 \cmdmthsetext{Dir}[\dirset][\dirsym]
        2331 %%** Semantics *****************************************************************%%

\TreeSet ...
    ... 2332 \newcommand{\treesym}{T}
        2333 \newcommand{\treeset}{Tr}
        2334 \cmdmthsetext{Tree}[\treeset][\treesym]

   \wot ...
        2335 \usrmth{wot}{}{argfun}

        2336 \fi
        2337 %%*****************************************************************************%%
        2338 %%*****************************************************************************%%
        2339 %%** Format Tricks ***************************************************************%%
        2340 %%*****************************************************************************%%
        2341 \iffrm@
        2342 \RequirePackage{multicol}

    ... ...
        2343 %%...

        2344 \fi
        2345 %%*****************************************************************************%%
        2346 %%*****************************************************************************%%
        2347 %%** Figure Tricks ***************************************************************%%
        2348 %%*****************************************************************************%%
        2349 \iffig@
        2350 \RequirePackage{tikz}
        2351 \usetikzlibrary{calc,arrows,shapes,patterns,graphs,matrix}
```

```
\tikzstyle{every node} =
  [draw = none, fill = none, black, thin]
\tikzstyle{every edge} +=
  [black, thick]

\tikzstyle{noall} =
  [draw = none, fill = none]
\tikzstyle{nodraw} =
  [draw = none, fill = white]
\tikzstyle{nofill} =
  [draw = black, fill = none]

\ifwrpfig@
  % Wrapfig Package
  \RequirePackage{wrapfig}
\fi

\fi
%%***************************************************************************%%

%%***************************************************************************%%
%%** Table Tricks ***********************************************************%%
%%***************************************************************************%%
\iftab@

... ...
%%...

\fi
%%***************************************************************************%%

%%***************************************************************************%%
%%** Algorithm Tricks *******************************************************%%
%%***************************************************************************%%
\ifalg@

\RequirePackage[ruled,vlined]{algorithm2e}
\DontPrintSemicolon
\SetInd{0.25em}{0.5em}
\setlength{\algomargin}{1.25em}

\Signature ...
\SetKw{Signature}{signature}

   \Macro ...
\Function
\Procedure
\SetKwFor{Macro}{macro}{}{}
\SetKwFor{Function}{function}{}{}
\SetKwFor{Procedure}{procedure}{}{}

     \Let ...
\SetKwFor{Let}{let}{in}{}

    \True ...
   \False
\SetKw{True}{true}
\SetKw{False}{false}

    \From ...
      \To
\SetKw{From}{from}
  \DownTo
\SetKw{To}{to}
\SetKw{DownTo}{downto}

    \GoTo ...
   \Break
\Continue
\SetKw{GoTo}{goto}
\SetKw{Break}{break}
\SetKw{Continue}{continue}
```

```
   \Guess ...
\ExsGuess 2396 \SetKw{Guess}{guess}
\AllGuess 2397 \SetKw{ExsGuess}{$\exists$-guess}
          2398 \SetKw{AllGuess}{$\forall$-guess}

     \MIf ...
 \MElseIf 2399 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}
   \MElse
     \nlr ...
          2400 \newrobustcmd{\nlr}[1]
          2401   {\addtocounter{AlgoLine}{1}%
          2402   \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

          2403 \fi
          2404 %%*****************************************************************************%%

          2405 \endinput
          2406 ⟨/package⟩
```

2 Change History

3 Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

Symbols

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