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 v0.30 of the fmocdmac package, last revised 2024/04/20.

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

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

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

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


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

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


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

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


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


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

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

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

%% Macros for automata
```

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


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


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

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


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


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

```

Option-processing code:

```

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

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

\ProcessOptions\relax%

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

```

Package main body:

```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

\seqoflow **Sequence of lowercase letters:** `\seqoflow{`$\langle A\rangle$`}{`$\langle B\rangle$`}` ... to do!

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

\seqofupp **Sequence of uppercase letters:** `\seqofupp{`$\langle A\rangle$`}{`$\langle B\rangle$`}` ... to do!

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

\seqoflet **Sequence of all letters:** `\seqoflet{`$\langle A\rangle$`}{`$\langle B\rangle$`}` ... to do!

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

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

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

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

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

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

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

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

\ifcrv@
```

```
  % Camera-Ready Version

  %%...

\else
  % Draft Version

  %%...

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

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

  %%...

\fi

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

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

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

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

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

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

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

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

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

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

`\newtxt` ... to do!

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

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

`\newtxtsty` ... to do!

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

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

`\newtxtarg` ... to do!

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

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

`\newtxtargsty` ... to do!

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

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

`\newtxtoarg` ... to do!

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

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

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

`\newtxtoargsty` ... to do!

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

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

`\newtxtpar` ... to do!

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

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

`\newtxtparsty` ... to do!

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

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

`\newtxtopar` ... to do!

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

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

`\newtxtoparsty` ... to do!

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

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

`\txtsubsup` ... to do!

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

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

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

`\txt` ... to do!

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

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

`\txtarg` ... to do!

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

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

`\txtoarg` ... to do!

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

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

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

`\txtpar` ... to do!

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

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

`\txtopar` ... to do!

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

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

`\txtsty` ... to do!

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

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

`\cmdtxt` ... to do!

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

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

`\cmdtxtarg` ... to do!

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

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

`\cmdtxtoarg` ... to do!

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

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

`\cmdtxtpar` ... to do!

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

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

`\cmdtxtopar` ... to do!

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

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

`\cmdtxtall` ... to do!

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

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

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

`\usrtxt` ... to do!

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

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

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

`\newmth` ... to do!

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

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

`\newmthsty` ... to do!

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

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

`\newmtharg` ... to do!

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

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

`\newmthargsty` ... to do!

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

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

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

`\newmthoarg` ... to do!

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

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

`\newmthoargsty` ... to do!

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

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

`\newmthpar` ... to do!

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

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

`\newmthparsty` ... to do!

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

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

`\newmthopar` ... to do!

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

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

`\newmthoparsty` ... to do!

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

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

\mthsubsup ... to do!

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

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

\mth ... to do!

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

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

\mtharg ... to do!

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

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

\mthoarg ... to do!

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

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

\mthpar ... to do!

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

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

\mthopar ... to do!

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

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

\mthsty ... to do!

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

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

\cmdmth ... to do!

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

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

\cmdmtharg ... to do!

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

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

\cmdmthoarg ... to do!

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

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

\cmdmthpar ... to do!

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

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

\cmdmthopar ... to do!

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

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

`\cmdmthall` ... to do!

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

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

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

`\usrmth` ... to do!

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

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

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

`\usrmthlatlow` ... to do!

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

`\usrmthlatupp` ... to do!

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

`\usrmthlatlet` ... to do!

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

\usrmthgrklow ... to do!

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

\usrmthgrkupp ... to do!

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

\usrmthgrklet ... to do!

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

\usrmthlow ... to do!

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

\usrmthupp ... to do!

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

\usrmthlet ... to do!

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

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

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

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

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

\cmdtxtdef ... to do!

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

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

\cmdtxtargdef ... to do!

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

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

\cmdtxtoargdef ... to do!

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

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

`\cmdtxtpardef` ... to do!

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

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

`\cmdtxtopardef` ... to do!

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

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

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

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

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

`\cmdtxtabr` ... to do!

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

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

`\cmdtxtargabr` ... to do!

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

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

`\cmdtxtoargabr` ... to do!

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

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

`\cmdtxtparabr` ... to do!

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

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

\cmdtxtoparabr ... to do!

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

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

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

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

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

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

\cmdtxtname ... to do!

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

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

\cmdtxtargname ... to do!

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

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

\cmdtxtoargname ... to do!

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

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

\cmdtxtparname ... to do!

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

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

\cmdtxtoparname ... to do!

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

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

`\txtcom` ... to do!

`\txtargcom`

`\txtparcom`

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

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

`\cmdtxtcom` ... to do!

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

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

`\cmdtxtargcom` ... to do!

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

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

`\cmdtxtoargcom` ... to do!

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

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

`\cmdtxtparcom` ... to do!

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

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

`\cmdtxtoparcom` ... to do!

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

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

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

\mthname ... to do!

\mthargname

\mthparname

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

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

\AName ... to do!

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

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

\cmdmthname ... to do!

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

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

\cmdmthargname ... to do!

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

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

\cmdmthoargname ... to do!

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

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

\cmdmthparname ... to do!

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

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

\cmdmthoparname ... to do!

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

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

\mthfam ... to do!

\mthargfam

\mthparfam

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

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

`\AFam` ... to do!

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

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

`\cmdmthfam` ... to do!

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

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

`\cmdmthargfam` ... to do!

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

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

`\cmdmthoargfam` ... to do!

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

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

`\cmdmthparfam` ... to do!

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

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

`\cmdmthoparfam` ... to do!

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

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

`\mthcls` ... to do!

`\mthargcls`
`\mthparcls`

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

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

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

`\ACls` ... to do!

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

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

`\cmdmthcls` ... to do!

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

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

`\cmdmthargcls` ... to do!

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

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

`\cmdmthoargcls` ... to do!

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

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

`\cmdmthparcls` ... to do!

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

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

`\cmdmthoparcls` ... to do!

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

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

`\mthsig` ... to do!

`\mthargsig`
`\mthparsig`

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

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

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

`\aSig` ... to do!

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

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

`\cmdmthsig` ... to do!

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

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

`\cmdmthargsig` ... to do!

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

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

`\cmdmthoargsig` ... to do!

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

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

`\cmdmthparsig` ... to do!

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

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

`\cmdmthoparsig` ... to do!

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

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

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

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

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

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

`\aStr` ... to do!

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

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

`\cmdmthstr` ... to do!

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

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

`\cmdmthargstr` ... to do!

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

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

`\cmdmthoargstr` ... to do!

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

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

`\cmdmthparstr` ... to do!

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

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

`\cmdmthoparstr` ... to do!

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

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

`\mthset` ... to do!

`\mthargset`
`\mthparset`

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

- `\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}
\DeclareRobustCommand{\mthstyset}{\mathrm}
```

`\aSet` ... to do!

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

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

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

`\cmdmthset` ... to do!

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

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

`\cmdmthargset` ... to do!

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

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

`\cmdmthoargset` ... to do!

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

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

`\cmdmthparset` ... to do!

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

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

`\cmdmthoparset` ... to do!

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

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

\cmdmthsetext ... to do!

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

\mthrel ... to do!

\mthargrel

\mthparrel

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

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

\aRel ... to do!

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

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

\cmdmthrel ... to do!

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

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

\cmdmthargrel ... to do!

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

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

\cmdmthoargrel ... to do!

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

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

\cmdmthparrel ... to do!

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

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

\cmdmthoparrel ... to do!

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

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

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

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

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

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

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

\cmdmthfun ... to do!

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

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

\cmdmthargfun ... to do!

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

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

\cmdmthoargfun ... to do!

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

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

\cmdmthparfun ... to do!

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

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

\cmdmthoparfun ... to do!

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

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

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

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

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

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

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

\cmdmthsym ... to do!

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

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

\cmdmthargsym ... to do!

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

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

\cmdmthoargsym ... to do!

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

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

\cmdmthparsym ... to do!

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

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

\cmdmthoparsym ... to do!

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

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

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

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

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

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

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

\cmdmthelm ... to do!

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

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

\cmdmthargelm ... to do!

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

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

\cmdmthoargelm ... to do!

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

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

\cmdmthparelm ... to do!

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

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

\cmdmthoparelm ... to do!

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

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

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

\cmdmthsymelm ... to do!

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

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

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

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

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

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

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

\mthluop ... to do!
\mthlbop

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

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

\cmdmthluop ... to do!
\cmdmthlbop

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

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

\mthlrel ... to do!

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

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

\cmdmthlrel ... to do!

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

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

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

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

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

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

\aSnt ... to do!

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

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

\cmdmthsnt ... to do!

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

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

\cmdmthargsnt ... to do!

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

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

\cmdmthoargsnt ... to do!

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

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

\cmdmthparsnt ... to do!

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

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

\cmdmthoparsnt ... to do!

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

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

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

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

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

`\aFrm` ... to do!

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

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

`\cmdmthfrm` ... to do!

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

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

`\cmdmthargfrm` ... to do!

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

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

`\cmdmthoargfrm` ... to do!

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

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

`\cmdmthparfrm` ... to do!

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

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

`\cmdmthoparfrm` ... to do!

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

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

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

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

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

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

`\aMat` ... to do!

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

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

`\cmdmthmat` ... to do!

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

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

`\cmdmthargmat` ... to do!

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

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

`\cmdmthoargmat` ... to do!

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

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

`\cmdmthparmat` ... to do!

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

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

`\cmdmthoparmat` ... to do!

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

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

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

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

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

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

\aVec ... to do!

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

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

\cmdmthvec ... to do!

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

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

\cmdmthargvec ... to do!

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

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

\cmdmthoargvec ... to do!

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

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

\cmdmthparvec ... to do!

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

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

\cmdmthoparvec ... to do!

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

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

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

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

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

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

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

\adhoc • \adhoc = *ad hoc*

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

\afortiori • \afortiori = *a fortiori*

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

\apriori • \apriori = *a priori*

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

\aposteriori • \aposteriori = *a posteriori*

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

\cf • \cf = *cf.*

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

\dedicto • \dedicto = *de dicto*

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

\defacto • \defacto = *de facto*

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

\dere • \dere = *de re*

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

\divideetimpera • \divideetimpera = *divide et impera*

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

\eg • \eg = *e.g.*

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

\ergo • \ergo = *ergo*

```
\cmdtxtabr{ergo}
```

\errata • \errata = *errata*

```
\cmdtxtabr{errata}
```

\erratum • \erratum = *erratum*

```
\cmdtxtabr{erratum}
```

\etal • \etal = *et al.*

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

\etc • \etc = *etc.*

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

\ie • \ie = *i.e.*

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

\mutatismutandis • \mutatismutandis = *mutatis mutandis*

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

\percontra • \percontra = *per contra*

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

\primafacie • \primafacie = *prima facie*

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

\viceversa • \viceversa = *vice versa*

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

\vs • \vs = *vs.*

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

\viz • \viz = *viz.*

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

```
867 %%*****************************************************************************%%
```

\Afortiori • \Afortiori = *A fortiori*

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

\Apriori • \Apriori = *A priori*

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

\Aposteriori • \Aposteriori = *A posteriori*

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

\Dedicto • \Dedicto = *De dicto*

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

\Defacto • \Defacto = *De facto*

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

\Dere • \Dere = *De re*

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

\Divideetimpera • \Divideetimpera = *Divide et impera*

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

\Eg • \Eg = *E.g.*

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

\Errata • \Errata = *Errata*

```
876 \cmdtxtabr{Errata}
```

\Erratum • \Erratum = *Erratum*

```
877 \cmdtxtabr{Erratum}
```

\Mutatismutandis • \Mutatismutandis = *Mutatis mutandis*

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

\Percontra • \Percontra = *Per contra*

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

\Primafacie • \Primafacie = *Prima facie*

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

\Viceversa • \Viceversa = *Vice versa*

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

```
882 %%** Italian Abbreviations *************************************************%%
```

...

```
883 %%*****************************************************************************%%
```

...

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

\ala • \ala = *à la*

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

\naif • \naif = *naïf*

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

\naive • \naive = *naïve*

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

\role • \role = *rôle*

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

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

\Role • \Role = *Rôle*

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

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

\aka • \aka = *a.k.a.*

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

\contd • \contd = *contd.*

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

\iff • \iff = *iff*

```
\cmdtxtabr{iff}
```

\iht • \iht = *i.h.t.*

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

\stx • \stx = *s.t.*

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

\resp • \resp = *resp.*

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

\wrt • \wrt = *w.r.t.*

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

\wlogx • \wlogx = *w.l.o.g.*

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

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

\Contd • \Contd = *Contd.*

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

\Wlogx • \Wlogx = *W.l.o.g.*

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

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

```
909 %%** General Notation *************************************************%%

      \defeq ...
      \seteq  910 \DeclareRobustCommand{\defeq}
              911   {\ifstarvar%
              912     {\mthlbop{\stackrel{\text{\textup{def}}}{=}}%
              913     {\mthlbop{\triangleq}}}
              914 \DeclareRobustCommand{\seteq}
              915   {\ifstarvar{\mthlbop{\Coloneqq}}{\mthlbop{\coloneqq}}}
              916 %%***************************************************************************%%

       \limp ...
     \lcoimp  917 \DeclareRobustCommand{\limp}
              918   {\mthlbop{\rightarrow}}
              919 \DeclareRobustCommand{\lcoimp}
              920   {\mthlbop{\leftrightarrow}}
              921 %%***************************************************************************%%

    \implies ...
 \notimplies  922 \DeclareRobustCommand{\implies}
              923   {\mthlrel{\Rightarrow}}
              924 \DeclareRobustCommand{\notimplies}
              925   {\mthlrel{\not\Rightarrow}}

    \implied ...
 \notimplied  926 \DeclareRobustCommand{\implied}
              927   {\mthlrel{\Leftarrow}}
              928 \DeclareRobustCommand{\notimplied}
              929   {\mthlrel{\not\Leftarrow}}

   \coimplies ...
\notcoimplies 930 \DeclareRobustCommand{\coimplies}
              931   {\mthlrel{\Leftrightarrow}}
              932 \DeclareRobustCommand{\notcoimplies}
              933   {\mthlrel{\not\!\Leftrightarrow}}
              934 %%***************************************************************************%%

    \cmodels ...
 \notcmodels  935 \DeclareRobustCommand{\cmodels}
              936   {\mthlrel{\models}}
              937 \DeclareRobustCommand{\notcmodels}
              938   {\mthlrel{\not\models}}

     \cequiv ...
  \notcequiv  939 \DeclareRobustCommand{\cequiv}
              940   {\mthlrel{\equiv}}
              941 \DeclareRobustCommand{\notcequiv}
              942   {\mthlrel{\not\equiv}}
              943 %%***************************************************************************%%

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

              950 %%***************************************************************************%%
```

```
\dual ...
 \adj
 \der
 \trn
\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}
  {\ifstarvar{\@svec}{\@vec}}
\DeclareRobustCommand{\@vec}[1]
  {\mth{\mathaccent"017E{#1}}}
\DeclareRobustCommand{\@svec}[1]
  {\mth{\overline{#1}}}

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

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

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

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

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

\set ...

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

\card ...

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

```
1063 \DeclareRobustCommand{\@ecard}[1]
1064   {\mth!{\argmid{\lvert}{#1}{\rvert}}}

\pow ...
1065 \DeclareRobustCommand{\pow}
1066   {\ifstarvar{\@spow}{\@pow}}
1067 \DeclareRobustCommand{\@pow}[1]
1068   {\mth{2^{\defval{#1}{\cdot}}}}
1069 \DeclareRobustCommand{\@spow}
1070   {\ifexclavar{\@e@spow}{\@@spow}}
1071 \DeclareRobustCommand{\@e@spow}[1]
1072   {\mthargfun![mathscr]{P}{\defval{#1}{\cdot}}}
1073 \DeclareRobustCommand{\@@spow}[1]
1074   {\mthargfun[mathscr]{P}{\defval{#1}{\cdot}}}

1075 %%** Relations ********************************************************%%

\emptyrel ...
1076 \DeclareRobustCommand{\emptyrel}
1077   {\mth{\varnothing}}

1078 %%*************************************************************************%%

\dom ...
\cod 1079 \usrmth{dom}{}{argfun}
\rng 1080 \usrmth{cod}{}{argfun}
\img 1081 \usrmth{rng}{}{argfun}
1082 \usrmth{img}{}{argfun}

\deg ...
1083 \usrmth{deg}{}{argfun}

1084 %%*************************************************************************%%

\prj ...
1085 \DeclareRobustCommand{\prj}
1086   {\mthlbop{\downarrow}}

\rst ...
1087 \DeclareRobustCommand{\rst}
1088   {\mthlbop{\upharpoonright}}

\cmp ...
1089 \DeclareRobustCommand{\cmp}
1090   {\mthlbop{\circ}}

1091 %%** Functions ********************************************************%%

\emptyfun ...
1092 \DeclareRobustCommand{\emptyfun}
1093   {\mth{\varnothing}}

1094 %%*************************************************************************%%

\pto ...
\pmapsto 1095 \DeclareMathOperator{\pto}
1096   {\ensuremath{\rightharpoonup}}
1097 \DeclareMathOperator{\pmapsto}
1098   {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize${\llcorner}$}%
1099     \kern-1.5ex\rightharpoonup}}}
1100 %%*************************************************************************%%
```

```
     \fix ...
     \ifp 1101 \usrmth{fix}{}{fun}
     \lfp 1102 \usrmth{ifp}{}{fun}
     \gfp 1103 \usrmth{lfp}{}{fun}
          1104 \usrmth{gfp}{}{fun}
          1105 %%*************************************************************************%%

  \Aomega ...
  \AOmega 1106 \usrmth{Aomega}{}{argset}[\omega]
          1107 \usrmth{AOmega}{}{argset}[\Omega]

  \Atheta ...
  \ATheta 1108 \usrmth{Atheta}{}{argset}[\theta]
          1109 \usrmth{ATheta}{}{argset}[\Theta]

\Aomicron ...
\AOmicron 1110 \usrmth{Aomicron}{}{argset}[\omicron]
          1111 \usrmth{AOmicron}{}{argset}[\Omicron]
          1112 %%** Numbers ***********************************************************%%

    \SetB ...
          1113 \DeclareRobustCommand{\SetB}
          1114   {\mthset[mathbb]{B}}

    \SetF ...
          1115 \DeclareRobustCommand{\SetF}
          1116   {\mthset[mathbb]{F}}

    \SetN ...
   \SetNI 1117 \DeclareRobustCommand{\SetN}
          1118   {\mthset[mathbb]{N}}
          1119 \DeclareRobustCommand{\SetNI}[1][]
          1120   {\SetN[\infty #1]}

    \SetZ ...
   \SetZI 1121 \DeclareRobustCommand{\SetZ}
  \SetZPI 1122   {\mthset[mathbb]{Z}}
  \SetZNI 1123 \DeclareRobustCommand{\SetZI}[1][]
          1124   {\SetZ[\pm\infty #1]}
          1125 \DeclareRobustCommand{\SetZPI}[1][]
          1126   {\SetZ[+\infty #1]}
          1127 \DeclareRobustCommand{\SetZNI}[1][]
          1128   {\SetZ[-\infty #1]}

    \SetQ ...
   \SetQI 1129 \DeclareRobustCommand{\SetQ}
  \SetQPI 1130   {\mthset[mathbb]{Q}}
  \SetQNI 1131 \DeclareRobustCommand{\SetQI}[1][]
          1132   {\SetQ[\pm\infty #1]}
          1133 \DeclareRobustCommand{\SetQPI}[1][]
          1134   {\SetQ[+\infty #1]}
          1135 \DeclareRobustCommand{\SetQNI}[1][]
          1136   {\SetQ[-\infty #1]}

    \SetR ...
   \SetRI 1137 \DeclareRobustCommand{\SetR}
  \SetRPI 1138   {\mthset[mathbb]{R}}
  \SetRNI 1139 \DeclareRobustCommand{\SetRI}[1][]
          1140   {\SetR[\pm\infty #1]}
          1141 \DeclareRobustCommand{\SetRPI}[1][]
          1142   {\SetR[+\infty #1]}
          1143 \DeclareRobustCommand{\SetRNI}[1][]
          1144   {\SetR[-\infty #1]}
```

\SetC …

\SetCI

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

\num …

\numcc

\numco

\numoc

\numoo

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

\abs …

\norm

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

\floor …

\ceil

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

\arg …

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

\evn …

\odd

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

\bst …

\argbst

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

```
\min ...
\max 1191 \usrmth{min}{}{fun}
\argmin 1192 \usrmth{max}{}{fun}
\argmax 1193 \usrmth{argmin}{}{fun}[arg\,min]
        1194 \usrmth{argmax}{}{fun}[arg\,max]

\inf ...
\sup 1195 \usrmth{inf}{}{fun}
     1196 \usrmth{sup}{}{fun}

\gcd ...
\lcm 1197 \usrmth{gcd}{}{fun}
     1198 \usrmth{lcm}{}{fun}

     1199 %%** Sequences ********************************************************%%

\emptyseq ...
     1200 \DeclareRobustCommand{\emptyseq}
     1201   {\mth{\varepsilon}}

\len ...
     1202 \DeclareRobustCommand{\len}
     1203   {\ifexclavar{\@elen}{\@len}}
     1204 \DeclareRobustCommand{\@len}[1]
     1205   {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
     1206 \DeclareRobustCommand{\@elen}[1]
     1207   {\mth!{\argmid{\lvert}{#1}{\rvert}}}

\fst ...
\lst 1208 \usrmth{fst}{}{argfun}
     1209 \usrmth{lst}{}{argfun}

     1210 \fi
     1211 %%*************************************************************************%%

     1212 %%*************************************************************************%%
     1213 %%** Macros for Computational-Complexity Classes ************************%%
     1214 %%*************************************************************************%%
     1215 \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] = $\textsc{NewClass}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

```
     1216 \DeclareRobustCommandx{\defcomcls}[2][2=]
     1217   {\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]` = $\textsc{DCompClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClass[sub][sup][arg]` = $\textsc{CoDCompClass}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\DCompClassE[sub][sup][arg]` = $\textsc{DCompClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClassE[sub][sup][arg]` = $\textsc{CoDCompClass-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\DCompClassH[sub][sup][arg]` = $\textsc{DCompClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClassH[sub][sup][arg]` = $\textsc{CoDCompClass-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\DCompClassC[sub][sup][arg]` = $\textsc{DCompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
`\CoDCompClassC[sub][sup][arg]` = $\textsc{CoDCompClass-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

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

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

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

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

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

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

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

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

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

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

\defcomhrc ... to do!

- \defcomhrc{CompHierarchy};

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

- \defcomhrc{CompHierarchy}[NewHierarchy];

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

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

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

\Easy
\Hard
\Complete

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

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

\FPT
\FPLin
\FPQdr
\FPCub

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

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

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

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

- `\Time[sub][sup][arg]` = $\textsc{Time}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\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(E/H/C)
\DSpace(E/H/C)
\NSpace(E/H/C)
\USpace(E/H/C)
\ASpace(E/H/C)

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

```
\defcomclsgrp{Space}
```

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

- `\LogTime[sub][sup][arg]` = $\textsc{LogTime}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\LogTimeE[sub][sup][arg]` = $\textsc{LogTime-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\LogTimeH[sub][sup][arg]` = $\textsc{LogTime-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\LogTimeC[sub][sup][arg]` = $\textsc{LogTime-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
- `\DLogTime[sub][sup][arg]` = $\textsc{DLogTime}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\DLogTimeE[sub][sup][arg]` = $\textsc{DLogTime-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\DLogTimeH[sub][sup][arg]` = $\textsc{DLogTime-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\DLogTimeC[sub][sup][arg]` = $\textsc{DLogTime-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
- `\NLogTime[sub][sup][arg]` = $\textsc{NLogTime}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\NLogTimeE[sub][sup][arg]` = $\textsc{NLogTime-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\NLogTimeH[sub][sup][arg]` = $\textsc{NLogTime-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\NLogTimeC[sub][sup][arg]` = $\textsc{NLogTime-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

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

1248 `\defcomclsgrp{LogTime}`

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

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

1249 `\defcomclsgrp{LogSpace}`

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

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

1250 `\defcomclsgrp{PTime}`

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

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

1251 `\defcomclsgrp{PSpace}`

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

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

1252 `\defcomclsgrp{QPTime}`

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

- `\QPSpace[sub][sup][arg]` = $\mathrm{QPSPACE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$
  `\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]` = $\mathrm{AQPSPACE\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}(\mathrm{ARG})$

1253 `\defcomclsgrp{QPSpace}`

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

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

```
\defcomclsgrp{ExpTime}
```

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

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

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

\PH

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

```
\defcomhrc{PH}
```

\WH

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

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

\AH

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

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

\DLH

- \DLH[sub][sup][par] = $\Delta^{\text{SUP}}_{\text{SUB}}[\text{PAR}]$

\DBH

- \DBH[sub][sup][par] = $\mathbf{\Delta}^{\text{SUP}}_{\text{SUB}}[\text{PAR}]$

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

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

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

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

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

\fi
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Macros for Graphs ********************************************************%%
%%*****************************************************************************%%
\ifgrp@
%%** Syntax *******************************************************************%%
```

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

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

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

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

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

\pre ...
\suc
```
\usrmth{pre}{}{oargfun}
\usrmth{suc}{}{oargfun}

\fi
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Macros for Games **********************************************************%%
%%*****************************************************************************%%
\ifgam@
%%** Logic Games **************************************************************%%
```

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

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

%% Evaluation Games
```

```
\cmdtxtoparname{EVLG}[Evl]

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

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

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

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

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

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

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

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

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

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

\ObsSet ...
\obsFun \newcommand{\obsset}{Ob}
        \cmdmthset{Obs}[\obsset]
        \cmdmthfun{obs}
        %%** Semantics ******************************************************************%%

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

```
\PlaySet ...
\playFun 1349 \newcommand{\playsym}{\pi}
         1350 \newcommand{\playset}{Play}
         1351 \cmdmthsetext{Play}[\playset][\playsym]
         1352 \usrmth{hst}{}{argfun}

 \StrSet ...
     ... 1353 \newcommand{\strsym}{\sigma}
         1354 \newcommand{\strset}{Str}
         1355 \cmdmthsetext{Str}[\strset][\strsym]
         1356 \cmdmthset{PStr}[\strset_{\PlrSym}]
         1357 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
         1358 \cmdmthset{OStr}[\strset_{\OppSym}]
         1359 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

 \PrfSet ...
 \prfFun 1360 \newcommand{\prfsym}{\xi}
         1361 \newcommand{\prfset}{Prf}
         1362 \cmdmthsetext{Prf}[\prfset][\prfsym]

    \ent ...
    \esc 1363 \usrmth{ent}{}{oargfun}
         1364 \usrmth{esc}{}{oargfun}

    \int ...
    \out 1365 \usrmth{int}{}{oargfun}
         1366 \usrmth{out}{}{oargfun}

    \atr ...
    \rch 1367 \usrmth{atr}{}{oargfun}
         1368 \usrmth{rch}{}{oargfun}

  \lift ...
         1369 \usrmth{lift}{}{oargfun}

    \sol ...
         1370 \usrmth{sol}{}{oargfun}

         1371 %%** Qualitative Games on Graph ********************************************%%

     \BG ...
     ... 1372 %% Buchi Games
         1373 \cmdtxtoparname{BG}
         1374
         1375 %% Co-Buchi Games
         1376 \cmdtxtoparname{CG}
         1377
         1378 %% Parity Games
         1379 \cmdtxtoparname{PG}
         1380
         1381 %% Rabin Games
         1382 \cmdtxtoparname{RG}
         1383
         1384 %% Streett Games
         1385 \cmdtxtoparname{SG}
         1386
         1387 %% Muller Games
         1388 \cmdtxtoparname{MG}

         1389 %%** Syntax ************************************************************%%
```

```
\EvnSym ...
\OddSym 1390 \newcommand{\evnsym}{0}
        1391 \cmdmthsym{Evn}[\evnsym]
        1392 \newcommand{\oddsym}{1}
        1393 \cmdmthsym{Odd}[\oddsym]

\PrtSet ...
\prtFun 1394 \newcommand{\prtsym}{p}
        1395 \newcommand{\prtset}{Pr}
        1396 \cmdmthsetext{Prt}[\prtset][\prtsym]
        1397 \cmdmthfun{prt}[pr]
        1398 %%** Semantics ********************************************************%%
             ...
        1399 %%** Quantitative Games on Graph ***********************************************%%

    \EG ...
    ... 1400 %% Energy Games
        1401 \cmdtxtoparname{EG}
        1402
        1403 %% Mean-Payoff Games
        1404 \cmdtxtoparname{MPG}
        1405
        1406 %% Discounted-Payoff Games
        1407 \cmdtxtoparname{DPG}
        1408 %%** Syntax ************************************************************%%

\MaxSym ...
\MinSym 1409 \newcommand{\maxsym}{\oplus}
        1410 \cmdmthsym{Max}[\maxsym]
        1411 \newcommand{\minsym}{\boxminus}
        1412 \cmdmthsym{Min}[\minsym]

\WghSet ...
\wghFun 1413 \newcommand{\wghsym}{w}
        1414 \newcommand{\wghset}{Wg}
        1415 \cmdmthsetext{Wgh}[\wghset][\wghsym]
        1416 \cmdmthfun{wgh}[wg]
        1417 %%** Semantics ********************************************************%%
             ...
        1418 \fi
        1419 %%*****************************************************************************%%
        1420 %%*****************************************************************************%%
        1421 %%** Macros for Logics *******************************************************%%
        1422 %%*****************************************************************************%%
        1423 \iflog@
        1424 %%** Propositional Logics ***************************************************%%

    \BF ...
   \QBF 1425 % Boolean Formulae
    ... 1426 \cmdtxtoparname{BF}
        1427
        1428 % Quantified Boolean Formulae
        1429 \DeclareRobustCommand{\QBF}
        1430   {{\txtname{Q}}\BF}
        1431 \DeclareRobustCommand{\EBF}
        1432   {\ensuremath{\exists}\BF}
        1433 \DeclareRobustCommand{\UBF}
        1434   {\ensuremath{\forall}\BF}
```

```
1435 %%** Syntax ********************************************************************%%

\LogSig ...
    ... 1436 \newcommand{\logsig}{L}
        1437 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

    \Tt ...
    \Ff 1438 \newcommand{\ttsym}{\top}
        1439 \usrmth{Tt}{}{sym}[\ttsym]
        1440 \newcommand{\ffsym}{\bot}
        1441 \usrmth{Ff}{}{sym}[\ffsym]

  \LNeg ...
  \LNot 1442 \newcommand{\lnegsym}{\neg}
        1443 \usrmth{LNeg}{}{luop}[\lnegsym]
        1444 \newcommand{\lnotsym}{\sim}
        1445 \usrmth{LNot}{}{luop}[\lnotsym]

  \LCon ...
  \LDis 1446 \newcommand{\lconsym}{\land}
        1447 \usrmth{LCon}{}{lbop}[\lconsym]
        1448 \newcommand{\ldissym}{\lor}
        1449 \usrmth{LDis}{}{lbop}[\ldissym]

  \LImp ...
  \LCoi 1450 \newcommand{\limpsym}{\rightarrow}
        1451 \usrmth{LImp}{}{lbop}[\limpsym]
        1452 \newcommand{\lcoisym}{\leftrightarrow}
        1453 \usrmth{LCoi}{}{lbop}[\lcoisym]

  \LExs ...
  \LAll 1454 \newcommand{\lexssym}{\exists}
        1455 \usrmth{LExs}{}{luop}[\lexssym]
        1456 \newcommand{\lallsym}{\forall}
        1457 \usrmth{LAll}{}{luop}[\lallsym]

 \APSet ...
    ... 1458 \newcommand{\apsym}{p}
        1459 \newcommand{\apset}{AP}
        1460 \cmdmthsetext{AP}[\apset][\apsym]
        1461 \usrmth{ap}{}{argfun}

   \sub ...
        1462 \usrmth{sub}{}{argfun}

   \Cnt ...
   \Qnt 1463 \usrmth{Cnt}{}{sym}[C]
   \Sym 1464 \usrmth{Qnt}{}{sym}[Q]
        1465 \usrmth{Sym}{}{sym}[\odot]

   \QAE ...
   \QEA 1466 \usrmth{QAE}{}{sym}[\forall\exists]
        1467 \usrmth{QEA}{}{sym}[\exists\forall]

\QntSet ...
    ... 1468 \newcommand{\qntsym}{\wp}
        1469 \newcommand{\qntset}{Qn}
        1470 \cmdmthsetext{Qnt}[\qntset][\qntsym]

  \free ...
 \bound 1471 \usrmth{free}{}{argfun}
        1472 \usrmth{bound}{}{argfun}
```

```
   \dep ...
   \alt 1473 \usrmth{dep}{}{argfun}
        1474 \usrmth{alt}{}{argfun}

   \cnf ...
   \dnf 1475 \cmdtxtabr{cnf}
    ... 1476 \cmdtxtabr{dnf}
        1477 \cmdtxtabr{pnf}
        1478 \cmdtxtabr{nnf}
        1479 %%** Semantics ********************************************************%%

\LogStr ...
    ... 1480 \newcommand{\logstr}{L}
        1481 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet ...
    ... 1482 \newcommand{\valsym}{\xi}
        1483 \newcommand{\valset}{Val}
        1484 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet ...
    ... 1485 \newcommand{\asgsym}{\chi}
        1486 \newcommand{\asgset}{Asg}
        1487 \cmdmthsetext{Asg}[\asgset][\asgsym]
        1488 %%** First-Order Logics I ***************************************************%%

   \FOL ...
    ... 1489 % First-Order Logic
        1490 \cmdtxtoparname{FOL}[Fol]
        1491 \cmdtxtoparname{FO}[FO]
        1492
        1493 % Monadic First-Order Logic
        1494 \DeclareRobustCommand{\MFOL}
        1495   {{\txtname{M}}\FOL}
        1496 \DeclareRobustCommand{\MFO}
        1497   {{\txtname{M}}\FO}
        1498 %%** Syntax ************************************************************%%

\VarSig ...
    ... 1499 \newcommand{\varsig}{V}
        1500 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
        1501 \newcommand{\varsym}{x}
        1502 \newcommand{\varset}{Vr}
        1503 \cmdmthsetext{Var}[\varset][\varsym]
        1504 \usrmth{var}{}{argfun}[vr]
        1505 \usrmth{dim}{}{argfun}[dm]

\ConSig ...
    ... 1506 \newcommand{\consig}{C}
        1507 \usrmthlatupp{Con}{Sig}{sig}[\consig]
        1508 \newcommand{\consym}{c}
        1509 \newcommand{\conset}{Cn}
        1510 \cmdmthsetext{Con}[\conset][\consym]
        1511 \usrmth{con}{}{argfun}[cn]

\FunSig ...
    ... 1512 \newcommand{\funsig}{F}
        1513 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
        1514 \newcommand{\funsym}{f}
        1515 \newcommand{\funset}{Fn}
        1516 \cmdmthsetext{Fun}[\funset][\funsym]
        1517 \usrmth{fun}{}{argfun}[fn]
        1518 \usrmth{art}{}{argfun}[ar]
```

```
\TerSig ...
    ... 1519 \newcommand{\tersig}{T}
        1520 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
        1521 \newcommand{\tersym}{t}
        1522 \newcommand{\terset}{Tr}
        1523 \cmdmthsetext{Ter}[\terset][\tersym]
        1524 \usrmth{ter}{}{argfun}

\RelSig ...
    ... 1525 \newcommand{\relsig}{R}
        1526 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
        1527 \newcommand{\relsym}{r}
        1528 \newcommand{\relset}{Rl}
        1529 \cmdmthsetext{Rel}[\relset][\relsym]
        1530 \usrmth{rel}{}{argfun}[rl]

   \skm ...
        1531 \usrmth{skm}{}{argfun}

        1532 %%** Semantics ********************************************************************%%

\ConStr ...
    ... 1533 \newcommand{\constr}{C}
        1534 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr ...
    ... 1535 \newcommand{\funstr}{F}
        1536 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr ...
    ... 1537 \newcommand{\terstr}{T}
        1538 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr ...
    ... 1539 \newcommand{\relstr}{R}
        1540 \usrmthlatupp{Rel}{Str}{str}[\relstr]

        1541 %%** First-Order Logics II ******************************************************%%

    \DF ...
    \IF 1542 % Dependence-Friendly Logic
    ... 1543 \cmdtxtoparname{DF}
        1544
        1545 % Independence-Friendly Logic
        1546 \cmdtxtoparname{IF}
        1547
        1548 % Dependence/Independence-Friendly Logic
        1549 \cmdtxtoparname{DIF}
        1550
        1551 % Dependence Logic
        1552 \cmdtxtoparname{DL}
        1553
        1554 % Team Logic
        1555 \cmdtxtoparname{TL}
        1556
        1557 % Alternating Dependence-Friendly Logic
        1558 \cmdtxtoparname{ADF}
        1559
        1560 % Alternating Independence-Friendly Logic
        1561 \cmdtxtoparname{AIF}
        1562
        1563 % Alternating Dependence/Independence-Friendly Logic
        1564 \cmdtxtoparname{ADIF}
```

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

\LEExs ...
\LAAll
\newcommand{\leexssym}{\Sigma}
\usrmth{LEExs}{}{luop}[\leexssym]
\newcommand{\laallsym}{\Pi}
\usrmth{LAAll}{}{luop}[\laallsym]
%%** Semantics ********************************************************************%%

...
%%** Second-Order Logics I ********************************************************%%

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

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

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

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

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

% coWeak Monadic Second-Order Logic
\DeclareRobustCommand{\coWMSOL}
  {{\txtname{coW}}\MSOL}
\DeclareRobustCommand{\coWMSO}
  {{\txtname{coW}}\MSO}
%%** Syntax ********************************************************************%%

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

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

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

```
\TL ...
\CL 1614 % Tree Logic
\PL 1615 \cmdtxtoparname{TL}
... 1616
    1617 % Weak Tree Logic
    1618 \DeclareRobustCommand{\WTL}
    1619   {{\txtname{W}}\TL}
    1620
    1621 % coWeak Tree Logic
    1622 \DeclareRobustCommand{\coWTL}
    1623   {{\txtname{coW}}\TL}
    1624
    1625 % Monadic Tree Logic
    1626 \DeclareRobustCommand{\MTL}
    1627   {{\txtname{M}}\TL}
    1628
    1629 % Weak Monadic Tree Logic
    1630 \DeclareRobustCommand{\WMTL}
    1631   {{\txtname{W}}\MTL}
    1632
    1633 % coWeak Monadic Tree Logic
    1634 \DeclareRobustCommand{\coWMTL}
    1635   {{\txtname{coW}}\MTL}
    1636
    1637 % Chain Logic
    1638 \cmdtxtoparname{CL}
    1639
    1640 % Weak Chain Logic
    1641 \DeclareRobustCommand{\WCL}
    1642   {{\txtname{W}}\CL}
    1643
    1644 % coWeak Chain Logic
    1645 \DeclareRobustCommand{\coWCL}
    1646   {{\txtname{coW}}\CL}
    1647
    1648 % Monadic Chain Logic
    1649 \DeclareRobustCommand{\MCL}
    1650   {{\txtname{M}}\CL}
    1651
    1652 % Weak Monadic Chain Logic
    1653 \DeclareRobustCommand{\WMCL}
    1654   {{\txtname{W}}\MCL}
    1655
    1656 % coWeak Monadic Chain Logic
    1657 \DeclareRobustCommand{\coWMCL}
    1658   {{\txtname{coW}}\MCL}
    1659
    1660 % Path Logic
    1661 \cmdtxtoparname{PL}
    1662
    1663 % Weak Path Logic
    1664 \DeclareRobustCommand{\WPL}
    1665   {{\txtname{W}}\PL}
    1666
    1667 % coWeak Path Logic
    1668 \DeclareRobustCommand{\coWPL}
    1669   {{\txtname{coW}}\PL}
    1670
    1671 % Monadic Path Logic
    1672 \DeclareRobustCommand{\MPL}
    1673   {{\txtname{M}}\PL}
    1674
    1675 % Weak Monadic Path Logic
```

```
\DeclareRobustCommand{\WMPL}
  {{\txtname{W}}\MPL}

% coWeak Monadic Path Logic
\DeclareRobustCommand{\coWMPL}
  {{\txtname{coW}}\MPL}
%%** Syntax ************************************************************%%
  ...
%%** Semantics ********************************************************%%
  ...
%%** Modal Logics I ****************************************************%%

\ML ...
\GML
... % Modal Logic
\cmdtxtoparname{ML}

% Graded Modal Logic
\DeclareRobustCommand{\GML}
  {{\txtname{G}}\ML}

% Quantified Modal Logic
\DeclareRobustCommand{\QML}
  {{\txtname{Q}}\ML}
\DeclareRobustCommand{\EML}
  {\ensuremath{\exists}\ML}
\DeclareRobustCommand{\UML}
  {\ensuremath{\forall}\ML}
%%** Syntax ************************************************************%%

\Opr ...
\usrmth{Opr}{}{sym}[Op]

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

\Exs ...
\All
\DeclareRobustCommand{\Exs}
  {\ifstarvar{\@sexs}{\@exs}}
\DeclareRobustCommand{\@sexs}[1]
  {\mth{\DMod}[#1]}
\DeclareRobustCommand{\@exs}[1]
  {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
\DeclareRobustCommand{\All}
  {\ifstarvar{\@sall}{\@all}}
\DeclareRobustCommand{\@sall}[1]
  {\mth{\BMod}[#1]}
\DeclareRobustCommand{\@all}[1]
  {\mth{\defval{\argmid{\left[}{#1}{\right]}}{\BMod}}}
%%** Semantics ********************************************************%%

\KrpStr ...
... \newcommand{\krpstr}{K}
\usrmthlatupp{Krp}{Str}{str}[\krpstr]

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

```
\AccRel ...
\TrnRel 1722 \newcommand{\accsym}{R}
        1723 \cmdmthrel{Acc}[\accsym]
        1724 \cmdmthrel{Trn}[\accsym]

\labFun ...
        1725 \newcommand{\labsym}{\lambda}
        1726 \cmdmthfun{lab}[\labsym]

\PthSet ...
    ... 1727 \providecommand{\pthsym}{\pi}
        1728 \providecommand{\pthset}{Pth}
        1729 \cmdmthsetext{Pth}[\pthset][\pthsym]
        1730 \usrmth{path}{}{argfun}
        1731 %%** Modal Logics II ********************************************************%%

 \MC ...
\GMC 1732 % Mu Calculus
 ... 1733 \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]
     1734
     1735 % Graded Mu Calculus
     1736 \DeclareRobustCommand{\GMC}
     1737   {{\txtname{G}}\MC}
     1738
     1739 % Quantified Mu Calculus
     1740 \DeclareRobustCommand{\QMC}
     1741   {{\txtname{Q}}\MC}
     1742 \DeclareRobustCommand{\EMC}
     1743   {\ensuremath{\exists}\MC}
     1744 \DeclareRobustCommand{\UMC}
     1745   {\ensuremath{\forall}\MC}
     1746
     1747 % Alternation-Free Mu Calculus
     1748 \DeclareRobustCommand{\AFMC}
     1749   {{\txtname{AF}}\MC}
     1750
     1751 % Alternation-Free Graded Mu Calculus
     1752 \DeclareRobustCommand{\AFGMC}
     1753   {{\txtname{AF}}\GMC}
     1754
     1755 % Quantified Alternation-Free Mu Calculus
     1756 \DeclareRobustCommand{\QAFMC}
     1757   {{\txtname{Q}}\AFMC}
     1758 \DeclareRobustCommand{\EAFMC}
     1759   {\ensuremath{\exists}\AFMC}
     1760 \DeclareRobustCommand{\UAFMC}
     1761   {\ensuremath{\forall}\AFMC}
     1762
     1763 %%** Syntax ******************************************************************%%
        ...
     1764 %%** Semantics ***************************************************************%%
        ...
     1765 %%** Temporal Logics I *******************************************************%%

\PTL ...
\LTL 1766 % Propositional Temporal Logic
 ... 1767 \cmdtxtoparname{PTL}
     1768
     1769 % Quantified Propositional Temporal Logic
     1770 \DeclareRobustCommand{\QPTL}
```

```
1771   {{\txtname{Q}}\PTL}
1772 \DeclareRobustCommand{\EPTL}
1773   {\ensuremath{\exists}\PTL}
1774 \DeclareRobustCommand{\UPTL}
1775   {\ensuremath{\forall}\PTL}
1776
1777 % Linear Temporal Logic
1778 \cmdtxtoparname{LTL}
1779
1780 % Quantified Linear Temporal Logic
1781 \DeclareRobustCommand{\QLTL}
1782   {{\txtname{Q}}\LTL}
1783 \DeclareRobustCommand{\ELTL}
1784   {\ensuremath{\exists}\LTL}
1785 \DeclareRobustCommand{\ULTL}
1786   {\ensuremath{\forall}\LTL}
1787 %%** Syntax ********************************************************************%%
```

\X ...

```
... 1788 \usrmth{X}{}{sym}[X\,]
    1789 \usrmth{F}{}{sym}[F\,]
    1790 \usrmth{G}{}{sym}[G\,]
    1791 \usrmth{U}{}{sym}[\,U\,]
    1792 \usrmth{R}{}{sym}[\,R\,]
```

\Y ...

```
... 1793 \usrmth{Y}{}{sym}[G\,]
    1794 \usrmth{P}{}{sym}[P\,]\let\SavePilcrow\P
    1795 \usrmth{H}{}{sym}[H\,]\let\SaveDoubleAcute\H
    1796 \usrmth{S}{}{sym}[\,S\,]\let\SaveSectionSymbol\S
    1797 \usrmth{B}{}{sym}[\,B\,]
1798 %%** Semantics ********************************************************************%%
```

...

```
1799 %%** Temporal Logics II ***********************************************************%%
```

\PDL ...
\CTL

```
1800 % Propositional Dynamic Logic
... 1801 \cmdtxtoparname{PDL}
    1802
    1803 % Computation Tree Logic
    1804 \cmdtxtoparname{CTL}
    1805
    1806 % Weak Computation Tree Logic
    1807 \DeclareRobustCommand{\WCTL}
    1808   {{\txtname{W}}\CTL}
    1809
    1810 % Quantified Computation Tree Logic
    1811 \DeclareRobustCommand{\QCTL}
    1812   {{\txtname{Q}}\CTL}
    1813 \DeclareRobustCommand{\ECTL}
    1814   {\ensuremath{\exists}\CTL}
    1815 \DeclareRobustCommand{\UCTL}
    1816   {\ensuremath{\forall}\CTL}
    1817
    1818 % Improved Computation Tree Logic
    1819 \cmdtxtoparname{CTLP}[CTL$^{+}$]
    1820
    1821 % Weak Improved Computation Tree Logic
    1822 \DeclareRobustCommand{\WCTLP}
    1823   {{\txtname{W}}\CTLP}
    1824
```

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

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

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

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

\E ...
\A \usrmth{E}{}{sym}
   \usrmth{A}{}{sym}
%%** Semantics ********************************************************%%
   ...
%%** Game Logics I *****************************************************%%

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

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

% Quantified Alternating Temporal Logic
\DeclareRobustCommand{\QATL}
  {{\txtname{Q}}\ATL}
\DeclareRobustCommand{\EATL}
  {\ensuremath{\exists}\ATL}
\DeclareRobustCommand{\UATL}
  {\ensuremath{\forall}\ATL}

% Improved Alternating Temporal Logic
\cmdtxtoparname{ATLP}[ATL$^{+}$]

% Weak Improved Alternating Tree Logic
\DeclareRobustCommand{\WATLP}
  {{\txtname{W}}\ATLP}

% Quantified Improved Alternating Temporal Logic
\DeclareRobustCommand{\QATLP}
  {{\txtname{Q}}\ATLP}
\DeclareRobustCommand{\EATLP}
  {\ensuremath{\exists}\ATLP}
\DeclareRobustCommand{\UATLP}
  {\ensuremath{\forall}\ATLP}

```

```
% Full Alternating Temporal Logic
\cmdtxtoparname{ATLS}[ATL*]

% Weak Full Alternating Tree Logic
\DeclareRobustCommand{\WATLS}
  {{\txtname{W}}\ATLS}

% Quantified Full Alternating Temporal Logic
\DeclareRobustCommand{\QATLS}
  {{\txtname{Q}}\ATLS}
\DeclareRobustCommand{\EATLS}
  {\ensuremath{\exists}\ATLS}
\DeclareRobustCommand{\UATLS}
  {\ensuremath{\forall}\ATLS}
%%** Syntax ************************************************************%%
```

\EExs ...
\AAll

```
\DeclareRobustCommand{\EExs}[1]
  {\mth{\argmid{\langle\!\langle}{\defval{#1}{\emptyset}}{\rangle\!\rangle}}}
\DeclareRobustCommand{\AAll}[1]
  {\mth{\argmid{\left[\left[}{\defval{#1}{\emptyset}}{\right]\right]}}}
%%** Semantics ********************************************************%%
```

\CGS ...

```
\cmdtxtname{CGS}
```

\CGSStr ...

...

```
\newcommand{\cgsstr}{G}
\usrmthlatupp{CGS}{Str}{str}[\cgsstr]
```

\AgnSet ...

...

```
\newcommand{\agnsym}{a}
\newcommand{\agnset}{Ag}
\cmdmthsetext{Agn}[\agnset][\agnsym]
```

\ActSet ...

...

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

\PosSet ...

...

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

\SttSet ...

...

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

```
\DecSet ...
    ... 1927 \newcommand{\decsym}{d}
        1928 \newcommand{\decset}{Dc}
        1929 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ...
\movRel 1930 \newcommand{\movsym}{\tau}
        1931 \cmdmthfun{mov}[\movsym]
        1932 \cmdmthrel{mov}[\movsym]

\trnFun ...
\trnRel 1933 \newcommand{\trnsym}{\delta}
        1934 \cmdmthfun{trn}[\trnsym]
        1935 \cmdmthrel{trn}[\trnsym]

\PrfSet ...
        1936 \providecommand{\prfsym}{\xi}
        1937 \providecommand{\prfset}{Prf}
        1938 \cmdmthsetext{Prf}[\prfset][\prfsym]

\HstSet ...
    ... 1939 \providecommand{\hstsym}{\varpi}
        1940 \providecommand{\hstset}{Hst}
        1941 \cmdmthsetext{Hst}[\hstset][\hstsym]
        1942 \cmdmthset{PHst}[\hstset_{\PlrSym}]
        1943 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
        1944 \cmdmthset{OHst}[\hstset_{\OppSym}]
        1945 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
        1946 \usrmth{hst}{}{argfun}

\PlaySet ...
    ... 1947 \providecommand{\playsym}{\pi}
        1948 \providecommand{\playset}{Play}
        1949 \cmdmthsetext{Play}[\playset][\playsym]
        1950 \usrmth{play}{}{argfun}

\PlnSet ...
    ... 1951 \providecommand{\plnsym}{\rho}
        1952 \providecommand{\plnset}{Pln}
        1953 \cmdmthsetext{Pln}[\plnset][\plnsym]
        1954 \cmdmthset{PPln}[\plnset_{\PlrSym}]
        1955 \cmdmthsymelm{pPln}[\plnsym_{\PlrSym}]
        1956 \cmdmthset{OPln}[\plnset_{\OppSym}]
        1957 \cmdmthsymelm{oPln}[\plnsym_{\OppSym}]

\StrSet ...
    ... 1958 \providecommand{\strsym}{\sigma}
        1959 \providecommand{\strset}{Str}
        1960 \cmdmthsetext{Str}[\strset][\strsym]
        1961 \cmdmthset{PStr}[\strset_{\PlrSym}]
        1962 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
        1963 \cmdmthset{OStr}[\strset_{\OppSym}]
        1964 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]
        1965 %%** Game Logics II ************************************************************%%

    \PL ...
    ... 1966 % Plan Logic
        1967 \cmdtxtoparname{PL}
        1968
        1969 \DeclareRobustCommand{\EPL}
        1970   {\ensuremath{\exists}\PL}
        1971 \DeclareRobustCommand{\UPL}
```

```
  {\ensuremath{\forall}\PL}

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

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

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

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

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

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

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

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

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

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

% Disjunctive-Goal Plan Logic
\DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]
  {\PL[#1][#2][dg\arglef{,}{#3}]}

\DeclareRobustCommand{\EDGPL}
  {\ensuremath{\exists}\DGPL}
\DeclareRobustCommand{\UDGPL}
  {\ensuremath{\forall}\DGPL}

\DeclareRobustCommand{\FDGPL}
  {{\txtname{F}}\DGPL}

\DeclareRobustCommand{\EFDGPL}
  {\ensuremath{\exists}\FDGPL}
\DeclareRobustCommand{\UFDGPL}
  {\ensuremath{\forall}\FDGPL}

% Alternating-Goal Plan Logic
\DeclareRobustCommandx{\AGPL}[3][1=, 2=, 3=]
```

```
  {\PL[#1][#2][ag\arglef{,}{#3}]}

\DeclareRobustCommand{\EAGPL}
  {\ensuremath{\exists}\AGPL}
\DeclareRobustCommand{\UAGPL}
  {\ensuremath{\forall}\AGPL}

\DeclareRobustCommand{\FAGPL}
  {{\txtname{F}}\AGPL}

\DeclareRobustCommand{\EFAGPL}
  {\ensuremath{\exists}\FAGPL}
\DeclareRobustCommand{\UFAGPL}
  {\ensuremath{\forall}\FAGPL}

% Extended-Goal Plan Logic
\DeclareRobustCommandx{\EGPL}[3][1=, 2=, 3=]
  {\PL[#1][#2][eg\arglef{,}{#3}]}

\DeclareRobustCommand{\EEGPL}
  {\ensuremath{\exists}\EGPL}
\DeclareRobustCommand{\UEGPL}
  {\ensuremath{\forall}\EGPL}

\DeclareRobustCommand{\FEGPL}
  {{\txtname{F}}\EGPL}

\DeclareRobustCommand{\EFEGPL}
  {\ensuremath{\exists}\FEGPL}
\DeclareRobustCommand{\UFEGPL}
  {\ensuremath{\forall}\FEGPL}

% Boolean-Goal Plan Logic
\DeclareRobustCommandx{\BGPL}[3][1=, 2=, 3=]
  {\PL[#1][#2][bg\arglef{,}{#3}]}

\DeclareRobustCommand{\EBGPL}
  {\ensuremath{\exists}\BGPL}
\DeclareRobustCommand{\UBGPL}
  {\ensuremath{\forall}\BGPL}

\DeclareRobustCommand{\FBGPL}
  {{\txtname{F}}\BGPL}

\DeclareRobustCommand{\EFBGPL}
  {\ensuremath{\exists}\FBGPL}
\DeclareRobustCommand{\UFBGPL}
  {\ensuremath{\forall}\FBGPL}

% Undefined-Goal Plan Logic
\DeclareRobustCommandx{\XGPL}[3][1=, 2=, 3=]
  {\PL[#1][#2][xg\arglef{,}{#3}]}

\DeclareRobustCommand{\EXGPL}
  {\ensuremath{\exists}\XGPL}
\DeclareRobustCommand{\UXGPL}
  {\ensuremath{\forall}\XGPL}

\DeclareRobustCommand{\FXGPL}
  {{\txtname{F}}\XGPL}

\DeclareRobustCommand{\EFXGPL}
  {\ensuremath{\exists}\FXGPL}
```

```
2098 \DeclareRobustCommand{\UFXGPL}
2099   {\ensuremath{\forall}\FXGPL}
```

\SL ...

```
... 2100 % Strategy Logic
2101 \cmdtxtoparname{SL}
2102
2103 \DeclareRobustCommand{\ESL}
2104   {\ensuremath{\exists}\SL}
2105 \DeclareRobustCommand{\USL}
2106   {\ensuremath{\forall}\SL}
2107
2108 \DeclareRobustCommand{\FSL}
2109   {{\txtname{F}}\SL}
2110
2111 \DeclareRobustCommand{\EFSL}
2112   {\ensuremath{\exists}\FSL}
2113 \DeclareRobustCommand{\UFSL}
2114   {\ensuremath{\forall}\FSL}
2115
2116 % One-Goal Strategy Logic
2117 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
2118   {\SL[#1][#2][1g\arglef{,}{#3}]}
2119
2120 \DeclareRobustCommand{\EOGSL}
2121   {\ensuremath{\exists}\OGSL}
2122 \DeclareRobustCommand{\UOGSL}
2123   {\ensuremath{\forall}\OGSL}
2124
2125 \DeclareRobustCommand{\FOGSL}
2126   {{\txtname{F}}\OGSL}
2127
2128 \DeclareRobustCommand{\EFOGSL}
2129   {\ensuremath{\exists}\FOGSL}
2130 \DeclareRobustCommand{\UFOGSL}
2131   {\ensuremath{\forall}\FOGSL}
2132
2133 % Conjunctive-Goal Strategy Logic
2134 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
2135   {\SL[#1][#2][cg\arglef{,}{#3}]}
2136
2137 \DeclareRobustCommand{\ECGSL}
2138   {\ensuremath{\exists}\CGSL}
2139 \DeclareRobustCommand{\UCGSL}
2140   {\ensuremath{\forall}\CGSL}
2141
2142 \DeclareRobustCommand{\FCGSL}
2143   {{\txtname{F}}\CGSL}
2144
2145 \DeclareRobustCommand{\EFCGSL}
2146   {\ensuremath{\exists}\FCGSL}
2147 \DeclareRobustCommand{\UFCGSL}
2148   {\ensuremath{\forall}\FCGSL}
2149
2150 % Disjunctive-Goal Strategy Logic
2151 \DeclareRobustCommandx{\DGSL}[3][1=, 2=, 3=]
2152   {\SL[#1][#2][dg\arglef{,}{#3}]}
2153
2154 \DeclareRobustCommand{\EDGSL}
2155   {\ensuremath{\exists}\DGSL}
2156 \DeclareRobustCommand{\UDGSL}
2157   {\ensuremath{\forall}\DGSL}
2158
2159 \DeclareRobustCommand{\FDGSL}
```

```
  {{\txtname{F}}\DGSL}

\DeclareRobustCommand{\EFDGSL}
  {\ensuremath{\exists}\FDGSL}
\DeclareRobustCommand{\UFDGSL}
  {\ensuremath{\forall}\FDGSL}

% Alternating-Goal Strategy Logic
\DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][ag\arglef{,}{#3}]}

\DeclareRobustCommand{\EAGSL}
  {\ensuremath{\exists}\AGSL}
\DeclareRobustCommand{\UAGSL}
  {\ensuremath{\forall}\AGSL}

\DeclareRobustCommand{\FAGSL}
  {{\txtname{F}}\AGSL}

\DeclareRobustCommand{\EFAGSL}
  {\ensuremath{\exists}\FAGSL}
\DeclareRobustCommand{\UFAGSL}
  {\ensuremath{\forall}\FAGSL}

% Extended-Goal Strategy Logic
\DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][eg\arglef{,}{#3}]}

\DeclareRobustCommand{\EEGSL}
  {\ensuremath{\exists}\EGSL}
\DeclareRobustCommand{\UEGSL}
  {\ensuremath{\forall}\EGSL}

\DeclareRobustCommand{\FEGSL}
  {{\txtname{F}}\EGSL}

\DeclareRobustCommand{\EFEGSL}
  {\ensuremath{\exists}\FEGSL}
\DeclareRobustCommand{\UFEGSL}
  {\ensuremath{\forall}\FEGSL}

% Boolean-Goal Strategy Logic
\DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][bg\arglef{,}{#3}]}

\DeclareRobustCommand{\EBGSL}
  {\ensuremath{\exists}\BGSL}
\DeclareRobustCommand{\UBGSL}
  {\ensuremath{\forall}\BGSL}

\DeclareRobustCommand{\FBGSL}
  {{\txtname{F}}\BGSL}

\DeclareRobustCommand{\EFBGSL}
  {\ensuremath{\exists}\FBGSL}
\DeclareRobustCommand{\UFBGSL}
  {\ensuremath{\forall}\FBGSL}

% Nested-Goal Strategy Logic
\DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][ng\arglef{,}{#3}]}

\DeclareRobustCommand{\ENGSL}
```

```
  {\ensuremath{\exists}\NGSL}
\DeclareRobustCommand{\UNGSL}
  {\ensuremath{\forall}\NGSL}

\DeclareRobustCommand{\FNGSL}
  {{\txtname{F}}\NGSL}

\DeclareRobustCommand{\EFNGSL}
  {\ensuremath{\exists}\FNGSL}
\DeclareRobustCommand{\UFNGSL}
  {\ensuremath{\forall}\FNGSL}

% Undefined-Goal Strategy Logic
\DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][xg\arglef{,}{#3}]}

\DeclareRobustCommand{\EXGSL}
  {\ensuremath{\exists}\XGSL}
\DeclareRobustCommand{\UXGSL}
  {\ensuremath{\forall}\XGSL}

\DeclareRobustCommand{\FXGSL}
  {{\txtname{F}}\XGSL}

\DeclareRobustCommand{\EFXGSL}
  {\ensuremath{\exists}\FXGSL}
\DeclareRobustCommand{\UFXGSL}
  {\ensuremath{\forall}\FXGSL}

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

\BndSet ...

```
\newcommand{\bndsym}{\flat}
\newcommand{\bndset}{Bn}
\cmdmthsetext{Bnd}[\bndset][\bndsym]
\cmdmthsymelm{idbnd}[\bndsym_{\text{id}}]
\usrmth{bnd}{}{argfun}
```

\psn ...

```
\usrmth{psn}{}{argfun}

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

\nxt ...

```
\usrmth{nxt}{}{argfun}

\fi
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Macros for Automata ********************************************************%%
%%*****************************************************************************%%
\ifaut@

%%** Finite Word Automata ******************************************************%%
```

\DFA ...

```
\cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}

\cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}

\cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
\cmdtxtoparname{DWW}\cmdtxtoparname{NWW}\cmdtxtoparname{UWW}\cmdtxtoparname{AWW}
\cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
\cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
```

```
2275 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
2276 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
2277 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
2278 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

  \GFG ...
  ... 2279 \cmdtxtoparname{GFG}
      2280
      2281 \cmdtxtoparname{PD}
      2282 \cmdtxtoparname{PN}
      2283
      2284 \cmdtxtoparname{LD}
      2285 \cmdtxtoparname{LN}

      2286 %%** Syntax ********************************************************************%%

\AutName ...
  ... 2287 \newcommand{\autname}{A}
      2288 \usrmthlatupp{Aut}{Name}{name}[\autname]
      2289 \newcommand{\autset}{Aut}
      2290 \cmdmthset{Aut}[\autset]

\WAutSet ...
      2291 \newcommand{\wautset}{WAut}
      2292 \cmdmthset{WAut}[\wautset]

 \SymSet ...
  ... 2293 \newcommand{\symsym}{\sigma}
      2294 \newcommand{\symset}{\Sigma}
      2295 \cmdmthsetext{Sym}[\symset][\symsym]

 \SttSet ...
  ... 2296 \providecommand{\sttsym}{q}
      2297 \providecommand{\sttset}{Q}
      2298 \cmdmthsetext{Stt}[\sttset][\sttsym]
      2299 \cmdmthset{IStt}[\sttset_{I}]
      2300 \cmdmthsymelm{istt}[\sttsym_{I}]
      2301 \cmdmthset{FStt}[\sttset_{F}]
      2302 \cmdmthsymelm{fstt}[\sttsym_{F}]

 \trnFun ...
 \trnRel 2303 \providecommand{\trnsym}{\delta}
      2304 \cmdmthfun{trn}[\trnsym]
      2305 \cmdmthrel{trn}[\trnsym]

      2306 %%** Semantics ********************************************************************%%

 \WrdSet ...
  ... 2307 \newcommand{\wrdsym}{w}
      2308 \newcommand{\wrdset}{Wr}
      2309 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

   \Lang ...
      2310 \usrmth{Lang}{}{argfun}[L]

      2311 %%** Finite Tree Automata ********************************************************%%

  \DTA ...
  ... 2312 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
      2313
      2314 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
      2315 \cmdtxtoparname{DWT}\cmdtxtoparname{NWT}\cmdtxtoparname{UWT}\cmdtxtoparname{AWT}
      2316 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
      2317 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
```

```
\cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
\cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
\cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
\cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}
%%** Syntax ********************************************************************%%

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

 \DirSet ...
     ... \newcommand{\dirsym}{d}
\newcommand{\dirset}{\Lambda}
\cmdmthsetext{Dir}[\dirset][\dirsym]
%%** Semantics ****************************************************************%%

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

    \wot ...
\usrmth{wot}{}{argfun}

\fi
%%****************************************************************************%%
%%****************************************************************************%%
%%** Format Tricks **************************************************************%%
%%****************************************************************************%%
\iffrm@
\RequirePackage{multicol}

     ... ...
%%...

\fi
%%****************************************************************************%%
%%****************************************************************************%%
%%** Figure Tricks **************************************************************%%
%%****************************************************************************%%
\iffig@
\RequirePackage{tikz}
\usetikzlibrary{calc,arrows,shapes,patterns,graphs,matrix}
\tikzstyle{every node} =
  [draw = none, fill = none, black, thin]
\tikzstyle{every edge} +=
  [black, thick]
\tikzstyle{noall} =
  [draw = none, fill = none]
\tikzstyle{nodraw} =
  [draw = none, fill = white]
\tikzstyle{nofill} =
  [draw = black, fill = none]
\ifwrpfig@
  % Wrapfig Package
  \RequirePackage{wrapfig}
\fi
\fi
%%****************************************************************************%%
```

```
%%***************************************************************************%%
%%** Table Tricks ***********************************************************%%
%%***************************************************************************%%
\iftab@

... ...
%%...

\fi
%%***************************************************************************%%
%%***************************************************************************%%
%%** Algorithm Tricks *******************************************************%%
%%***************************************************************************%%
\ifalg@
\RequirePackage[ruled,vlined]{algorithm2e}
\DontPrintSemicolon
\SetInd{0.25em}{0.5em}
\setlength{\algomargin}{1.25em}

\Signature ...
\SetKw{Signature}{signature}

   \Macro ...
 \Function
\Procedure
\SetKwFor{Macro}{macro}{}{}
\SetKwFor{Function}{function}{}{}
\SetKwFor{Procedure}{procedure}{}{}

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

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

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

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

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

     \MIf ...
 \MElseIf
   \MElse
\SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}
     \nlr ...
\newrobustcmd{\nlr}[1]
  {\addtocounter{AlgoLine}{1}%
   \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

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

2 Change History

3 Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

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