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

1 ⟨*package⟩

Required external packages:

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

Package options:

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

*This document describes version v0.19 of the fmocdmac package, last revised 2023/06/09.

```
%% 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 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,gam,log,aut}%

\ProcessOptions\relax%

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

Package main body:

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

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

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

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

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

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

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

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

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

```
\newcommand{\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"

```
\newcommand{\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"

```
\newcommand{\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"

```
\newcommand{\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"

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

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

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

```
\newcommand{\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!

```
\newcommand{\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!

```
\newcommand{\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!

```
\newcommand{\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!

```
\newcommand{\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!

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

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

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

```
\newcommand{\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!

```
\newcommand{\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!

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

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

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

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

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

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

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

```
\newcommand{\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, thm-restate}
\fi

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

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

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

\ifcrv@
  % Camera-Ready Version

  %%...

\else
  % Draft Version

  %%...

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

```

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

  %%...

\fi

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

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

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

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

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

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

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

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

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

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

\newtxt ... to do!

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

```
\newcommand{\newtxt}
  {\@ifstar{\@snewtxt}{\@newtxt}}
\newcommandx{\@newtxt}[5][1=, 3=, 4=, 5=]
  {\text{#1#2\txtsubsup[#1]{#3}{#4}#5}\xspace}
\newcommandx{\@snewtxt}[5][1=, 3=, 4=, 5=]
  {#1#2\txtsubsup[#1]{#3}{#4}#5\normalfont\xspace}
```

\newtxtsty ... to do!

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

```
\newcommand{\newtxtsty}
  {\@ifstar{\@snewtxtsty}{\@newtxtsty}}
\newcommandx{\@newtxtsty}[2][2=]
  {\newtxt[\defval{#2}{#1}]}
\newcommandx{\@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]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1(Arg)Ext2}$"

```
\newcommand{\newtxtarg}
  {\@ifstar{\@snewtxtarg}{\@newtxtarg}}
\newcommandx{\@newtxtarg}[7][1=, 3=, 4=, 5=, 7=]
  {\newtxt[#1]{#2}[#3][#4][\argmid{#5(){#6}{)#7}]}
\newcommandx{\@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]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1(Arg)Ext2}$"

```
\newcommand{\newtxtargsty}
  {\@ifstar{\@snewtxtargsty}{\@newtxtargsty}}
\newcommandx{\@newtxtargsty}[2][2=]
  {\newtxtarg[\defval{#2}{#1}]}
\newcommandx{\@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]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{(Arg)}$"

```
\newcommand{\newtxtoarg}
  {\@ifstar{\@snewtxtoarg}{\@newtxtoarg}}
\newcommandx{\@newtxtoarg}[5][1=, 3=, 4=, 5=]
  {\newtxtarg[#1]{#2}[#3][#4][]{#5}[]}
\newcommandx{\@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]` = "$\mathtt{Name}^{\mathtt{sup}}_{\mathtt{sub}}\mathtt{(Arg)}$"

```
\newcommand{\newtxtoargsty}
  {\@ifstar{\@snewtxtoargsty}{\@newtxtoargsty}}
\newcommandx{\@newtxtoargsty}[2][2=]
  {\newtxtoarg[\defval{#2}{#1}]}
\newcommandx{\@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]` = "$\mathtt{Name}^{\mathtt{sup}}_{\mathtt{sub}}\mathtt{Ext1[Par]Ext2}$"

```
\newcommand{\newtxtpar}
  {\@ifstar{\@snewtxtpar}{\@newtxtpar}}
\newcommandx{\@newtxtpar}[7][1=, 3=, 4=, 5=, 7=]
  {\newtxt[#1]{#2}[#3][#4][\argmid{#5[}{#6}{]#7}]}
\newcommandx{\@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]` = "$\mathtt{Name}^{\mathtt{sup}}_{\mathtt{sub}}\mathtt{Ext1[Par]Ext2}$"

```
\newcommand{\newtxtparsty}
  {\@ifstar{\@snewtxtparsty}{\@newtxtparsty}}
\newcommandx{\@newtxtparsty}[2][2=]
  {\newtxtpar[\defval{#2}{#1}]}
\newcommandx{\@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]` = "$\mathtt{Name}^{\mathtt{sup}}_{\mathtt{sub}}\mathtt{[Par]}$"

```
\newcommand{\newtxtopar}
  {\@ifstar{\@snewtxtopar}{\@newtxtopar}}
\newcommandx{\@newtxtopar}[5][1=, 3=, 4=, 5=]
  {\newtxtpar[#1]{#2}[#3][#4][]{#5}[]}
\newcommandx{\@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]` = "$\mathtt{Name}^{\mathtt{sup}}_{\mathtt{sub}}\mathtt{[Par]}$"

```
\newcommand{\newtxtoparsty}
  {\@ifstar{\@snewtxtoparsty}{\@newtxtoparsty}}
\newcommandx{\@newtxtoparsty}[2][2=]
  {\newtxtopar[\defval{#2}{#1}]}
\newcommandx{\@snewtxtoparsty}[2][2=]
  {\newtxtopar*[\defval{#2}{#1}]}
```

`\txtsubsup` ... to do!

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

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

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

`\txt` ... to do!

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

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

`\txtarg` ... to do!

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

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

`\txtoarg` ... to do!

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

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

`\txtpar` ... to do!

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

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

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

`\txtopar` ... to do!

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

```
\newcommand{\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]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext}$
  `\txtNewCmd*{Name}[sub][sup][Ext]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext}$

```
\newcommand{\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]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1(Arg)Ext2}$
  `\txtargNewCmd*{Name}[sub][sup][Ext1]{Arg}[Ext2]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1(Arg)Ext2}$

```
\newcommand{\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]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{(Arg)}$
  `\txtoargNewCmd*{Name}[sub][sup][Arg]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{(Arg)}$

```
\newcommand{\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]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1[Par]Ext2}$
  `\txtparNewCmd*{Name}[sub][sup][Ext1]{Par}[Ext2]` = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1[Par]Ext2}$

```
\newcommand{\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] = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}[\textsc{Par}]$
  \txtoparNewCmd*{Name}[sub][sup][Par] = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}[\textsc{Par}]$

```
\newcommand{\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] = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext}$
  \txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1}(\textsc{Arg})\textsc{Ext2}$
  \txtoargNewCmd{Name}[sub][sup][Arg] = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}(\textsc{Arg})$
  \txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1}[\textsc{Par}]\textsc{Ext2}$
  \txtoparNewCmd{Name}[sub][sup][Par] = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}[\textsc{Par}]$

```
\newcommand{\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]

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

```
\newcommand{\newmth}
  {\@ifstar{\@snewmth}{\@newmth}}
\newcommandx{\@newmth}[5][1=, 3=, 4=, 5=]
  {\ensuremath{\csname#1\endcsname{#2}\mthsubsup{#3}{#4}#5}}
\newcommandx{\@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]` = "$\mathtt{N}ame_{sub}^{sup}Ext$"

```
\newcommand{\newmthsty}
  {\@ifstar{\@snewmthsty}{\@newmthsty}}
\newcommandx{\@newmthsty}[2][2=]
  {\newmth[\defval{#2}{#1}]}
\newcommandx{\@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]` = "$\mathtt{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$"

```
\newcommand{\newmtharg}
  {\@ifstar{\@snewmtharg}{\@newmtharg}}
\newcommandx{\@newmtharg}[7][1=, 3=, 4=, 5=, 7=]
  {\newmth[#1]{#2}[#3][#4][\argmid{#5\!\left(}{#6}{\right)\arglef{\!}{#7}}]}
\newcommandx{\@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]` = "$\mathtt{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$"

```
\newcommand{\newmthargsty}
  {\@ifstar{\@snewmthargsty}{\@newmthargsty}}
\newcommandx{\@newmthargsty}[2][2=]
  {\newmtharg[\defval{#2}{#1}]}
\newcommandx{\@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}}]` = "$\mathtt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$"

```
\newcommand{\newmthoarg}
  {\@ifstar{\@snewmthoarg}{\@newmthoarg}}
\newcommandx{\@newmthoarg}[5][1=, 3=, 4=, 5=]
  {\newmtharg[#1]{#2}[#3][#4][]{#5}[]}
\newcommandx{\@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}}]` = "$\mathtt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$"

```
\newcommand{\newmthoargsty}
  {\@ifstar{\@snewmthoargsty}{\@newmthoargsty}}
\newcommandx{\@newmthoargsty}[2][2=]
  {\newmthoarg[\defval{#2}{#1}]}
\newcommandx{\@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]` = "$\mathtt{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$"

```
\newcommand{\newmthpar}
  {\@ifstar{\@snewmthpar}{\@newmthpar}}
\newcommandx{\@newmthpar}[7][1=, 3=, 4=, 5=, 7=]
  {\newmth[#1]{#2}[#3][#4][\argmid{#5\!\left[}{#6}{\right]\arglef{\!}{#7}}]}
\newcommandx{\@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]` = "$\mathtt{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$"

```
\newcommand{\newmthparsty}
  {\@ifstar{\@snewmthparsty}{\@newmthparsty}}
\newcommandx{\@newmthparsty}[2][2=]
  {\newmthpar[\defval{#2}{#1}]}
\newcommandx{\@snewmthparsty}[2][2=]
  {\newmthpar*[\defval{#2}{#1}]}
```

`\newmthopar` ... to do!

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

```
\newcommand{\newmthopar}
  {\@ifstar{\@snewmthopar}{\@newmthopar}}
\newcommandx{\@newmthopar}[5][1=, 3=, 4=, 5=]
  {\newmthpar[#1]{#2}[#3][#4][]{#5}[]}
\newcommandx{\@snewmthopar}[5][1=, 3=, 4=, 5=]
  {\newmthpar*[#1]{#2}[#3][#4][]{#5}[]}
```

`\newmthoparsty` ... to do!

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

```
\newcommand{\newmthoparsty}
  {\@ifstar{\@snewmthoparsty}{\@newmthoparsty}}
\newcommandx{\@newmthoparsty}[2][2=]
  {\newmthopar[\defval{#2}{#1}]}
\newcommandx{\@snewmthoparsty}[2][2=]
  {\newmthopar*[\defval{#2}{#1}]}
```

`\mthsubsup` ... to do!

```
\newcommand{\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]` = "$\mathtt{N}ame_{sub}^{sup}Ext$"

```
\newcommand{\mth}
  {\@ifstar{\newmthsty*{\mthsty}}{\newmthsty{\mthsty}}}
```

`\mtharg` ... to do!

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

```
\newcommand{\mtharg}
  {\@ifstar{\newmthargsty*{\mthsty}}{\newmthargsty{\mthsty}}}
```

`\mthoarg` ... to do!

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

```
\newcommand{\mthoarg}
  {\@ifstar{\newmthoargsty*{\mthsty}}{\newmthoargsty{\mthsty}}}
```

`\mthpar` ... to do!

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

```
\newcommand{\mthpar}
  {\@ifstar{\newmthparsty*{\mthsty}}{\newmthparsty{\mthsty}}}
```

`\mthopar` ... to do!

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

```
\newcommand{\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] = $\texttt{N}ame_{sub}^{sup}Ext$

```
\newcommand{\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] = $\texttt{Name}_{sub}^{sup}Ext1\Big(Arg^{Ex^{Ex}}\Big)Ext2$
  \mthargNewCmd*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\texttt{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$

```
\newcommand{\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}}] = $\texttt{Name}_{sub}^{sup}\Big(Arg^{Ex^{Ex}}\Big)$
  \mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = $\texttt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$

```
\newcommand{\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] = $\texttt{Name}_{sub}^{sup}Ext1\Big[Par^{Ex^{Ex}}\Big]Ext2$
  \mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\texttt{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

```
\newcommand{\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}}] = $\texttt{Name}_{sub}^{sup}\Big[Par^{Ex^{Ex}}\Big]$
  \mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = $\texttt{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$

```
\newcommand{\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] = $\texttt{Name}_{sub}^{sup}Ext1\Big(Arg^{Ex^{Ex}}\Big)Ext2$
  \mthargNewCmd*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\texttt{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
  \mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}] = $\texttt{Name}_{sub}^{sup}\Big(Arg^{Ex^{Ex}}\Big)$
  \mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = $\texttt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$
  \mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\texttt{Name}_{sub}^{sup}Ext1\Big[Par^{Ex^{Ex}}\Big]Ext2$
  \mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\texttt{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$
  \mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = $\texttt{Name}_{sub}^{sup}\Big[Par^{Ex^{Ex}}\Big]$
  \mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = $\texttt{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]$

```
\newcommand{\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}}}` $= newName[Par^{Ex^{Ex}}]$

```
\newcommandx{\usrmth}[4][4=]
  {\csdef{#1#2}{%
    \@ifstar%
      {\csname mth#3\endcsname*{\defval{#4}{#1}}}%
      {\csname mth#3\endcsname{\defval{#4}{#1}}}}}
```

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

`\usrmthlatlow` ... to do!

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

`\usrmthlatupp` ... to do!

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

`\usrmthlatlet` ... to do!

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

`\usrmthgrklow` ... to do!

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

`\usrmthgrkupp` ... to do!

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

`\usrmthgrklet` ... to do!

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

`\usrmthlow` ... to do!

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

`\usrmthupp` ... to do!

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

`\usrmthlet` ... to do!

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

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

`\cmdtxtdef` ... to do!

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

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

`\cmdtxtargdef` ... to do!

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

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

`\cmdtxtoargdef` ... to do!

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

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

`\cmdtxtpardef` ... to do!

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

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

`\cmdtxtopardef` ... to do!

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

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

`\txtabr, ...` ... to do!

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

```
%% 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]` = $newName_{\text{sub}}^{\text{sub}}ext$

```
\newcommandx{\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]` = $newName_{\text{sub}}^{\text{sub}}ext1(arg)ext2$

```
\newcommandx{\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]` = $newName_{\text{sub}}^{\text{sub}}(arg)$

```
\newcommandx{\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]` = $newName_{\text{sub}}^{\text{sub}}ext1[par]ext2$

```
\newcommandx{\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]` = $newName_{\text{sub}}^{\text{sub}}[par]$

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

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

`\txtname, ...` ... to do!

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

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

`\cmdtxtname` ... to do!

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

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

`\cmdtxtargname` ... to do!

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

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

`\cmdtxtoargname` ... to do!

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

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

`\cmdtxtparname` ... to do!

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

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

`\cmdtxtoparname` ... to do!

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

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

`\txtcom, ...` ... to do!

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

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

`\cmdtxtcom` ... to do!

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

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

`\cmdtxtargcom` ... to do!

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

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

```
\newcommandx{\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]` = $\textsc{newName}^{\textsc{sub}}_{\textsc{sub}}(\textsc{arg})$

```
\newcommandx{\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]` = $\textsc{newName}^{\textsc{sub}}_{\textsc{sub}}\textsc{ext1}[\textsc{par}]\textsc{ext2}$

```
\newcommandx{\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]` = $\textsc{newName}^{\textsc{sub}}_{\textsc{sub}}[\textsc{par}]$

```
\newcommandx{\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]` = $\mathcal{NEWNAME}^{sub}_{sub}ext$

```
\newcommandx{\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] = $\mathcal{NEWNAME}^{sub}_{sub}ext1(arg)ext2$

```
\newcommandx{\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] = $\mathcal{NEWNAME}^{sub}_{sub}(arg)$

```
\newcommandx{\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] = $\mathcal{NEWNAME}^{sub}_{sub}ext1[par]ext2$

```
\newcommandx{\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] = $\mathcal{NEWNAME}^{sub}_{sub}[par]$

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

\mthfam, ... to do!

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

```
%% 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] = $\mathscr{NEWNAME}^{sub}_{sub}ext$

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

\cmdmthargfam ... to do!

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

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

`\cmdmthoargfam` ... to do!

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

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

`\cmdmthparfam` ... to do!

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

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

`\cmdmthoparfam` ... to do!

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

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

`\mthcls, ...` ... to do!

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

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

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

`\cmdmthargcls` ... to do!

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

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

```
\newcommandx{\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]` = $\mathcal{NEWNAME}^{sub}_{sub}(arg)$

```
\newcommandx{\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]` = $\mathcal{NEWNAME}^{sub}_{sub}ext1[par]ext2$

```
\newcommandx{\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]` = $\mathcal{NEWNAME}^{sub}_{sub}[par]$

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

`\mthsig, ...` ... to do!

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

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

`\aSig, ...` ... to do!

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

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

`\cmdmthsig` ... to do!

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

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

`\cmdmthargsig` ... to do!

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

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

```
\newcommandx{\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]` = $\mathit{NewName}_{sub}^{sub}(arg)$

```
\newcommandx{\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]` = $\mathit{NewName}_{sub}^{sub} ext1[par] ext2$

```
\newcommandx{\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]` = $\mathit{NewName}_{sub}^{sub}[par]$

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

`\mthstr, ...` ... to do!

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

```
%% 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]` = $\mathfrak{NewName}_{sub}^{sub} ext$

```
\newcommandx{\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]` = $\mathfrak{NewName}_{sub}^{sub}ext1(arg)ext2$

```
\newcommandx{\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]` = $\mathfrak{NewName}_{sub}^{sub}(arg)$

```
\newcommandx{\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]` = $\mathfrak{NewName}_{sub}^{sub}ext1[par]ext2$

```
\newcommandx{\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]` = $\mathfrak{NewName}_{sub}^{sub}[par]$

```
\newcommandx{\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]` = $\mathrm{NewName}_{sub}^{sub}ext$

```
\newcommandx{\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]` = $\mathrm{NewName}_{sub}^{sub}ext1(arg)ext2$

```
\newcommandx{\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]` = $\mathrm{NewName}_{sub}^{sub}(arg)$

```
\newcommandx{\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]` = $\mathrm{NewName}_{sub}^{sub}ext1[par]ext2$

```
\newcommandx{\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]` = $\mathrm{NewName}_{sub}^{sub}[par]$

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

`\cmdmthsetext` ... to do!

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

```
%% Style for Relations
\cmdmthall{rel}\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]` = $NewName_{sub}^{sub}ext$

```
\newcommandx{\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]` = $NewName_{sub}^{sub}ext1(arg)ext2$

```
\newcommandx{\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]` = $NewName_{sub}^{sub}(arg)$

```
\newcommandx{\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]` = $NewName_{sub}^{sub}ext1[par]ext2$

```
\newcommandx{\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]` = $NewName_{sub}^{sub}[par]$

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

`\mthfun, ...` ... to do!

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

```
%% Style for Functions
\cmdmthall{fun}\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, $\varTheta$, I, K, K, Λ, M, N, Ξ, O, Π, $\varPi$, P, P, Σ, $\varSigma$, T, Υ, Φ, $\varPhi$, X, Ψ, Ω

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

`\cmdmthfun` ... to do!

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

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

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

\cmdmthargfun ... to do!

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

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

\cmdmthoargfun ... to do!

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

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

\cmdmthparfun ... to do!

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

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

\cmdmthoparfun ... to do!

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

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

\mthsym, ... to do!

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

```
%% 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, $\varTheta$, I, K, K, Λ, M, N, Ξ, O, Π, $\varPi$, P, P, Σ, $\varSigma$, T, T, Φ, $\varPhi$, X, Ψ, Ω

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

\cmdmthsym ... to do!

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

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

```
\newcommandx{\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$^{sub}_{sub}ext1(arg)ext2$

```
\newcommandx{\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$^{sub}_{sub}(arg)$

```
\newcommandx{\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$^{sub}_{sub}ext1[par]ext2$

```
\newcommandx{\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$^{sub}_{sub}[par]$

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

\mthelm, ... to do!

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

```
%% 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
α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, o, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω
A, B, Γ, Δ, E, E, Z, H, Θ, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω

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

\cmdmthelm ... to do!

- \cmdmthelm{cmdName};
  \cmdNameElm[sub][sub][ext] = $cmdName^{sub}_{sub}ext$

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

```
\newcommandx{\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] = $NewName^{sub}_{sub}ext1(arg)ext2$

```
\newcommandx{\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] = $NewName^{sub}_{sub}(arg)$

```
\newcommandx{\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] = $NewName^{sub}_{sub}ext1[par]ext2$

```
\newcommandx{\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] = $NewName^{sub}_{sub}[par]$

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

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

\cmdmthsymelm ... to do!

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

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

\cmdmthargsymelm ... to do!

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

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

\cmdmthoargsymelm ... to do!

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

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

\cmdmthparsymelm ... to do!

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

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

\cmdmthoparsymelm ... to do!

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

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

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

\mthluop, ... to do!

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

```
%% 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] = $\oplus^{sub}_{sub}ext$

```
\newcommandx{\cmdmthluop}[2][2=]
  {\usrmth{#1}{UOp}{luop}[#2]}
\newcommandx{\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]` = $\preceq_{sub}^{sub} ext$

```
\newcommandx{\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]` = $\mathsf{Name}_{sub}^{sup} Ext1\Big(Arg^{Ex^{Ex}}\Big) Ext2$
- `\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]` = $\mathsf{Name}_{sub}^{sup} Ext1\Big[Par^{Ex^{Ex}}\Big] Ext2$
- `\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, $\mathit{\Theta}$, I, K, K, Λ, M, N, Ξ, O, Π, $\mathit{\Pi}$, P, P, Σ, $\mathit{\Sigma}$, T, Υ, Φ, $\mathit{\Phi}$, 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]` = $\mathsf{NewName}_{sub}^{sub} ext$

```
\newcommandx{\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]` = $\mathsf{NewName}_{sub}^{sub} ext1(arg) ext2$

```
\newcommandx{\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]` = $\mathsf{NewName}_{sub}^{sub}(arg)$

```
\newcommandx{\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]` = $\mathsf{NewName}^{sub}_{sub}ext1[par]ext2$

```
\newcommandx{\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]` = $\mathsf{NewName}^{sub}_{sub}[par]$

```
\newcommandx{\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]` = $Name^{sup}_{sub}Ext1\Big(Arg^{Ex^{Ex}}\Big)Ext2$
- `\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]` = $Name^{sup}_{sub}Ext1\Big[Par^{Ex^{Ex}}\Big]Ext2$
- `\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]` = $NewName^{sub}_{sub}ext$

```
\newcommandx{\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]` = $NewName^{sub}_{sub}ext1(arg)ext2$

```
\newcommandx{\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]` = $NewName^{sub}_{sub}(arg)$

```
\newcommandx{\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]` = $NewName^{sub}_{sub}ext1[par]ext2$

```
\newcommandx{\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]` = $NewName^{sub}_{sub}[par]$

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

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

`\mthmat, ...` ... to do!

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

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

`\aMat, ...` ... to do!

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

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

`\cmdmthmat` ... to do!

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

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

`\cmdmthargmat` ... to do!

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

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

`\cmdmthoargmat` ... to do!

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

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

\cmdmthparmat ... to do!

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

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

\cmdmthoparmat ... to do!

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

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

\mthvec, ... to do!

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

```
%% 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] = $\boldsymbol{NewName}^{sub}_{sub}ext$

```
\newcommandx{\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] = $\boldsymbol{NewName}^{sub}_{sub}ext1(arg)ext2$

```
\newcommandx{\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] = $\boldsymbol{NewName}^{sub}_{sub}(arg)$

```
\newcommandx{\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] = $\boldsymbol{NewName}^{sub}_{sub}ext1[par]ext2$

```
\newcommandx{\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] = $\boldsymbol{NewName}^{sub}_{sub}[par]$

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

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

\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}}}

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

\implies, ...

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

\impliedby, ...

```
\DeclareRobustCommand{\impliedby}
  {\mthlrel{\Leftarrow}}
\DeclareRobustCommand{\notimpliedby}
  {\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}

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

           \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  ...
1044 \DeclareRobustCommand{\SetB}
1045   {\mthset[mathbb]{B}}

     \SetF  ...
1046 \DeclareRobustCommand{\SetF}
1047   {\mthset[mathbb]{F}}

\SetN, ...  ...
1048 \DeclareRobustCommand{\SetN}
1049   {\mthset[mathbb]{N}}
1050 \DeclareRobustCommand{\SetNI}[1][]
1051   {\SetN[\infty #1]}

\SetZ, ...  ...
1052 \DeclareRobustCommand{\SetZ}
1053   {\mthset[mathbb]{Z}}
1054 \DeclareRobustCommand{\SetZI}[1][]
1055   {\SetZ[\pm\infty #1]}
1056 \DeclareRobustCommand{\SetZPI}[1][]
1057   {\SetZ[+\infty #1]}
1058 \DeclareRobustCommand{\SetZNI}[1][]
1059   {\SetZ[-\infty #1]}

\SetQ, ...  ...
1060 \DeclareRobustCommand{\SetQ}
1061   {\mthset[mathbb]{Q}}
1062 \DeclareRobustCommand{\SetQI}[1][]
1063   {\SetQ[\pm\infty #1]}
1064 \DeclareRobustCommand{\SetQPI}[1][]
1065   {\SetQ[+\infty #1]}
1066 \DeclareRobustCommand{\SetQNI}[1][]
1067   {\SetQ[-\infty #1]}

\SetR, ...  ...
1068 \DeclareRobustCommand{\SetR}
1069   {\mthset[mathbb]{R}}
1070 \DeclareRobustCommand{\SetRI}[1][]
1071   {\SetR[\pm\infty #1]}
1072 \DeclareRobustCommand{\SetRPI}[1][]
1073   {\SetR[+\infty #1]}
1074 \DeclareRobustCommand{\SetRNI}[1][]
1075   {\SetR[-\infty #1]}

\SetC, ...  ...
1076 \DeclareRobustCommand{\SetC}
1077   {\mthset[mathbb]{C}}
1078 \DeclareRobustCommand{\SetCI}[1][]
1079   {\SetC[\infty #1]}

1080 %%*****************************************************************************%%

 \num, ...  ...
1081 \DeclareRobustCommand{\num}[1]
1082   {\mth{[#1]}}
1083 \DeclareRobustCommand{\numcc}[2]
1084   {\mth{[\argsep{#1}{,}{#2}]}}
1085 \DeclareRobustCommand{\numco}[2]
1086   {\mth{[\argsep{#1}{,}{#2})}}
1087 \DeclareRobustCommand{\numoc}[2]
1088   {\mth{(\argsep{#1}{,}{#2}]}}
1089 \DeclareRobustCommand{\numoo}[2]
1090   {\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}
```

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

\emptyseq ...

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

\len ...

```
\DeclareRobustCommand{\len}
  {\@ifstar{\@slen}{\@len}}
\DeclareRobustCommandx{\@len}[3][1=, 2=]
```

```
  {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}
\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]` = $\textsc{CompClass}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

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

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

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

`\defcomclsgrp` ... to do!

- `\defcomclsgrp{CompClass}`;

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

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

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

  `\UCompClass[sub][sup][arg]` = $\text{UCompClass}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
  `\CoUCompClass[sub][sup][arg]` = $\textsc{CoUCompClass}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
  `\UCompClassE[sub][sup][arg]` = $\text{UCompClass-easy}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
  `\CoUCompClassE[sub][sup][arg]` = $\textsc{CoUCompClass-easy}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

`\UCompClassH[sub][sup][arg]` = UCompClass-hard$^{\text{SUP}}_{\text{SUB}}$(ARG)
`\CoUCompClassH[sub][sup][arg]` = CoUCompClass-hard$^{\text{SUP}}_{\text{SUB}}$(ARG)
`\UCompClassC[sub][sup][arg]` = UCompClass-complete$^{\text{SUP}}_{\text{SUB}}$(ARG)
`\CoUCompClassC[sub][sup][arg]` = CoUCompClass-complete$^{\text{SUP}}_{\text{SUB}}$(ARG)

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

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

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

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

`\NCompClass[sub][sup][arg]` = NNewClass$^{\text{SUP}}_{\text{SUB}}$(ARG)
`\CoNCompClass[sub][sup][arg]` = CoNNewClass$^{\text{SUP}}_{\text{SUB}}$(ARG)
`\NCompClassE[sub][sup][arg]` = NNewClass-easy$^{\text{SUP}}_{\text{SUB}}$(ARG)
`\CoNCompClassE[sub][sup][arg]` = CoNNewClass-easy$^{\text{SUP}}_{\text{SUB}}$(ARG)
`\NCompClassH[sub][sup][arg]` = NNewClass-hard$^{\text{SUP}}_{\text{SUB}}$(ARG)
`\CoNCompClassH[sub][sup][arg]` = CoNNewClass-hard$^{\text{SUP}}_{\text{SUB}}$(ARG)
`\NCompClassC[sub][sup][arg]` = NNewClass-complete$^{\text{SUP}}_{\text{SUB}}$(ARG)
`\CoNCompClassC[sub][sup][arg]` = CoNNewClass-complete$^{\text{SUP}}_{\text{SUB}}$(ARG)

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

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

```
\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]` = $\textsc{FPT}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

```
\defcomcls{FPT}

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

`\Time, ...`

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

```
\defcomclsgrp{Time}
```

`\Space, ...`

- `\Space[sub][sup][arg]` = $\textsc{Space}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\SpaceE[sub][sup][arg]` = $\textsc{Space-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\SpaceH[sub][sup][arg]` = $\textsc{Space-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\SpaceC[sub][sup][arg]` = $\textsc{Space-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

- `\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]` = $\mathrm{ASPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

1175 `\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]` = $\mathrm{ALOGTIME\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

1176 `\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]` = $\mathrm{ALOGSPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

1177 `\defcomclsgrp{LogSpace}`

`\PTime, ...`

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

1178 `\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]` = $\mathrm{APSPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}(\mathrm{ARG})$

1179 `\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]` = $\mathrm{AQPTIME}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AQPTimeE[sub][sup][arg]` = $\mathrm{AQPTIME\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AQPTimeH[sub][sup][arg]` = $\mathrm{AQPTIME\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\AQPTimeC[sub][sup][arg]` = $\mathrm{AQPTIME\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

1180 `\defcomclsgrp{QPTime}`

`\QPSpace, ...`

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

1181 `\defcomclsgrp{QPSpace}`

`\ExpTime, ...`

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

1182 `\defcomclsgrp{ExpTime}`

`\ExpSpace, ...`

- `\ExpSpace[sub][sup][arg]` = $\mathrm{EXPSPACE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ExpSpaceE[sub][sup][arg]` = $\mathrm{EXPSPACE\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ExpSpaceH[sub][sup][arg]` = $\mathrm{EXPSPACE\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\ExpSpaceC[sub][sup][arg]` = $\mathrm{EXPSPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
- `\DExpSpace[sub][sup][arg]` = $\mathrm{DEXPSPACE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DExpSpaceE[sub][sup][arg]` = $\mathrm{DEXPSPACE\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DExpSpaceH[sub][sup][arg]` = $\mathrm{DEXPSPACE\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\DExpSpaceC[sub][sup][arg]` = $\mathrm{DEXPSPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

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

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

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

`\ELH, \EBH`

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

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

`\ULH, \UBH`

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

```
\defcomhrc{ULH}[{\mth{\Pi}}]
\defcomhrc{UBH}[{\mth[mathbf]{\Pi}}]
```

```
\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]
```

```
1212
1213 %% Model-Checking Games
1214 \cmdtxtoparname{MCG}[MC]
1215
1216 %% Ehrenfeucht-Fraisse Games
1217 \cmdtxtoparname{EFG}[EF]

1218 %%** Syntax ************************************************************%%

\PlrSym, \OppSym  ...
1219 \newcommand{\plrsym}{E}
1220 \cmdmthsym{Plr}[\plrsym]
1221 \newcommand{\oppsym}{A}
1222 \cmdmthsym{Opp}[\oppsym]

 \ArenaName, ...  ...
1223 \newcommand{\arenaname}{A}
1224 \usrmthlatupp{Arena}{Name}{name}[\arenaname]

    \PosSet, ...  ...
1225 \newcommand{\possym}{v}
1226 \newcommand{\posset}{Ps}
1227 \cmdmthsetext{Pos}[\posset][\possym]
1228 \cmdmthsymelm{ipos}[\possym_{I}]
1229 \cmdmthsymelm{fpos}[\possym_{F}]
1230 \cmdmthset{PPos}[\posset_{\PlrSym}]
1231 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1232 \cmdmthset{OPos}[\posset_{\OppSym}]
1233 \cmdmthsymelm{opos}[\possym_{\OppSym}]

        \PlrFun  ...
1234 \newcommand{\plrfun}{pl}
1235 \cmdmthfun{plr}[\plrfun]

        \MovRel  ...
1236 \newcommand{\movrel}{Mv}
1237 \cmdmthrel{Mov}[\movrel]

  \GameName, ...  ...
1238 \newcommand{\gamename}{\Game}
1239 \usrmthlatupp{Game}{Name}{name}[\gamename]

        \WinSet  ...
1240 \newcommand{\winset}{Wn}
1241 \cmdmthset{Win}[\winset]

\ObsSet, \obsFun  ...
1242 \newcommand{\obsset}{Ob}
1243 \cmdmthset{Obs}[\obsset]
1244 \cmdmthfun{obs}

1245 %%** Semantics *********************************************************%%

\PthSet, \pthFun  ...
1246 \newcommand{\pthsym}{\pi}
1247 \newcommand{\pthset}{Pth}
1248 \cmdmthsetext{Pth}[\pthset][\pthsym]
1249 \cmdmthfun{pth}

    \HstSet, ...  ...
1250 \newcommand{\hstsym}{\rho}
1251 \newcommand{\hstset}{Hst}
1252 \cmdmthsetext{Hst}[\hstset][\hstsym]
```

```
\cmdmthset{PHst}[\hstset_{\PlrSym}]
\cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
\cmdmthset{OHst}[\hstset_{\OppSym}]
\cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
\cmdmthfun{hst}
```

\PlaySet,\playFun ...

```
\newcommand{\playsym}{\pi}
\newcommand{\playset}{Play}
\cmdmthsetext{Play}[\playset][\playsym]
\cmdmthfun{play}
```

\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]
```

\preFun, \sucFun ...

```
\newcommand{\prefun}{pre}
\cmdmthoargfun{pre}[\prefun]
\newcommand{\sucfun}{suc}
\cmdmthoargfun{suc}[\sucfun]
```

\entFun, \escFun ...

```
\newcommand{\entfun}{ent}
\cmdmthoargfun{ent}[\entfun]
\newcommand{\escfun}{esc}
\cmdmthoargfun{esc}[\escfun]
```

\intFun, \outFun ...

```
\newcommand{\intfun}{int}
\cmdmthoargfun{int}[\intfun]
\newcommand{\outfun}{out}
\cmdmthoargfun{out}[\outfun]
```

\atrFun, \rchFun ...

```
\newcommand{\atrfun}{atr}
\cmdmthoargfun{atr}[\atrfun]
\newcommand{\rchfun}{rch}
\cmdmthoargfun{rch}[\rchfun]
```

\liftFun ...

```
\newcommand{\liftfun}{lift}
\cmdmthoargfun{lift}[\liftfun]
```

\solFun ...

```
\newcommand{\solfun}{sol}
\cmdmthoargfun{sol}[\solfun]
```

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

```
\BG, ...  ...
1293 %% Buchi Games
1294 \cmdtxtoparname{BG}
1295
1296 %% Co-Buchi Games
1297 \cmdtxtoparname{CG}
1298
1299 %% Parity Games
1300 \cmdtxtoparname{PG}
1301
1302 %% Rabin Games
1303 \cmdtxtoparname{RG}
1304
1305 %% Streett Games
1306 \cmdtxtoparname{SG}
1307
1308 %% Muller Games
1309 \cmdtxtoparname{MG}

1310 %%** Syntax ************************************************************%%

\EvnSym, \OddSym  ...
1311 \newcommand{\evnsym}{0}
1312 \cmdmthsym{Evn}[\evnsym]
1313 \newcommand{\oddsym}{1}
1314 \cmdmthsym{Odd}[\oddsym]

\PrtSet, \prtFun  ...
1315 \newcommand{\prtsym}{p}
1316 \newcommand{\prtset}{Pr}
1317 \cmdmthsetext{Prt}[\prtset][\prtsym]
1318 \cmdmthfun{prt}[pr]

1319 %%** Semantics ************************************************************%%

    ...

1320 %%** Quantitative Games on Graph ******************************************%%

\EG, ...  ...
1321 %% Energy Games
1322 \cmdtxtoparname{EG}
1323
1324 %% Mean-Payoff Games
1325 \cmdtxtoparname{MPG}
1326
1327 %% Discounted-Payoff Games
1328 \cmdtxtoparname{DPG}

1329 %%** Syntax ************************************************************%%

\MaxSym, \MinSym  ...
1330 \newcommand{\maxsym}{\oplus}
1331 \cmdmthsym{Max}[\maxsym]
1332 \newcommand{\minsym}{\boxminus}
1333 \cmdmthsym{Min}[\minsym]

\WghSet, \wghFun  ...
1334 \newcommand{\wghsym}{w}
1335 \newcommand{\wghset}{Wg}
1336 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1337 \cmdmthfun{wgh}[wg]

1338 %%** 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]
\cmdmthfun{ap}\usrmth{ap}{}{argfun}
```

```
          \sub  ...
                1383 \usrmth{sub}{}{argfun}

\Cnt, \Qnt, \Sym  ...
                1384 \usrmth{Cnt}{}{sym}[C]
                1385 \usrmth{Qnt}{}{sym}[Q]
                1386 \usrmth{Sym}{}{sym}[\odot]

      \QAE, \QEA  ...
                1387 \usrmth{QAE}{}{sym}[\forall\exists]
                1388 \usrmth{QEA}{}{sym}[\exists\forall]

    \QntSet, ...  ...
                1389 \newcommand{\qntsym}{\wp}
                1390 \newcommand{\qntset}{Qn}
                1391 \cmdmthsetext{Qnt}[\qntset][\qntsym]

   \free, \bound  ...
                1392 \usrmth{free}{}{argfun}
                1393 \usrmth{bound}{}{argfun}

      \dep, \alt  ...
                1394 \usrmth{dep}{}{argfun}
                1395 \usrmth{alt}{}{argfun}

 \cnf, \dnf, ...  ...
                1396 \cmdtxtabr{cnf}
                1397 \cmdtxtabr{dnf}
                1398 \cmdtxtabr{pnf}
                1399 \cmdtxtabr{nnf}

                1400 %%** Semantics *****************************************************************%%

    \LogStr, ...  ...
                1401 \newcommand{\logstr}{L}
                1402 \usrmthlatupp{Log}{Str}{str}[\logstr]

    \ValSet, ...  ...
                1403 \newcommand{\valsym}{\xi}
                1404 \newcommand{\valset}{Val}
                1405 \cmdmthsetext{Val}[\valset][\valsym]

    \AsgSet, ...  ...
                1406 \newcommand{\asgsym}{\chi}
                1407 \newcommand{\asgset}{Asg}
                1408 \cmdmthsetext{Asg}[\asgset][\asgsym]

                1409 %%** First-Order Logics I ******************************************************%%

       \FOL, ...  ...
                1410 % First-Order Logic
                1411 \cmdtxtoparname{FOL}[Fol]
                1412 \cmdtxtoparname{FO}[FO]
                1413
                1414 % Monadic First-Order Logic
                1415 \DeclareRobustCommand{\MFOL}
                1416   {{\txtname{M}}\FOL}
                1417 \DeclareRobustCommand{\MFO}
                1418   {{\txtname{M}}\FO}

                1419 %%** Syntax **********************************************************************%%
```

```
\VarSig, ...  ...
1420 \newcommand{\varsig}{V}
1421 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1422 \newcommand{\varsym}{x}
1423 \newcommand{\varset}{Vr}
1424 \cmdmthsetext{Var}[\varset][\varsym]
1425 \usrmth{var}{}{argfun}[vr]
1426 \cmdmthfun{dim}[dm]\usrmth{dim}{}{argfun}[dm]

\ConSig, ...  ...
1427 \newcommand{\consig}{C}
1428 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1429 \newcommand{\consym}{c}
1430 \newcommand{\conset}{Cn}
1431 \cmdmthsetext{Con}[\conset][\consym]
1432 \usrmth{con}{}{argfun}[cn]

\FunSig, ...  ...
1433 \newcommand{\funsig}{F}
1434 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1435 \newcommand{\funsym}{f}
1436 \newcommand{\funset}{Fn}
1437 \cmdmthsetext{Fun}[\funset][\funsym]
1438 \usrmth{fun}{}{argfun}[fn]
1439 \cmdmthfun{art}[ar]\usrmth{art}{}{argfun}[ar]

\TerSig, ...  ...
1440 \newcommand{\tersig}{T}
1441 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1442 \newcommand{\tersym}{t}
1443 \newcommand{\terset}{Tr}
1444 \cmdmthsetext{Ter}[\terset][\tersym]
1445 \usrmth{ter}{}{argfun}

\RelSig, ...  ...
1446 \newcommand{\relsig}{R}
1447 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1448 \newcommand{\relsym}{r}
1449 \newcommand{\relset}{Rl}
1450 \cmdmthsetext{Rel}[\relset][\relsym]
1451 \usrmth{rel}{}{argfun}[rl]

      \skm  ...
1452 \usrmth{skm}{}{argfun}

1453 %%** Semantics ********************************************************%%

\ConStr, ...  ...
1454 \newcommand{\constr}{C}
1455 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr, ...  ...
1456 \newcommand{\funstr}{F}
1457 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr, ...  ...
1458 \newcommand{\terstr}{T}
1459 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr, ...  ...
1460 \newcommand{\relstr}{R}
1461 \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}
```

```
1514
1515 % Weak Monadic Second-Order Logic
1516 \DeclareRobustCommand{\WMSOL}
1517   {{\txtname{W}}\MSOL}
1518 \DeclareRobustCommand{\WMSO}
1519   {{\txtname{W}}\MSO}
1520
1521 % coWeak Monadic Second-Order Logic
1522 \DeclareRobustCommand{\coWMSOL}
1523   {{\txtname{coW}}\MSOL}
1524 \DeclareRobustCommand{\coWMSO}
1525   {{\txtname{coW}}\MSO}

1526 %%** Syntax ************************************************************%%
```

\FVarSet, ...

```
1527 \newcommand{\fvarsym}{x}
1528 \newcommand{\fvarset}{FVr}
1529 \cmdmthsetext{FVar}[\fvarset][\fvarsym]
```

\SVarSet, ...

```
1530 \newcommand{\svarsym}{X}
1531 \newcommand{\svarset}{SVr}
1532 \cmdmthsetext{SVar}[\svarset][\svarsym]

1533 %%** Semantics ********************************************************%%
```

...

```
1534 %%** Second-Order Logics II ******************************************%%
```

\TL, \PL, ...

```
1535 % Tree Logic
1536 \cmdtxtoparname{TL}
1537
1538 % Weak Tree Logic
1539 \DeclareRobustCommand{\WTL}
1540   {{\txtname{W}}\TL}
1541
1542 % coWeak Tree Logic
1543 \DeclareRobustCommand{\coWTL}
1544   {{\txtname{coW}}\TL}
1545
1546 % Monadic Tree Logic
1547 \DeclareRobustCommand{\MTL}
1548   {{\txtname{M}}\TL}
1549
1550 % Weak Monadic Tree Logic
1551 \DeclareRobustCommand{\WMTL}
1552   {{\txtname{W}}\MTL}
1553
1554 % coWeak Monadic Tree Logic
1555 \DeclareRobustCommand{\coWMTL}
1556   {{\txtname{coW}}\MTL}
1557
1558 % Path Logic
1559 \cmdtxtoparname{PL}
1560
1561 % Weak Path Logic
1562 \DeclareRobustCommand{\WPL}
1563   {{\txtname{W}}\PL}
1564
1565 % coWeak Path Logic
1566 \DeclareRobustCommand{\coWPL}
1567   {{\txtname{coW}}\PL}
```

```
1568
1569 % Monadic Path Logic
1570 \DeclareRobustCommand{\MPL}
1571   {{\txtname{M}}\PL}
1572
1573 % Weak Monadic Path Logic
1574 \DeclareRobustCommand{\WMPL}
1575   {{\txtname{W}}\MPL}
1576
1577 % coWeak Monadic Path Logic
1578 \DeclareRobustCommand{\coWMPL}
1579   {{\txtname{coW}}\MPL}

1580 %%** Syntax ************************************************************%%

   ...

1581 %%** Semantics *********************************************************%%

   ...

1582 %%** Modal Logics I *****************************************************%%
```

`\ML, \GML, ...` ...

```
1583 % Modal Logic
1584 \cmdtxtoparname{ML}
1585
1586 % Graded Modal Logic
1587 \DeclareRobustCommand{\GML}
1588   {{\txtname{G}}\ML}
1589
1590 % Quantified Modal Logic
1591 \DeclareRobustCommand{\QML}
1592   {{\txtname{Q}}\ML}
1593 \DeclareRobustCommand{\EML}
1594   {\ensuremath{\exists}\ML}
1595 \DeclareRobustCommand{\UML}
1596   {\ensuremath{\forall}\ML}

1597 %%** Syntax ************************************************************%%
```

`\Opr` ...

```
1598 \usrmth{Opr}{}{sym}[Op]
```

`\DMod, \BMod` ...

```
1599 \usrmth{DMod}{}{sym}[\Diamond]
1600 \usrmth{BMod}{}{sym}[\Box]
```

`\Exs, \All` ...

```
1601 \DeclareRobustCommand{\Exs}
1602   {\@ifstar{\@sexs}{\@exs}}
1603 \DeclareRobustCommand{\@sexs}[1]
1604   {\mth{\DMod}[#1]}
1605 \DeclareRobustCommand{\@exs}[1]
1606   {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1607 \DeclareRobustCommand{\All}
1608   {\@ifstar{\@sall}{\@all}}
1609 \DeclareRobustCommand{\@sall}[1]
1610   {\mth{\BMod}[#1]}
1611 \DeclareRobustCommand{\@all}[1]
1612   {\mth{\defval{\argmid{\left[}{#1}{\right]}}{\BMod}}}

1613 %%** Semantics *********************************************************%%
```

`\KrpStr, ...` ...

```
1614 \newcommand{\krpstr}{K}
1615 \usrmthlatupp{Krp}{Str}{str}[\krpstr]
```

```
    \WrlSet, ...  ...
                  \newcommand{\wrlsym}{w}
                  \newcommand{\wrlset}{W}
                  \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
                  \cmdmthsymelm{iwrl}[\wrlsym_{I}]

\AccRel, \TrnRel  ...
                  \newcommand{\accsym}{R}
                  \cmdmthrel{Acc}[\accsym]
                  \cmdmthrel{Trn}[\accsym]

        \labFun   ...
                  \newcommand{\labsym}{\lambda}
                  \cmdmthfun{lab}[\labsym]

\PthSet, \pthFun  ...
                  \providecommand{\pthsym}{\pi}
                  \providecommand{\pthset}{Pth}
                  \cmdmthsetext{Pth}[\pthset][\pthsym]
                  \cmdmthfun{pth}

                  %%** 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}
```

```
1716
1717 % Improved Computation Tree Logic
1718 \cmdtxtoparname{CTLP}[CTL$^{+}$]
1719
1720 % Weak Improved Computation Tree Logic
1721 \DeclareRobustCommand{\WCTLP}
1722   {{\txtname{W}}\CTLP}
1723
1724 % Quantified Improved Computation Tree Logic
1725 \DeclareRobustCommand{\QCTLP}
1726   {{\txtname{Q}}\CTLP}
1727 \DeclareRobustCommand{\ECTLP}
1728   {\ensuremath{\exists}\CTLP}
1729 \DeclareRobustCommand{\UCTLP}
1730   {\ensuremath{\forall}\CTLP}
1731
1732 % Full Computation Tree Logic
1733 \cmdtxtoparname{CTLS}[CTL*]
1734
1735 % Weak Full Computation Tree Logic
1736 \DeclareRobustCommand{\WCTLS}
1737   {{\txtname{W}}\CTLS}
1738
1739 % Quantified Full Computation Tree Logic
1740 \DeclareRobustCommand{\QCTLS}
1741   {{\txtname{Q}}\CTLS}
1742 \DeclareRobustCommand{\ECTLS}
1743   {\ensuremath{\exists}\CTLS}
1744 \DeclareRobustCommand{\UCTLS}
1745   {\ensuremath{\forall}\CTLS}

1746 %%** Syntax ********************************************************************%%
```

\E, \A ...

```
1747 \usrmth{E}{}{sym}
1748 \usrmth{A}{}{sym}

1749 %%** Semantics ****************************************************************%%
```

...

```
1750 %%** Strategic Logics I *******************************************************%%
```

\ATL, ...

```
1751 % Alternating Temporal Logic
1752 \cmdtxtoparname{ATL}
1753
1754 % Weak Alternating Tree Logic
1755 \DeclareRobustCommand{\WATL}
1756   {{\txtname{W}}\ATL}
1757
1758 % Quantified Alternating Temporal Logic
1759 \DeclareRobustCommand{\QATL}
1760   {{\txtname{Q}}\ATL}
1761 \DeclareRobustCommand{\EATL}
1762   {\ensuremath{\exists}\ATL}
1763 \DeclareRobustCommand{\UATL}
1764   {\ensuremath{\forall}\ATL}
1765
1766 % Improved Alternating Temporal Logic
1767 \cmdtxtoparname{ATLP}[ATL$^{+}$]
1768
1769 % Weak Improved Alternating Tree Logic
1770 \DeclareRobustCommand{\WATLP}
1771   {{\txtname{W}}\ATLP}
```

```
1772
1773 % Quantified Improved Alternating Temporal Logic
1774 \DeclareRobustCommand{\QATLP}
1775   {{\txtname{Q}}\ATLP}
1776 \DeclareRobustCommand{\EATLP}
1777   {\ensuremath{\exists}\ATLP}
1778 \DeclareRobustCommand{\UATLP}
1779   {\ensuremath{\forall}\ATLP}
1780
1781 % Full Alternating Temporal Logic
1782 \cmdtxtoparname{ATLS}[ATL*]
1783
1784 % Weak Full Alternating Tree Logic
1785 \DeclareRobustCommand{\WATLS}
1786   {{\txtname{W}}\ATLS}
1787
1788 % Quantified Full Alternating Temporal Logic
1789 \DeclareRobustCommand{\QATLS}
1790   {{\txtname{Q}}\ATLS}
1791 \DeclareRobustCommand{\EATLS}
1792   {\ensuremath{\exists}\ATLS}
1793 \DeclareRobustCommand{\UATLS}
1794   {\ensuremath{\forall}\ATLS}

1795 %%** Syntax ********************************************************************%%

\EExs, \AAll  ...
1796 \DeclareRobustCommand{\EExs}[1]
1797   {\mth{\argmid{\langle\!\langle}{\defval{#1}{\emptyset}}{\rangle\!\rangle}}}
1798 \DeclareRobustCommand{\AAll}[1]
1799   {\mth{\argmid{\left[\left[}{\defval{#1}{\emptyset}}{\right]\right]}}}

1800 %%** Semantics ****************************************************************%%

        \CGS  ...
1801 \cmdtxtname{CGS}

\CGSStr, ...  ...
1802 \newcommand{\cgsstr}{G}
1803 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet, ...  ...
1804 \newcommand{\agnsym}{a}
1805 \newcommand{\agnset}{Ag}
1806 \cmdmthsetext{Agn}[\agnset][\agnsym]

\PosSet, ...  ...
1807 \providecommand{\possym}{v}
1808 \providecommand{\posset}{Ps}
1809 \cmdmthsetext{Pos}[\posset][\possym]
1810 \cmdmthsymelm{ipos}[\possym_{I}]
1811 \cmdmthsymelm{fpos}[\possym_{F}]
1812 \cmdmthset{PPos}[\posset_{\PlrSym}]
1813 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1814 \cmdmthset{OPos}[\posset_{\OppSym}]
1815 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet, ...  ...
1816 \newcommand{\sttsym}{s}
1817 \newcommand{\sttset}{St}
1818 \cmdmthsetext{Stt}[\sttset][\sttsym]
1819 \cmdmthset{ISt}[\sttset_{I}]
1820 \cmdmthsymelm{istt}[\sttsym_{I}]
1821 \cmdmthset{FStt}[\sttset_{F}]
1822 \cmdmthsymelm{fstt}[\sttsym_{F}]
```

\ActSet, ...

```
\newcommand{\actsym}{c}
\newcommand{\actset}{Ac}
\cmdmthsetext{Act}[\actset][\actsym]
```

\DecSet, ...

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

\movFun ...

```
\newcommand{\movsym}{\tau}
\cmdmthfun{mov}[\movsym]
```

\HstSet, ...

```
\providecommand{\hstsym}{\rho}
\providecommand{\hstset}{Hst}
\cmdmthsetext{Hst}[\hstset][\hstsym]
\cmdmthset{PHst}[\hstset_{\PlrSym}]
\cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
\cmdmthset{OHst}[\hstset_{\OppSym}]
\cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
\cmdmthfun{hst}
```

\PlaySet,\playFun ...

```
\providecommand{\playsym}{\pi}
\providecommand{\playset}{Play}
\cmdmthsetext{Play}[\playset][\playsym]
\cmdmthfun{play}
```

\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}]
```

\PrfSet, \prfFun ...

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

```
%%** Strategic Logics II ***************************************************%%
```

\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}}\xGSL}

\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}}\xGSL}

\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}}\xGSL}

```

```
\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}}\xGSL}

\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}}\xGSL}

\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}}\xGSL}

\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}
```

```
1996   {\ensuremath{\forall}\XGSL}
1997
1998 \DeclareRobustCommand{\FXGSL}
1999   {{\txtname{F}}\xGSL}
2000
2001 \DeclareRobustCommand{\EFXGSL}
2002   {\ensuremath{\exists}\FXGSL}
2003 \DeclareRobustCommand{\UFXGSL}
2004   {\ensuremath{\forall}\FXGSL}

2005 %%** Syntax ************************************************************%%

\BndSet, ...  ...
2006 \newcommand{\bndsym}{\flat}
2007 \newcommand{\bndset}{Bn}
2008 \cmdmthsetext{Bnd}[\bndset][\bndsym]
2009 \usrmth{bnd}{}{argfun}

      \psn  ...
2010 \usrmth{psn}{}{argfun}

2011 %%** Semantics ********************************************************%%

    \nxtFun  ...
2012 \newcommand{\nxtfun}{nxt}
2013 \cmdmthfun{nxt}[\nxtfun]

2014 \fi
2015 %%*************************************************************************%%
2016 %%*************************************************************************%%
2017 %%** Macros for Automata ***********************************************%%
2018 %%*************************************************************************%%
2019 \ifaut@
2020 %%** Finite Word Automata *********************************************%%

  \DFA, ...  ...
2021 \cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}
2022
2023 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
2024
2025 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
2026 \cmdtxtoparname{DWW}\cmdtxtoparname{NWW}\cmdtxtoparname{UWW}\cmdtxtoparname{AWW}
2027 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
2028 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
2029 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
2030 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
2031 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
2032 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

  \GFG, ...  ...
2033 \cmdtxtoparname{GFG}
2034
2035 \cmdtxtoparname{PD}
2036 \cmdtxtoparname{PN}
2037
2038 \cmdtxtoparname{LD}
2039 \cmdtxtoparname{LN}

2040 %%** Syntax ************************************************************%%

\AutName, ...  ...
2041 \newcommand{\autname}{A}
2042 \usrmthlatupp{Aut}{Name}{name}[\autname]
2043 \newcommand{\autset}{Aut}
2044 \cmdmthset{Aut}[\autset]
```

```
    \WAutSet  ...
2045 \newcommand{\wautset}{WAut}
2046 \cmdmthset{WAut}[\wautset]

\SttSet, ...  ...
2047 \def\sttsym{q}
2048 \def\sttset{Q}
2049 \cmdmthsetext{Stt}[\sttset][\sttsym]
2050 \cmdmthset{IStt}[\sttset_{I}]
2051 \cmdmthsymelm{istt}[\sttsym_{I}]
2052 \cmdmthset{FStt}[\sttset_{F}]
2053 \cmdmthsymelm{fstt}[\sttsym_{F}]

\SymSet, ...  ...
2054 \newcommand{\symsym}{\sigma}
2055 \newcommand{\symset}{\Sigma}
2056 \cmdmthsetext{Sym}[\symset][\symsym]

     \trnFun  ...
2057 \newcommand{\trnsym}{\delta}
2058 \cmdmthfun{trn}[\trnsym]

2059 %%** Semantics *****************************************************************%%

    \LangFun  ...
2060 \newcommand{\langfun}{L}
2061 \cmdmthfun{Lang}[\langfun]

\WrdSet, ...  ...
2062 \newcommand{\wrdsym}{w}
2063 \newcommand{\wrdset}{Wr}
2064 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

2065 %%** Finite Tree Automata *******************************************************%%

   \DTA, ...  ...
2066 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
2067
2068 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
2069 \cmdtxtoparname{DWT}\cmdtxtoparname{NWT}\cmdtxtoparname{UWT}\cmdtxtoparname{AWT}
2070 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
2071 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
2072 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
2073 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
2074 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
2075 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}

2076 %%** Syntax **********************************************************************%%

    \TAutSet  ...
2077 \newcommand{\tautset}{TAut}
2078 \cmdmthset{TAut}[\tautset]

\DirSet, ...  ...
2079 \newcommand{\dirsym}{d}
2080 \newcommand{\dirset}{\Lambda}
2081 \cmdmthsetext{Dir}[\dirset][\dirsym]

2082 %%** Semantics *****************************************************************%%

\TreeSet, ...  ...
2083 \newcommand{\treesym}{T}
2084 \newcommand{\treeset}{Tr}
2085 \cmdmthsetext{Tree}[\treeset][\treesym]
```

\wotFun ...

```
\newcommand{\wotfun}{wot}
\cmdmthfun{wot}[\wotfun]

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

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

... ...

```
%%...

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

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

\RequirePackage{tikz}
\usetikzlibrary{arrows,graphs,matrix,patterns,shapes}

\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}
```

\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
v0.3
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

\! 421, 445, 891, 978, 986, 988, 990, 1797
\" 849, 850
\# 2147
\, . 980, 982, 988, 990, 1121, 1124, 1125, 1686, 1687, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695
\... . . . . 2094, 2123
\@abs 1093, 1094
\@all 1608, 1611
\@card 1000, 1001
\@ceil 1111, 1112
\@denot 903, 904
\@exs 1602, 1605
\@floor 1105, 1106
\@for 171, 175
\@ifstar 294, 300, 306, 312, 318, 324, 330, 336, 342, 348, 357, 359, 361, 363, 365, 371, 376, 381, 386, 391, 399, 407, 413, 419, 425, 431, 437, 443, 449, 455, 461, 470, 472, 474, 476, 478, 484, 487, 490, 493, 496, 502, 874, 878, 903, 918, 927, 931, 935, 939, 943, 947, 951, 955, 959, 963, 967, 971, 976, 978, 984, 986, 992, 994, 1000, 1093, 1099, 1105, 1111, 1132, 1602, 1608
\@len 1132, 1133, 1135
\@newmth 407, 408
\@newmtharg 419, 420
\@newmthargsty 425, 426
\@newmthoarg 431, 432
\@newmthoargsty 437, 438
\@newmthopar 455, 456
\@newmthoparsty 461, 462
\@newmthpar 443, 444
\@newmthparsty 449, 450
\@newmthsty 413, 414
\@newtxt 294, 295
\@newtxtarg 306, 307
\@newtxtargsty 312, 313
\@newtxtoarg 318, 319
\@newtxtoargsty 324, 325
\@newtxtopar 342, 343
\@newtxtoparsty 348, 349
\@newtxtpar 330, 331
\@newtxtparsty 336, 337
\@newtxtsty 300, 301
\@norm 1099, 1100
\@sabs 1093, 1096
\@sall 1608, 1609
\@scard 1000, 1003
\@sceil 1111, 1114
\@sdenot 903, 906
\@sequence 927
\@sequencel 931
\@sequencer 935
\@sequencex 939
\@sequencexl 943
\@sequencexr 947
\@set 976, 978, 979
\@setl 984, 986, 987
\@setr 992, 994, 995
\@sexs 1602, 1603
\@sfloor 1105, 1108
\@slen 1132, 1137
\@snewmth 407, 410
\@snewmtharg 419, 422
\@snewmthargsty 425, 428
\@snewmthoarg 431, 434
\@snewmthoargsty 437, 440
\@snewmthopar 455, 458
\@snewmthoparsty 461, 464
\@snewmthpar 443, 446
\@snewmthparsty 449, 452
\@snewmthsty 413, 416
\@snewtxt 294, 297
\@snewtxtarg 306, 309
\@snewtxtargsty 312, 315
\@snewtxtoarg 318, 321
\@snewtxtoargsty 324, 327
\@snewtxtopar 342, 345
\@snewtxtoparsty 348, 351
\@snewtxtpar 330, 333

\@snewtxtparsty 336, 339
\@snewtxtsty 300, 303
\@snorm 1099, 1102
\@ssequence 927
\@ssequencel 931
\@ssequencer 935
\@ssequencex 939
\@ssequencexl 943
\@ssequencexr 947
\@sset 976, 978, 981
\@ssetl 984, 986, 989
\@ssetr 992, 994, 997
\@stuple 951
\@stuplel 955
\@stupler 959
\@stuplex 963
\@stuplexl 967
\@stuplexr 971
\@svec 918, 921
\@tuple 951
\@tuplel 955
\@tupler 959
\@tuplex 963
\@tuplexl 967
\@tuplexr 971
\@vec 918, 919
\^ 851, 853

A

\abs,␣\norm 1092
\AccRel,␣\TrnRel 1620
\accsym 1620, 1621, 1622
\ACls,␣... 612
\actset 1824, 1825
\ActSet,␣... 1823
\actsym 1823, 1825
\addtocounter 2149, 2150
\adhoc 809
\aElm,␣... 709
\AFam,␣... 599
\AFGMC 1650
\AFMC ... 1646, 1655, 1657, 1659
\Afortiori 832
\afortiori 810
\aFrm,␣... 764
\aFun,␣... 683
\agnset 1805, 1806
\AgnSet,␣... 1804
\agnsym 1804, 1806
\AGSL 1922, 1926, 1928
\AH 1187
\aka 855
\alg@false 121, 123
\alg@true 122
\algomargin 2133
\Alpha,␣... 139
\aMat,␣... 778
\amsdef@false 17
\amsdef@true 16
\amsthm@false 21
\amsthm@true 20
\AName,␣... 586
\Aomega,␣\AOmega 1037
\Aomicron,␣... 1041
\Aposteriori 834
\aposteriori 812
\Apriori 833
\apriori 811
\apset 1380, 1381
\APSet,␣... 1379
\apsym 1379, 1381
\arabic 2150
\aRel,␣... 670
\arenaname 1223, 1224
\ArenaName,␣... 1223
\arg 1117
\arglef . 152, 159, 421, 445, 1872, 1889, 1906, 1923, 1940, 1957, 1974, 1991
\argmid 156, 308, 310, 332, 334, 421, 423, 445, 447, 905, 907, 980, 982, 988, 990, 996, 998, 1002, 1004, 1095, 1097, 1101, 1103, 1107, 1109, 1113, 1115, 1134, 1136, 1138, 1606, 1612, 1797, 1799
\argrig 154
\argsep 158, 163, 980, 982, 1084, 1086, 1088, 1090
\aSet,␣... 651
\asgset 1407, 1408
\AsgSet,␣... 1406
\asgsym 1406, 1408
\aSig,␣... 625
\aSnt,␣... 751
\aStr,␣... 638
\aSym,␣... 696
\Atheta,␣\ATheta 1039
\ATL,␣... 1751
\ATLP ... 1771, 1775, 1777, 1779
\ATLS ... 1786, 1790, 1792, 1794
\atrfun 1284, 1285
\atrFun,␣\rchFun 1284
\aut@false 56, 62, 93, 95
\aut@true 94
\autname 2041, 2042
\AutName,␣... 2041
\autset 2043, 2044
\aux@false 11, 13
\aux@true 12
\aVec,␣... 791

B

\BF,␣\QBF,␣... 1346
\bfseries 530
\BG,␣... 1293
\bgroup 166
\BGSL 1956, 1960, 1962
\BMod 1610, 1612
\bndset 2007, 2008
\BndSet,␣... 2006
\bndsym 2006, 2008
\boldsymbol 777, 790
\bot 1361
\Box 1600
\boxminus 1332
\bst,␣... 1120

C

\card 999
\caselower 663
\cdot 1006
\cequiv,␣... 897
\cf 813
\CGS 1801
\CGSL 1888, 1892, 1894
\cgsstr 1802, 1803
\CGSStr,␣... 1802
\chgbar@false 44
\chgbar@true 45
\chi 1406
\circ 1021
\cmdmth 482, 498, 738, 739, 745
\cmdmthall 497, 585, 598, 611, 624, 637, 650, 669, 682, 695, 708, 750, 763, 777, 790
\cmdmtharg 485, 498
\cmdmthargcls 615
\cmdmthargelm 712, 726
\cmdmthargfam 602
\cmdmthargfrm 767
\cmdmthargfun 686
\cmdmthargmat 781
\cmdmthargname 589
\cmdmthargrel 673
\cmdmthargset 654
\cmdmthargsig 628
\cmdmthargsnt 754
\cmdmthargstr 641
\cmdmthargsym 699, 725
\cmdmthargsymelm 724
\cmdmthargvec 794
\cmdmthcls 613
\cmdmthelm 710, 723
\cmdmthfam 600
\cmdmthfrm 765
\cmdmthfun 684, 1235, 1244, 1249, 1257, 1261, 1318, 1337, 1382, 1426, 1439, 1624, 1628, 1830, 1838, 1842, 2013, 2058, 2061, 2087
\cmdmthlbop 742
\cmdmthlrel 746
\cmdmthluop,␣... 740
\cmdmthmat 779
\cmdmthname 587
\cmdmthoarg 488, 498
\cmdmthoargcls 617
\cmdmthoargelm 714, 729
\cmdmthoargfam 604
\cmdmthoargfrm 769
\cmdmthoargfun 688, 1273, 1275, 1277, 1279, 1281, 1283, 1285, 1287, 1289, 1291
\cmdmthoargmat 783
\cmdmthoargname 591
\cmdmthoargrel 675
\cmdmthoargset 656
\cmdmthoargsig 630

\cmdmthoargsnt 756
\cmdmthoargstr 643
\cmdmthoargsym 701, 728
\cmdmthoargsymelm 727
\cmdmthoargvec 796
\cmdmthopar 494, 498
\cmdmthoparcls 621
\cmdmthoparelm 718, 735
\cmdmthoparfam 608
\cmdmthoparfrm 773
\cmdmthoparfun 692
\cmdmthoparmat 787
\cmdmthoparname 595
\cmdmthoparrel 679
\cmdmthoparset 660
\cmdmthoparsig 634
\cmdmthoparsnt 760
\cmdmthoparstr 647
\cmdmthoparsym 705, 734
\cmdmthoparsymelm 733
\cmdmthoparvec 800
\cmdmthpar 491, 498
\cmdmthparcls 619
\cmdmthparelm 716, 732
\cmdmthparfam 606
\cmdmthparfrm 771
\cmdmthparfun 690
\cmdmthparmat 785
\cmdmthparname 593
\cmdmthparrel 677
\cmdmthparset 658
\cmdmthparsig 632
\cmdmthparsnt 758
\cmdmthparstr 645
\cmdmthparsym 703, 731
\cmdmthparsymelm 730
\cmdmthparvec 798
\cmdmthrel 671, 1237, 1621, 1622
\cmdmthset . . 652, 663, 1230, 1232, 1241, 1243, 1253, 1255, 1265, 1267, 1812, 1814, 1819, 1821, 1834, 1836, 1846, 1848, 2044, 2046, 2050, 2052, 2078
\cmdmthsetext 662, 1227, 1248, 1252, 1260, 1264, 1271, 1317, 1336, 1381, 1391, 1405, 1408, 1424, 1431, 1437, 1444, 1450, 1529, 1532, 1618, 1627, 1806, 1809, 1818, 1825, 1828, 1833, 1841, 1845, 1852, 2008, 2049, 2056, 2064, 2081, 2085
\cmdmthsig 626
\cmdmthsnt 752
\cmdmthstr 639
\cmdmthsym 697, 722, 1220, 1222, 1312, 1314, 1331, 1333
\cmdmthsymelm . . 721, 1228, 1229, 1231, 1233, 1254, 1256, 1266, 1268, 1619, 1810, 1811, 1813, 1815, 1820, 1822, 1835, 1837, 1847, 1849, 2051, 2053
\cmdmthvec 792
\cmdtxt 369, 395
\cmdtxtabr 543, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 849, 850, 851, 853, 855, 856, 857, 858, 859, 860, 861, 862, 864, 865, 1396, 1397, 1398, 1399
\cmdtxtall 394, 530, 542, 555, 567
\cmdtxtarg 374, 395
\cmdtxtargabr 545
\cmdtxtargcom 570
\cmdtxtargdef 533
\cmdtxtargname 558
\cmdtxtcom 568, 1168, 1169, 1170
\cmdtxtdef 531
\cmdtxtname 556, 1801
\cmdtxtoarg 379, 395
\cmdtxtoargabr 547
\cmdtxtoargcom 572
\cmdtxtoargdef 535
\cmdtxtoargname 560
\cmdtxtopar 389, 395
\cmdtxtoparabr 551
\cmdtxtoparcom 576
\cmdtxtopardef 539
\cmdtxtoparname 564, 1202, 1205, 1208, 1211, 1214, 1217, 1294, 1297, 1300, 1303, 1306, 1309, 1322, 1325, 1328, 1347, 1411, 1412, 1464, 1467, 1470, 1473, 1476, 1479, 1482, 1485, 1494, 1495, 1536, 1559, 1584, 1631, 1665, 1676, 1700, 1703, 1718, 1733, 1752, 1767, 1782, 1855, 2021, 2023, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2035, 2036, 2038, 2039, 2066, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075
\cmdtxtpar 384, 395
\cmdtxtparabr 549
\cmdtxtparcom 574
\cmdtxtpardef 537
\cmdtxtparname 562
\cmodels,␣... 893
\cmp 1020
\cnf,␣\dnf,␣... 1396
\Cnt,␣\Qnt,␣\Sym 1384
\coimplies,␣... 888
\Coloneqq 878
\coloneqq 878
\com@false 56, 77, 79
\com@true 78
\conset 1430, 1431
\consig 1427, 1428
\ConSig,␣... 1427
\constr 1454, 1455
\ConStr,␣... 1454
\consym 1429, 1431
\Contd 864
\contd 856
\coWMPL 1578
\coWMSO 1524
\coWMSOL 1522
\coWMTL 1555
\coWPL 1566
\coWSO 1506
\coWSOL 1504
\coWTL 1543
\crv@false 40
\crv@true 41
\csdef 138, 139, 140, 141, 142, 370, 375, 380, 385, 390, 398, 483, 486, 489, 492, 495, 501, 1148, 1164, 1166
\csedef 172, 176
\csname . 162, 163, 164, 165, 166, 167, 168, 173, 177, 372, 373, 377, 378, 382, 383, 387, 388, 392, 393, 400, 401, 409, 411, 503, 504
\CTLP . . . 1722, 1726, 1728, 1730
\CTLS . . . 1737, 1741, 1743, 1745
\CurrentOption 126

D

\DeclareMathAlphabet 285, 286, 287, 288
\DeclareMathOperator 1026, 1028
\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, 100, 101, 106, 107, 111, 116, 117, 122, 123, 126
\DeclareRobustCommand 873, 877, 880, 882, 884, 886, 888, 890, 893, 895, 897, 899, 902, 904, 906, 909, 911, 913, 915, 917, 919, 921, 926, 930, 934, 938, 942, 946, 950, 954, 958, 962, 966, 970, 975, 977, 979, 981, 983, 985, 987, 989, 991, 993, 995, 997, 999, 1001, 1003, 1005, 1008, 1016, 1018, 1020, 1023, 1044, 1046, 1048, 1050, 1052, 1054, 1056, 1058, 1060, 1062, 1064, 1066, 1068, 1070, 1072, 1074, 1076,

1078, 1081, 1083, 1085, 1087, 1089, 1092, 1094, 1096, 1098, 1100, 1102, 1104, 1106, 1108, 1110, 1112, 1114, 1129, 1131, 1135, 1137, 1350, 1352, 1354, 1415, 1417, 1498, 1500, 1504, 1506, 1510, 1512, 1516, 1518, 1522, 1524, 1539, 1543, 1547, 1551, 1555, 1562, 1566, 1570, 1574, 1578, 1587, 1591, 1593, 1595, 1601, 1603, 1605, 1607, 1609, 1611, 1634, 1638, 1640, 1642, 1646, 1650, 1654, 1656, 1658, 1668, 1670, 1672, 1679, 1681, 1683, 1706, 1710, 1712, 1714, 1721, 1725, 1727, 1729, 1736, 1740, 1742, 1744, 1755, 1759, 1761, 1763, 1770, 1774, 1776, 1778, 1785, 1789, 1791, 1793, 1796, 1798, 1857, 1859, 1862, 1865, 1867, 1874, 1876, 1879, 1882, 1884, 1891, 1893, 1896, 1899, 1901, 1908, 1910, 1913, 1916, 1918, 1925, 1927, 1930, 1933, 1935, 1942, 1944, 1947, 1950, 1952, 1959, 1961, 1964, 1967, 1969, 1976, 1978, 1981, 1984, 1986, 1993, 1995, 1998, 2001, 2003, 2148

\DeclareRobustCommandx 1133, 1871, 1888, 1905, 1922, 1939, 1956, 1973, 1990

\decset 1827, 1828

\DecSet,␣... 1826

\decsym 1826, 1828

\Dedicto 835

\dedicto 814

\def 2047, 2048

\Defacto 836

\defacto 815

\defcomcls 1147, 1172

\defcomclsgrp 1149, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183

\defcomclsgrpcmd 1159, 1160, 1161, 1162, 1163

\defcomclsgrpred 1153, 1154, 1155, 1156, 1157, 1158

\defcomclsgrpsem 1150, 1151, 1152

\defcomhrc 1165, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193

\defeq,␣\seteq 873

\defval 149, 302, 304, 314, 316, 326, 328, 338, 340, 350, 352, 400, 401, 415, 417, 427, 429, 439, 441, 451, 453, 463, 465, 503, 504, 665, 667, 1006, 1148, 1150, 1151, 1166, 1606, 1612, 1797, 1799

\Delta 1188, 1189

\delta 2057

\denot 902

\dep,␣\alt 1394

\der 913

\Dere 837

\dere 816

\DF,␣\IF,␣... 1463

\DFA,␣... 2021

\DGSL 1905, 1909, 1911

\Diamond 1599

\dirset 2080, 2081

\DirSet,␣... 2079

\dirsym 2079, 2081

\Divideetimpera 838

\divideetimpera 817

\DLH,␣\DBH 1188

\DMod 1604, 1606

\DMod,␣\BMod 1599

\do 171, 175

\dom,␣\cod,␣... 1011

\DontPrintSemicolon 2131

\downarrow 1017

\DTA,␣... 2066

\dual,␣\adj,␣... 909

E

\E,␣\A 1747

\EAFMC 1656

\EAGSL 1925

\Easy,␣\Hard,␣... 1168

\EATL 1761

\EATLP 1776

\EATLS 1791

\EBF 1352

\EBGSL 1959

\ECGSL 1891

\ECTL 1712

\ECTLP 1727

\ECTLS 1742

\EDGSL 1908

\EEGSL 1942

\EExs,␣\AAll 1796

\EFAGSL 1933

\EFBGSL 1967

\EFCGSL 1899

\EFDGSL 1916

\EFEGSL 1950

\EFNGSL 1984

\EFOGSL 1882

\EFSL 1865

\EFXGSL 2001

\Eg 839

\eg 818

\EG,␣... 1321

\EGSL 1939, 1943, 1945

\ELH,␣\EBH 1190

\else . . 148, 150, 159, 257, 271

\ELTL 1681

\em 530, 542

\EMC 1640

\EML 1593

\empchk 147, 153, 155, 157, 163, 354, 467, 665, 667

\emptyfun 1023

\emptyrel 1008

\emptyseq 1129

\emptyset 1797, 1799

\endcsname 162, 163, 164, 165, 166, 167, 168, 173, 177, 372, 373, 377, 378, 382, 383, 387, 388, 392, 393, 400, 401, 409, 411, 503, 504

\endinput 2153

\ENGSL 1976

\enmtls@false 29

\enmtls@true 28

\ensuremath 354, 409, 411, 1027, 1029, 1353, 1355, 1594, 1596, 1631, 1641, 1643, 1657, 1659, 1671, 1673, 1682, 1684, 1713, 1715, 1728, 1730, 1743, 1745, 1762, 1764, 1777, 1779, 1792, 1794, 1858, 1860, 1866, 1868, 1875, 1877, 1883, 1885, 1892, 1894, 1900, 1902, 1909, 1911, 1917, 1919, 1926, 1928, 1934, 1936, 1943, 1945, 1951, 1953, 1960, 1962, 1968, 1970, 1977, 1979, 1985, 1987, 1994, 1996, 2002, 2004

\entfun 1276, 1277

\entFun,␣\escFun 1276

\enumeration,␣... 924

\EOGSL 1874

\EPTL 1670

\equiv 898, 900

\ergo 819

\Errata 840

\errata 820

\Erratum 841

\erratum 821

\escfun 1278, 1279

\ESL 1857

\etal 822

\etc 823

\evn,␣\odd 1118

\evnsym 1311, 1312

\EvnSym,␣\OddSym 1311

\ExecuteOptions 128

\EXGSL 1993

\exists 1353, 1375, 1387, 1388, 1594, 1641, 1657, 1671, 1682, 1713, 1728, 1743, 1762, 1777, 1792, 1858, 1866,

1875, 1883, 1892, 1900, 1909, 1917, 1926, 1934, 1943, 1951, 1960, 1968, 1977, 1985, 1994, 2002
\expandafter 162, 164, 167, 172, 176
\ExpSpace,␣... 1183
\ExpTime,␣... 1182
\Exs,␣\All 1601

F

\FAGSL 1930, 1934, 1936
\FBGSL 1964, 1968, 1970
\FCGSL 1896, 1900, 1902
\FDGSL 1913, 1917, 1919
\FEGSL 1947, 1951, 1953
\ffsym 1361, 1362
\fi . 148, 150, 159, 215, 220, 225, 230, 245, 250, 265, 273, 274, 278, 280, 578, 802, 866, 1141, 1194, 1339, 2014, 2088, 2095, 2116, 2117, 2124, 2151
\fig@false 105, 107
\fig@true 106
\fix,␣\ifp,␣... 1032
\flat 2006
\floor,␣\ceil 1104
\FNGSL 1981, 1985, 1987
\fnttls@false 37
\fnttls@true 36
\FO 1418
\FOGSL 1879, 1883, 1885
\FOL,␣... 1410
\footnotesize 1029
\forall 1355, 1377, 1387, 1388, 1596, 1643, 1659, 1673, 1684, 1715, 1730, 1745, 1764, 1779, 1794, 1860, 1868, 1877, 1885, 1894, 1902, 1911, 1919, 1928, 1936, 1945, 1953, 1962, 1970, 1979, 1987, 1996, 2004
\FPT 1172
\free,␣\bound 1392
\frm@false 99, 101
\frm@true 100
\From,␣... 2141
\FSL 1862, 1866, 1868
\fst,␣\lst 1139
\funset 1436, 1437
\funsig 1433, 1434
\FunSig,␣... 1433
\funstr 1456, 1457
\FunStr,␣... 1456
\funsym 1435, 1437
\fvarset 1528, 1529
\FVarSet,␣... 1527
\fvarsym 1527, 1529
\FXGSL 1998, 2002, 2004

G

\gam@false 56, 62, 83, 85
\gam@true 84
\Game 1238
\gamename 1238, 1239
\GameName,␣... 1238
\GFG,␣... 2033
\GoTo,␣... 2144

H

\H 1693
\hstset 1251, 1252, 1253, 1255, 1832, 1833, 1834, 1836
\HstSet,␣... . . . . 1250, 1831
\hstsym 1250, 1252, 1254, 1256, 1831, 1833, 1835, 1837
\hypersetup 235
\hypref@false 33
\hypref@true 32

I

\ie 824
\if 148, 150, 159
\if@twocolumn 132, 269
\ifalg@ 121, 2129
\ifamsdef@ 16, 209
\ifamsthm@ 20, 217
\ifaut@ 93, 2019
\ifaux@ 11, 207
\ifchgbar@ 44, 262
\ifcom@ 77, 1146
\ifcrv@ 40, 252
\ifcsdef 132
\ifdef 285, 286, 287, 288
\ifenmtls@ 28, 227
\iff 857
\iffig@ 105, 2100
\iffnttls@ 36, 247
\iffrm@ 99, 2093
\ifgam@ 83, 1199
\ifhypref@ 32, 232
\iflinnum@ 48, 267
\iflog@ 88, 1344
\ifmth@ 71, 871
\ifmthgen@ 59, 583
\iftab@ 115, 2122
\ifthmtls@ 24, 222
\iftxt@ 66, 807
\iftxtgen@ 53, 528
\ifwrpfig@ 110, 2113
\iht 858
\implied,␣... 884
\implies,␣... 880
\inf,␣\sup 1126
\infty . . . 1051, 1055, 1057, 1059, 1063, 1065, 1067, 1071, 1073, 1075, 1079
\interdisplaylinepenalty 214
\intfun 1280, 1281
\intFun,␣\outFun 1280
\itr 171, 172, 173, 175, 176, 177

K

\kern 1030
\krpstr 1614, 1615
\KrpStr,␣... 1614

L

\laallsym 1489, 1490
\labFun 1623
\labsym 1623, 1624
\lallsym 1377, 1378
\Lambda 2080
\lambda 1623
\land 1367
\LangFun 2060
\langfun 2060, 2061
\langle 952, 953, 956, 957, 964, 965, 968, 969, 1606, 1797
\LaTex 737, 744
\lbrace 980, 982, 988, 990
\lceil 1113, 1115
\lcoisym 1373, 1374
\LCon,␣\LDis 1367
\lconsym 1367, 1368
\ldissym 1369, 1370
\LEExs,␣\LAAll 1487
\leexssym 1487, 1488
\left 421, 445, 905, 928, 932, 936, 940, 944, 948, 952, 956, 960, 964, 968, 972, 980, 988, 996, 1002, 1095, 1101, 1107, 1113, 1136, 1612, 1799
\Leftarrow 885, 887
\Leftrightarrow 889, 891
\leftrightarrow 1373
\len 1131
\Let 2138
\let 1692, 1693, 1694
\LExs,␣\LAll 1375
\lexssym 1375, 1376
\lfloor 1107, 1109
\liftFun 1288
\liftfun 1288, 1289
\LImp,␣\LCoi 1371
\limpsym 1371, 1372
\linenumbers 270, 272
\linnum@false 48
\linnum@true 49
\llbracket 905, 907
\llcorner 1029
\LNeg,␣\LNot 1363
\lnegsym 1363, 1364
\lnotsym 1365, 1366
\log@false 56, 62, 88, 90
\log@true 89
\logsig 1357, 1358
\LogSig,␣... 1357
\LogSpace,␣... 1177
\logstr 1401, 1402
\LogStr,␣... 1401
\LogTime,␣... 1176
\lor 1369
\lowercase 665, 667
\lVert 1101, 1103

\lvert ... 1002, 1004, 1095, 1097, 1134, 1136, 1138

M

\Macro,␣... 2135
\mathaccent 920
\mathbbo 285
\mathbin 739
\mathcal 585
\matheus 286, 611
\mathfrak 637
\mathit 669, 763, 790
\mathnormal 708
\mathop 738
\mathpzc 287, 624
\mathrel 745, 1029
\mathring 912
\mathrm 650
\mathscr 288, 598
\mathsf 682, 750, 777
\mathtt 695
\maxsym 1330, 1331
\MaxSym,␣\MinSym 1330
\MC,␣\GMC,␣... 1630
\mdseries 367, 555, 567
\MFO 1417
\MFOL 1415
\middle 980
\MIf,␣... 2147
\min,␣\max,␣... 1122
\minsym 1332, 1333
\ML,␣\GML,␣... 1583
\models 894, 896
\movFun 1829
\MovRel 1236
\movrel 1236, 1237
\movsym 1829, 1830
\MPL 1570, 1575, 1579
\MSO 1512, 1519, 1525
\MSOL 1510, 1517, 1523
\mth 469, 905, 907, 910, 912, 914, 916, 920, 922, 924, 925, 928, 929, 932, 933, 936, 937, 940, 941, 944, 945, 948, 949, 952, 953, 956, 957, 960, 961, 964, 965, 968, 969, 972, 973, 980, 982, 988, 990, 996, 998, 1002, 1004, 1006, 1009, 1024, 1082, 1084, 1086, 1088, 1090, 1095, 1097, 1101, 1103, 1107, 1109, 1113, 1115, 1130, 1134, 1136, 1138, 1188, 1189, 1190, 1191, 1192, 1193, 1604, 1606, 1610, 1612, 1797, 1799
\mth@false 62, 71, 73
\mth@true 72
\mtharg 471
\mthcls,␣... 610
\mthelm,␣... 707
\mthfam,␣... 597
\mthfrm,␣... 762
\mthfun,␣... 681
\mthgen@false 59, 62
\mthgen@true 60, 72, 84, 89, 94
\mthlbop 875, 876, 878, 1017, 1019, 1021
\mthlrel 744, 881, 883, 885, 887, 889, 891, 894, 896, 898, 900
\mthluop,␣... 737
\mthmat,␣... 776
\mthname,␣... 584
\mthoarg 473
\mthopar 477
\mthpar 475
\mthrel,␣... 668
\mthset 1045, 1047, 1049, 1053, 1061, 1069, 1077
\mthset,␣... 649
\mthsig,␣... 623
\mthsnt,␣... 749
\mthstr,␣... 636
\mthsty 470, 472, 474, 476, 478, 479
\mthstycls 611
\mthstyelm 708
\mthstyfam 598
\mthstyfrm 763
\mthstyfun 682
\mthstylbop 739
\mthstylrel 745
\mthstyluop 738
\mthstymat 777
\mthstyname 585
\mthstyrel 669
\mthstyset 650
\mthstysig 624
\mthstysnt 750
\mthstystr 637
\mthstysym 695
\mthstyvec 790
\mthsubsup 409, 411, 466
\mthsym,␣... 694
\mthvec,␣... 789
\MTL 1547, 1552, 1556
\mu 1631
\Mutatismutandis 842
\mutatismutandis 825

N

\naif 849
\naive 850
\neg 1363
\newcommandx 295, 297, 301, 303, 307, 309, 313, 315, 319, 321, 325, 327, 331, 333, 337, 339, 343, 345, 349, 351, 397, 408, 410, 414, 416, 420, 422, 426, 428, 432, 434, 438, 440, 444, 446, 450, 452, 456, 458, 462, 464, 500, 506, 508, 510, 512, 514, 516, 518, 520, 522, 531, 533, 535, 537, 539, 543, 545, 547, 549, 551, 556, 558, 560, 562, 564, 568, 570, 572, 574, 576, 587, 589, 591, 593, 595, 600, 602, 604, 606, 608, 613, 615, 617, 619, 621, 626, 628, 630, 632, 634, 639, 641, 643, 645, 647, 652, 654, 656, 658, 660, 662, 671, 673, 675, 677, 679, 684, 686, 688, 690, 692, 697, 699, 701, 703, 705, 710, 712, 714, 716, 718, 721, 724, 727, 730, 733, 740, 742, 746, 752, 754, 756, 758, 760, 765, 767, 769, 771, 773, 779, 781, 783, 785, 787, 792, 794, 796, 798, 800, 1147, 1149, 1152, 1158, 1163, 1165
\newif 11, 16, 20, 24, 28, 32, 36, 40, 44, 48, 53, 59, 66, 71, 77, 83, 88, 93, 99, 105, 110, 115, 121, 132
\newmth 406, 415, 417, 421, 423, 445, 447
\newmtharg 418, 427, 429, 433, 435
\newmthargsty 424, 472, 487
\newmthoarg 430, 439, 441
\newmthoargsty 436, 474, 490
\newmthopar 454, 463, 465
\newmthoparsty 460, 478, 496
\newmthpar 442, 451, 453, 457, 459
\newmthparsty 448, 476, 493
\newmthsty 412, 470, 484
\newtxt 293, 302, 304, 308, 310, 332, 334
\newtxtarg 305, 314, 316, 320, 322
\newtxtargsty 311, 359, 377, 378
\newtxtoarg 317, 326, 328
\newtxtoargsty 323, 361, 382, 383
\newtxtopar 341, 350, 352
\newtxtoparsty 347, 365, 392, 393
\newtxtpar 329, 338, 340, 344, 346
\newtxtparsty 335, 363, 387, 388
\newtxtsty 299, 357, 372, 373
\NGSL 1973, 1977, 1979
\nlr 2148
\nlset 2150
\noexpand 173, 177
\normalfont 298, 530, 555, 567
\not 883, 887, 891, 896, 900
\notcequiv 899
\notcmodels 895
\notcoimplies 890
\notimplied 886
\notimplies 882
\num,␣... 1081
\numcc 1083
\numco 1085
\numoc 1087
\numoo 1089
\nxtFun 2012

\nxtfun 2012, 2013

O

\obsset 1242, 1243
\ObsSet,␣\obsFun 1242
\oddsym 1313, 1314
\odot 1386
\OGSL . . . 1871, 1875, 1877, 1880
\Omega 1038
\omega 1037
\Omicron 1042
\omicron 138, 1041
\oplus 1330
\OppSym 1232, 1233, 1255, 1256, 1267, 1268, 1814, 1815, 1836, 1837, 1848, 1849
\oppsym 1221, 1222
\Opr 1598
\outfun 1282, 1283
\overline 910, 922

P

\P 1692
\PackageWarning 126
\PDL,␣\CTL,␣... 1698
\Percontra 843
\percontra 826
\PH 1185
\Pi 1192, 1193, 1489
\pi 1246, 1258, 1625, 1839
\playset 1259, 1260, 1840, 1841
\PlaySet,\playFun . 1258, 1839
\playsym 1258, 1260, 1839, 1841
\PlrFun 1234
\plrfun 1234, 1235
\PlrSym 1230, 1231, 1253, 1254, 1265, 1266, 1812, 1813, 1834, 1835, 1846, 1847
\plrsym 1219, 1220
\PlrSym,␣\OppSym 1219
\pm 1055, 1063, 1071
\posset 1226, 1227, 1230, 1232, 1808, 1809, 1812, 1814
\PosSet,␣... . . . . 1225, 1807
\possym 1225, 1227, 1228, 1229, 1231, 1233, 1807, 1809, 1810, 1811, 1813, 1815
\pow 1005
\prefun 1272, 1273
\preFun,␣\sucFun 1272
\prfset . 1270, 1271, 1851, 1852
\PrfSet,␣\prfFun . . 1269, 1850
\prfsym . 1269, 1271, 1850, 1852
\Primafacie 844
\primafacie 827
\prj 1016
\ProcessOptions 130
\providecommand 1625, 1626, 1807, 1808, 1831, 1832, 1839, 1840, 1843, 1844, 1850, 1851
\prtset 1316, 1317
\PrtSet,␣\prtFun 1315
\prtsym 1315, 1317
\psn 2010
\PSpace,␣... 1179
\pthset . 1247, 1248, 1626, 1627
\PthSet,␣\pthFun . . 1246, 1625
\pthsym . 1246, 1248, 1625, 1627
\PTime,␣... 1178
\PTL,␣\LTL,␣... 1664
\pto,␣\pmapsto 1026

Q

\QAE,␣\QEA 1387
\QAFMC 1654
\QATL 1759
\QATLP 1774
\QATLS 1789
\QCTL 1710
\QCTLP 1725
\QCTLS 1740
\QLTL 1679
\QMC 1638
\QML 1591
\qntset 1390, 1391
\QntSet,␣... 1389
\qntsym 1389, 1391
\QPSpace,␣... 1181
\QPTime,␣... 1180
\QPTL 1668

R

\raisebox 1029
\rangle 952, 953, 960, 961, 964, 965, 972, 973, 1606, 1797
\rbrace 980, 982, 996, 998
\rceil 1113, 1115
\rchfun 1286, 1287
\relax 130
\relset 1449, 1450
\relsig 1446, 1447
\RelSig,␣... 1446
\relstr 1460, 1461
\RelStr,␣... 1460
\relsym 1448, 1450
\RequirePackage 3, 5, 6, 7, 211, 212, 213, 219, 224, 229, 234, 249, 264, 270, 272, 2101, 2115, 2130
\resp 860
\rfloor 1107, 1109
\rho 1250, 1831
\right 421, 445, 905, 928, 932, 936, 940, 944, 948, 952, 956, 960, 964, 968, 972, 980, 988, 996, 1002, 1095, 1101, 1107, 1113, 1136, 1612, 1799
\Rightarrow 881, 883
\rightarrow 1371
\rightharpoonup . . 1027, 1030
\rmfamily 367, 567
\Role 853
\role 851
\rrbracket 905, 907
\rst 1018
\rVert 1101, 1103
\rvert . . . 1002, 1004, 1095, 1097, 1134, 1136, 1138

S

\S 1694
\SATG,␣... 1201
\SaveDoubleAcute 1693
\SavePilcrow 1692
\SaveSectionSymbol 1694
\scshape 555, 567
\seqofcmd 174, 187, 191
\seqofgrklet 194, 517
\seqofgrklow 186, 195, 198, 513, 625, 638
\seqofgrkupp 190, 195, 200, 515
\seqoflatlet 183, 511, 625, 638
\seqoflatlow 179, 184, 198, 507
\seqoflatupp 181, 184, 200, 509, 586, 599, 612
\seqoflet 201, 523, 651, 670, 683, 696, 709, 751, 764, 778, 791
\seqoflow 197, 202, 519
\seqoftag 170, 180, 182
\seqofupp 199, 202, 521
\sequence,␣... 926
\sequencel 930
\sequencer 934
\sequencex 938
\sequencexl 942
\sequencexr 946
\set,␣... 975
\SetB 1044
\SetC,␣... 1076
\SetCI 1078
\SetF 1046
\SetInd 2132
\SetKw 2134, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146
\SetKwFor 2135, 2136, 2137, 2138
\SetKwIF 2147
\setl 983
\setlength 2133
\setlx 985
\SetN,␣... 1048
\SetNI 1050
\SetQ,␣... 1060
\SetQI 1062
\SetQNI 1066
\SetQPI 1064
\setr 991
\SetR,␣... 1068
\SetRI 1070
\SetRNI 1074
\SetRPI 1072
\setrx 993
\setx 977

\SetZ,␣... 1052
\SetZI 1054
\SetZNI 1058
\SetZPI 1056
\sffamily 555
\Sigma 1190, 1191, 1487, 2055
\sigma 1262, 1843, 2054
\Signature 2134
\sim 1365
\skm 1452
\SL,␣... 1854
\SO 1501, 1507, 1513
\SOL,␣... 1493
\solFun 1290
\solfun 1290, 1291
\Space,␣... 1175
\stackrel 875
\strset 1263, 1264, 1265, 1267, 1844, 1845, 1846, 1848
\StrSet,␣... 1262, 1843
\strsym 1262, 1264, 1266, 1268, 1843, 1845, 1847, 1849
\sttset 1817, 1818, 1819, 1821, 2048, 2049, 2050, 2052
\SttSet,␣... 1816, 2047
\sttsym 1816, 1818, 1820, 1822, 2047, 2049, 2051, 2053
\stx 859
\sub 1383
\sucfun 1274, 1275
\svarset 1531, 1532
\SVarSet,␣... 1530
\svarsym 1530, 1532
\symset 2055, 2056
\SymSet,␣... 2054
\symsym 2054, 2056

T

\tab@false 115, 117
\tab@true 116
\tau 1829
\TAutSet 2077
\tautset 2077, 2078
\terset 1443, 1444
\tersig 1440, 1441
\TerSig,␣... 1440
\terstr 1458, 1459
\TerStr,␣... 1458
\tersym 1442, 1444
\text 296, 354, 875
\textstyle 738, 739
\textup 875
\thestring 664, 665, 666, 667
\Theta 1040
\theta 1039
\thmtls@false 25
\thmtls@true 24
\tikzstyle 2103, 2105, 2107, 2109, 2111
\Time,␣... 1174
\TL,␣\PL,␣... 1535
\top 1359
\treeset 2084, 2085
\TreeSet,␣... 2083
\treesym 2083, 2085
\triangleq 876
\trn 915
\trnFun 2057
\trnsym 2057, 2058
\True,␣\False 2139
\Tt,␣\Ff 1359
\ttsym 1359, 1360
\tuple,␣... 950
\tuplel 954
\tupler 958
\tuplex 962
\tuplexl 966
\tuplexr 970
\txt 356
\txt@false 56, 66, 68
\txt@true 67
\txtabr,␣... 541
\txtarg 358
\txtcom,␣... 566
\txtdef,␣... 529
\txtgen@false 53, 56
\txtgen@true ... 54, 67, 78, 84, 89, 94
\txtname 1351, 1416, 1418, 1499, 1501, 1505, 1507, 1511, 1513, 1517, 1519, 1523, 1525, 1540, 1544, 1548, 1552, 1556, 1563, 1567, 1571, 1575, 1579, 1588, 1592, 1635, 1639, 1647, 1651, 1655, 1669, 1680, 1707, 1711, 1722, 1726, 1737, 1741, 1756, 1760, 1771, 1775, 1786, 1790, 1863, 1880, 1897, 1914, 1931, 1948, 1965, 1982, 1999
\txtname,␣... 554
\txtoarg 360
\txtoargcom 1148, 1164
\txtopar 364
\txtoparcom 1166
\txtpar 362
\txtsty 357, 359, 361, 363, 365, 366
\txtstyabr 542
\txtstycom 567
\txtstydef 530
\txtstyname 555
\txtsubsup 296, 298, 353

U

\UAFMC 1658
\UAGSL 1927
\UATL 1763
\UATLP 1778
\UATLS 1793
\UBF 1354
\UBGSL 1961
\UCGSL 1893
\UCTL 1714
\UCTLP 1729
\UCTLS 1744
\UDGSL 1910
\UEGSL 1944
\UFAGSL 1935
\UFBGSL 1969
\UFCGSL 1901
\UFDGSL 1918
\UFEGSL 1952
\UFNGSL 1986
\UFOGSL 1884
\UFSL 1867
\UFXGSL 2003
\ULH,␣\UBH 1192
\ULTL 1683
\UMC 1642
\UML 1595
\UNGSL 1978
\UOGSL 1876
\upharpoonright 1019
\upshape 367
\UPTL 1672
\usetikzlibrary 2102
\USL 1859
\usrmth 500, 507, 509, 511, 513, 515, 517, 519, 521, 523, 588, 590, 592, 594, 596, 601, 603, 605, 607, 609, 614, 616, 618, 620, 622, 627, 629, 631, 633, 635, 640, 642, 644, 646, 648, 653, 655, 657, 659, 661, 672, 674, 676, 678, 680, 685, 687, 689, 691, 693, 698, 700, 702, 704, 706, 711, 713, 715, 717, 719, 741, 743, 747, 753, 755, 757, 759, 761, 766, 768, 770, 772, 774, 780, 782, 784, 786, 788, 793, 795, 797, 799, 801, 1011, 1012, 1013, 1014, 1032, 1033, 1034, 1035, 1037, 1038, 1039, 1040, 1041, 1042, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1139, 1140, 1360, 1362, 1364, 1366, 1368, 1370, 1372, 1374, 1376, 1378, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1392, 1393, 1394, 1395, 1425, 1426, 1432, 1438, 1439, 1445, 1451, 1452, 1488, 1490, 1598, 1599, 1600, 1686, 1687, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1747, 1748, 2009, 2010
\usrmthgrklet 516

\usrmthgrklow 512
\usrmthgrkupp 514
\usrmthlatlet 510
\usrmthlatlow 506
\usrmthlatupp 508, 1224, 1239, 1358, 1402, 1421, 1428, 1434, 1441, 1447, 1455, 1457, 1459, 1461, 1615, 1803, 2042
\usrmthlet 522, 664, 666
\usrmthlow 518
\usrmthupp 520
\usrtxt 397, 532, 534, 536, 538, 540, 544, 546, 548, 550, 552, 557, 559, 561, 563, 565, 569, 571, 573, 575, 577
\UXGSL 1995

V

\valset 1404, 1405
\ValSet,␣... 1403
\valsym 1403, 1405
\varcmd 161, 924, 925, 928, 929, 932, 933, 936, 937, 940, 941, 944, 945, 948, 949, 952, 953, 956, 957, 960, 961, 964, 965, 968, 969, 972, 973
\varepsilon 1130
\varnothing 1009, 1024
\varset 1423, 1424
\varsig 1420, 1421
\VarSig,␣... 1420
\varsym 1422, 1424
\vec 917
\vert 976, 984
\Viceversa 845
\viceversa 828
\viz 830
\vs 829

W

\WATL 1755
\WATLP 1770
\WATLS 1785
\WAutSet 2045
\wautset 2045, 2046
\WCTL 1706
\WCTLP 1721
\WCTLS 1736
\wghset 1335, 1336
\WghSet,␣\wghFun 1334
\wghsym 1334, 1336
\WH 1186
\widehat 914
\widetilde 916
\WinSet 1240
\winset 1240, 1241
\Wlogx 865
\wlogx 862
\WMPL 1574
\WMSO 1518
\WMSOL 1516
\WMTL 1551
\wotFun 2086
\wotfun 2086, 2087
\wp 1389
\WPL 1562
\wrdset 2063, 2064
\WrdSet,␣... 2062
\wrdsym 2062, 2064
\wrlset 1617, 1618
\WrlSet,␣... 1616
\wrlsym 1616, 1618, 1619
\wrpfig@false 111
\wrpfig@true 110
\wrt 861
\WSO 1500
\WSOL 1498
\WTL 1539

X

\X,␣... 1686
\XGSL 1990, 1994, 1996
\xGSL 1897, 1914, 1931, 1948, 1965, 1982, 1999
\xi 1269, 1403, 1850
\xspace 296, 298

Y

\Y,␣... 1691