fmocdmac — FM's OCD LaTeX Macro*

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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

⟨*package⟩

Required external packages:

```
\RequirePackage{etoolbox}

\RequirePackage{xargs}
\RequirePackage{xspace}
\RequirePackage{stringstrings}

```

Package options:

```
%% Auxiliary packages
\newif\ifaux@ \aux@false
\DeclareOption{aux}{\aux@true}
\DeclareOption{noaux}{\aux@false}

%% AMS defaults
\newif\ifamsdef@ \amsdef@true
\DeclareOption{noamsdef}{\amsdef@false}

%% AMS theorem tools
\newif\ifamsthm@ \amsthm@true
\DeclareOption{noamsthm}{\amsthm@false}

%% Extended Theorem tools
\newif\ifthmtls@ \thmtls@true
\DeclareOption{nothmtls}{\thmtls@false}

%% Enumeration tools
\newif\ifenmtls@ \enmtls@true
\DeclareOption{noenmtls}{\enmtls@false}

%% Hyper reference
\newif\ifhypref@ \hypref@true
\DeclareOption{nohypref}{\hypref@false}

```

*This document describes version v0.27 of the fmocdmac package, last revised 2023/12/15.

```
%% 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{⟨A⟩}{⟨B⟩}` evaluates to the empty string, if Argument ⟨A⟩ is empty, and to Argument ⟨B⟩, otherwise.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```
\DeclareRobustCommand{\varcmd}[6]
  {\expandafter\newcommand\csname gobble#1arg\endcsname[2]
    {\csname check#1arg\endcsname{\argsep{##1}{#4}{\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!

```
\DeclareRobustCommand{\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!

```
\DeclareRobustCommand{\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!

```
\DeclareRobustCommand{\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!

```
\DeclareRobustCommand{\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!

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

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

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

```
\DeclareRobustCommand{\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!

```
\DeclareRobustCommand{\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!

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

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

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

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

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

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

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

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

```
\DeclareRobustCommand{\newtxt}
  {\@ifstar{\@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]` = "$\mathrm{Name}^{\mathrm{sup}}_{\mathrm{sub}}\mathrm{Ext}$"
- `\newtxtsty{\rmfamily}[\sffamily]{Name}[sub][sup][Ext]` = "$\mathsf{Name}^{\mathsf{sup}}_{\mathsf{sub}}\mathsf{Ext}$"
- `\newtxtsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext]` = "$\mathtt{Name}^{\mathtt{sup}}_{\mathtt{sub}}\mathtt{Ext}$"
- `\newtxtsty*{\rmfamily}{Name}[sub][sup][Ext]` = "$\mathrm{Name}^{\mathrm{sup}}_{\mathrm{sub}}\mathrm{Ext}$"
- `\newtxtsty*{\rmfamily}[\sffamily]{Name}[sub][sup][Ext]` = "$\mathsf{Name}^{\mathsf{sup}}_{\mathsf{sub}}\mathsf{Ext}$"
- `\newtxtsty*{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext]` = "$\mathtt{Name}^{\mathtt{sup}}_{\mathtt{sub}}\mathtt{Ext}$"

```
\DeclareRobustCommand{\newtxtsty}
  {\@ifstar{\@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}
  {\@ifstar{\@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}
  {\@ifstar{\@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}
  {\@ifstar{\@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]` = "$\mathtt{Name}^{\mathtt{sup}}_{\mathtt{sub}}\mathtt{(Arg)}$"

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

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

```
\DeclareRobustCommand{\newtxtparsty}
  {\@ifstar{\@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]` = "$\mathrm{Name}^{\mathrm{sup}}_{\mathrm{sub}}\mathrm{[Par]}$"
- `\newtxtopar[\sffamily]{Name}[sub][sup][Par]` = "$\mathsf{Name}^{\mathsf{sup}}_{\mathsf{sub}}\mathsf{[Par]}$"
- `\newtxtopar[\ttfamily]{Name}[sub][sup][Par]` = "$\mathtt{Name}^{\mathtt{sup}}_{\mathtt{sub}}\mathtt{[Par]}$"
- `\newtxtopar*[\rmfamily]{Name}[sub][sup][Par]` = "$\mathrm{Name}^{\mathrm{sup}}_{\mathrm{sub}}\mathrm{[Par]}$"
- `\newtxtopar*[\sffamily]{Name}[sub][sup][Par]` = "$\mathsf{Name}^{\mathsf{sup}}_{\mathsf{sub}}\mathsf{[Par]}$"
- `\newtxtopar*[\ttfamily]{Name}[sub][sup][Par]` = "$\mathtt{Name}^{\mathtt{sup}}_{\mathtt{sub}}\mathtt{[Par]}$"

```
\DeclareRobustCommand{\newtxtopar}
  {\@ifstar{\@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]` = "$\mathrm{Name}^{\mathrm{sup}}_{\mathrm{sub}}\mathrm{[Par]}$"
- `\newtxtoparsty{\rmfamily}[\sffamily]{Name}[sub][sup][Par]` = "$\mathsf{Name}^{\mathsf{sup}}_{\mathsf{sub}}\mathsf{[Par]}$"
- `\newtxtoparsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Par]` = "$\mathtt{Name}^{\mathtt{sup}}_{\mathtt{sub}}\mathtt{[Par]}$"
- `\newtxtoparsty*{\rmfamily}{Name}[sub][sup][Par]` = "$\mathrm{Name}^{\mathrm{sup}}_{\mathrm{sub}}\mathrm{[Par]}$"

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

```
\DeclareRobustCommand{\newtxtoparsty}
  {\@ifstar{\@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}` = "^{sup}"; `\txtsubsup{sub}{sup}` = "$^{\text{sup}}_{\text{sub}}$"
- `\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]` = "$\text{Name}^{\text{sup}}_{\text{sub}}\text{Ext}$"
- `\txt[\scshape]{Name}[sub][sup][Ext]` = "$\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext}$"
- `\txt[\bfseries]{Name}[sub][sup][Ext]` = "$\mathbf{Name}^{\mathbf{sup}}_{\mathbf{sub}}\mathbf{Ext}$"
- `\txt*{Name}[sub][sup][Ext]` = "$\text{Name}^{\text{sup}}_{\text{sub}}\text{Ext}$"
- `\txt*[\scshape]{Name}[sub][sup][Ext]` = "$\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext}$"
- `\txt*[\bfseries]{Name}[sub][sup][Ext]` = "$\mathbf{Name}^{\mathbf{sup}}_{\mathbf{sub}}\mathbf{Ext}$"

```
\DeclareRobustCommand{\txt}
  {\@ifstar{\newtxtsty*{\txtsty}}{\newtxtsty{\txtsty}}}
```

`\txtarg` ... to do!

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

```
\DeclareRobustCommand{\txtarg}
  {\@ifstar{\newtxtargsty*{\txtsty}}{\newtxtargsty{\txtsty}}}
```

`\txtoarg` ... to do!

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

```
\DeclareRobustCommand{\txtoarg}
  {\@ifstar{\newtxtoargsty*{\txtsty}}{\newtxtoargsty{\txtsty}}}
```

`\txtpar` ... to do!

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

- `\txtpar*[\bfseries]{Name}[sub][sup][Ext1]{Par}[Ext2]` = "$\mathbf{Name^{sup}_{sub}Ext1[Par]Ext2}$"

```
\DeclareRobustCommand{\txtpar}
  {\@ifstar{\newtxtparsty*{\txtsty}}{\newtxtparsty{\txtsty}}}
```

`\txtopar` ... to do!

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

```
\DeclareRobustCommand{\txtopar}
  {\@ifstar{\newtxtoparsty*{\txtsty}}{\newtxtoparsty{\txtsty}}}
```

`\txtsty` ... to do!

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

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

`\cmdtxt` ... to do!

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

```
\DeclareRobustCommand{\cmdtxt}[1]
  {\csdef{txt#1}%
    {\@ifstar%
      {\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]` = $\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext1(Arg)Ext2}$
  `\txtargNewCmd*{Name}[sub][sup][Ext1]{Arg}[Ext2]` = $\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext1(Arg)Ext2}$

```
\DeclareRobustCommand{\cmdtxtarg}[1]
  {\csdef{txtarg#1}%
    {\@ifstar%
      {\newtxtargsty*{\csname txtsty#1\endcsname}}%
      {\newtxtargsty{\csname txtsty#1\endcsname}}}}
```

`\cmdtxtoarg` ... to do!

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

```
\DeclareRobustCommand{\cmdtxtoarg}[1]
  {\csdef{txtoarg#1}%
    {\@ifstar%
      {\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]` = $\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext1[Par]Ext2}$
  `\txtparNewCmd*{Name}[sub][sup][Ext1]{Par}[Ext2]` = $\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext1[Par]Ext2}$

```
\DeclareRobustCommand{\cmdtxtpar}[1]
  {\csdef{txtpar#1}%
    {\@ifstar%
      {\newtxtparsty*{\csname txtsty#1\endcsname}}%
      {\newtxtparsty{\csname txtsty#1\endcsname}}}}
```

`\cmdtxtopar` ... to do!

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

```
\DeclareRobustCommand{\cmdtxtopar}[1]
  {\csdef{txtopar#1}%
    {\@ifstar%
      {\newtxtoparsty*{\csname txtsty#1\endcsname}}%
      {\newtxtoparsty{\csname txtsty#1\endcsname}}}}
```

`\cmdtxtall` ... to do!

- `\cmdtxtall{NewCmd}`; `\newcommand{txtstyNewCmd}{\scshape\ttfamily}`;
  `\txtNewCmd{Name}[sub][sup][Ext]` = $\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}$EXT
  `\txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2]` = $\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}$EXT1(ARG)EXT2
  `\txtoargNewCmd{Name}[sub][sup][Arg]` = $\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}$(ARG)
  `\txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2]` = $\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}$EXT1[PAR]EXT2
  `\txtoparNewCmd{Name}[sub][sup][Par]` = $\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}$[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}{%
    \@ifstar%
      {\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]` = "$\mathrm{Name}^{sup}_{sub}Ext$"
- `\newmth[mathsf]{Name}[sub][sup][Ext]` = "$\mathsf{Name}^{sup}_{sub}Ext$"
- `\newmth[mathtt]{Name}[sub][sup][Ext]` = "$\mathtt{Name}^{sup}_{sub}Ext$"
- `\newmth*[mathrm]{Name}[sub][sup][Ext]` = "$\mathrm{N}ame^{sup}_{sub}Ext$"
- `\newmth*[mathsf]{Name}[sub][sup][Ext]` = "$\mathsf{N}ame^{sup}_{sub}Ext$"
- `\newmth*[mathtt]{Name}[sub][sup][Ext]` = "$\mathtt{N}ame^{sup}_{sub}Ext$"

```
\DeclareRobustCommand{\newmth}
  {\@ifstar{\@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}
  {\@ifstar{\@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}
  {\@ifstar{\@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}
  {\@ifstar{\@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}
  {\@ifstar{\@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}
  {\@ifstar{\@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}
  {\@ifstar{\@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}
  {\@ifstar{\@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}}]` = "$\mathrm{Name}_{sub}^{sup}\left[Par^{Ex^{Ex^{Ex}}}\right]$"
- `\newmthopar[mathsf]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}\left[Par^{Ex^{Ex^{Ex}}}\right]$"
- `\newmthopar[mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}\left[Par^{Ex^{Ex^{Ex}}}\right]$"
- `\newmthopar*[mathrm]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}[Par^{Ex^{Ex^{Ex}}}]$"
- `\newmthopar*[mathsf]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}[Par^{Ex^{Ex^{Ex}}}]$"
- `\newmthopar*[mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}[Par^{Ex^{Ex^{Ex}}}]$"

```
\DeclareRobustCommand{\newmthopar}
  {\@ifstar{\@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}}]` = "$\mathrm{Name}_{sub}^{sup}\left[Par^{Ex^{Ex^{Ex}}}\right]$"
- `\newmthoparsty{mathrm}[mathsf]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}\left[Par^{Ex^{Ex^{Ex}}}\right]$"
- `\newmthoparsty{mathrm}[mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}\left[Par^{Ex^{Ex^{Ex}}}\right]$"
- `\newmthoparsty*{mathrm}{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}[Par^{Ex^{Ex^{Ex}}}]$"
- `\newmthoparsty*{mathrm}[mathsf]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathsf{Name}_{sub}^{sup}[Par^{Ex^{Ex^{Ex}}}]$"
- `\newmthoparsty*{mathrm}[mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}[Par^{Ex^{Ex^{Ex}}}]$"

```
\DeclareRobustCommand{\newmthoparsty}
  {\@ifstar{\@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}
  {\@ifstar{\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}
  {\@ifstar{\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}
  {\@ifstar{\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}
  {\@ifstar{\newmthparsty*{\mthsty}}{\newmthparsty{\mthsty}}}
```

`\mthopar` ... to do!

- `\mthopar{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$Name_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$"
- `\mthopar[mathbf]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathbf{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$"
- `\mthopar[mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathtt{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$"
- `\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}
  {\@ifstar{\newmthoparsty*{\mthsty}}{\newmthoparsty{\mthsty}}}
```

`\mthsty` ... to do!

```
\newcommand{\mthsty}
  {}
```

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

`\cmdmth` ... to do!

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

```
\DeclareRobustCommand{\cmdmth}[1]
  {\csdef{mth#1}%
    {\@ifstar{\newmthsty*{mthsty#1}}{\newmthsty{mthsty#1}}}}
```

\cmdmtharg ... to do!

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

```
\DeclareRobustCommand{\cmdmtharg}[1]
  {\csdef{mtharg#1}%
    {\@ifstar{\newmthargsty*{mthsty#1}}{\newmthargsty{mthsty#1}}}}
```

\cmdmthoarg ... to do!

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

```
\DeclareRobustCommand{\cmdmthoarg}[1]
  {\csdef{mthoarg#1}%
    {\@ifstar{\newmthoargsty*{mthsty#1}}{\newmthoargsty{mthsty#1}}}}
```

\cmdmthpar ... to do!

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

```
\DeclareRobustCommand{\cmdmthpar}[1]
  {\csdef{mthpar#1}%
    {\@ifstar{\newmthparsty*{mthsty#1}}{\newmthparsty{mthsty#1}}}}
```

\cmdmthopar ... to do!

- \cmdmthopar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = $\texttt{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$
  \mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = $\texttt{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$

```
\DeclareRobustCommand{\cmdmthopar}[1]
  {\csdef{mthopar#1}%
    {\@ifstar{\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] = $\texttt{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
  \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}}] = $\texttt{Name}_{sub}^{sup}\left(Arg^{Ex^{Ex}}\right)$
  \mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = $\texttt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$
  \mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\texttt{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
  \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}}] = $\texttt{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$
  \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}}}` $= cmdName\left(Arg^{Ex^{Ex}}\right)$
  `\cmdNameSuf*{Arg^{Ex^{Ex}}}` $= cmdName(Arg^{Ex^{Ex}})$
  `\usrmth{cmdName}{Suf}{par}`;
  `\cmdNameSuf{Par^{Ex^{Ex}}}` $= cmdName\left[Par^{Ex^{Ex}}\right]$
  `\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}}}` $= newName\left(Arg^{Ex^{Ex}}\right)$
  `\cmdNameSuf*{Arg^{Ex^{Ex}}}` $= newName(Arg^{Ex^{Ex}})$
  `\usrmth{cmdName}{Suf}{par}[newName]`;
  `\cmdNameSuf{Par^{Ex^{Ex}}}` $= newName\left[Par^{Ex^{Ex}}\right]$
  `\cmdNameSuf*{Par^{Ex^{Ex}}}` $= newName[Par^{Ex^{Ex}}]$

```
\DeclareRobustCommandx{\usrmth}[4][4=]
  {\csdef{#1#2}{%
    \@ifstar%
      {\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!

...

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

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

`\cmdtxtdef` ... to do!

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

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

`\cmdtxtargdef` ... to do!

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

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

`\cmdtxtoargdef` ... to do!

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

```
\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` ... 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}\newcommand{\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!

...

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

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

`\cmdtxtname` ... to do!

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

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

`\cmdtxtargname` ... to do!

- `\cmdtxtargname{cmdName}`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` = CMDNAME$^{\text{SUB}}_{\text{SUB}}$EXT1(ARG)EXT2
- `\cmdtxtargname{cmdName}[newName]`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` = NEWNAME$^{\text{SUB}}_{\text{SUB}}$EXT1(ARG)EXT2

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

`\cmdtxtoargname` ... to do!

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

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

`\cmdtxtparname` ... to do!

- `\cmdtxtparname{cmdName}`;
  `\cmdName[sub][sub][ext1]{par}[ext2]` = CMDNAME$^{\text{SUB}}_{\text{SUB}}$EXT1[PAR]EXT2
- `\cmdtxtparname{cmdName}[newName]`;
  `\cmdName[sub][sub][ext1]{par}[ext2]` = NEWNAME$^{\text{SUB}}_{\text{SUB}}$EXT1[PAR]EXT2

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

`\cmdtxtoparname` ... to do!

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

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

`\txtcom` ... to do!

...

- `\txtcom{Name}[sub][sup][Ext]` = NAME$^{\text{SUP}}_{\text{SUB}}$EXT
- `\txtargcom{Name}[sub][sup][Ext1]{Arg}[Ext2]` = NAME$^{\text{SUP}}_{\text{SUB}}$EXT1(ARG)EXT2
- `\txtparcom{Name}[sub][sup][Ext1]{Par}[Ext2]` = NAME$^{\text{SUP}}_{\text{SUB}}$EXT1[PAR]EXT2

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

`\cmdtxtcom` ... to do!

- `\cmdtxtcom{cmdName}`;
  `\cmdName[sub][sub][ext]` = CMDNAME$^{\text{SUB}}_{\text{SUB}}$EXT
- `\cmdtxtcom{cmdName}[newName]`;
  `\cmdName[sub][sub][ext]` = NEWNAME$^{\text{SUB}}_{\text{SUB}}$EXT

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

`\cmdtxtargcom` ... to do!

- `\cmdtxtargcom{cmdName}`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` = CMDNAME$^{\text{SUB}}_{\text{SUB}}$EXT1(ARG)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!

...
- `\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}\newcommand{\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!

...

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

```
%% Style for Families
\cmdmthall{fam}\newcommand{\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]` $= \mathscr{CMDNAME}^{sub}_{sub} ext$
- `\cmdmthfam{cmdName}[NEWNAME]`;
  `\cmdNameFam[sub][sub][ext]` $= \mathscr{NEWNAME}^{sub}_{sub} ext$

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

`\cmdmthargfam` ... to do!

- `\cmdmthargfam{CMDNAME}`;
  `\CMDNAMEFam[sub][sub][ext1]{arg}[ext2]` $= \mathscr{C}\mathscr{M}\mathscr{D}\mathscr{N}\mathscr{A}\mathscr{M}\mathscr{E}_{sub}^{sub} ext1(arg) ext2$
- `\cmdmthargfam{cmdName}[NEWNAME]`;
  `\cmdNameFam[sub][sub][ext1]{arg}[ext2]` $= \mathscr{N}\mathscr{E}\mathscr{W}\mathscr{N}\mathscr{A}\mathscr{M}\mathscr{E}_{sub}^{sub} ext1(arg) ext2$

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

`\cmdmthoargfam` ... to do!

- `\cmdmthoargfam{CMDNAME}`;
  `\CMDNAMEFam[sub][sub][arg]` $= \mathscr{C}\mathscr{M}\mathscr{D}\mathscr{N}\mathscr{A}\mathscr{M}\mathscr{E}_{sub}^{sub}(arg)$
- `\cmdmthoargfam{cmdFam}[NEWNAME]`;
  `\cmdFamFam[sub][sub][arg]` $= \mathscr{N}\mathscr{E}\mathscr{W}\mathscr{N}\mathscr{A}\mathscr{M}\mathscr{E}_{sub}^{sub}(arg)$

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

`\cmdmthparfam` ... to do!

- `\cmdmthparfam{CMDNAME}`;
  `\CMDNAMEFam[sub][sub][ext1]{par}[ext2]` $= \mathscr{C}\mathscr{M}\mathscr{D}\mathscr{N}\mathscr{A}\mathscr{M}\mathscr{E}_{sub}^{sub} ext1[par] ext2$
- `\cmdmthparfam{cmdName}[NEWNAME]`;
  `\cmdNameFam[sub][sub][ext1]{par}[ext2]` $= \mathscr{N}\mathscr{E}\mathscr{W}\mathscr{N}\mathscr{A}\mathscr{M}\mathscr{E}_{sub}^{sub} ext1[par] ext2$

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

`\cmdmthoparfam` ... to do!

- `\cmdmthoparfam{CMDNAME}`;
  `\CMDNAMEFam[sub][sub][par]` $= \mathscr{C}\mathscr{M}\mathscr{D}\mathscr{N}\mathscr{A}\mathscr{M}\mathscr{E}_{sub}^{sub}[par]$
- `\cmdmthoparfam{cmdFam}[NEWNAME]`;
  `\cmdFamFam[sub][sub][par]` $= \mathscr{N}\mathscr{E}\mathscr{W}\mathscr{N}\mathscr{A}\mathscr{M}\mathscr{E}_{sub}^{sub}[par]$

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

`\mthcls` ... to do!

...

- `\mthcls{NAME}[sub][sup][Ext]` $= \mathcal{NAME}_{sub}^{sup} Ext$
- `\mthargcls{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` $= \mathcal{NAME}_{sub}^{sup} Ext1\left(Arg^{Ex^{Ex}}\right) Ext2$
- `\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]` $= \mathcal{NAME}_{sub}^{sup} Ext1\left[Par^{Ex^{Ex}}\right] Ext2$
- `\mthparcls*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` $= \mathcal{NAME}_{sub}^{sup} Ext1[Par^{Ex^{Ex}}] Ext2$

```
%% Style for Classes
\cmdmthall{cls}\newcommand{\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!

...
- `\mthsig{Name}[sub][sup][Ext]` $= \mathcal{N}ame^{sup}_{sub}Ext$
- `\mthargsig{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` $= \mathcal{N}ame^{sup}_{sub}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
- `\mthargsig*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` $= \mathcal{N}ame^{sup}_{sub}Ext1(Arg^{Ex^{Ex}})Ext2$
- `\mthparsig{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` $= \mathcal{N}ame^{sup}_{sub}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- `\mthparsig*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` $= \mathcal{N}ame^{sup}_{sub}Ext1[Par^{Ex^{Ex}}]Ext2$

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

`\aSig` ... to do!

... $\mathpzc{a}$, $\mathpzc{b}$, $\mathpzc{c}$, $\mathpzc{d}$, $\mathpzc{e}$, $\mathpzc{f}$, $\mathpzc{g}$, $\mathpzc{h}$, $\mathpzc{i}$, $\mathpzc{j}$, $\mathpzc{k}$, $\mathpzc{l}$, $\mathpzc{m}$, $\mathpzc{n}$, $\mathpzc{o}$, $\mathpzc{p}$, $\mathpzc{q}$, $\mathpzc{r}$, $\mathpzc{s}$, $\mathpzc{t}$, $\mathpzc{u}$, $\mathpzc{v}$, $\mathpzc{w}$, $\mathpzc{x}$, $\mathpzc{y}$, $\mathpzc{z}$
$\mathpzc{A}$, $\mathpzc{B}$, $\mathpzc{C}$, $\mathpzc{D}$, $\mathpzc{E}$, $\mathpzc{F}$, $\mathpzc{G}$, $\mathpzc{H}$, $\mathpzc{I}$, $\mathpzc{J}$, $\mathpzc{K}$, $\mathpzc{L}$, $\mathpzc{M}$, $\mathpzc{N}$, $\mathpzc{O}$, $\mathpzc{P}$, $\mathpzc{Q}$, $\mathpzc{R}$, $\mathpzc{S}$, $\mathpzc{T}$, $\mathpzc{U}$, $\mathpzc{V}$, $\mathpzc{W}$, $\mathpzc{X}$, $\mathpzc{Y}$, $\mathpzc{Z}$
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]` $= \mathcal{cmdN}ame^{sub}_{sub}ext$
- `\cmdmthsig{cmdName}[NewName]`;
  `\cmdNameSig[sub][sub][ext]` $= \mathcal{NewN}ame^{sub}_{sub}ext$

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

`\cmdmthargsig` ... to do!

- `\cmdmthargsig{cmdName}`;
  `\cmdNameSig[sub][sub][ext1]{arg}[ext2]` $= \mathcal{cmdN}ame^{sub}_{sub}ext1(arg)ext2$

- `\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]` $= \mathit{cmdName}^{sub}_{sub}(arg)$
- `\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]` $= \mathit{cmdName}^{sub}_{sub}ext1[par]ext2$
- `\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]` $= \mathit{cmdName}^{sub}_{sub}[par]$
- `\cmdmthoparsig{cmdSig}[NewName]`;
  `\cmdSigSig[sub][sub][par]` $= \mathcal{NewName}^{sub}_{sub}[par]$

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

`\mthstr` ... to do!

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

```
%% Style for Structures
\cmdmthall{str}\newcommand{\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!

...

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

`\aSet` ... 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{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!

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

```
%% Style for Relations
\cmdmthall{rel}\newcommand{\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!

...

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

```
%% Style for Functions
\cmdmthall{fun}\newcommand{\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, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, ϒ, Φ, Φ, 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]` = $\mathsf{cmdName}^{sub}_{sub}[par]$
- `\cmdmthoparfun{cmdFun}[NewName]`;
  `\cmdFunFun[sub][sub][par]` = $\mathsf{NewName}^{sub}_{sub}[par]$

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

`\mthsym` ... to do!

`...`

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

```
%% Style for Symbols
\cmdmthall{sym}\newcommand{\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, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, T, Φ, Φ, X, Ψ, Ω

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

`\cmdmthsym` ... to do!

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

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

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

\mthelm ... to do!

...

- \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}\newcommand{\mthstyelm}{\mathnormal}
```

\aElm ... to do!

... $a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z$
$A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z$
$\alpha, \beta, \gamma, \delta, \epsilon, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \varkappa, \lambda, \mu, \nu, \xi, o, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$
$A, B, \Gamma, \Delta, E, E, Z, H, \Theta, \Theta, I, K, K, \Lambda, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, \Upsilon, \Phi, \Phi, X, \Psi, \Omega$

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

...

- `\mthluop{\oplus}[sub][sup][Ext]` $= \oplus_{sub}^{sup} Ext$
- `\mthlbop{\oplus}[sub][sup][Ext]` $= \oplus_{sub}^{sup} Ext$

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

`\cmdmthluop` ... to do!

...

- `\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]` $= \preceq_{sub}^{sup} Ext$

```
%% Style for \LaTex Relations
\cmdmth{lrel}\newcommand{\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!

...

- `\mthsnt{Name}[sub][sup][Ext]` $= \mathsf{Name}_{sub}^{sup} Ext$
- `\mthargsnt{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` $= \mathsf{Name}_{sub}^{sup} Ext1\left(Arg^{Ex^{Ex}}\right) Ext2$
- `\mthargsnt*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` $= \mathsf{Name}_{sub}^{sup} Ext1(Arg^{Ex^{Ex}}) Ext2$
- `\mthparsnt{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` $= \mathsf{Name}_{sub}^{sup} Ext1\left[Par^{Ex^{Ex}}\right] Ext2$
- `\mthparsnt*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` $= \mathsf{Name}_{sub}^{sup} Ext1[Par^{Ex^{Ex}}] Ext2$

```
%% Style for Sentences
\cmdmthall{snt}\newcommand{\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, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, 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!

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

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

`\aFrm` ... to do!

... $a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z$
$A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z$
$\alpha, \beta, \gamma, \delta, \epsilon, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \varkappa, \lambda, \mu, \nu, \xi, o, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$
$A, B, \Gamma, \Delta, E, E, Z, H, \Theta, \Theta, I, K, K, \Lambda, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, \Upsilon, \Phi, \Phi, X, \Psi, \Omega$

```
\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!

...
- `\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}\newcommand{\mthstymat}[1]{\boldsymbol{\mathsf{#1}}}
```

`\aMat` ... to do!

... $\mathbf{a}$, $\mathbf{b}$, $\mathbf{c}$, $\mathbf{d}$, $\mathbf{e}$, $\mathbf{f}$, $\mathbf{g}$, $\mathbf{h}$, $\mathbf{i}$, $\mathbf{j}$, $\mathbf{k}$, $\mathbf{l}$, $\mathbf{m}$, $\mathbf{n}$, $\mathbf{o}$, $\mathbf{p}$, $\mathbf{q}$, $\mathbf{r}$, $\mathbf{s}$, $\mathbf{t}$, $\mathbf{u}$, $\mathbf{v}$, $\mathbf{w}$, $\mathbf{x}$, $\mathbf{y}$, $\mathbf{z}$
$\mathbf{A}$, $\mathbf{B}$, $\mathbf{C}$, $\mathbf{D}$, $\mathbf{E}$, $\mathbf{F}$, $\mathbf{G}$, $\mathbf{H}$, $\mathbf{I}$, $\mathbf{J}$, $\mathbf{K}$, $\mathbf{L}$, $\mathbf{M}$, $\mathbf{N}$, $\mathbf{O}$, $\mathbf{P}$, $\mathbf{Q}$, $\mathbf{R}$, $\mathbf{S}$, $\mathbf{T}$, $\mathbf{U}$, $\mathbf{V}$, $\mathbf{W}$, $\mathbf{X}$, $\mathbf{Y}$, $\mathbf{Z}$
$\boldsymbol{\alpha}$, $\boldsymbol{\beta}$, $\boldsymbol{\gamma}$, $\boldsymbol{\delta}$, $\boldsymbol{\epsilon}$, $\boldsymbol{\varepsilon}$, $\boldsymbol{\zeta}$, $\boldsymbol{\eta}$, $\boldsymbol{\theta}$, $\boldsymbol{\vartheta}$, $\boldsymbol{\iota}$, $\boldsymbol{\kappa}$, $\boldsymbol{\varkappa}$, $\boldsymbol{\lambda}$, $\boldsymbol{\mu}$, $\boldsymbol{\nu}$, $\boldsymbol{\xi}$, $\mathbf{o}$, $\boldsymbol{\pi}$, $\boldsymbol{\varpi}$, $\boldsymbol{\rho}$, $\boldsymbol{\varrho}$, $\boldsymbol{\sigma}$, $\boldsymbol{\varsigma}$, $\boldsymbol{\tau}$, $\boldsymbol{\upsilon}$, $\boldsymbol{\phi}$, $\boldsymbol{\varphi}$, $\boldsymbol{\chi}$, $\boldsymbol{\psi}$, $\boldsymbol{\omega}$
$\boldsymbol{\mathsf{A}}$, $\boldsymbol{\mathsf{B}}$, $\boldsymbol{\mathsf{\Gamma}}$, $\boldsymbol{\mathsf{\Delta}}$, $\boldsymbol{\mathsf{E}}$, $\boldsymbol{\mathsf{E}}$, $\boldsymbol{\mathsf{Z}}$, $\boldsymbol{\mathsf{H}}$, $\boldsymbol{\mathsf{\Theta}}$, $\boldsymbol{\mathsf{\Theta}}$, $\boldsymbol{\mathsf{I}}$, $\boldsymbol{\mathsf{K}}$, $\boldsymbol{\mathsf{K}}$, $\boldsymbol{\mathsf{\Lambda}}$, $\boldsymbol{\mathsf{M}}$, $\boldsymbol{\mathsf{N}}$, $\boldsymbol{\mathsf{\Xi}}$, $\boldsymbol{\mathsf{O}}$, $\boldsymbol{\mathsf{\Pi}}$, $\boldsymbol{\mathsf{\Pi}}$, $\boldsymbol{\mathsf{P}}$, $\boldsymbol{\mathsf{P}}$, $\boldsymbol{\mathsf{\Sigma}}$, $\boldsymbol{\mathsf{\Sigma}}$, $\boldsymbol{\mathsf{T}}$, $\boldsymbol{\mathsf{\Upsilon}}$, $\boldsymbol{\mathsf{\Phi}}$, $\boldsymbol{\mathsf{\Phi}}$, $\boldsymbol{\mathsf{X}}$, $\boldsymbol{\mathsf{\Psi}}$, $\boldsymbol{\mathsf{\Omega}}$

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

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

`\cmdmthoparmat` ... to do!

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

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

`\mthvec` ... to do!

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

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

`\aVec` ... to do!

... $\boldsymbol{a}, \boldsymbol{b}, \boldsymbol{c}, \boldsymbol{d}, \boldsymbol{e}, \boldsymbol{f}, \boldsymbol{g}, \boldsymbol{h}, \boldsymbol{i}, \boldsymbol{j}, \boldsymbol{k}, \boldsymbol{l}, \boldsymbol{m}, \boldsymbol{n}, \boldsymbol{o}, \boldsymbol{p}, \boldsymbol{q}, \boldsymbol{r}, \boldsymbol{s}, \boldsymbol{t}, \boldsymbol{u}, \boldsymbol{v}, \boldsymbol{w}, \boldsymbol{x}, \boldsymbol{y}, \boldsymbol{z}$
$\boldsymbol{A}, \boldsymbol{B}, \boldsymbol{C}, \boldsymbol{D}, \boldsymbol{E}, \boldsymbol{F}, \boldsymbol{G}, \boldsymbol{H}, \boldsymbol{I}, \boldsymbol{J}, \boldsymbol{K}, \boldsymbol{L}, \boldsymbol{M}, \boldsymbol{N}, \boldsymbol{O}, \boldsymbol{P}, \boldsymbol{Q}, \boldsymbol{R}, \boldsymbol{S}, \boldsymbol{T}, \boldsymbol{U}, \boldsymbol{V}, \boldsymbol{W}, \boldsymbol{X}, \boldsymbol{Y}, \boldsymbol{Z}$
$\boldsymbol{\alpha}, \boldsymbol{\beta}, \boldsymbol{\gamma}, \boldsymbol{\delta}, \boldsymbol{\epsilon}, \boldsymbol{\varepsilon}, \boldsymbol{\zeta}, \boldsymbol{\eta}, \boldsymbol{\theta}, \boldsymbol{\vartheta}, \boldsymbol{\iota}, \boldsymbol{\kappa}, \boldsymbol{\varkappa}, \boldsymbol{\lambda}, \boldsymbol{\mu}, \boldsymbol{\nu}, \boldsymbol{\xi}, \boldsymbol{o}, \boldsymbol{\pi}, \boldsymbol{\varpi}, \boldsymbol{\rho}, \boldsymbol{\varrho}, \boldsymbol{\sigma}, \boldsymbol{\varsigma}, \boldsymbol{\tau}, \boldsymbol{\upsilon}, \boldsymbol{\phi}, \boldsymbol{\varphi}, \boldsymbol{\chi}, \boldsymbol{\psi}, \boldsymbol{\omega}$
$\boldsymbol{A}, \boldsymbol{B}, \boldsymbol{\Gamma}, \boldsymbol{\Delta}, \boldsymbol{E}, \boldsymbol{E}, \boldsymbol{Z}, \boldsymbol{H}, \boldsymbol{\Theta}, \boldsymbol{\Theta}, \boldsymbol{I}, \boldsymbol{K}, \boldsymbol{K}, \boldsymbol{\Lambda}, \boldsymbol{M}, \boldsymbol{N}, \boldsymbol{\Xi}, \boldsymbol{O}, \boldsymbol{\Pi}, \boldsymbol{\Pi}, \boldsymbol{P}, \boldsymbol{P}, \boldsymbol{\Sigma}, \boldsymbol{\Sigma}, \boldsymbol{T}, \boldsymbol{\Upsilon}, \boldsymbol{\Phi}, \boldsymbol{\Phi}, \boldsymbol{X}, \boldsymbol{\Psi}, \boldsymbol{\Omega}$

```
\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

```
\DeclareRobustCommand{\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@

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

\defeq ...
\seteq

```
\DeclareRobustCommand{\defeq}
  {\@ifstar%
    {\mthlbop{\stackrel{\text{\textup{def}}}{=}}}%
    {\mthlbop{\triangleq}}}
\DeclareRobustCommand{\seteq}
  {\@ifstar{\mthlbop{\Coloneqq}}{\mthlbop{\coloneqq}}}

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

\limp ...

```
\DeclareRobustCommand{\limp}
  {\mthlbop{\rightarrow}}
```

\lcoimp ...

```
\DeclareRobustCommand{\lcoimp}
  {\mthlbop{\leftrightarrow}}

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

\implies ...

```
\DeclareRobustCommand{\implies}
  {\mthlrel{\Rightarrow}}
\DeclareRobustCommand{\notimplies}
  {\mthlrel{\not\Rightarrow}}
```

\implied ...

```
\DeclareRobustCommand{\implied}
  {\mthlrel{\Leftarrow}}
\DeclareRobustCommand{\notimplied}
  {\mthlrel{\not\Leftarrow}}
```

\coimplies ...

```
\DeclareRobustCommand{\coimplies}
  {\mthlrel{\Leftrightarrow}}
\DeclareRobustCommand{\notcoimplies}
  {\mthlrel{\not\!\Leftrightarrow}}
%%*****************************************************************************%%
```

\cmodels ...

```
\DeclareRobustCommand{\cmodels}
  {\mthlrel{\models}}
\DeclareRobustCommand{\notcmodels}
  {\mthlrel{\not\models}}
```

\cequiv ...

```
\DeclareRobustCommand{\cequiv}
  {\mthlrel{\equiv}}
\DeclareRobustCommand{\notcequiv}
  {\mthlrel{\not\equiv}}
%%*****************************************************************************%%
```

\denot ...

```
\DeclareRobustCommand{\denot}
  {\@ifstar{\@sdenot}{\@denot}}
\DeclareRobustCommand{\@denot}[1]
  {\mth{\argmid{\left\llbracket}{#1}{\right\rrbracket}}}
\DeclareRobustCommand{\@sdenot}[1]
  {\mth*{\argmid{\llbracket}{#1}{\rrbracket}}}
%%*****************************************************************************%%
```

\dual ...

\adj

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

\vec ...

```
\DeclareRobustCommand{\vec}
  {\@ifstar{\@svec}{\@vec}}
\DeclareRobustCommand{\@vec}[1]
  {\mth{\mathaccent"017E{#1}}}
\DeclareRobustCommand{\@svec}[1]
  {\mth{\overline{#1}}}
%%*****************************************************************************%%
```

\enumeration ...

```
\varcmd{enumeration}{\mth*}{}{,}{}{}
\varcmd{enumerationx}{\mth*}{}{;}{}{}
```

\sequence ...

```
\DeclareRobustCommand{\sequence}
  {\@ifstar{\@ssequence}{\@sequence}}
\varcmd{@sequence}{\mth}{\left[}{,}{\right]}{}
\varcmd{@ssequence}{\mth*}{[}{,}{]}{}
\DeclareRobustCommand{\sequencel}
  {\@ifstar{\@ssequencel}{\@sequencel}}
\varcmd{@sequencel}{\mth}{\left[}{,}{\right.}{}
```

```
\varcmd{@ssequencel}{\mth*}{[}{,}{}{}
\DeclareRobustCommand{\sequencer}
  {\@ifstar{\@ssequencer}{\@sequencer}}
\varcmd{@sequencer}{\mth}{\left.}{,}{\right]}{}
\varcmd{@ssequencer}{\mth*}{}{,}{]}{}
\DeclareRobustCommand{\sequencex}
  {\@ifstar{\@ssequencex}{\@sequencex}}
\varcmd{@sequencex}{\mth}{\left[}{;}{\right]}{}
\varcmd{@ssequencex}{\mth*}{[}{;}{]}{}
\DeclareRobustCommand{\sequencexl}
  {\@ifstar{\@ssequencexl}{\@sequencexl}}
\varcmd{@sequencexl}{\mth}{\left[}{;}{\right.}{}
\varcmd{@ssequencexl}{\mth*}{[}{;}{}{}
\DeclareRobustCommand{\sequencexr}
  {\@ifstar{\@ssequencexr}{\@sequencexr}}
\varcmd{@sequencexr}{\mth}{\left.}{;}{\right]}{}
\varcmd{@ssequencexr}{\mth*}{}{;}{]}{}
```

\tuple ...

```
\DeclareRobustCommand{\tuple}
  {\@ifstar{\@stuple}{\@tuple}}
\varcmd{@tuple}{\mth}{\left\langle}{,}{\right\rangle}{}
\varcmd{@stuple}{\mth*}{\langle}{,}{\rangle}{}
\DeclareRobustCommand{\tuplel}
  {\@ifstar{\@stuplel}{\@tuplel}}
\varcmd{@tuplel}{\mth}{\left\langle}{,}{\right.}{}
\varcmd{@stuplel}{\mth*}{\langle}{,}{}{}
\DeclareRobustCommand{\tupler}
  {\@ifstar{\@stupler}{\@tupler}}
\varcmd{@tupler}{\mth}{\left.}{,}{\right\rangle}{}
\varcmd{@stupler}{\mth*}{}{,}{\rangle}{}
\DeclareRobustCommand{\tuplex}
  {\@ifstar{\@stuplex}{\@tuplex}}
\varcmd{@tuplex}{\mth}{\left\langle}{;}{\right\rangle}{}
\varcmd{@stuplex}{\mth*}{\langle}{;}{\rangle}{}
\DeclareRobustCommand{\tuplexl}
  {\@ifstar{\@stuplexl}{\@tuplexl}}
\varcmd{@tuplexl}{\mth}{\left\langle}{;}{\right.}{}
\varcmd{@stuplexl}{\mth*}{\langle}{;}{}{}
\DeclareRobustCommand{\tuplexr}
  {\@ifstar{\@stuplexr}{\@tuplexr}}
\varcmd{@tuplexr}{\mth}{\left.}{;}{\right\rangle}{}
\varcmd{@stuplexr}{\mth*}{}{;}{\rangle}{}
%%** Sets ******************************************************************%%
```

\set ...

```
\DeclareRobustCommand{\set}
  {\@ifstar{\@sset{\vert}}{\@set{\vert}}}
\DeclareRobustCommand{\setx}
  {\@ifstar{\@sset{:}}{\@set{.\!:}}}
\DeclareRobustCommand{\@set}[3]
  {\mth{\argmid{\left\lbrace}{\argsep{#2}{\,\middle#1\,}{#3}}{\right\rbrace}}}
\DeclareRobustCommand{\@sset}[3]
  {\mth*{\argmid{\lbrace}{\argsep{#2}{\,#1\,}{#3}}{\rbrace}}}
\DeclareRobustCommand{\setl}
  {\@ifstar{\@ssetl{\vert}}{\@setl{\vert}}}
\DeclareRobustCommand{\setlx}
  {\@ifstar{\@ssetl{:}}{\@setl{.\!\!\!:}}}
\DeclareRobustCommand{\@setl}[2]
  {\mth{\argmid{\left\lbrace}{#2}{\,\right#1\!}}}
\DeclareRobustCommand{\@ssetl}[2]
  {\mth*{\argmid{\lbrace}{#2}{\,#1\!}}}
\DeclareRobustCommand{\setr}
```

```
  {\@ifstar{\@ssetr}{\@setr}}
\DeclareRobustCommand{\setrx}
  {\@ifstar{\@ssetr}{\@setr}}
\DeclareRobustCommand{\@setr}[1]
  {\mth{\argmid{\left.}{#1}{\right\rbrace}}}
\DeclareRobustCommand{\@ssetr}[1]
  {\mth*{\argmid{}{#1}{\rbrace}}}
```

\card ...

```
\DeclareRobustCommand{\card}
  {\@ifstar{\@scard}{\@card}}
\DeclareRobustCommand{\@card}[1]
  {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
\DeclareRobustCommand{\@scard}[1]
  {\mth*{\argmid{\lvert}{#1}{\rvert}}}
```

\pow ...

```
\DeclareRobustCommand{\pow}[1]
  {\mth{2^{\defval{#1}{\cdot}}}}
```

```
%%** Relations ****************************************************************%%
```

\emptyrel ...

```
\DeclareRobustCommand{\emptyrel}
  {\mth{\varnothing}}
```

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

\dom ...
\cod ...

```
\usrmth{dom}{}{argfun}
\usrmth{cod}{}{argfun}
\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}
\usrmth{ifp}{}{fun}
\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 ...
 ...
\usrmth{Aomicron}{}{argset}[\omicron]
\usrmth{AOmicron}{}{argset}[\Omicron]

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

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

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

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

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

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

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

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

\SetC ...

```
\DeclareRobustCommand{\SetC}
  {\mthset[mathbb]{C}}
\DeclareRobustCommand{\SetCI}[1][]
  {\SetC[\infty #1]}
```

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

\num ...

```
\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}
  {\@ifstar{\@sabs}{\@abs}}
\DeclareRobustCommand{\@abs}[1]
  {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
\DeclareRobustCommand{\@sabs}[1]
  {\mth*{\argmid{\lvert}{#1}{\rvert}}}
\DeclareRobustCommand{\norm}
  {\@ifstar{\@snorm}{\@norm}}
\DeclareRobustCommand{\@norm}[1]
  {\mth{\argmid{\left\lVert}{#1}{\right\rVert}}}
\DeclareRobustCommand{\@snorm}[1]
  {\mth*{\argmid{\lVert}{#1}{\rVert}}}
```

\floor ...
\ceil

```
\DeclareRobustCommand{\floor}
  {\@ifstar{\@sfloor}{\@floor}}
\DeclareRobustCommand{\@floor}[1]
  {\mth{\argmid{\left\lfloor}{#1}{\right\rfloor}}}
\DeclareRobustCommand{\@sfloor}[1]
  {\mth*{\argmid{\lfloor}{#1}{\rfloor}}}
\DeclareRobustCommand{\ceil}
  {\@ifstar{\@sceil}{\@ceil}}
\DeclareRobustCommand{\@ceil}[1]
  {\mth{\argmid{\left\lceil}{#1}{\right\rceil}}}
\DeclareRobustCommand{\@sceil}[1]
  {\mth*{\argmid{\lceil}{#1}{\rceil}}}
```

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

\arg ...

```
\usrmth{arg}{}{fun}
```

\evn ...
\odd

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

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

\min ...
\max
...
```
\usrmth{min}{}{fun}
\usrmth{max}{}{fun}
\usrmth{argmin}{}{fun}[arg\,min]
\usrmth{argmax}{}{fun}[arg\,max]
```

\inf ...
\sup
```
\usrmth{inf}{}{fun}
\usrmth{sup}{}{fun}
```

\gcd ...
\lcm
```
\usrmth{gcd}{}{fun}
\usrmth{lcm}{}{fun}
```

```
%%** Sequences ***************************************************************%%
```

\emptyseq ...
```
\DeclareRobustCommand{\emptyseq}
  {\mth{\varepsilon}}
```

\len ...
```
\DeclareRobustCommand{\len}
  {\@ifstar{\@slen}{\@len}}
\DeclareRobustCommand{\@len}[1]
  {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
\DeclareRobustCommand{\@slen}[1]
  {\mth*{\argmid{\lvert}{#1}{\rvert}}}
```

\fst ...
\lst
```
\usrmth{fst}{}{argfun}
\usrmth{lst}{}{argfun}
```

```
\fi
%%******************************************************************************%%
%%******************************************************************************%%
%%** Macros for Computational-Complexity Classes ****************************%%
%%******************************************************************************%%
\ifcom@
```

\defcomcls ... to do!

- \defcomcls{CompClass};

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

- \defcomcls{CompClass}[NewClass];

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

```
\newcommandx{\defcomcls}[2][2=]
  {\csdef{#1}{\txtoargcom{\defval{#2}{#1}}}}
```

\defcomclsgrp ... to do!

- \defcomclsgrp{CompClass};

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

`\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] = $\textsc{CoNNewClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
\NCompClassC[sub][sup][arg] = $\textsc{NNewClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
\CoNCompClassC[sub][sup][arg] = $\textsc{CoNNewClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

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

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

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

\defcomhrc ... to do!

- \defcomhrc{CompHierarchy};

  CompHierarchy[sub][sup][par] = $\textsc{CompHierarchy}^{\textsc{sup}}_{\textsc{sub}}[\textsc{par}]$

- \defcomhrc{CompHierarchy}[NewHierarchy];

  CompHierarchy[sub][sup][par] = $\textsc{NewHierarchy}^{\textsc{sup}}_{\textsc{sub}}[\textsc{par}]$

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

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

\Easy
\Hard
...

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

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

\FPT
...

- \FPT[sub][sup][arg] = $\mathrm{FPT}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
- \FPLin[sub][sup][arg] = $\mathrm{FPL}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
- \FPQdr[sub][sup][arg] = $\mathrm{FPQ}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

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

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

\Time
...

- \Time[sub][sup][arg] = $\mathrm{TIME}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  \TimeE[sub][sup][arg] = $\mathrm{TIME\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  \TimeH[sub][sup][arg] = $\mathrm{TIME\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  \TimeC[sub][sup][arg] = $\mathrm{TIME\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- \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
...

- \Space[sub][sup][arg] = $\mathrm{SPACE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  \SpaceE[sub][sup][arg] = $\mathrm{SPACE\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  \SpaceH[sub][sup][arg] = $\mathrm{SPACE\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  \SpaceC[sub][sup][arg] = $\mathrm{SPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- \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
...

- \LogTime[sub][sup][arg] = $\mathrm{LOGTIME}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  \LogTimeE[sub][sup][arg] = $\mathrm{LOGTIME\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  \LogTimeH[sub][sup][arg] = $\mathrm{LOGTIME\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  \LogTimeC[sub][sup][arg] = $\mathrm{LOGTIME\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- \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]` = $\mathrm{NLogTime}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NLogTimeE[sub][sup][arg]` = $\mathrm{NLogTime\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NLogTimeH[sub][sup][arg]` = $\mathrm{NLogTime\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\NLogTimeC[sub][sup][arg]` = $\mathrm{NLogTime\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\ULogTime[sub][sup][arg]` = $\mathrm{ULogTime}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ULogTimeE[sub][sup][arg]` = $\mathrm{ULogTime\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ULogTimeH[sub][sup][arg]` = $\mathrm{ULogTime\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ULogTimeC[sub][sup][arg]` = $\mathrm{ULogTime\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\ALogTime[sub][sup][arg]` = $\mathrm{ALogTime}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ALogTimeE[sub][sup][arg]` = $\mathrm{ALogTime\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ALogTimeH[sub][sup][arg]` = $\mathrm{ALogTime\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ALogTimeC[sub][sup][arg]` = $\mathrm{ALogTime\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

```
\defcomclsgrp{LogTime}
```

`\LogSpace` ...

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

```
\defcomclsgrp{LogSpace}
```

`\PTime` ...

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

```
\defcomclsgrp{PTime}
```

\PSpace ...

- \PSpace[sub][sup][arg] = $\mathrm{PSpace}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \PSpaceE[sub][sup][arg] = $\mathrm{PSpace\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \PSpaceH[sub][sup][arg] = $\mathrm{PSpace\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \PSpaceC[sub][sup][arg] = $\mathrm{PSpace\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
- \DPSpace[sub][sup][arg] = $\mathrm{DPSpace}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \DPSpaceE[sub][sup][arg] = $\mathrm{DPSpace\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \DPSpaceH[sub][sup][arg] = $\mathrm{DPSpace\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \DPSpaceC[sub][sup][arg] = $\mathrm{DPSpace\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
- \NPSpace[sub][sup][arg] = $\mathrm{NPSpace}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \NPSpaceE[sub][sup][arg] = $\mathrm{NPSpace\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \NPSpaceH[sub][sup][arg] = $\mathrm{NPSpace\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \NPSpaceC[sub][sup][arg] = $\mathrm{NPSpace\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
- \UPSpace[sub][sup][arg] = $\mathrm{UPSpace}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \UPSpaceE[sub][sup][arg] = $\mathrm{UPSpace\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \UPSpaceH[sub][sup][arg] = $\mathrm{UPSpace\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \UPSpaceC[sub][sup][arg] = $\mathrm{UPSpace\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
- \APSpace[sub][sup][arg] = $\mathrm{APSpace}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \APSpaceE[sub][sup][arg] = $\mathrm{APSpace\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \APSpaceH[sub][sup][arg] = $\mathrm{APSpace\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \APSpaceC[sub][sup][arg] = $\mathrm{APSpace\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$

```
\defcomclsgrp{PSpace}
```

\QPTime ...

- \QPTime[sub][sup][arg] = $\mathrm{QPTime}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \QPTimeE[sub][sup][arg] = $\mathrm{QPTime\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \QPTimeH[sub][sup][arg] = $\mathrm{QPTime\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \QPTimeC[sub][sup][arg] = $\mathrm{QPTime\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
- \DQPTime[sub][sup][arg] = $\mathrm{DQPTime}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \DQPTimeE[sub][sup][arg] = $\mathrm{DQPTime\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \DQPTimeH[sub][sup][arg] = $\mathrm{DQPTime\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \DQPTimeC[sub][sup][arg] = $\mathrm{DQPTime\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
- \NQPTime[sub][sup][arg] = $\mathrm{NQPTime}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \NQPTimeE[sub][sup][arg] = $\mathrm{NQPTime\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \NQPTimeH[sub][sup][arg] = $\mathrm{NQPTime\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \NQPTimeC[sub][sup][arg] = $\mathrm{NQPTime\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
- \UQPTime[sub][sup][arg] = $\mathrm{UQPTime}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \UQPTimeE[sub][sup][arg] = $\mathrm{UQPTime\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \UQPTimeH[sub][sup][arg] = $\mathrm{UQPTime\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \UQPTimeC[sub][sup][arg] = $\mathrm{UQPTime\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
- \AQPTime[sub][sup][arg] = $\mathrm{AQPTime}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \AQPTimeE[sub][sup][arg] = $\mathrm{AQPTime\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \AQPTimeH[sub][sup][arg] = $\mathrm{AQPTime\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \AQPTimeC[sub][sup][arg] = $\mathrm{AQPTime\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$

```
\defcomclsgrp{QPTime}
```

\QPSpace ...

- \QPSpace[sub][sup][arg] = $\mathrm{QPSpace}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \QPSpaceE[sub][sup][arg] = $\mathrm{QPSpace\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \QPSpaceH[sub][sup][arg] = $\mathrm{QPSpace\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \QPSpaceC[sub][sup][arg] = $\mathrm{QPSpace\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
- \DQPSpace[sub][sup][arg] = $\mathrm{DQPSpace}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \DQPSpaceE[sub][sup][arg] = $\mathrm{DQPSpace\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \DQPSpaceH[sub][sup][arg] = $\mathrm{DQPSpace\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \DQPSpaceC[sub][sup][arg] = $\mathrm{DQPSpace\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
- \NQPSpace[sub][sup][arg] = $\mathrm{NQPSpace}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \NQPSpaceE[sub][sup][arg] = $\mathrm{NQPSpace\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \NQPSpaceH[sub][sup][arg] = $\mathrm{NQPSpace\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \NQPSpaceC[sub][sup][arg] = $\mathrm{NQPSpace\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
- \UQPSpace[sub][sup][arg] = $\mathrm{UQPSpace}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \UQPSpaceE[sub][sup][arg] = $\mathrm{UQPSpace\text{-}easy}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \UQPSpaceH[sub][sup][arg] = $\mathrm{UQPSpace\text{-}hard}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$
  \UQPSpaceC[sub][sup][arg] = $\mathrm{UQPSpace\text{-}complete}^{\mathrm{sup}}_{\mathrm{sub}}(\mathrm{arg})$

- \AQPSpace[sub][sup][arg] = $\mathrm{AQPSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \AQPSpaceE[sub][sup][arg] = $\mathrm{AQPSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \AQPSpaceH[sub][sup][arg] = $\mathrm{AQPSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \AQPSpaceC[sub][sup][arg] = $\mathrm{AQPSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$

```
\defcomclsgrp{QPSpace}
```

\ExpTime ...

- \ExpTime[sub][sup][arg] = $\mathrm{ExpTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \ExpTimeE[sub][sup][arg] = $\mathrm{ExpTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \ExpTimeH[sub][sup][arg] = $\mathrm{ExpTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \ExpTimeC[sub][sup][arg] = $\mathrm{ExpTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- \DExpTime[sub][sup][arg] = $\mathrm{DExpTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \DExpTimeE[sub][sup][arg] = $\mathrm{DExpTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \DExpTimeH[sub][sup][arg] = $\mathrm{DExpTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \DExpTimeC[sub][sup][arg] = $\mathrm{DExpTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- \NExpTime[sub][sup][arg] = $\mathrm{NExpTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \NExpTimeE[sub][sup][arg] = $\mathrm{NExpTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \NExpTimeH[sub][sup][arg] = $\mathrm{NExpTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \NExpTimeC[sub][sup][arg] = $\mathrm{NExpTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- \UExpTime[sub][sup][arg] = $\mathrm{UExpTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \UExpTimeE[sub][sup][arg] = $\mathrm{UExpTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \UExpTimeH[sub][sup][arg] = $\mathrm{UExpTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \UExpTimeC[sub][sup][arg] = $\mathrm{UExpTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- \AExpTime[sub][sup][arg] = $\mathrm{AExpTime}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \AExpTimeE[sub][sup][arg] = $\mathrm{AExpTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \AExpTimeH[sub][sup][arg] = $\mathrm{AExpTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \AExpTimeC[sub][sup][arg] = $\mathrm{AExpTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$

```
\defcomclsgrp{ExpTime}
```

\ExpSpace ...

- \ExpSpace[sub][sup][arg] = $\mathrm{ExpSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \ExpSpaceE[sub][sup][arg] = $\mathrm{ExpSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \ExpSpaceH[sub][sup][arg] = $\mathrm{ExpSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \ExpSpaceC[sub][sup][arg] = $\mathrm{ExpSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- \DExpSpace[sub][sup][arg] = $\mathrm{DExpSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \DExpSpaceE[sub][sup][arg] = $\mathrm{DExpSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \DExpSpaceH[sub][sup][arg] = $\mathrm{DExpSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \DExpSpaceC[sub][sup][arg] = $\mathrm{DExpSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- \NExpSpace[sub][sup][arg] = $\mathrm{NExpSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \NExpSpaceE[sub][sup][arg] = $\mathrm{NExpSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \NExpSpaceH[sub][sup][arg] = $\mathrm{NExpSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \NExpSpaceC[sub][sup][arg] = $\mathrm{NExpSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- \UExpSpace[sub][sup][arg] = $\mathrm{UExpSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \UExpSpaceE[sub][sup][arg] = $\mathrm{UExpSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \UExpSpaceH[sub][sup][arg] = $\mathrm{UExpSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \UExpSpaceC[sub][sup][arg] = $\mathrm{UExpSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
- \AExpSpace[sub][sup][arg] = $\mathrm{AExpSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \AExpSpaceE[sub][sup][arg] = $\mathrm{AExpSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \AExpSpaceH[sub][sup][arg] = $\mathrm{AExpSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$
  \AExpSpaceC[sub][sup][arg] = $\mathrm{AExpSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$

```
\defcomclsgrp{ExpSpace}
%%*************************************************************************%%
```

\PH

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

```
\defcomhrc{PH}
```

\WH

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

```
\defcomhrc{WH}[W]
```

\AH

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

```
\defcomhrc{AH}[A]
```

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

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

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

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

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

```
\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 % Boolean Formulae
... \cmdtxtoparname{BF}

% Quantified Boolean Formulae
\DeclareRobustCommand{\QBF}
  {{\txtname{Q}}\BF}
\DeclareRobustCommand{\EBF}
  {\ensuremath{\exists}\BF}
\DeclareRobustCommand{\UBF}
  {\ensuremath{\forall}\BF}

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

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

\Tt ...
\Ff \newcommand{\ttsym}{\top}
\usrmth{Tt}{}{sym}[\ttsym]
\newcommand{\ffsym}{\bot}
\usrmth{Ff}{}{sym}[\ffsym]

\LNeg ...
\LNot \newcommand{\lnegsym}{\neg}
\usrmth{LNeg}{}{luop}[\lnegsym]
\newcommand{\lnotsym}{\sim}
\usrmth{LNot}{}{luop}[\lnotsym]

\LCon ...
\LDis \newcommand{\lconsym}{\land}
\usrmth{LCon}{}{lbop}[\lconsym]
\newcommand{\ldissym}{\lor}
\usrmth{LDis}{}{lbop}[\ldissym]

\LImp ...
\LCoi \newcommand{\limpsym}{\rightarrow}
\usrmth{LImp}{}{lbop}[\limpsym]
\newcommand{\lcoisym}{\leftrightarrow}
\usrmth{LCoi}{}{lbop}[\lcoisym]

\LExs ...
\LAll \newcommand{\lexssym}{\exists}
\usrmth{LExs}{}{luop}[\lexssym]
\newcommand{\lallsym}{\forall}
\usrmth{LAll}{}{luop}[\lallsym]

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

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

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

```
   \QAE ...
   \QEA 1412 \usrmth{QAE}{}{sym}[\forall\exists]
        1413 \usrmth{QEA}{}{sym}[\exists\forall]

\QntSet ...
    ... 1414 \newcommand{\qntsym}{\wp}
        1415 \newcommand{\qntset}{Qn}
        1416 \cmdmthsetext{Qnt}[\qntset][\qntsym]

  \free ...
 \bound 1417 \usrmth{free}{}{argfun}
        1418 \usrmth{bound}{}{argfun}

   \dep ...
   \alt 1419 \usrmth{dep}{}{argfun}
        1420 \usrmth{alt}{}{argfun}

   \cnf ...
   \dnf 1421 \cmdtxtabr{cnf}
    ... 1422 \cmdtxtabr{dnf}
        1423 \cmdtxtabr{pnf}
        1424 \cmdtxtabr{nnf}
        1425 %%** Semantics ****************************************************************%%

\LogStr ...
    ... 1426 \newcommand{\logstr}{L}
        1427 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet ...
    ... 1428 \newcommand{\valsym}{\xi}
        1429 \newcommand{\valset}{Val}
        1430 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet ...
    ... 1431 \newcommand{\asgsym}{\chi}
        1432 \newcommand{\asgset}{Asg}
        1433 \cmdmthsetext{Asg}[\asgset][\asgsym]
        1434 %%** First-Order Logics I ******************************************************%%

   \FOL ...
    ... 1435 % First-Order Logic
        1436 \cmdtxtoparname{FOL}[Fol]
        1437 \cmdtxtoparname{FO}[FO]
        1438
        1439 % Monadic First-Order Logic
        1440 \DeclareRobustCommand{\MFOL}
        1441   {{\txtname{M}}\FOL}
        1442 \DeclareRobustCommand{\MFO}
        1443   {{\txtname{M}}\FO}
        1444 %%** Syntax ******************************************************************%%

\VarSig ...
    ... 1445 \newcommand{\varsig}{V}
        1446 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
        1447 \newcommand{\varsym}{x}
        1448 \newcommand{\varset}{Vr}
        1449 \cmdmthsetext{Var}[\varset][\varsym]
        1450 \usrmth{var}{}{argfun}[vr]
        1451 \usrmth{dim}{}{argfun}[dm]
```

\ConSig ...

```
... \newcommand{\consig}{C}
\usrmthlatupp{Con}{Sig}{sig}[\consig]
\newcommand{\consym}{c}
\newcommand{\conset}{Cn}
\cmdmthsetext{Con}[\conset][\consym]
\usrmth{con}{}{argfun}[cn]
```

\FunSig ...

```
... \newcommand{\funsig}{F}
\usrmthlatupp{Fun}{Sig}{sig}[\funsig]
\newcommand{\funsym}{f}
\newcommand{\funset}{Fn}
\cmdmthsetext{Fun}[\funset][\funsym]
\usrmth{fun}{}{argfun}[fn]
\usrmth{art}{}{argfun}[ar]
```

\TerSig ...

```
... \newcommand{\tersig}{T}
\usrmthlatupp{Ter}{Sig}{sig}[\tersig]
\newcommand{\tersym}{t}
\newcommand{\terset}{Tr}
\cmdmthsetext{Ter}[\terset][\tersym]
\usrmth{ter}{}{argfun}
```

\RelSig ...

```
... \newcommand{\relsig}{R}
\usrmthlatupp{Rel}{Sig}{sig}[\relsig]
\newcommand{\relsym}{r}
\newcommand{\relset}{Rl}
\cmdmthsetext{Rel}[\relset][\relsym]
\usrmth{rel}{}{argfun}[rl]
```

\skm ...

```
\usrmth{skm}{}{argfun}

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

\ConStr ...

```
... \newcommand{\constr}{C}
\usrmthlatupp{Con}{Str}{str}[\constr]
```

\FunStr ...

```
... \newcommand{\funstr}{F}
\usrmthlatupp{Fun}{Str}{str}[\funstr]
```

\TerStr ...

```
... \newcommand{\terstr}{T}
\usrmthlatupp{Ter}{Str}{str}[\terstr]
```

\RelStr ...

```
... \newcommand{\relstr}{R}
\usrmthlatupp{Rel}{Str}{str}[\relstr]

%%** First-Order Logics II ****************************************************%%
```

\DF ...
\IF

```
% Dependence-Friendly Logic
... \cmdtxtoparname{DF}

% Independence-Friendly Logic
\cmdtxtoparname{IF}
```

```
% 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 ...

```
% 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}

% 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 ...

```
% 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 ...

```
\usrmth{DMod}{}{sym}[\Diamond]
\usrmth{BMod}{}{sym}[\Box]
```

\Exs ...

```
\DeclareRobustCommand{\Exs}
  {\@ifstar{\@sexs}{\@exs}}
\DeclareRobustCommand{\@sexs}[1]
  {\mth{\DMod}[#1]}
\DeclareRobustCommand{\@exs}[1]
  {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
\DeclareRobustCommand{\All}
  {\@ifstar{\@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 ...

```
\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}
          {{\txtname{Q}}\AFMC}
        \DeclareRobustCommand{\EAFMC}
          {\ensuremath{\exists}\AFMC}
        \DeclareRobustCommand{\UAFMC}
          {\ensuremath{\forall}\AFMC}

        %%** Syntax ******************************************************************%%
          ...
        %%** Semantics ***************************************************************%%
          ...
        %%** Temporal Logics I ******************************************************%%

   \PTL ...
   \LTL % Propositional Temporal Logic
    ... \cmdtxtoparname{PTL}

        % Quantified Propositional Temporal Logic
        \DeclareRobustCommand{\QPTL}
          {{\txtname{Q}}\PTL}
        \DeclareRobustCommand{\EPTL}
          {\ensuremath{\exists}\PTL}
        \DeclareRobustCommand{\UPTL}
          {\ensuremath{\forall}\PTL}
```

```
% Linear Temporal Logic
\cmdtxtoparname{LTL}

% Quantified Linear Temporal Logic
\DeclareRobustCommand{\QLTL}
  {{\txtname{Q}}\LTL}
\DeclareRobustCommand{\ELTL}
  {\ensuremath{\exists}\LTL}
\DeclareRobustCommand{\ULTL}
  {\ensuremath{\forall}\LTL}
%%** Syntax ****************************************************************%%
```

\X ...

```
\usrmth{X}{}{sym}[X\,]
\usrmth{F}{}{sym}[F\,]
\usrmth{G}{}{sym}[G\,]
\usrmth{U}{}{sym}[\,U\,]
\usrmth{R}{}{sym}[\,R\,]
```

\Y ...

```
\usrmth{Y}{}{sym}[G\,]
\usrmth{P}{}{sym}[P\,]\let\SavePilcrow\P
\usrmth{H}{}{sym}[H\,]\let\SaveDoubleAcute\H
\usrmth{S}{}{sym}[\,S\,]\let\SaveSectionSymbol\S
\usrmth{B}{}{sym}[\,B\,]
%%** Semantics ***********************************************************%%
```

...

```
%%** Temporal Logics II ***********************************************%%
```

\PDL ...
\CTL

```
% Propositional Dynamic Logic
\cmdtxtoparname{PDL}

% Computation Tree Logic
\cmdtxtoparname{CTL}

% Weak Computation Tree Logic
\DeclareRobustCommand{\WCTL}
  {{\txtname{W}}\CTL}

% Quantified Computation Tree Logic
\DeclareRobustCommand{\QCTL}
  {{\txtname{Q}}\CTL}
\DeclareRobustCommand{\ECTL}
  {\ensuremath{\exists}\CTL}
\DeclareRobustCommand{\UCTL}
  {\ensuremath{\forall}\CTL}

% Improved Computation Tree Logic
\cmdtxtoparname{CTLP}[CTL$^{+}$]

% Weak Improved Computation Tree Logic
\DeclareRobustCommand{\WCTLP}
  {{\txtname{W}}\CTLP}

% Quantified Improved Computation Tree Logic
\DeclareRobustCommand{\QCTLP}
  {{\txtname{Q}}\CTLP}
\DeclareRobustCommand{\ECTLP}
  {\ensuremath{\exists}\CTLP}
```

```
\DeclareRobustCommand{\UCTLP}
  {\ensuremath{\forall}\CTLP}

% Full Computation Tree Logic
\cmdtxtoparname{CTLS}[CTL*]

% Weak Full Computation Tree Logic
\DeclareRobustCommand{\WCTLS}
  {{\txtname{W}}\CTLS}

% Quantified Full Computation Tree Logic
\DeclareRobustCommand{\QCTLS}
  {{\txtname{Q}}\CTLS}
\DeclareRobustCommand{\ECTLS}
  {\ensuremath{\exists}\CTLS}
\DeclareRobustCommand{\UCTLS}
  {\ensuremath{\forall}\CTLS}

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

\E ...

```
\usrmth{E}{}{sym}
\usrmth{A}{}{sym}

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

\A

...

```
%%** Game Logics I ********************************************************%%
```

\ATL ...

```
% Alternating Temporal Logic
\cmdtxtoparname{ATL}

% Weak Alternating Tree Logic
\DeclareRobustCommand{\WATL}
  {{\txtname{W}}\ATL}

% Quantified Alternating Temporal Logic
\DeclareRobustCommand{\QATL}
  {{\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}
\providecommand{\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}]
```

\SttSet ...

```
\newcommand{\sttsym}{s}
\newcommand{\sttset}{St}
\cmdmthsetext{Stt}[\sttset][\sttsym]
\cmdmthset{IStt}[\sttset_{I}]
\cmdmthsymelm{istt}[\sttsym_{I}]
\cmdmthset{FStt}[\sttset_{F}]
\cmdmthsymelm{fstt}[\sttsym_{F}]
```

\DecSet ...

```
\newcommand{\decsym}{d}
\newcommand{\decset}{Dc}
\cmdmthsetext{Dec}[\decset][\decsym]
```

\movFun ...
\movRel
```
\newcommand{\movsym}{\tau}
\cmdmthfun{mov}[\movsym]
\cmdmthrel{mov}[\movsym]
```

\trnFun ...
\trnRel
```
\newcommand{\trnsym}{\delta}
\cmdmthfun{trn}[\trnsym]
\cmdmthrel{trn}[\trnsym]
```

\PrfSet ...
```
\providecommand{\prfsym}{\xi}
\providecommand{\prfset}{Prf}
\cmdmthsetext{Prf}[\prfset][\prfsym]
```

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

\PlaySet ...
```
\providecommand{\playsym}{\pi}
\providecommand{\playset}{Play}
\cmdmthsetext{Play}[\playset][\playsym]
\usrmth{play}{}{argfun}
```

\PlnSet ...
```
\providecommand{\plnsym}{\rho}
\providecommand{\plnset}{Pln}
\cmdmthsetext{Pln}[\plnset][\plnsym]
\cmdmthset{PPln}[\plnset_{\PlrSym}]
\cmdmthsymelm{pPln}[\plnsym_{\PlrSym}]
\cmdmthset{OPln}[\plnset_{\OppSym}]
\cmdmthsymelm{oPln}[\plnsym_{\OppSym}]
```

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

```
%%** Game Logics II ************************************************************%%
```

\PL ...
```
% Plan Logic
\cmdtxtoparname{PL}

\DeclareRobustCommand{\EPL}
  {\ensuremath{\exists}\PL}
\DeclareRobustCommand{\UPL}
  {\ensuremath{\forall}\PL}

\DeclareRobustCommand{\FPL}
  {{\txtname{F}}\PL}

```

```
\DeclareRobustCommand{\EFPL}
  {\ensuremath{\exists}\FPL}
\DeclareRobustCommand{\UFPL}
  {\ensuremath{\forall}\FPL}

% One-Goal Plan Logic
\DeclareRobustCommandx{\OGPL}[3][1=, 2=, 3=]
  {\PL[#1][#2][1g\arglef{,}{#3}]}

\DeclareRobustCommand{\EOGPL}
  {\ensuremath{\exists}\OGPL}
\DeclareRobustCommand{\UOGPL}
  {\ensuremath{\forall}\OGPL}

\DeclareRobustCommand{\FOGPL}
  {{\txtname{F}}\OGPL}

\DeclareRobustCommand{\EFOGPL}
  {\ensuremath{\exists}\FOGPL}
\DeclareRobustCommand{\UFOGPL}
  {\ensuremath{\forall}\FOGPL}

% Conjunctive-Goal Plan Logic
\DeclareRobustCommandx{\CGPL}[3][1=, 2=, 3=]
  {\PL[#1][#2][cg\arglef{,}{#3}]}

\DeclareRobustCommand{\ECGPL}
  {\ensuremath{\exists}\CGPL}
\DeclareRobustCommand{\UCGPL}
  {\ensuremath{\forall}\CGPL}

\DeclareRobustCommand{\FCGPL}
  {{\txtname{F}}\CGPL}

\DeclareRobustCommand{\EFCGPL}
  {\ensuremath{\exists}\FCGPL}
\DeclareRobustCommand{\UFCGPL}
  {\ensuremath{\forall}\FCGPL}

% Disjunctive-Goal Plan Logic
\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 ...

```
\newcommand{\wrdsym}{w}
\newcommand{\wrdset}{Wr}
\cmdmthsetext{Wrd}[\wrdset][\wrdsym]
```

\Lang ...

```
\usrmth{Lang}{}{argfun}[L]
```

```
%%** Finite Tree Automata ****************************************************%%
```

\DTA ...

```
\cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}

\cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
\cmdtxtoparname{DWT}\cmdtxtoparname{NWT}\cmdtxtoparname{UWT}\cmdtxtoparname{AWT}
\cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
\cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
\cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
\cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
\cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
\cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}
```

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

\TAutSet ...

```
\newcommand{\tautset}{TAut}
\cmdmthset{TAut}[\tautset]
```

\DirSet ...

...

```
\newcommand{\dirsym}{d}
\newcommand{\dirset}{\Lambda}
\cmdmthsetext{Dir}[\dirset][\dirsym]
```

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

\TreeSet ...

...

```
\newcommand{\treesym}{T}
\newcommand{\treeset}{Tr}
\cmdmthsetext{Tree}[\treeset][\treesym]
```

\wot ...

```
\usrmth{wot}{}{argfun}
```

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

```
%%****************************************************************************%%
%%** Format Tricks ***********************************************************%%
%%****************************************************************************%%
\iffrm@
```

... ...

```
%%...
```

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

```
%%****************************************************************************%%
%%** Figure Tricks ***********************************************************%%
%%****************************************************************************%%
\iffig@
```

```
\RequirePackage{tikz}
\usetikzlibrary{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 ...
... \SetKwFor{Macro}{macro}{}{}
\SetKwFor{Function}{function}{}{}
\SetKwFor{Procedure}{procedure}{}{}

\Let ...
\SetKwFor{Let}{let}{in}{}

\True ...
\False \SetKw{True}{true}
\SetKw{False}{false}

\From ...
... \SetKw{From}{from}
\SetKw{To}{to}
\SetKw{DownTo}{downto}

\GoTo ...
... \SetKw{GoTo}{goto}
\SetKw{Break}{break}
\SetKw{Continue}{continue}

\Guess ...
... \SetKw{Guess}{guess}
\SetKw{ExsGuess}{$\exists$-guess}
\SetKw{AllGuess}{$\forall$-guess}

\MIf ...
... \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
\DeclareRobustCommand{\nlr}[1]
  {\addtocounter{AlgoLine}{1}%
  \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

\fi
%%*****************************************************************************%%
\endinput
⟨/package⟩
```

2 Change History

v0.0
General: First public release 1
v0.1
General: Algorithm tricks 1
v0.10
General: Small refinements 1
v0.11
General: Few additions and corrections 1
v0.12
General: New starred variants 1
v0.13
General: Further starred variants 1
v0.14
General: Few additions and corrections 1
v0.15
General: Refactoring of dtx sources 1
v0.16
General: Small refinements and few additions 1
v0.17
General: Few additions 1
v0.18
General: Few new starred variants 1
v0.19
General: Additional starred variants 1
v0.2
General: Changes in 'Auxiliary tricks' 1
v0.20
General: New binary operators 1
v0.21
General: Refactoring of function macros 1
v0.22
General: Few additions 1
v0.23
General: New 'Graphs' section and small improvements 1
v0.24
General: Correction of fragile macros 1
v0.25
General: Few additions and corrections 1
v0.26
General: Few additions 1
v0.27
General: Small addition to 'Algorithm tricks' 1
v0.3
General: Few problems solved 1
v0.4
General: Refactoring, corrections, and extensions 1
v0.5
General: Figure tricks 1
v0.6
General: Small refinements 1
v0.7
General: Refinements, corrections, and extensions 1
v0.8
General: Few refinements and corrections . . . 1
v0.9
General: Small addition to 'Algorithm tricks' 1

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

\! 427, 451, 905, 992, 1000, 1002, 1004, 1821
\" 858, 859
\# 2318
\, 994, 996, 1002, 1004, 1136, 1139, 1140, 1711, 1712, 1713, 1714, 1715, 1716, 1717, 1718, 1719, 1720
\... . . . . 144, 535, 547, 560, 572, 590, 592, 603, 605, 616, 618, 629, 631, 642, 644, 655, 657, 674, 676, 687, 689, 700, 702, 713, 715, 743, 746, 755, 757, 768, 770, 782, 784, 795, 797, 889, 891, 894, 898, 902, 907, 911, 923, 938, 940, 964, 989, 1025, 1047, 1056, 1063, 1067, 1075, 1083, 1091, 1096, 1135, 1137, 1183, 1187, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1219, 1221, 1242, 1264, 1266, 1279, 1287, 1299, 1318, 1346, 1371, 1382, 1404, 1414, 1421, 1426, 1428, 1431, 1435, 1445, 1452, 1458, 1465, 1471, 1479, 1481, 1483, 1485, 1488, 1518, 1552, 1555, 1560, 1608, 1639, 1641, 1650, 1655, 1689, 1711, 1716, 1723, 1775, 1826, 1828, 1831, 1834, 1843, 1850, 1862, 1870, 1874, 1881, 1889, 2023, 2175, 2190, 2202, 2210, 2216, 2219, 2230, 2235, 2248, 2252, 2262, 2291, 2303, 2309, 2312, 2315, 2318
\@ 815, 821, 826, 830, 831, 832, 837, 838, 847, 864, 865, 867, 868, 869, 870, 871, 873, 874
\@abs 1108, 1109
\@all 1633, 1636
\@card 1014, 1015
\@ceil 1126, 1127
\@denot 917, 918
\@exs 1627, 1630
\@floor 1120, 1121
\@for 176, 180
\@ifnextchar 815
\@ifstar 300, 306, 312, 318, 324, 330, 336, 342, 348, 354, 363, 365, 367, 369, 371, 377, 382, 387, 392, 397, 405, 413, 419, 425, 431, 437, 443, 449, 455, 461, 467, 476, 478, 480, 482, 484, 490, 493, 496, 499, 502, 508, 883, 887, 917,

932, 941, 945, 949, 953, 957, 961, 965, 969, 973, 977, 981, 985, 990, 992, 998, 1000, 1006, 1008, 1014, 1108, 1114, 1120, 1126, 1149, 1627, 1633
\@len 1149, 1150
\@newmth 413, 414
\@newmtharg 425, 426
\@newmthargsty 431, 432
\@newmthoarg 437, 438
\@newmthoargsty 443, 444
\@newmthopar 461, 462
\@newmthoparsty 467, 468
\@newmthpar 449, 450
\@newmthparsty 455, 456
\@newmthsty 419, 420
\@newtxt 300, 301
\@newtxtarg 312, 313
\@newtxtargsty 318, 319
\@newtxtoarg 324, 325
\@newtxtoargsty 330, 331
\@newtxtopar 348, 349
\@newtxtoparsty 354, 355
\@newtxtpar 336, 337
\@newtxtparsty 342, 343
\@newtxtsty 306, 307
\@norm 1114, 1115
\@sabs 1108, 1111
\@sall 1633, 1634
\@scard 1014, 1017
\@sceil 1126, 1129
\@sdenot 917, 920
\@sequence 941
\@sequencel 945
\@sequencer 949
\@sequencex 953
\@sequencexl 957
\@sequencexr 961
\@set 990, 992, 993
\@setl 998, 1000, 1001
\@setr 1006, 1008, 1009
\@sexs 1627, 1628
\@sfloor 1120, 1123
\@slen 1149, 1152
\@snewmth 413, 416
\@snewmtharg 425, 428
\@snewmthargsty 431, 434
\@snewmthoarg 437, 440
\@snewmthoargsty 443, 446
\@snewmthopar 461, 464
\@snewmthoparsty 467, 470
\@snewmthpar 449, 452
\@snewmthparsty 455, 458
\@snewmthsty 419, 422
\@snewtxt 300, 303
\@snewtxtarg 312, 315
\@snewtxtargsty 318, 321
\@snewtxtoarg 324, 327
\@snewtxtoargsty 330, 333
\@snewtxtopar 348, 351
\@snewtxtoparsty 354, 357
\@snewtxtpar 336, 339
\@snewtxtparsty 342, 345
\@snewtxtsty 306, 309
\@snorm 1114, 1117
\@ssequence 941
\@ssequencel 945
\@ssequencer 949
\@ssequencex 953
\@ssequencexl 957
\@ssequencexr 961
\@sset 990, 992, 995
\@ssetl 998, 1000, 1003
\@ssetr 1006, 1008, 1011
\@stuple 965
\@stuplel 969
\@stupler 973
\@stuplex 977
\@stuplexl 981
\@stuplexr 985
\@svec 932, 935
\@tuple 965
\@tuplel 969
\@tupler 973
\@tuplex 977
\@tuplexl 981
\@tuplexr 985
\@vec 932, 933
\^ 860, 862
\‘ 857

A

\A 1771
\AAll 1820
\abs 1107
\AccRel 1645
\accsym 1645, 1646, 1647
\ACls 618
\ActSet 1831
\actset 1832, 1833
\actsym 1831, 1833
\addtocounter 2320, 2321
\adhoc 817
\adj 923
\aElm 715
\AFam 605
\AFGMC 1675
\AFMC . . . 1671, 1680, 1682, 1684
\Afortiori 840
\afortiori 818
\aFrm 770
\aFun 689
\AgnSet 1828
\agnset 1829, 1830
\agnsym 1828, 1830
\AGPL . . . 1957, 1961, 1963, 1966
\AGSL . . . 2091, 2095, 2097, 2100
\AH 1205
\aka 864
\ala 857
\alg@false 126, 128
\alg@true 127
\algomargin 2301
\All 1626
\Alpha 144
\alt 1419
\aMat 784
\amsdef@false 17
\amsdef@true 16
\amsthm@false 21
\amsthm@true 20
\AName 592
\AOmega 1052
\Aomega 1052
\Aomicron 1056
\Aposteriori 842
\aposteriori 820
\Apriori 841
\apriori 819
\APSet 1404
\apset 1405, 1406
\apsym 1404, 1406
\arabic 2321
\aRel 676
\ArenaName 1264
\arenaname 1264, 1265
\arg 1132
\arglef 157, 164, 427, 451, 1907, 1924, 1941, 1958, 1975, 1992, 2009, 2041, 2058, 2075, 2092, 2109, 2126, 2143, 2160
\argmid 161, 314, 316, 338, 340, 427, 429, 451, 453, 919, 921, 994, 996, 1002, 1004, 1010, 1012, 1016, 1018, 1110, 1112, 1116, 1118, 1122, 1124, 1128, 1130, 1151, 1153, 1631, 1637, 1821, 1823
\argrig 159
\argsep 163, 168, 994, 996, 1099, 1101, 1103, 1105
\aSet 657
\AsgSet 1431
\asgset 1432, 1433
\asgsym 1431, 1433
\aSig 631
\aSnt 757
\aStr 644
\aSym 702
\ATheta 1054
\Atheta 1054
\ATL 1775
\ATLP . . . 1795, 1799, 1801, 1803
\ATLS . . . 1810, 1814, 1816, 1818
\atr 1313
\aut@false 56, 62, 98, 100
\aut@true 99
\AutName 2210
\autname 2210, 2211
\autset 2212, 2213
\aux@false 11, 13
\aux@true 12
\aVec 797

B

\BF 1371
\bfseries 536
\BG 1318

\BGPL ... 1991, 1995, 1997, 2000
\bgroup ... 171
\BGSL ... 2125, 2129, 2131, 2134
\BMod ... 1624, 1635, 1637
\BndSet ... 2175
\bndset ... 2176, 2177
\bndsym ... 2175, 2177, 2178
\boldsymbol ... 783, 796
\bot ... 1386
\bound ... 1417
\Box ... 1625
\boxminus ... 1357
\bst ... 1135

C

\card ... 1013
\caselower ... 669
\cdot ... 1020
\ceil ... 1119
\cequiv ... 911
\cf ... 821
\CGPL ... 1923, 1927, 1929, 1932
\CGS ... 1825
\CGSL ... 2057, 2061, 2063, 2066
\CGSStr ... 1826
\cgsstr ... 1826, 1827
\chgbar@false ... 44
\chgbar@true ... 45
\chi ... 1431
\circ ... 1036
\cmdmth 488, 504, 744, 745, 751
\cmdmthall 503, 591, 604, 617, 630, 643, 656, 675, 688, 701, 714, 756, 769, 783, 796
\cmdmtharg ... 491, 504
\cmdmthargcls ... 621
\cmdmthargelm ... 718, 732
\cmdmthargfam ... 608
\cmdmthargfrm ... 773
\cmdmthargfun ... 692
\cmdmthargmat ... 787
\cmdmthargname ... 595
\cmdmthargrel ... 679
\cmdmthargset ... 660
\cmdmthargsig ... 634
\cmdmthargsnt ... 760
\cmdmthargstr ... 647
\cmdmthargsym ... 705, 731
\cmdmthargsymelm ... 730
\cmdmthargvec ... 800
\cmdmthcls ... 619
\cmdmthelm ... 716, 729
\cmdmthfam ... 606
\cmdmthfrm ... 771
\cmdmthfun ... 690, 1276, 1285, 1343, 1362, 1649, 1854, 1857, 2227
\cmdmthlbop ... 748
\cmdmthlrel ... 752
\cmdmthluop ... 746
\cmdmthmat ... 785
\cmdmthname ... 593
\cmdmthoarg ... 494, 504
\cmdmthoargcls ... 623
\cmdmthoargelm ... 720, 735
\cmdmthoargfam ... 610
\cmdmthoargfrm ... 775
\cmdmthoargfun ... 694
\cmdmthoargmat ... 789
\cmdmthoargname ... 597
\cmdmthoargrel ... 681
\cmdmthoargset ... 662
\cmdmthoargsig ... 636
\cmdmthoargsnt ... 762
\cmdmthoargstr ... 649
\cmdmthoargsym ... 707, 734
\cmdmthoargsymelm ... 733
\cmdmthoargvec ... 802
\cmdmthopar ... 500, 504
\cmdmthoparcls ... 627
\cmdmthoparelm ... 724, 741
\cmdmthoparfam ... 614
\cmdmthoparfrm ... 779
\cmdmthoparfun ... 698
\cmdmthoparmat ... 793
\cmdmthoparname ... 601
\cmdmthoparrel ... 685
\cmdmthoparset ... 666
\cmdmthoparsig ... 640
\cmdmthoparsnt ... 766
\cmdmthoparstr ... 653
\cmdmthoparsym ... 711, 740
\cmdmthoparsymelm ... 739
\cmdmthoparvec ... 806
\cmdmthpar ... 497, 504
\cmdmthparcls ... 625
\cmdmthparelm ... 722, 738
\cmdmthparfam ... 612
\cmdmthparfrm ... 777
\cmdmthparfun ... 696
\cmdmthparmat ... 791
\cmdmthparname ... 599
\cmdmthparrel ... 683
\cmdmthparset ... 664
\cmdmthparsig ... 638
\cmdmthparsnt ... 764
\cmdmthparstr ... 651
\cmdmthparsym ... 709, 737
\cmdmthparsymelm ... 736
\cmdmthparvec ... 804
\cmdmthrel ... 677, 1227, 1278, 1646, 1647, 1855, 1858, 2228
\cmdmthset ... 658, 669, 1271, 1273, 1282, 1284, 1290, 1292, 1302, 1304, 1839, 1841, 1846, 1848, 1865, 1867, 1877, 1879, 1884, 1886, 2213, 2215, 2222, 2224, 2247
\cmdmthsetext ... 668, 1223, 1231, 1268, 1289, 1297, 1301, 1308, 1342, 1361, 1406, 1416, 1430, 1433, 1449, 1456, 1462, 1469, 1475, 1554, 1557, 1643, 1652, 1830, 1833, 1836, 1845, 1852, 1861, 1864, 1872, 1876, 1883, 2177, 2218, 2221, 2232, 2250, 2254
\cmdmthsig ... 632
\cmdmthsnt ... 758
\cmdmthstr ... 645
\cmdmthsym ... 703, 728, 1261, 1263, 1337, 1339, 1356, 1358
\cmdmthsymelm ... 727, 1224, 1225, 1269, 1270, 1272, 1274, 1291, 1293, 1303, 1305, 1644, 1837, 1838, 1840, 1842, 1847, 1849, 1866, 1868, 1878, 1880, 1885, 1887, 2178, 2223, 2225
\cmdmthvec ... 798
\cmdtxt ... 375, 401
\cmdtxtabr ... 549, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 857, 858, 859, 860, 862, 864, 865, 866, 867, 868, 869, 870, 871, 873, 874, 1421, 1422, 1423, 1424
\cmdtxtall 400, 536, 548, 561, 573
\cmdtxtarg ... 380, 401
\cmdtxtargabr ... 551
\cmdtxtargcom ... 576
\cmdtxtargdef ... 539
\cmdtxtargname ... 564
\cmdtxtcom 574, 1183, 1184, 1185
\cmdtxtdef ... 537
\cmdtxtname ... 562, 1825
\cmdtxtoarg ... 385, 401
\cmdtxtoargabr ... 553
\cmdtxtoargcom ... 578
\cmdtxtoargdef ... 541
\cmdtxtoargname ... 566
\cmdtxtopar ... 395, 401
\cmdtxtoparabr ... 557
\cmdtxtoparcom ... 582
\cmdtxtopardef ... 545
\cmdtxtoparname ... 570, 1243, 1246, 1249, 1252, 1255, 1258, 1319, 1322, 1325, 1328, 1331, 1334, 1347, 1350, 1353, 1372, 1436, 1437, 1489, 1492, 1495, 1498, 1501, 1504, 1507, 1510, 1519, 1520, 1561, 1584, 1609, 1656, 1690, 1701, 1724, 1727, 1742, 1757, 1776, 1791, 1806, 1890, 2024, 2190, 2192, 2194, 2195,

2196, 2197, 2198, 2199, 2200, 2201, 2202, 2204, 2205, 2207, 2208, 2235, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244
\cmdtxtpar 390, 401
\cmdtxtparabr 555
\cmdtxtparcom 580
\cmdtxtpardef 543
\cmdtxtparname 568
\cmodels 907
\cmp 1035
\cnf 1421
\Cnt 1409
\cod 1025
\coimplies 902
\Coloneqq 887
\coloneqq 887
\com@false 56, 77, 79
\com@true 78
\conset 1455, 1456
\ConSig 1452
\consig 1452, 1453
\ConStr 1479
\constr 1479, 1480
\consym 1454, 1456
\Contd 873
\contd 865
\coWMPL 1603
\coWMSO 1549
\coWMSOL 1547
\coWMTL 1580
\coWPL 1591
\coWSO 1531
\coWSOL 1529
\coWTL 1568
\crv@false 40
\crv@true 41
\csdef 143, 144, 145, 146, 147, 376, 381, 386, 391, 396, 404, 489, 492, 495, 498, 501, 507, 1163, 1179, 1181
\csedef 177, 181
\csname . 167, 168, 169, 170, 171, 172, 173, 178, 182, 378, 379, 383, 384, 388, 389, 393, 394, 398, 399, 406, 407, 415, 417, 509, 510
\CTL 1723
\CTLP ... 1746, 1750, 1752, 1754
\CTLS ... 1761, 1765, 1767, 1769
\CurrentOption 131

D

\DBH 1206
\DeclareMathAlphabet 291, 292, 293, 294
\DeclareMathOperator 1041, 1043
\DeclareOption 12, 13, 17, 21, 25, 29, 33, 37, 41, 45, 49, 54, 55, 60, 61, 67, 68, 72, 73, 78, 79, 84, 85, 89, 90, 94, 95, 99, 100, 105, 106, 111, 112, 116, 121, 122, 127, 128, 131
\DeclareRobustCommand 152, 157, 159, 161, 163, 166, 175, 179, 184, 186, 188, 191, 195, 199, 202, 204, 206, 299, 305, 311, 317, 323, 329, 335, 341, 347, 353, 359, 362, 364, 366, 368, 370, 375, 380, 385, 390, 395, 400, 412, 418, 424, 430, 436, 442, 448, 454, 460, 466, 472, 475, 477, 479, 481, 483, 488, 491, 494, 497, 500, 503, 814, 882, 886, 889, 891, 894, 896, 898, 900, 902, 904, 907, 909, 911, 913, 916, 918, 920, 923, 925, 927, 929, 931, 933, 935, 940, 944, 948, 952, 956, 960, 964, 968, 972, 976, 980, 984, 989, 991, 993, 995, 997, 999, 1001, 1003, 1005, 1007, 1009, 1011, 1013, 1015, 1017, 1019, 1022, 1031, 1033, 1035, 1038, 1059, 1061, 1063, 1065, 1067, 1069, 1071, 1073, 1075, 1077, 1079, 1081, 1083, 1085, 1087, 1089, 1091, 1093, 1096, 1098, 1100, 1102, 1104, 1107, 1109, 1111, 1113, 1115, 1117, 1119, 1121, 1123, 1125, 1127, 1129, 1146, 1148, 1150, 1152, 1375, 1377, 1379, 1440, 1442, 1523, 1525, 1529, 1531, 1535, 1537, 1541, 1543, 1547, 1549, 1564, 1568, 1572, 1576, 1580, 1587, 1591, 1595, 1599, 1603, 1612, 1616, 1618, 1620, 1626, 1628, 1630, 1632, 1634, 1636, 1659, 1663, 1665, 1667, 1671, 1675, 1679, 1681, 1683, 1693, 1695, 1697, 1704, 1706, 1708, 1730, 1734, 1736, 1738, 1745, 1749, 1751, 1753, 1760, 1764, 1766, 1768, 1779, 1783, 1785, 1787, 1794, 1798, 1800, 1802, 1809, 1813, 1815, 1817, 1820, 1822, 1892, 1894, 1897, 1900, 1902, 1909, 1911, 1914, 1917, 1919, 1926, 1928, 1931, 1934, 1936, 1943, 1945, 1948, 1951, 1953, 1960, 1962, 1965, 1968, 1970, 1977, 1979, 1982, 1985, 1987, 1994, 1996, 1999, 2002, 2004, 2011, 2013, 2016, 2019, 2021, 2026, 2028, 2031, 2034, 2036, 2043, 2045, 2048, 2051, 2053, 2060, 2062, 2065, 2068, 2070, 2077, 2079, 2082, 2085, 2087, 2094, 2096, 2099, 2102, 2104, 2111, 2113, 2116, 2119, 2121, 2128, 2130, 2133, 2136, 2138, 2145, 2147, 2150, 2153, 2155, 2162, 2164, 2167, 2170, 2172, 2319
\DeclareRobustCommandx 301, 303, 307, 309, 313, 315, 319, 321, 325, 327, 331, 333, 337, 339, 343, 345, 349, 351, 355, 357, 403, 414, 416, 420, 422, 426, 428, 432, 434, 438, 440, 444, 446, 450, 452, 456, 458, 462, 464, 468, 470, 506, 512, 514, 516, 518, 520, 522, 524, 526, 528, 537, 539, 541, 543, 545, 549, 551, 553, 555, 557, 562, 564, 566, 568, 570, 574, 576, 578, 580, 582, 593, 595, 597, 599, 601, 606, 608, 610, 612, 614, 619, 621, 623, 625, 627, 632, 634, 636, 638, 640, 645, 647, 649, 651, 653, 658, 660, 662, 664, 666, 668, 677, 679, 681, 683, 685, 690, 692, 694, 696, 698, 703, 705, 707, 709, 711, 716, 718, 720, 722, 724, 727, 730, 733, 736, 739, 746, 748, 752, 758, 760, 762, 764, 766, 771, 773, 775, 777, 779, 785, 787, 789, 791, 793, 798, 800, 802, 804, 806, 1906, 1923, 1940, 1957, 1974, 1991, 2008, 2040, 2057, 2074, 2091, 2108, 2125, 2142, 2159
\DecSet 1850
\decset 1851, 1852
\decsym 1850, 1852
\Dedicto 843
\dedicto 822
\Defacto 844
\defacto 823
\defcomcls 1162, 1187, 1188, 1189, 1190
\defcomclsgrp 1164, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201

\defcomclsgrpcmd 1174, 1175, 1176, 1177, 1178
\defcomclsgrpred 1168, 1169, 1170, 1171, 1172, 1173
\defcomclsgrpsem 1165, 1166, 1167
\defcomhrc 1180, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211
\defeq 882
\defval 154, 308, 310, 320, 322, 332, 334, 344, 346, 356, 358, 406, 407, 421, 423, 433, 435, 445, 447, 457, 459, 469, 471, 509, 510, 671, 673, 1020, 1163, 1165, 1166, 1181, 1631, 1637, 1821, 1823
\deg 1029
\Delta 1206, 1207
\delta 1856, 2226
\denot 916
\dep 1419
\der 927
\Dere 845
\dere 824
\DF 1488
\DFA 2190
\DGPL ... 1940, 1944, 1946, 1949
\DGSL ... 2074, 2078, 2080, 2083
\Diamond 1624
\DirSet 2248
\dirset 2249, 2250
\dirsym 2248, 2250
\Divideetimpera 846
\divideetimpera 825
\DLH 1206
\DMod 1624, 1629, 1631
\dnf 1421
\do 176, 180
\dom 1025
\DontPrintSemicolon 2299
\dotcheck 814
\downarrow 1032
\DTA 2235
\dual 923

E

\E 1771
\EAFMC 1681
\EAGPL 1960
\EAGSL 2094
\Easy 1183
\EATL 1785
\EATLP 1800
\EATLS 1815
\EBF 1377
\EBGPL 1994
\EBGSL 2128
\EBH 1208
\ECGPL 1926
\ECGSL 2060
\ECTL 1736
\ECTLP 1751
\ECTLS 1766
\EDGPL 1943
\EdgRel 1226
\edgrel 1226, 1227
\EDGSL 2077
\EEGPL 1977
\EEGSL 2111
\EExs 1820
\EFAGPL 1968
\EFAGSL 2102
\EFBGPL 2002
\EFBGSL 2136
\EFCGPL 1934
\EFCGSL 2068
\EFDGPL 1951
\EFDGSL 2085
\EFEGPL 1985
\EFEGSL 2119
\EFNGSL 2153
\EFOGPL 1917
\EFOGSL 2051
\EFPL 1900
\EFSL 2034
\EFXGPL 2019
\EFXGSL 2170
\EG 1346
\Eg 847
\eg 826
\EGPL ... 1974, 1978, 1980, 1983
\EGSL ... 2108, 2112, 2114, 2117
\ELH 1208
\else .. 153, 155, 164, 263, 277
\ELTL 1706
\em 536, 548
\EMC 1665
\EML 1618
\empchk 152, 158, 160, 162, 168, 360, 473, 671, 673
\emptyfun 1038
\emptyrel 1022
\emptyseq 1146
\emptyset 1821, 1823
\endcsname 167, 168, 169, 170, 171, 172, 173, 178, 182, 378, 379, 383, 384, 388, 389, 393, 394, 398, 399, 406, 407, 415, 417, 509, 510
\endinput 2324
\ENGSL 2145
\enmtls@false 29
\enmtls@true 28
\ensuremath 360, 415, 417, 1042, 1044, 1378, 1380, 1619, 1621, 1656, 1666, 1668, 1682, 1684, 1696, 1698, 1707, 1709, 1737, 1739, 1752, 1754, 1767, 1769, 1786, 1788, 1801, 1803, 1816, 1818, 1893, 1895, 1901, 1903, 1910, 1912, 1918, 1920, 1927, 1929, 1935, 1937, 1944, 1946, 1952, 1954, 1961, 1963, 1969, 1971, 1978, 1980, 1986, 1988, 1995, 1997, 2003, 2005, 2012, 2014, 2020, 2022, 2027, 2029, 2035, 2037, 2044, 2046, 2052, 2054, 2061, 2063, 2069, 2071, 2078, 2080, 2086, 2088, 2095, 2097, 2103, 2105, 2112, 2114, 2120, 2122, 2129, 2131, 2137, 2139, 2146, 2148, 2154, 2156, 2163, 2165, 2171, 2173
\ent 1309
\enumeration 938
\EOGPL 1909
\EOGSL 2043
\EPL 1892
\EPTL 1695
\equiv 912, 914
\ergo 827
\Errata 848
\errata 828
\Erratum 849
\erratum 829
\esc 1309
\ESL 2026
\etal 830
\etc 831
\evn 1133
\EvnSym 1336
\evnsym 1336, 1337
\ExecuteOptions 133
\EXGPL 2011
\EXGSL 2162
\exists 1378, 1400, 1412, 1413, 1619, 1666, 1682, 1696, 1707, 1737, 1752, 1767, 1786, 1801, 1816, 1893, 1901, 1910, 1918, 1927, 1935, 1944, 1952, 1961, 1969, 1978, 1986, 1995, 2003, 2012, 2020, 2027, 2035, 2044, 2052, 2061, 2069, 2078, 2086, 2095, 2103, 2112, 2120, 2129, 2137, 2146, 2154, 2163, 2171, 2316
\expandafter 167, 169, 172, 177, 181
\ExpSpace 1201
\ExpTime 1200
\Exs 1626

F

\FAGPL 1965, 1969, 1971
\FAGSL 2099, 2103, 2105
\False 2307
\FBGPL 1999, 2003, 2005
\FBGSL 2133, 2137, 2139
\FCGPL 1931, 1935, 1937
\FCGSL 2065, 2069, 2071
\FDGPL 1948, 1952, 1954
\FDGSL 2082, 2086, 2088

\FEGPL 1982, 1986, 1988
\FEGSL 2116, 2120, 2122
\Ff 1384
\ffsym 1386, 1387
\fi 153, 155, 164, 220, 225, 231, 236, 251, 256, 271, 279, 280, 284, 286, 584, 808, 875, 1156, 1212, 1235, 1364, 2183, 2256, 2263, 2284, 2285, 2292, 2322
\fig@false 110, 112
\fig@true 111
\fix 1047
\flat 2175
\floor 1119
\FNGSL 2150, 2154, 2156
\fnttls@false 37
\fnttls@true 36
\FO 1443
\FOGPL 1914, 1918, 1920
\FOGSL 2048, 2052, 2054
\FOL 1435
\footnotesize 1044
\forall 1380, 1402, 1412, 1413, 1621, 1668, 1684, 1698, 1709, 1739, 1754, 1769, 1788, 1803, 1818, 1895, 1903, 1912, 1920, 1929, 1937, 1946, 1954, 1963, 1971, 1980, 1988, 1997, 2005, 2014, 2022, 2029, 2037, 2046, 2054, 2063, 2071, 2080, 2088, 2097, 2105, 2114, 2122, 2131, 2139, 2148, 2156, 2165, 2173, 2317
\FPL 1897, 1901, 1903
\FPT 1187
\free 1417
\frm@false 104, 106
\frm@true 105
\From 2309
\FSL 2031, 2035, 2037
\fst 1154
\funset 1461, 1462
\FunSig 1458
\funsig 1458, 1459
\FunStr 1481
\funstr 1481, 1482
\funsym 1460, 1462
\FVarSet 1552
\fvarset 1553, 1554
\fvarsym 1552, 1554
\FXGPL 2016, 2020, 2022
\FXGSL 2167, 2171, 2173

G

\gam@false 56, 62, 88, 90
\gam@true 89
\Game 1279
\GameName 1279
\gamename 1279, 1280
\gcd 1143
\GFG 2202
\GMC 1655
\GML 1608
\GoTo 2312
\grp@false 83, 85
\grp@true 84
\GrpName 1219
\grpname 1219, 1220
\Guess 2315

H

\H 1718
\Hard 1183
\HstSet 1287, 1862
\hstset 1288, 1289, 1290, 1292, 1863, 1864, 1865, 1867
\hstsym 1287, 1289, 1291, 1293, 1862, 1864, 1866, 1868
\hypersetup 241
\hypref@false 33
\hypref@true 32

I

\ie 832
\IF 1488
\if 153, 155, 164
\if@twocolumn 137, 275
\ifalg@ 126, 2297
\ifamsdef@ 16, 214
\ifamsthm@ 20, 222
\ifaut@ 98, 2188
\ifaux@ 11, 212
\ifchgbar@ 44, 268
\ifcom@ 77, 1161
\ifcrv@ 40, 258
\ifcsdef 137
\ifdef 291, 292, 293, 294
\ifenmtls@ 28, 233
\iff 866
\iffig@ 110, 2268
\iffnttls@ 36, 253
\iffrm@ 104, 2261
\ifgam@ 88, 1240
\ifgrp@ 83, 1217
\ifhypref@ 32, 238
\iflinnum@ 48, 273
\iflog@ 93, 1369
\ifmth@ 71, 880
\ifmthgen@ 59, 589
\ifp 1047
\iftab@ 120, 2290
\ifthmtls@ 24, 227
\iftxt@ 66, 813
\iftxtgen@ 53, 534
\ifwrpfig@ 115, 2281
\iht 867
\implied 898
\implies 894
\inf 1141
\infty 1066, 1070, 1072, 1074, 1078, 1080, 1082, 1086, 1088, 1090, 1094
\int 1311
\interdisplaylinepenalty 219
\itr 176, 177, 178, 180, 181, 182

K

\kern 1045
\KrpStr 1639
\krpstr 1639, 1640

L

\LAAll 1512
\laallsym 1514, 1515
\labFun 1648
\labsym 1648, 1649
\LAll 1400
\lallsym 1402, 1403
\Lambda 2249
\lambda 1648
\land 1392
\Lang 2233
\langle 966, 967, 970, 971, 978, 979, 982, 983, 1631, 1821
\LaTex 743, 750
\lbrace .. 994, 996, 1002, 1004
\lceil 1128, 1130
\lcm 1143
\LCoi 1396
\lcoimp 891
\lcoisym 1398, 1399
\LCon 1392
\lconsym 1392, 1393
\LDis 1392
\ldissym 1394, 1395
\LEExs 1512
\leexssym 1512, 1513
\left ... 427, 451, 919, 942, 946, 950, 954, 958, 962, 966, 970, 974, 978, 982, 986, 994, 1002, 1010, 1016, 1110, 1116, 1122, 1128, 1151, 1637, 1823
\Leftarrow 899, 901
\Leftrightarrow 903, 905
\leftrightarrow ... 892, 1398
\len 1148
\Let 2306
\let 1717, 1718, 1719
\LExs 1400
\lexssym 1400, 1401
\lfloor 1122, 1124
\lift 1315
\LImp 1396
\limp 889
\limpsym 1396, 1397
\linenumbers 276, 278
\linnum@false 48
\linnum@true 49
\llbracket 919, 921
\llcorner 1044
\LNeg 1388
\lnegsym 1388, 1389
\LNot 1388
\lnotsym 1390, 1391

\log@false 56, 62, 93, 95
\log@true 94
\LogSig 1382
\logsig 1382, 1383
\LogSpace 1195
\LogStr 1426
\logstr 1426, 1427
\LogTime 1194
\lor 1394
\lowercase 671, 673
\lst 1154
\LTL 1689
\lVert 1116, 1118
\lvert 1016, 1018, 1110, 1112, 1151, 1153

M

\Macro 2303
\mathaccent 934
\mathbbo 291
\mathbin 745
\mathcal 591
\matheus 292, 617
\mathfrak 643
\mathit 675, 769, 796
\mathnormal 714
\mathop 744
\mathpzc 293, 630
\mathrel 751, 1044
\mathring 926
\mathrm 656
\mathscr 294, 604
\mathsf 688, 756, 783
\mathtt 701
\max 1137
\MaxSym 1355
\maxsym 1355, 1356
\MC 1655
\mdseries 373, 561, 573
\MFO 1442
\MFOL 1440
\middle 994
\MIf 2318
\min 1137
\MinSym 1355
\minsym 1357, 1358
\ML 1608
\models 908, 910
\movFun 1853
\MovRel 1277
\movRel 1853
\movrel 1277, 1278
\movsym 1853, 1854, 1855
\MPL 1595, 1600, 1604
\MSO 1537, 1544, 1550
\MSOL 1535, 1542, 1548
\mth 475, 919, 921, 924, 926, 928, 930, 934, 936, 938, 939, 942, 943, 946, 947, 950, 951, 954, 955, 958, 959, 962, 963, 966, 967, 970, 971, 974, 975, 978, 979, 982, 983, 986, 987, 994, 996, 1002, 1004, 1010, 1012, 1016, 1018, 1020, 1023, 1039, 1097, 1099, 1101, 1103, 1105, 1110, 1112, 1116, 1118, 1122, 1124, 1128, 1130, 1147, 1151, 1153, 1206, 1207, 1208, 1209, 1210, 1211, 1629, 1631, 1635, 1637, 1821, 1823
\mth@false 62, 71, 73
\mth@true 72
\mtharg 477
\mthcls 616
\mthelm 713
\mthfam 603
\mthfrm 768
\mthfun 687
\mthgen@false 59, 62
\mthgen@true 60, 72, 84, 89, 94, 99
\mthlbop ... 884, 885, 887, 890, 892, 1032, 1034, 1036
\mthlrel 750, 895, 897, 899, 901, 903, 905, 908, 910, 912, 914
\mthluop 743
\mthmat 782
\mthname 590
\mthoarg 479
\mthopar 483
\mthpar 481
\mthrel 674
\mthset 655, 1060, 1062, 1064, 1068, 1076, 1084, 1092
\mthsig 629
\mthsnt 755
\mthstr 642
\mthsty 476, 478, 480, 482, 484, 485
\mthstycls 617
\mthstyelm 714
\mthstyfam 604
\mthstyfrm 769
\mthstyfun 688
\mthstylbop 745
\mthstylrel 751
\mthstyluop 744
\mthstymat 783
\mthstyname 591
\mthstyrel 675
\mthstyset 656
\mthstysig 630
\mthstysnt 756
\mthstystr 643
\mthstysym 701
\mthstyvec 796
\mthsubsup 415, 417, 472
\mthsym 700
\mthvec 795
\MTL 1572, 1577, 1581
\mu 1656
\Mutatismutandis 850
\mutatismutandis 833

N

\naif 858
\naive 859
\neg 1388
\newcommandx .. 1162, 1164, 1167, 1173, 1178, 1180
\newif 11, 16, 20, 24, 28, 32, 36, 40, 44, 48, 53, 59, 66, 71, 77, 83, 88, 93, 98, 104, 110, 115, 120, 126, 137
\newmth 412, 421, 423, 427, 429, 451, 453
\newmtharg 424, 433, 435, 439, 441
\newmthargsty .. 430, 478, 493
\newmthoarg 436, 445, 447
\newmthoargsty . 442, 480, 496
\newmthopar 460, 469, 471
\newmthoparsty . 466, 484, 502
\newmthpar 448, 457, 459, 463, 465
\newmthparsty .. 454, 482, 499
\newmthsty 418, 476, 490
\newtxt 299, 308, 310, 314, 316, 338, 340
\newtxtarg 311, 320, 322, 326, 328
\newtxtargsty 317, 365, 383, 384
\newtxtoarg 323, 332, 334
\newtxtoargsty 329, 367, 388, 389
\newtxtopar 347, 356, 358
\newtxtoparsty 353, 371, 398, 399
\newtxtpar 335, 344, 346, 350, 352
\newtxtparsty 341, 369, 393, 394
\newtxtsty .. 305, 363, 378, 379
\NGSL ... 2142, 2146, 2148, 2151
\nlr 2319
\nlset 2321
\noexpand 178, 182
\norm 1107
\normalfont . 304, 536, 561, 573
\not ... 897, 901, 905, 910, 914
\notcequiv 913
\notcmodels 909
\notcoimplies 904
\notimplied 900
\notimplies 896
\num 1096
\numcc 1098
\numco 1100
\numoc 1102
\numoo 1104
\nxt 2182

O

\obsFun 1283
\ObsSet 1283
\obsset 1283, 1284
\odd 1133
\OddSym 1336
\oddsym 1338, 1339
\odot 1411
\OGPL ... 1906, 1910, 1912, 1915
\OGSL ... 2040, 2044, 2046, 2049
\Omega 1053
\omega 1052

\Omicron 1057
\omicron 143, 1056
\oplus 1355
\OppSym . . 1260, 1273, 1274, 1292, 1293, 1304, 1305, 1841, 1842, 1867, 1868, 1879, 1880, 1886, 1887
\oppsym 1262, 1263
\Opr 1623
\out 1311
\overline 924, 936

P

\P 1717
\PackageWarning 131
\PDL 1723
\Percontra 851
\percontra 834
\PH 1203
\Pi 1210, 1211, 1514
\pi 1229, 1295, 1650, 1870
\PL 1560, 1889
\playFun 1295
\PlaySet 1295, 1870
\playset 1296, 1297, 1871, 1872
\playsym 1295, 1297, 1870, 1872
\PlnSet 1874
\plnset . 1875, 1876, 1877, 1879
\plnsym . 1874, 1876, 1878, 1880
\PlrFun 1275
\plrfun 1275, 1276
\PlrSym . . 1260, 1271, 1272, 1290, 1291, 1302, 1303, 1839, 1840, 1865, 1866, 1877, 1878, 1884, 1885
\plrsym 1260, 1261
\pm 1070, 1078, 1086
\pmapsto 1041
\PosSet 1266, 1834
\posset 1267, 1268, 1271, 1273, 1835, 1836, 1839, 1841
\possym 1266, 1268, 1269, 1270, 1272, 1274, 1834, 1836, 1837, 1838, 1840, 1842
\pow 1019
\pre 1233
\prfFun 1306
\PrfSet 1306, 1859
\prfset . 1307, 1308, 1860, 1861
\prfsym . 1306, 1308, 1859, 1861
\Primafacie 852
\primafacie 835
\prj 1031
\ProcessOptions 135
\providecommand 1650, 1651, 1834, 1835, 1859, 1860, 1862, 1863, 1870, 1871, 1874, 1875, 1881, 1882, 2219, 2220, 2226
\prtFun 1340
\PrtSet 1340
\prtset 1341, 1342
\prtsym 1340, 1342
\psn 2180
\PSpace 1197
\pthFun 1229
\PthSet 1229, 1650
\pthset . 1230, 1231, 1651, 1652
\pthsym . 1229, 1231, 1650, 1652
\PTime 1196
\PTL 1689
\pto 1041

Q

\QAE 1412
\QAFMC 1679
\QATL 1783
\QATLP 1798
\QATLS 1813
\QBF 1371
\QCTL 1734
\QCTLP 1749
\QCTLS 1764
\QEA 1412
\QLTL 1704
\QMC 1663
\QML 1616
\Qnt 1409
\QntSet 1414
\qntset 1415, 1416
\qntsym 1414, 1416
\QPSpace 1199
\QPTime 1198
\QPTL 1693

R

\raisebox 1044
\rangle 966, 967, 974, 975, 978, 979, 986, 987, 1631, 1821
\rbrace . . 994, 996, 1010, 1012
\rceil 1128, 1130
\rch 1313
\relax 135
\relset 1474, 1475
\RelSig 1471
\relsig 1471, 1472
\RelStr 1485
\relstr 1485, 1486
\relsym 1473, 1475
\RequirePackage . 3, 5, 6, 7, 216, 217, 218, 224, 229, 230, 235, 240, 255, 270, 276, 278, 2269, 2283, 2298
\resp 869
\rfloor 1122, 1124
\rho 1874
\right . . 427, 451, 919, 942, 946, 950, 954, 958, 962, 966, 970, 974, 978, 982, 986, 994, 1002, 1010, 1016, 1110, 1116, 1122, 1128, 1151, 1637, 1823
\Rightarrow 895, 897
\rightarrow 890, 1396
\rightharpoonup . . 1042, 1045
\rmfamily 373, 573
\Role 862
\role 860
\rrbracket 919, 921
\rst 1033
\rVert 1116, 1118
\rvert 1016, 1018, 1110, 1112, 1151, 1153

S

\S 1719
\SATG 1242
\SaveDoubleAcute 1718
\SavePilcrow 1717
\SaveSectionSymbol 1719
\scshape 561, 573
\seqofcmd 179, 192, 196
\seqofgrklet 199, 523
\seqofgrklow 191, 200, 203, 519, 631, 644
\seqofgrkupp 195, 200, 205, 521
\seqoflatlet 188, 517, 631, 644
\seqoflatlow 184, 189, 203, 513
\seqoflatupp 186, 189, 205, 515, 592, 605, 618
\seqoflet 206, 529, 657, 676, 689, 702, 715, 757, 770, 784, 797
\seqoflow 202, 207, 525
\seqoftag 175, 185, 187
\seqofupp 204, 207, 527
\sequence 940
\sequencel 944
\sequencer 948
\sequencex 952
\sequencexl 956
\sequencexr 960
\set 989
\SetB 1059
\SetC 1091
\SetCI 1093
\seteq 882
\SetF 1061
\SetInd 2300
\SetKw 2302, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317
\SetKwFor 2303, 2304, 2305, 2306
\SetKwIF 2318
\setl 997
\setlength 2301
\setlx 999
\SetN 1063
\SetNI 1065
\SetQ 1075
\SetQI 1077
\SetQNI 1081
\SetQPI 1079
\SetR 1083
\setr 1005
\SetRI 1085
\SetRNI 1089
\SetRPI 1087
\setrx 1007

\setx 991
\SetZ 1067
\SetZI 1069
\SetZNI 1073
\SetZPI 1071
\sffamily 561
\Sigma . . 1208, 1209, 1512, 2217
\sigma 1299, 1881, 2216
\Signature 2302
\sim 1390
\skm 1477
\SL 2023
\SO 1526, 1532, 1538
\SOL 1518
\sol 1316
\Space 1193
\stackrel 884
\StrSet 1299, 1881
\strset 1300, 1301, 1302, 1304, 1882, 1883, 1884, 1886
\strsym 1299, 1301, 1303, 1305, 1881, 1883, 1885, 1887
\SttSet 1843, 2219
\sttset 1844, 1845, 1846, 1848, 2220, 2221, 2222, 2224
\sttsym 1843, 1845, 1847, 1849, 2219, 2221, 2223, 2225
\stx 868
\sub 1408
\suc 1233
\sup 1141
\SVarSet 1555
\svarset 1556, 1557
\svarsym 1555, 1557
\Sym 1409
\SymSet 2216
\symset 2217, 2218
\symsym 2216, 2218

T

\tab@false 120, 122
\tab@true 121
\tau 1853
\TAutSet 2246
\tautset 2246, 2247
\terset 1468, 1469
\TerSig 1465
\tersig 1465, 1466
\TerStr 1483
\terstr 1483, 1484
\tersym 1467, 1469
\text 302, 360, 884, 2178
\textstyle 744, 745
\textup 884
\thestring . . 670, 671, 672, 673
\Theta 1055
\theta 1054
\thmtls@false 25
\thmtls@true 24
\tikzstyle 2271, 2273, 2275, 2277, 2279
\Time 1192
\TL 1560
\top 1384
\TreeSet 2252
\treeset 2253, 2254
\treesym 2252, 2254
\triangleq 885
\trn 929
\trnFun 1856, 2226
\TrnRel 1645
\trnRel 1856, 2226
\trnsym 1856, 1857, 1858, 2226, 2227, 2228
\True 2307
\Tt 1384
\ttsym 1384, 1385
\tuple 964
\tuplel 968
\tupler 972
\tuplex 976
\tuplexl 980
\tuplexr 984
\txt 362
\txt@false 56, 66, 68
\txt@true 67
\txtabr 547
\txtarg 364
\txtcom 572
\txtdef 535
\txtgen@false 53, 56
\txtgen@true 54, 67, 78, 84, 89, 94, 99
\txtname 560, 1376, 1441, 1443, 1524, 1526, 1530, 1532, 1536, 1538, 1542, 1544, 1548, 1550, 1565, 1569, 1573, 1577, 1581, 1588, 1592, 1596, 1600, 1604, 1613, 1617, 1660, 1664, 1672, 1676, 1680, 1694, 1705, 1731, 1735, 1746, 1750, 1761, 1765, 1780, 1784, 1795, 1799, 1810, 1814, 1898, 1915, 1932, 1949, 1966, 1983, 2000, 2017, 2032, 2049, 2066, 2083, 2100, 2117, 2134, 2151, 2168
\txtoarg 366
\txtoargcom 1163, 1179
\txtopar 370
\txtoparcom 1181
\txtpar 368
\txtsty 363, 365, 367, 369, 371, 372
\txtstyabr 548
\txtstycom 573
\txtstydef 536
\txtstyname 561
\txtsubsup 302, 304, 359

U

\UAFMC 1683
\UAGPL 1962
\UAGSL 2096
\UATL 1787
\UATLP 1802
\UATLS 1817
\UBF 1379
\UBGPL 1996
\UBGSL 2130
\UBH 1210
\UCGPL 1928
\UCGSL 2062
\UCTL 1738
\UCTLP 1753
\UCTLS 1768
\UDGPL 1945
\UDGSL 2079
\UEGPL 1979
\UEGSL 2113
\UFAGPL 1970
\UFAGSL 2104
\UFBGPL 2004
\UFBGSL 2138
\UFCGPL 1936
\UFCGSL 2070
\UFDGPL 1953
\UFDGSL 2087
\UFEGPL 1987
\UFEGSL 2121
\UFNGSL 2155
\UFOGPL 1919
\UFOGSL 2053
\UFPL 1902
\UFSL 2036
\UFXGPL 2021
\UFXGSL 2172
\ULH 1210
\ULTL 1708
\UMC 1667
\UML 1620
\UNGSL 2147
\UOGPL 1911
\UOGSL 2045
\upharpoonright 1034
\UPL 1894
\upshape 373
\UPTL 1697
\usetikzlibrary 2270
\USL 2028
\usrmth . 506, 513, 515, 517, 519, 521, 523, 525, 527, 529, 594, 596, 598, 600, 602, 607, 609, 611, 613, 615, 620, 622, 624, 626, 628, 633, 635, 637, 639, 641, 646, 648, 650, 652, 654, 659, 661, 663, 665, 667, 678, 680, 682, 684, 686, 691, 693, 695, 697, 699, 704, 706, 708, 710, 712, 717, 719, 721, 723, 725, 747, 749, 753, 759,

761, 763, 765, 767, 772, 774, 776, 778, 780, 786, 788, 790, 792, 794, 799, 801, 803, 805, 807, 1025, 1026, 1027, 1028, 1029, 1047, 1048, 1049, 1050, 1052, 1053, 1054, 1055, 1056, 1057, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1154, 1155, 1232, 1233, 1234, 1294, 1298, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1385, 1387, 1389, 1391, 1393, 1395, 1397, 1399, 1401, 1403, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1417, 1418, 1419, 1420, 1450, 1451, 1457, 1463, 1464, 1470, 1476, 1477, 1513, 1515, 1623, 1624, 1625, 1653, 1711, 1712, 1713, 1714, 1715, 1716, 1717, 1718, 1719, 1720, 1771, 1772, 1869, 1873, 2179, 2180, 2182, 2233, 2255
\usrmthgrklet 522
\usrmthgrklow 518
\usrmthgrkupp 520
\usrmthlatlet 516
\usrmthlatlow 512
\usrmthlatupp . . 514, 1220, 1265, 1280, 1383, 1427, 1446, 1453, 1459, 1466, 1472, 1480, 1482, 1484, 1486, 1640, 1827, 2211
\usrmthlet 528, 670, 672
\usrmthlow 524
\usrmthupp 526
\usrtxt 403, 538, 540, 542, 544, 546, 550, 552, 554, 556, 558, 563, 565, 567, 569, 571, 575, 577, 579, 581, 583
\UXGPL 2013
\UXGSL 2164

V

\ValSet 1428
\valset 1429, 1430
\valsym 1428, 1430
\varcmd 166, 938, 939, 942, 943, 946, 947, 950, 951, 954, 955, 958, 959, 962, 963, 966, 967, 970, 971, 974, 975, 978, 979, 982, 983, 986, 987
\varepsilon 1147
\varnothing 1023, 1039
\varpi 1287, 1862
\varset 1448, 1449
\VarSig 1445
\varsig 1445, 1446
\varsym 1447, 1449
\vec 931
\VerSet 1221
\verset 1222, 1223
\versym . 1221, 1223, 1224, 1225
\vert 990, 998
\Viceversa 853
\viceversa 836
\viz 838
\vs 837

W

\WATL 1779
\WATLP 1794
\WATLS 1809
\WAutSet 2214
\wautset 2214, 2215
\WCTL 1730
\WCTLP 1745
\WCTLS 1760
\wghFun 1359
\WghSet 1359
\wghset 1360, 1361
\wghsym 1359, 1361
\WH 1204
\widehat 928
\widetilde 930
\WinSet 1281
\winset 1281, 1282
\Wlogx 874
\wlogx 871
\WMPL 1599
\WMSO 1543
\WMSOL 1541
\WMTL 1576
\wot 2255
\wp 1414
\WPL 1587
\WrdSet 2230
\wrdset 2231, 2232
\wrdsym 2230, 2232
\WrlSet 1641
\wrlset 1642, 1643
\wrlsym 1641, 1643, 1644
\wrpfig@false 116
\wrpfig@true 115
\wrt 870
\WSO 1525
\WSOL 1523
\WTL 1564

X

\X 1711
\XGPL . . . 2008, 2012, 2014, 2017
\XGSL . . . 2159, 2163, 2165, 2168
\xi 1306, 1428, 1859
\xspace 302, 304

Y

\Y 1716