fmocdmac — FM's OCD LaTeX Macro*

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Released 2023/10/28

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 v0.25 of the fmocdmac package, last revised 2023/10/28.

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

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

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

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


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

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


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

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


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


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

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

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

%% Macros for automata
```

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


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


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

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


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


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

```

Option-processing code:

```

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

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

\ProcessOptions\relax%

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

```

Package main body:

```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

\ifcrv@
  % Camera-Ready Version

  %%...

\else
  % Draft Version

  %%...

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

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

  %%...

\fi

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

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

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

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

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

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

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

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

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

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

`\newtxt` ... to do!

- `\newtxt[\rmfamily]{Name}[sub][sup][Ext]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$"
- `\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}
  {\@ifstar{\@snewtxt}{\@newtxt}}
\DeclareRobustCommandx{\@newtxt}[5][1=, 3=, 4=, 5=]
  {\text{#1#2\txtsubsup[#1]{#3}{#4}#5}\xspace}
\DeclareRobustCommandx{\@snewtxt}[5][1=, 3=, 4=, 5=]
  {#1#2\txtsubsup[#1]{#3}{#4}#5\normalfont\xspace}
```

`\newtxtsty` ... to do!

- `\newtxtsty{\rmfamily}{Name}[sub][sup][Ext]` = "$\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$"
- `\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}
  {\@ifstar{\@snewtxtsty}{\@newtxtsty}}
\DeclareRobustCommandx{\@newtxtsty}[2][2=]
  {\newtxt[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewtxtsty}[2][2=]
  {\newtxt*[\defval{#2}{#1}]}
```

`\newtxtarg` ... to do!

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

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

`\newtxtargsty` ... to do!

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

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

`\newtxtoarg` ... to do!

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

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

`\newtxtoargsty` ... to do!

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

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

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

`\newtxtpar` ... to do!

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

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

`\newtxtparsty` ... to do!

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

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

`\newtxtopar` ... to do!

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

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

`\newtxtoparsty` ... to do!

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

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

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

`\txtsubsup` ... to do!

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

```
\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}
  {\@ifstar{\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}
  {\@ifstar{\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]` = "$\mathbf{Name}_{\mathbf{sub}}^{\mathbf{sup}}\mathbf{(Arg)}$"
- `\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]` = "$\mathbf{Name}_{\mathbf{sub}}^{\mathbf{sup}}\mathbf{(Arg)}$"

```
\DeclareRobustCommand{\txtoarg}
  {\@ifstar{\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]` = "$\mathbf{Name}_{\mathbf{sub}}^{\mathbf{sup}}\mathbf{Ext1[Par]Ext2}$"
- `\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]` = "$\mathbf{Name^{sup}_{sub}Ext1[Par]Ext2}$"

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

`\txtopar` ... to do!

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

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

`\txtsty` ... to do!

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

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

`\cmdtxt` ... to do!

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

```
\DeclareRobustCommand{\cmdtxt}[1]
  {\csdef{txt#1}%
    {\@ifstar%
      {\newtxtsty*{\csname txtsty#1\endcsname}}%
      {\newtxtsty{\csname txtsty#1\endcsname}}}}
```

`\cmdtxtarg` ... to do!

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

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

`\cmdtxtoarg` ... to do!

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

```
\DeclareRobustCommand{\cmdtxtoarg}[1]
  {\csdef{txtoarg#1}%
    {\@ifstar%
      {\newtxtoargsty*{\csname txtsty#1\endcsname}}%
      {\newtxtoargsty{\csname txtsty#1\endcsname}}}}
```

`\cmdtxtpar` ... to do!

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

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

\cmdtxtopar ... to do!

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

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

\cmdtxtall ... to do!

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

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

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

\usrtxt ... to do!

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

```
\DeclareRobustCommandx{\usrtxt}[4][4=]
  {\csdef{#1#2}{%
    \@ifstar%
      {\csname txt#3\endcsname*{\defval{#4}{#1}}}%
      {\csname txt#3\endcsname{\defval{#4}{#1}}}}}

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

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

\newmth ... to do!

- \newmth[mathrm]{Name}[sub][sup][Ext] = "$\text{Name}_{sub}^{sup}Ext$"
- \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] = "$\text{N}ame_{sub}^{sup}Ext$"
- \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}
  {\@ifstar{\@snewmth}{\@newmth}}
\DeclareRobustCommandx{\@newmth}[5][1=, 3=, 4=, 5=]
  {\ensuremath{\csname#1\endcsname{#2}\mthsubsup{#3}{#4}#5}}
\DeclareRobustCommandx{\@snewmth}[5][1=, 3=, 4=, 5=]
  {\ensuremath{\csname#1\endcsname #2\mthsubsup{#3}{#4}#5}}
```

`\newmthsty` ... to do!

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

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

`\newmtharg` ... to do!

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

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

`\newmthargsty` ... to do!

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

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

`\newmthoarg` ... to do!

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

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

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

`\newmthoargsty` ... to do!

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

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

`\newmthpar` ... to do!

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

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

`\newmthparsty` ... to do!

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

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

`\newmthopar` ... to do!

- `\newmthopar[mathrm]{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$"
- `\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}
  {\@ifstar{\@snewmthopar}{\@newmthopar}}
\DeclareRobustCommandx{\@newmthopar}[5][1=, 3=, 4=, 5=]
  {\newmthpar[#1]{#2}[#3][#4][]{#5}[]}
\DeclareRobustCommandx{\@snewmthopar}[5][1=, 3=, 4=, 5=]
  {\newmthpar*[#1]{#2}[#3][#4][]{#5}[]}
```

`\newmthoparsty` ... to do!

- `\newmthoparsty{mathrm}{Name}[sub][sup][Par^{Ex^{Ex}}]` = "$\mathrm{Name}_{sub}^{sup}\left[Par^{Ex^{Ex}}\right]$"
- `\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}
  {\@ifstar{\@snewmthoparsty}{\@newmthoparsty}}
\DeclareRobustCommandx{\@newmthoparsty}[2][2=]
  {\newmthopar[\defval{#2}{#1}]}
\DeclareRobustCommandx{\@snewmthoparsty}[2][2=]
  {\newmthopar*[\defval{#2}{#1}]}
```

`\mthsubsup` ... to do!

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

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

`\mth` ... to do!

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

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

`\mtharg` ... to do!

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

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

`\mthoarg` ... to do!

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

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

`\mthpar` ... to do!

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

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

`\mthopar` ... to do!

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

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

`\mthsty` ... to do!

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

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

`\cmdmth` ... to do!

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

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

\cmdmtharg ... to do!

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

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

\cmdmthoarg ... to do!

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

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

\cmdmthpar ... to do!

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

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

\cmdmthopar ... to do!

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

```
\DeclareRobustCommand{\cmdmthopar}[1]
  {\csdef{mthopar#1}%
    {\@ifstar{\newmthoparsty*{mthsty#1}}{\newmthoparsty{mthsty#1}}}}
```

\cmdmthall ... to do!

- \cmdmthall{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthNewCmd{Name}[sub][sup][Ext] = $\texttt{Name}_{sub}^{sup}Ext$
  \mthargNewCmd{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\texttt{Name}_{sub}^{sup}Ext1\Big(Arg^{Ex^{Ex}}\Big)Ext2$
  \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}{%
    \@ifstar%
      {\csname mth#3\endcsname*{\defval{#4}{#1}}}%
      {\csname mth#3\endcsname{\defval{#4}{#1}}}}}

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

\usrmthlatlow ... to do!

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

\usrmthlatupp ... to do!

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

\usrmthlatlet ... to do!

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

\usrmthgrklow ... to do!

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

\usrmthgrkupp ... to do!

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

\usrmthgrklet ... to do!

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

\usrmthlow ... to do!

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

\usrmthupp ... to do!

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

`\usrmthlet` ... to do!

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

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

`\txtdef` ... to do!

`...`

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

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

`\cmdtxtdef` ... to do!

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

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

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

`\cmdtxtopardef` ... to do!

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

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

`\txtabr` ... to do!

`...`

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

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

`\cmdtxtabr` ... to do!

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

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

`\cmdtxtargabr` ... to do!

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

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

`\cmdtxtoargabr` ... to do!

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

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

`\cmdtxtparabr` ... to do!

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

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

`\cmdtxtoparabr` ... to do!

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

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

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

`\txtname` ... to do!

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

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

`\cmdtxtname` ... to do!

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

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

`\cmdtxtargname` ... to do!

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

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

`\cmdtxtoargname` ... to do!

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

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

`\cmdtxtparname` ... to do!

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

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

`\cmdtxtoparname` ... to do!

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

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

`\txtcom` ... to do!

...

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

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

`\cmdtxtcom` ... to do!

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

```
\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!

...

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

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

`\AName` ... to do!

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

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

`\cmdmthname` ... to do!

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

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

\cmdmthargname ... to do!

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

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

\cmdmthoargname ... to do!

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

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

\cmdmthparname ... to do!

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

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

\cmdmthoparname ... to do!

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

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

\mthfam ... to do!

...

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

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

\AFam ... to do!

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

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

\cmdmthfam ... to do!

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

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

\cmdmthargfam ... to do!

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

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

`\cmdmthoargfam` ... to do!

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

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

`\cmdmthparfam` ... to do!

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

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

`\cmdmthoparfam` ... to do!

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

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

`\mthcls` ... to do!

...

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

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

`\ACls` ... to do!

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

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

`\cmdmthcls` ... to do!

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

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

`\cmdmthargcls` ... to do!

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

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

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

\cmdmthoargcls ... to do!

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

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

\cmdmthparcls ... to do!

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

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

\cmdmthoparcls ... to do!

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

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

\mthsig ... to do!

...

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

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

\aSig ... to do!

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

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

\cmdmthsig ... to do!

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

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

`\cmdmthoargsig` ... to do!

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

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

`\cmdmthparsig` ... to do!

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

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

`\cmdmthoparsig` ... to do!

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

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

`\mthstr` ... to do!

...

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

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

`\aStr` ... to do!

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

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

`\cmdmthstr` ... to do!

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

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

`\cmdmthargstr` ... to do!

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

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

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

`\cmdmthoargstr` ... to do!

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

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

`\cmdmthparstr` ... to do!

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

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

`\cmdmthoparstr` ... to do!

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

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

`\mthset` ... to do!

...

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

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

`\aSet` ... to do!

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

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

`\cmdmthset` ... to do!

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

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

`\cmdmthargset` ... to do!

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

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

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

`\cmdmthoargset` ... to do!

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

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

`\cmdmthparset` ... to do!

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

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

`\cmdmthoparset` ... to do!

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

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

`\cmdmthsetext` ... to do!

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

`\mthrel` ... to do!

...

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

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

`\aRel` ... to do!

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

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

`\cmdmthrel` ... to do!

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

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

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

`\cmdmthargrel` ... to do!

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

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

`\cmdmthoargrel` ... to do!

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

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

`\cmdmthparrel` ... to do!

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

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

`\cmdmthoparrel` ... to do!

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

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

`\mthfun` ... to do!

...

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

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

`\aFun` ... to do!

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

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

`\cmdmthfun` ... to do!

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

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

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

\cmdmthargfun ... to do!

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

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

\cmdmthoargfun ... to do!

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

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

\cmdmthparfun ... to do!

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

```
696 \DeclareRobustCommandx{\cmdmthparfun}[2][2=]
697   {\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$_{sub}^{sub}[par]$

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

\mthsym ... to do!

...

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

```
700 %% Style for Symbols
701 \cmdmthall{sym}\newcommand{\mthstysym}{\mathtt}
```

\aSym ... to do!

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

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

\cmdmthsym ... to do!

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

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

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

`\cmdmthargsym` ... to do!

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

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

`\cmdmthoargsym` ... to do!

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

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

`\cmdmthparsym` ... to do!

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

```
\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!

`...`

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

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

`\aElm` ... to do!

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

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

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

\mthluop ... to do!

...

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

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

\cmdmthluop ... to do!

...

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

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

\mthlrel ... to do!

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

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

\cmdmthlrel ... to do!

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

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

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

\mthsnt ... to do!

...

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

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

\aSnt ... to do!

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

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

\cmdmthsnt ... to do!

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

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

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

`\cmdmthoparsnt` ... to do!

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

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

`\mthfrm` ... to do!

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

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

`\aFrm` ... to do!

... a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
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!

...

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

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

\aMat ... to do!

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

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

\cmdmthmat ... to do!

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

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

\cmdmthoparmat ... to do!

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

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

\mthvec ... to do!

...

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

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

\aVec ... to do!

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

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

\cmdmthvec ... to do!

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

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

\cmdmthargvec ... to do!

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

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

\cmdmthoargvec ... to do!

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

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

\cmdmthparvec ... to do!

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

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

\cmdmthoparvec ... to do!

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

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

\fi
%%%
```

\ergo • \ergo = *ergo*

```
\cmdtxtabr{ergo}
```

\errata • \errata = *errata*

```
\cmdtxtabr{errata}
```

\erratum • \erratum = *erratum*

```
\cmdtxtabr{erratum}
```

\etal • \etal = *et al.*

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

\etc • \etc = *etc.*

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

\ie • \ie = *i.e.*

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

\mutatismutandis • \mutatismutandis = *mutatis mutandis*

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

\percontra • \percontra = *per contra*

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

\primafacie • \primafacie = *prima facie*

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

\viceversa • \viceversa = *vice versa*

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

\vs • \vs = *vs.*

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

\viz • \viz = *viz.*

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

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

\Afortiori • \Afortiori = *A fortiori*

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

\Apriori • \Apriori = *A priori*

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

\Aposteriori • \Aposteriori = *A posteriori*

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

\Dedicto • \Dedicto = *De dicto*

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

\Defacto • \Defacto = *De facto*

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

\Dere • \Dere = *De re*

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

\Divideetimpera • \Divideetimpera = *Divide et impera*

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

\Eg • \Eg = *E.g.*

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

\Errata • \Errata = *Errata*

```
\cmdtxtabr{Errata}
```

\Erratum • \Erratum = *Erratum*

```
\cmdtxtabr{Erratum}
```

\Mutatismutandis • \Mutatismutandis = *Mutatis mutandis*

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

\Percontra • \Percontra = *Per contra*

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

\Primafacie • \Primafacie = *Prima facie*

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

\Viceversa • \Viceversa = *Vice versa*

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

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

...

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

...

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

\ala • \ala = *à la*

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

\naif • \naif = *naïf*

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

\naive • \naive = *naïve*

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

\role • \role = *rôle*

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

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

\Role • \Role = *Rôle*

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

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

\aka • \aka = *a.k.a.*

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

\contd • \contd = *contd.*

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

\iff • \iff = *iff*

```
\cmdtxtabr{iff}
```

\iht • \iht = *i.h.t.*

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

\stx • \stx = *s.t.*

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

\resp • \resp = *resp.*

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

\wrt • \wrt = *w.r.t.*

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

\wlogx • \wlogx = *w.l.o.g.*

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

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

\Contd • \Contd = *Contd.*

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

\Wlogx • \Wlogx = *W.l.o.g.*

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

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

\defeq ...
\seteq

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

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

\limp ...
...

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

\lcoimp ...
...

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

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

\implies ...
...

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

\implied ...
...

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

```
\coimplies ...
       ...  902 \DeclareRobustCommand{\coimplies}
            903   {\mthlrel{\Leftrightarrow}}
            904 \DeclareRobustCommand{\notcoimplies}
            905   {\mthlrel{\not\!\Leftrightarrow}}
            906 %%%%
```

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

\tuple ...

...

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

\set ...

...

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

```
1006   {\@ifstar{\@ssetr}{\@setr}}
1007 \DeclareRobustCommand{\setrx}
1008   {\@ifstar{\@ssetr}{\@setr}}
1009 \DeclareRobustCommand{\@setr}[1]
1010   {\mth{\argmid{\left.}{#1}{\right\rbrace}}}
1011 \DeclareRobustCommand{\@ssetr}[1]
1012   {\mth*{\argmid{}{#1}{\rbrace}}}
```

\card ...

```
1013 \DeclareRobustCommand{\card}
1014   {\@ifstar{\@scard}{\@card}}
1015 \DeclareRobustCommand{\@card}[1]
1016   {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
1017 \DeclareRobustCommand{\@scard}[1]
1018   {\mth*{\argmid{\lvert}{#1}{\rvert}}}
```

\pow ...

```
1019 \DeclareRobustCommand{\pow}[1]
1020   {\mth{2^{\defval{#1}{\cdot}}}}
```

```
1021 %%** Relations ********************************************************%%
```

\emptyrel ...

```
1022 \DeclareRobustCommand{\emptyrel}
1023   {\mth{\varnothing}}
```

```
1024 %%***************************************************************************%%
```

\dom ...
\cod

```
1025 \usrmth{dom}{}{argfun}
```

...

```
1026 \usrmth{cod}{}{argfun}
1027 \usrmth{rng}{}{argfun}
1028 \usrmth{img}{}{argfun}
```

\deg ...

```
1029 \usrmth{deg}{}{argfun}
```

```
1030 %%***************************************************************************%%
```

\prj ...

```
1031 \DeclareRobustCommand{\prj}
1032   {\mthlbop{\downarrow}}
```

\rst ...

```
1033 \DeclareRobustCommand{\rst}
1034   {\mthlbop{\upharpoonright}}
```

\cmp ...

```
1035 \DeclareRobustCommand{\cmp}
1036   {\mthlbop{\circ}}
```

```
1037 %%** Functions ********************************************************%%
```

\emptyfun ...

```
1038 \DeclareRobustCommand{\emptyfun}
1039   {\mth{\varnothing}}
```

```
1040 %%***************************************************************************%%
```

\pto ...
\pmapsto

```
1041 \DeclareMathOperator{\pto}
1042   {\ensuremath{\rightharpoonup}}
1043 \DeclareMathOperator{\pmapsto}
1044   {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize${\llcorner}$}%
1045     \kern-1.5ex\rightharpoonup}}}
```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

\SetC ...

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

\num ...

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

\abs ...

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

\floor ...

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

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

\evn ...

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

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

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

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

     %%** Sequences *********************************************************%%

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

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

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

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

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

\defcomcls ... to do!

- \defcomcls{CompClass};

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

- \defcomcls{CompClass}[NewClass];

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

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

\defcomclsgrp ... to do!

- \defcomclsgrp{CompClass};

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

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

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

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

`\defcomhrc` ... to do!

- `\defcomhrc{CompHierarchy}`;

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

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

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

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

`\Easy`
`\Hard`
`...`

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

`\FPT`
`...`

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

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

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

`\Time` ...

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

```
\defcomclsgrp{Time}
```

`\Space` ...

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

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

1192 `\defcomclsgrp{LogTime}`

`\LogSpace` ...

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

1193 `\defcomclsgrp{LogSpace}`

`\PTime` ...

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

1194 `\defcomclsgrp{PTime}`

`\PSpace` ...

- `\PSpace[sub][sup][arg]` = $\textsc{PSpace}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\PSpaceE[sub][sup][arg]` = $\textsc{PSpace-easy}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\PSpaceH[sub][sup][arg]` = $\textsc{PSpace-hard}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$
  `\PSpaceC[sub][sup][arg]` = $\textsc{PSpace-complete}^{\textsc{sup}}_{\textsc{sub}}(\textsc{arg})$

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

1195 `\defcomclsgrp{PSpace}`

`\QPTime`
`...`

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

1196 `\defcomclsgrp{QPTime}`

`\QPSpace`
`...`

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

1197 `\defcomclsgrp{QPSpace}`

\ExpTime
...

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

```
1198 \defcomclsgrp{ExpTime}
```

\ExpSpace
...

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

```
1199 \defcomclsgrp{ExpSpace}
1200 %%*************************************************************************%%
```

\PH

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

```
1201 \defcomhrc{PH}
```

\WH

- \WH[sub][sup][par] = $\textsc{W}^{\textsc{sup}}_{\textsc{sub}}[\textsc{par}]$

```
1202 \defcomhrc{WH}[W]
```

\AH

- \AH[sub][sup][par] = $\textsc{A}^{\textsc{sup}}_{\textsc{sub}}[\textsc{par}]$

```
1203 \defcomhrc{AH}[A]
```

\DLH

- \DLH[sub][sup][par] = $\Delta^{\textsc{sup}}_{\textsc{sub}}[\textsc{par}]$

\DBH

- \DBH[sub][sup][par] = $\mathbf{\Delta}^{\textsc{sup}}_{\textsc{sub}}[\textsc{par}]$

```
1204 \defcomhrc{DLH}[{\mth{\Delta}}]
1205 \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 1293 \newcommand{\playsym}{\pi}
         1294 \newcommand{\playset}{Play}
         1295 \cmdmthsetext{Play}[\playset][\playsym]
         1296 \usrmth{hst}{}{argfun}

 \StrSet ...
     ... 1297 \newcommand{\strsym}{\sigma}
         1298 \newcommand{\strset}{Str}
         1299 \cmdmthsetext{Str}[\strset][\strsym]
         1300 \cmdmthset{PStr}[\strset_{\PlrSym}]
         1301 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
         1302 \cmdmthset{OStr}[\strset_{\OppSym}]
         1303 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

 \PrfSet ...
 \prfFun 1304 \newcommand{\prfsym}{\xi}
         1305 \newcommand{\prfset}{Prf}
         1306 \cmdmthsetext{Prf}[\prfset][\prfsym]

    \ent ...
    \esc 1307 \usrmth{ent}{}{oargfun}
         1308 \usrmth{esc}{}{oargfun}

    \int ...
    \out 1309 \usrmth{int}{}{oargfun}
         1310 \usrmth{out}{}{oargfun}

    \atr ...
    \rch 1311 \usrmth{atr}{}{oargfun}
         1312 \usrmth{rch}{}{oargfun}

  \lift ...
         1313 \usrmth{lift}{}{oargfun}

    \sol ...
         1314 \usrmth{sol}{}{oargfun}

         1315 %%** Qualitative Games on Graph ********************************************%%

     \BG ...
     ... 1316 %% Buchi Games
         1317 \cmdtxtoparname{BG}
         1318
         1319 %% Co-Buchi Games
         1320 \cmdtxtoparname{CG}
         1321
         1322 %% Parity Games
         1323 \cmdtxtoparname{PG}
         1324
         1325 %% Rabin Games
         1326 \cmdtxtoparname{RG}
         1327
         1328 %% Streett Games
         1329 \cmdtxtoparname{SG}
         1330
         1331 %% Muller Games
         1332 \cmdtxtoparname{MG}

         1333 %%** Syntax ************************************************************%%
```

```
\EvnSym ...
\OddSym 1334 \newcommand{\evnsym}{0}
        1335 \cmdmthsym{Evn}[\evnsym]
        1336 \newcommand{\oddsym}{1}
        1337 \cmdmthsym{Odd}[\oddsym]

\PrtSet ...
\prtFun 1338 \newcommand{\prtsym}{p}
        1339 \newcommand{\prtset}{Pr}
        1340 \cmdmthsetext{Prt}[\prtset][\prtsym]
        1341 \cmdmthfun{prt}[pr]

        1342 %%** Semantics ********************************************************%%

             ...

        1343 %%** Quantitative Games on Graph ***********************************************%%

    \EG ...
    ... 1344 %% Energy Games
        1345 \cmdtxtoparname{EG}
        1346
        1347 %% Mean-Payoff Games
        1348 \cmdtxtoparname{MPG}
        1349
        1350 %% Discounted-Payoff Games
        1351 \cmdtxtoparname{DPG}

        1352 %%** Syntax ************************************************************%%

\MaxSym ...
\MinSym 1353 \newcommand{\maxsym}{\oplus}
        1354 \cmdmthsym{Max}[\maxsym]
        1355 \newcommand{\minsym}{\boxminus}
        1356 \cmdmthsym{Min}[\minsym]

\WghSet ...
\wghFun 1357 \newcommand{\wghsym}{w}
        1358 \newcommand{\wghset}{Wg}
        1359 \cmdmthsetext{Wgh}[\wghset][\wghsym]
        1360 \cmdmthfun{wgh}[wg]

        1361 %%** Semantics ********************************************************%%

             ...

        1362 \fi
        1363 %%*****************************************************************************%%

        1364 %%*****************************************************************************%%
        1365 %%** Macros for Logics ******************************************************%%
        1366 %%*****************************************************************************%%
        1367 \iflog@

        1368 %%** Propositional Logics ***********************************************%%

    \BF ...
   \QBF 1369 % Boolean Formulae
    ... 1370 \cmdtxtoparname{BF}
        1371
        1372 % Quantified Boolean Formulae
        1373 \DeclareRobustCommand{\QBF}
        1374   {{\txtname{Q}}\BF}
        1375 \DeclareRobustCommand{\EBF}
        1376   {\ensuremath{\exists}\BF}
        1377 \DeclareRobustCommand{\UBF}
        1378   {\ensuremath{\forall}\BF}
```

```
1379 %%** Syntax ********************************************************************%%

\LogSig ...
    ... 1380 \newcommand{\logsig}{L}
        1381 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

    \Tt ...
    \Ff 1382 \newcommand{\ttsym}{\top}
        1383 \usrmth{Tt}{}{sym}[\ttsym]
        1384 \newcommand{\ffsym}{\bot}
        1385 \usrmth{Ff}{}{sym}[\ffsym]

  \LNeg ...
  \LNot 1386 \newcommand{\lnegsym}{\neg}
        1387 \usrmth{LNeg}{}{luop}[\lnegsym]
        1388 \newcommand{\lnotsym}{\sim}
        1389 \usrmth{LNot}{}{luop}[\lnotsym]

  \LCon ...
  \LDis 1390 \newcommand{\lconsym}{\land}
        1391 \usrmth{LCon}{}{lbop}[\lconsym]
        1392 \newcommand{\ldissym}{\lor}
        1393 \usrmth{LDis}{}{lbop}[\ldissym]

  \LImp ...
  \LCoi 1394 \newcommand{\limpsym}{\rightarrow}
        1395 \usrmth{LImp}{}{lbop}[\limpsym]
        1396 \newcommand{\lcoisym}{\leftrightarrow}
        1397 \usrmth{LCoi}{}{lbop}[\lcoisym]

  \LExs ...
  \LAll 1398 \newcommand{\lexssym}{\exists}
        1399 \usrmth{LExs}{}{luop}[\lexssym]
        1400 \newcommand{\lallsym}{\forall}
        1401 \usrmth{LAll}{}{luop}[\lallsym]

 \APSet ...
    ... 1402 \newcommand{\apsym}{p}
        1403 \newcommand{\apset}{AP}
        1404 \cmdmthsetext{AP}[\apset][\apsym]
        1405 \usrmth{ap}{}{argfun}

   \sub ...
        1406 \usrmth{sub}{}{argfun}

   \Cnt ...
   \Qnt 1407 \usrmth{Cnt}{}{sym}[C]
   \Sym 1408 \usrmth{Qnt}{}{sym}[Q]
        1409 \usrmth{Sym}{}{sym}[\odot]

   \QAE ...
   \QEA 1410 \usrmth{QAE}{}{sym}[\forall\exists]
        1411 \usrmth{QEA}{}{sym}[\exists\forall]

\QntSet ...
    ... 1412 \newcommand{\qntsym}{\wp}
        1413 \newcommand{\qntset}{Qn}
        1414 \cmdmthsetext{Qnt}[\qntset][\qntsym]

  \free ...
 \bound 1415 \usrmth{free}{}{argfun}
        1416 \usrmth{bound}{}{argfun}
```

```
   \dep ...
   \alt 1417 \usrmth{dep}{}{argfun}
        1418 \usrmth{alt}{}{argfun}

   \cnf ...
   \dnf 1419 \cmdtxtabr{cnf}
    ... 1420 \cmdtxtabr{dnf}
        1421 \cmdtxtabr{pnf}
        1422 \cmdtxtabr{nnf}
        1423 %%** Semantics ********************************************************%%

\LogStr ...
    ... 1424 \newcommand{\logstr}{L}
        1425 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet ...
    ... 1426 \newcommand{\valsym}{\xi}
        1427 \newcommand{\valset}{Val}
        1428 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet ...
    ... 1429 \newcommand{\asgsym}{\chi}
        1430 \newcommand{\asgset}{Asg}
        1431 \cmdmthsetext{Asg}[\asgset][\asgsym]
        1432 %%** First-Order Logics I ***************************************************%%

   \FOL ...
    ... 1433 % First-Order Logic
        1434 \cmdtxtoparname{FOL}[Fol]
        1435 \cmdtxtoparname{FO}[FO]
        1436
        1437 % Monadic First-Order Logic
        1438 \DeclareRobustCommand{\MFOL}
        1439   {{\txtname{M}}\FOL}
        1440 \DeclareRobustCommand{\MFO}
        1441   {{\txtname{M}}\FO}
        1442 %%** Syntax ************************************************************%%

\VarSig ...
    ... 1443 \newcommand{\varsig}{V}
        1444 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
        1445 \newcommand{\varsym}{x}
        1446 \newcommand{\varset}{Vr}
        1447 \cmdmthsetext{Var}[\varset][\varsym]
        1448 \usrmth{var}{}{argfun}[vr]
        1449 \usrmth{dim}{}{argfun}[dm]

\ConSig ...
    ... 1450 \newcommand{\consig}{C}
        1451 \usrmthlatupp{Con}{Sig}{sig}[\consig]
        1452 \newcommand{\consym}{c}
        1453 \newcommand{\conset}{Cn}
        1454 \cmdmthsetext{Con}[\conset][\consym]
        1455 \usrmth{con}{}{argfun}[cn]

\FunSig ...
    ... 1456 \newcommand{\funsig}{F}
        1457 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
        1458 \newcommand{\funsym}{f}
        1459 \newcommand{\funset}{Fn}
        1460 \cmdmthsetext{Fun}[\funset][\funsym]
        1461 \usrmth{fun}{}{argfun}[fn]
        1462 \usrmth{art}{}{argfun}[ar]
```

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

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

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

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

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

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

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

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

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

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

        % Independence-Friendly Logic
        \cmdtxtoparname{IF}

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

        % Dependence Logic
        \cmdtxtoparname{DL}

        % Team Logic
        \cmdtxtoparname{TL}

        % Alternating Dependence-Friendly Logic
        \cmdtxtoparname{ADF}

        % Alternating Independence-Friendly Logic
        \cmdtxtoparname{AIF}

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

...

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

\LEExs ...

\LAAll

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

...

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

\SOL ...

...

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

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

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

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

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

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

\FVarSet ...

...

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

\SVarSet ...

...

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

...

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

```
\TL ...
\PL 1558 % Tree Logic
... 1559 \cmdtxtoparname{TL}
    1560
    1561 % Weak Tree Logic
    1562 \DeclareRobustCommand{\WTL}
    1563   {{\txtname{W}}\TL}
    1564
    1565 % coWeak Tree Logic
    1566 \DeclareRobustCommand{\coWTL}
    1567   {{\txtname{coW}}\TL}
    1568
    1569 % Monadic Tree Logic
    1570 \DeclareRobustCommand{\MTL}
    1571   {{\txtname{M}}\TL}
    1572
    1573 % Weak Monadic Tree Logic
    1574 \DeclareRobustCommand{\WMTL}
    1575   {{\txtname{W}}\MTL}
    1576
    1577 % coWeak Monadic Tree Logic
    1578 \DeclareRobustCommand{\coWMTL}
    1579   {{\txtname{coW}}\MTL}
    1580
    1581 % Path Logic
    1582 \cmdtxtoparname{PL}
    1583
    1584 % Weak Path Logic
    1585 \DeclareRobustCommand{\WPL}
    1586   {{\txtname{W}}\PL}
    1587
    1588 % coWeak Path Logic
    1589 \DeclareRobustCommand{\coWPL}
    1590   {{\txtname{coW}}\PL}
    1591
    1592 % Monadic Path Logic
    1593 \DeclareRobustCommand{\MPL}
    1594   {{\txtname{M}}\PL}
    1595
    1596 % Weak Monadic Path Logic
    1597 \DeclareRobustCommand{\WMPL}
    1598   {{\txtname{W}}\MPL}
    1599
    1600 % coWeak Monadic Path Logic
    1601 \DeclareRobustCommand{\coWMPL}
    1602   {{\txtname{coW}}\MPL}
    1603 %%** Syntax ***********************************************************%%
        ...
    1604 %%** Semantics ********************************************************%%
        ...
    1605 %%** Modal Logics I ****************************************************%%
\ML ...
\GML 1606 % Modal Logic
... 1607 \cmdtxtoparname{ML}
    1608
    1609 % Graded Modal Logic
    1610 \DeclareRobustCommand{\GML}
    1611   {{\txtname{G}}\ML}
    1612
    1613 % Quantified Modal Logic
```

```
1614 \DeclareRobustCommand{\QML}
1615   {{\txtname{Q}}\ML}
1616 \DeclareRobustCommand{\EML}
1617   {\ensuremath{\exists}\ML}
1618 \DeclareRobustCommand{\UML}
1619   {\ensuremath{\forall}\ML}
1620 %%** Syntax ********************************************************************%%

  \Opr ...
1621 \usrmth{Opr}{}{sym}[Op]

 \DMod ...
 \BMod 1622 \usrmth{DMod}{}{sym}[\Diamond]
1623 \usrmth{BMod}{}{sym}[\Box]

  \Exs ...
  \All 1624 \DeclareRobustCommand{\Exs}
1625   {\@ifstar{\@sexs}{\@exs}}
1626 \DeclareRobustCommand{\@sexs}[1]
1627   {\mth{\DMod}[#1]}
1628 \DeclareRobustCommand{\@exs}[1]
1629   {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1630 \DeclareRobustCommand{\All}
1631   {\@ifstar{\@sall}{\@all}}
1632 \DeclareRobustCommand{\@sall}[1]
1633   {\mth{\BMod}[#1]}
1634 \DeclareRobustCommand{\@all}[1]
1635   {\mth{\defval{\argmid{\left[}{#1}{\right]}}{\BMod}}}
1636 %%** Semantics *****************************************************************%%

\KrpStr ...
    ... 1637 \newcommand{\krpstr}{K}
1638 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

\WrlSet ...
    ... 1639 \newcommand{\wrlsym}{w}
1640 \newcommand{\wrlset}{W}
1641 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
1642 \cmdmthsymelm{iwrl}[\wrlsym_{I}]

\AccRel ...
\TrnRel 1643 \newcommand{\accsym}{R}
1644 \cmdmthrel{Acc}[\accsym]
1645 \cmdmthrel{Trn}[\accsym]

\labFun ...
1646 \newcommand{\labsym}{\lambda}
1647 \cmdmthfun{lab}[\labsym]

\PthSet ...
    ... 1648 \providecommand{\pthsym}{\pi}
1649 \providecommand{\pthset}{Pth}
1650 \cmdmthsetext{Pth}[\pthset][\pthsym]
1651 \usrmth{path}{}{argfun}
1652 %%** Modal Logics II **********************************************************%%

   \MC ...
  \GMC 1653 % Mu Calculus
   ... 1654 \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]
1655
1656 % Graded Mu Calculus
```

```
\DeclareRobustCommand{\GMC}
  {{\txtname{G}}\MC}

% Quantified Mu Calculus
\DeclareRobustCommand{\QMC}
  {{\txtname{Q}}\MC}
\DeclareRobustCommand{\EMC}
  {\ensuremath{\exists}\MC}
\DeclareRobustCommand{\UMC}
  {\ensuremath{\forall}\MC}

% Alternation-Free Mu Calculus
\DeclareRobustCommand{\AFMC}
  {{\txtname{AF}}\MC}

% Alternation-Free Graded Mu Calculus
\DeclareRobustCommand{\AFGMC}
  {{\txtname{AF}}\GMC}

% Quantified Alternation-Free Mu Calculus
\DeclareRobustCommand{\QAFMC}
  {{\txtname{Q}}\AFMC}
\DeclareRobustCommand{\EAFMC}
  {\ensuremath{\exists}\AFMC}
\DeclareRobustCommand{\UAFMC}
  {\ensuremath{\forall}\AFMC}

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

...

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

...

```
%%** Temporal Logics I ****************************************************%%
```

\PTL ...
\LTL

```
% Propositional Temporal Logic
\cmdtxtoparname{PTL}

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

% Linear Temporal Logic
\cmdtxtoparname{LTL}

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

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

\X ...

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

```
1712 \usrmth{U}{}{sym}[\,U\,]
1713 \usrmth{R}{}{sym}[\,R\,]
```

\Y ...

...

```
1714 \usrmth{Y}{}{sym}[G\,]
1715 \usrmth{P}{}{sym}[P\,]\let\SavePilcrow\P
1716 \usrmth{H}{}{sym}[H\,]\let\SaveDoubleAcute\H
1717 \usrmth{S}{}{sym}[\,S\,]\let\SaveSectionSymbol\S
1718 \usrmth{B}{}{sym}[\,B\,]
1719 %%** Semantics ****************************************************************%%
```

...

```
1720 %%** Temporal Logics II ********************************************************%%
```

\PDL ...

\CTL

```
1721 % Propositional Dynamic Logic
```

...

```
1722 \cmdtxtoparname{PDL}
1723
1724 % Computation Tree Logic
1725 \cmdtxtoparname{CTL}
1726
1727 % Weak Computation Tree Logic
1728 \DeclareRobustCommand{\WCTL}
1729   {{\txtname{W}}\CTL}
1730
1731 % Quantified Computation Tree Logic
1732 \DeclareRobustCommand{\QCTL}
1733   {{\txtname{Q}}\CTL}
1734 \DeclareRobustCommand{\ECTL}
1735   {\ensuremath{\exists}\CTL}
1736 \DeclareRobustCommand{\UCTL}
1737   {\ensuremath{\forall}\CTL}
1738
1739 % Improved Computation Tree Logic
1740 \cmdtxtoparname{CTLP}[CTL$^{+}$]
1741
1742 % Weak Improved Computation Tree Logic
1743 \DeclareRobustCommand{\WCTLP}
1744   {{\txtname{W}}\CTLP}
1745
1746 % Quantified Improved Computation Tree Logic
1747 \DeclareRobustCommand{\QCTLP}
1748   {{\txtname{Q}}\CTLP}
1749 \DeclareRobustCommand{\ECTLP}
1750   {\ensuremath{\exists}\CTLP}
1751 \DeclareRobustCommand{\UCTLP}
1752   {\ensuremath{\forall}\CTLP}
1753
1754 % Full Computation Tree Logic
1755 \cmdtxtoparname{CTLS}[CTL*]
1756
1757 % Weak Full Computation Tree Logic
1758 \DeclareRobustCommand{\WCTLS}
1759   {{\txtname{W}}\CTLS}
1760
1761 % Quantified Full Computation Tree Logic
1762 \DeclareRobustCommand{\QCTLS}
1763   {{\txtname{Q}}\CTLS}
1764 \DeclareRobustCommand{\ECTLS}
1765   {\ensuremath{\exists}\CTLS}
1766 \DeclareRobustCommand{\UCTLS}
1767   {\ensuremath{\forall}\CTLS}
1768 %%** Syntax ********************************************************************%%
```

```
\E ...
\A 1769 \usrmth{E}{}{sym}
   1770 \usrmth{A}{}{sym}
   1771 %%** Semantics ****************************************************************%%
        ...
   1772 %%** Game Logics I ************************************************************%%

\ATL ...
... 1773 % Alternating Temporal Logic
   1774 \cmdtxtoparname{ATL}
   1775
   1776 % Weak Alternating Tree Logic
   1777 \DeclareRobustCommand{\WATL}
   1778   {{\txtname{W}}\ATL}
   1779
   1780 % Quantified Alternating Temporal Logic
   1781 \DeclareRobustCommand{\QATL}
   1782   {{\txtname{Q}}\ATL}
   1783 \DeclareRobustCommand{\EATL}
   1784   {\ensuremath{\exists}\ATL}
   1785 \DeclareRobustCommand{\UATL}
   1786   {\ensuremath{\forall}\ATL}
   1787
   1788 % Improved Alternating Temporal Logic
   1789 \cmdtxtoparname{ATLP}[ATL$^{+}$]
   1790
   1791 % Weak Improved Alternating Tree Logic
   1792 \DeclareRobustCommand{\WATLP}
   1793   {{\txtname{W}}\ATLP}
   1794
   1795 % Quantified Improved Alternating Temporal Logic
   1796 \DeclareRobustCommand{\QATLP}
   1797   {{\txtname{Q}}\ATLP}
   1798 \DeclareRobustCommand{\EATLP}
   1799   {\ensuremath{\exists}\ATLP}
   1800 \DeclareRobustCommand{\UATLP}
   1801   {\ensuremath{\forall}\ATLP}
   1802
   1803 % Full Alternating Temporal Logic
   1804 \cmdtxtoparname{ATLS}[ATL*]
   1805
   1806 % Weak Full Alternating Tree Logic
   1807 \DeclareRobustCommand{\WATLS}
   1808   {{\txtname{W}}\ATLS}
   1809
   1810 % Quantified Full Alternating Temporal Logic
   1811 \DeclareRobustCommand{\QATLS}
   1812   {{\txtname{Q}}\ATLS}
   1813 \DeclareRobustCommand{\EATLS}
   1814   {\ensuremath{\exists}\ATLS}
   1815 \DeclareRobustCommand{\UATLS}
   1816   {\ensuremath{\forall}\ATLS}
   1817 %%** Syntax ********************************************************************%%

\EExs ...
\AAll 1818 \DeclareRobustCommand{\EExs}[1]
   1819   {\mth{\argmid{\langle\!\langle}{\defval{#1}{\emptyset}}{\rangle\!\rangle}}}
   1820 \DeclareRobustCommand{\AAll}[1]
   1821   {\mth{\argmid{\left[\left[}{\defval{#1}{\emptyset}}{\right]\right]}}}
   1822 %%** Semantics ****************************************************************%%
```

```
   \CGS ...
        1823 \cmdtxtname{CGS}

\CGSStr ...
    ... 1824 \newcommand{\cgsstr}{G}
        1825 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet ...
    ... 1826 \newcommand{\agnsym}{a}
        1827 \newcommand{\agnset}{Ag}
        1828 \cmdmthsetext{Agn}[\agnset][\agnsym]

\ActSet ...
    ... 1829 \newcommand{\actsym}{c}
        1830 \newcommand{\actset}{Ac}
        1831 \cmdmthsetext{Act}[\actset][\actsym]

\PosSet ...
    ... 1832 \providecommand{\possym}{v}
        1833 \providecommand{\posset}{Ps}
        1834 \cmdmthsetext{Pos}[\posset][\possym]
        1835 \cmdmthsymelm{ipos}[\possym_{I}]
        1836 \cmdmthsymelm{fpos}[\possym_{F}]
        1837 \cmdmthset{PPos}[\posset_{\PlrSym}]
        1838 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
        1839 \cmdmthset{OPos}[\posset_{\OppSym}]
        1840 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet ...
    ... 1841 \newcommand{\sttsym}{s}
        1842 \newcommand{\sttset}{St}
        1843 \cmdmthsetext{Stt}[\sttset][\sttsym]
        1844 \cmdmthset{ISt}[\sttset_{I}]
        1845 \cmdmthsymelm{istt}[\sttsym_{I}]
        1846 \cmdmthset{FStt}[\sttset_{F}]
        1847 \cmdmthsymelm{fstt}[\sttsym_{F}]

\DecSet ...
    ... 1848 \newcommand{\decsym}{d}
        1849 \newcommand{\decset}{Dc}
        1850 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ...
\movRel 1851 \newcommand{\movsym}{\tau}
        1852 \cmdmthfun{mov}[\movsym]
        1853 \cmdmthrel{mov}[\movsym]

\trnFun ...
\trnRel 1854 \newcommand{\trnsym}{\delta}
        1855 \cmdmthfun{trn}[\trnsym]
        1856 \cmdmthrel{trn}[\trnsym]

\PrfSet ...
        1857 \providecommand{\prfsym}{\xi}
        1858 \providecommand{\prfset}{Prf}
        1859 \cmdmthsetext{Prf}[\prfset][\prfsym]

\HstSet ...
    ... 1860 \providecommand{\hstsym}{\varpi}
        1861 \providecommand{\hstset}{Hst}
        1862 \cmdmthsetext{Hst}[\hstset][\hstsym]
        1863 \cmdmthset{PHst}[\hstset_{\PlrSym}]
```

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

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

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

\StrSet ...
... \providecommand{\strsym}{\sigma}
\providecommand{\strset}{Str}
\cmdmthsetext{Str}[\strset][\strsym]
\cmdmthset{PStr}[\strset_{\PlrSym}]
\cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
\cmdmthset{OStr}[\strset_{\OppSym}]
\cmdmthsymelm{ostr}[\strsym_{\OppSym}]
%%** Game Logics II ************************************************************%%

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

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

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

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

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

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

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

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

```
1919
1920 % Conjunctive-Goal Plan Logic
1921 \DeclareRobustCommandx{\CGPL}[3][1=, 2=, 3=]
1922   {\PL[#1][#2][cg\arglef{,}{#3}]}
1923
1924 \DeclareRobustCommand{\ECGPL}
1925   {\ensuremath{\exists}\CGPL}
1926 \DeclareRobustCommand{\UCGPL}
1927   {\ensuremath{\forall}\CGPL}
1928
1929 \DeclareRobustCommand{\FCGPL}
1930   {{\txtname{F}}\CGPL}
1931
1932 \DeclareRobustCommand{\EFCGPL}
1933   {\ensuremath{\exists}\FCGPL}
1934 \DeclareRobustCommand{\UFCGPL}
1935   {\ensuremath{\forall}\FCGPL}
1936
1937 % Disjunctive-Goal Plan Logic
1938 \DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]
1939   {\PL[#1][#2][dg\arglef{,}{#3}]}
1940
1941 \DeclareRobustCommand{\EDGPL}
1942   {\ensuremath{\exists}\DGPL}
1943 \DeclareRobustCommand{\UDGPL}
1944   {\ensuremath{\forall}\DGPL}
1945
1946 \DeclareRobustCommand{\FDGPL}
1947   {{\txtname{F}}\DGPL}
1948
1949 \DeclareRobustCommand{\EFDGPL}
1950   {\ensuremath{\exists}\FDGPL}
1951 \DeclareRobustCommand{\UFDGPL}
1952   {\ensuremath{\forall}\FDGPL}
1953
1954 % Alternating-Goal Plan Logic
1955 \DeclareRobustCommandx{\AGPL}[3][1=, 2=, 3=]
1956   {\PL[#1][#2][ag\arglef{,}{#3}]}
1957
1958 \DeclareRobustCommand{\EAGPL}
1959   {\ensuremath{\exists}\AGPL}
1960 \DeclareRobustCommand{\UAGPL}
1961   {\ensuremath{\forall}\AGPL}
1962
1963 \DeclareRobustCommand{\FAGPL}
1964   {{\txtname{F}}\AGPL}
1965
1966 \DeclareRobustCommand{\EFAGPL}
1967   {\ensuremath{\exists}\FAGPL}
1968 \DeclareRobustCommand{\UFAGPL}
1969   {\ensuremath{\forall}\FAGPL}
1970
1971 % Extended-Goal Plan Logic
1972 \DeclareRobustCommandx{\EGPL}[3][1=, 2=, 3=]
1973   {\PL[#1][#2][eg\arglef{,}{#3}]}
1974
1975 \DeclareRobustCommand{\EEGPL}
1976   {\ensuremath{\exists}\EGPL}
1977 \DeclareRobustCommand{\UEGPL}
1978   {\ensuremath{\forall}\EGPL}
1979
1980 \DeclareRobustCommand{\FEGPL}
1981   {{\txtname{F}}\EGPL}
```

```
1982
1983 \DeclareRobustCommand{\EFEGPL}
1984   {\ensuremath{\exists}\FEGPL}
1985 \DeclareRobustCommand{\UFEGPL}
1986   {\ensuremath{\forall}\FEGPL}
1987
1988 % Boolean-Goal Plan Logic
1989 \DeclareRobustCommandx{\BGPL}[3][1=, 2=, 3=]
1990   {\PL[#1][#2][bg\arglef{,}{#3}]}
1991
1992 \DeclareRobustCommand{\EBGPL}
1993   {\ensuremath{\exists}\BGPL}
1994 \DeclareRobustCommand{\UBGPL}
1995   {\ensuremath{\forall}\BGPL}
1996
1997 \DeclareRobustCommand{\FBGPL}
1998   {{\txtname{F}}\BGPL}
1999
2000 \DeclareRobustCommand{\EFBGPL}
2001   {\ensuremath{\exists}\FBGPL}
2002 \DeclareRobustCommand{\UFBGPL}
2003   {\ensuremath{\forall}\FBGPL}
2004
2005 % Undefined-Goal Plan Logic
2006 \DeclareRobustCommandx{\XGPL}[3][1=, 2=, 3=]
2007   {\PL[#1][#2][xg\arglef{,}{#3}]}
2008
2009 \DeclareRobustCommand{\EXGPL}
2010   {\ensuremath{\exists}\XGPL}
2011 \DeclareRobustCommand{\UXGPL}
2012   {\ensuremath{\forall}\XGPL}
2013
2014 \DeclareRobustCommand{\FXGPL}
2015   {{\txtname{F}}\XGPL}
2016
2017 \DeclareRobustCommand{\EFXGPL}
2018   {\ensuremath{\exists}\FXGPL}
2019 \DeclareRobustCommand{\UFXGPL}
2020   {\ensuremath{\forall}\FXGPL}
```

\SL ...

```
... 2021 % Strategy Logic
2022 \cmdtxtoparname{SL}
2023
2024 \DeclareRobustCommand{\ESL}
2025   {\ensuremath{\exists}\SL}
2026 \DeclareRobustCommand{\USL}
2027   {\ensuremath{\forall}\SL}
2028
2029 \DeclareRobustCommand{\FSL}
2030   {{\txtname{F}}\SL}
2031
2032 \DeclareRobustCommand{\EFSL}
2033   {\ensuremath{\exists}\FSL}
2034 \DeclareRobustCommand{\UFSL}
2035   {\ensuremath{\forall}\FSL}
2036
2037 % One-Goal Strategy Logic
2038 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
2039   {\SL[#1][#2][1g\arglef{,}{#3}]}
2040
2041 \DeclareRobustCommand{\EOGSL}
2042   {\ensuremath{\exists}\OGSL}
2043 \DeclareRobustCommand{\UOGSL}
```

```
  {\ensuremath{\forall}\OGSL}

\DeclareRobustCommand{\FOGSL}
  {{\txtname{F}}\OGSL}

\DeclareRobustCommand{\EFOGSL}
  {\ensuremath{\exists}\FOGSL}
\DeclareRobustCommand{\UFOGSL}
  {\ensuremath{\forall}\FOGSL}

% Conjunctive-Goal Strategy Logic
\DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][cg\arglef{,}{#3}]}

\DeclareRobustCommand{\ECGSL}
  {\ensuremath{\exists}\CGSL}
\DeclareRobustCommand{\UCGSL}
  {\ensuremath{\forall}\CGSL}

\DeclareRobustCommand{\FCGSL}
  {{\txtname{F}}\CGSL}

\DeclareRobustCommand{\EFCGSL}
  {\ensuremath{\exists}\FCGSL}
\DeclareRobustCommand{\UFCGSL}
  {\ensuremath{\forall}\FCGSL}

% Disjunctive-Goal Strategy Logic
\DeclareRobustCommandx{\DGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][dg\arglef{,}{#3}]}

\DeclareRobustCommand{\EDGSL}
  {\ensuremath{\exists}\DGSL}
\DeclareRobustCommand{\UDGSL}
  {\ensuremath{\forall}\DGSL}

\DeclareRobustCommand{\FDGSL}
  {{\txtname{F}}\DGSL}

\DeclareRobustCommand{\EFDGSL}
  {\ensuremath{\exists}\FDGSL}
\DeclareRobustCommand{\UFDGSL}
  {\ensuremath{\forall}\FDGSL}

% Alternating-Goal Strategy Logic
\DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][ag\arglef{,}{#3}]}

\DeclareRobustCommand{\EAGSL}
  {\ensuremath{\exists}\AGSL}
\DeclareRobustCommand{\UAGSL}
  {\ensuremath{\forall}\AGSL}

\DeclareRobustCommand{\FAGSL}
  {{\txtname{F}}\AGSL}

\DeclareRobustCommand{\EFAGSL}
  {\ensuremath{\exists}\FAGSL}
\DeclareRobustCommand{\UFAGSL}
  {\ensuremath{\forall}\FAGSL}

% Extended-Goal Strategy Logic
\DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
```

```
  {\SL[#1][#2][eg\arglef{,}{#3}]}

\DeclareRobustCommand{\EEGSL}
  {\ensuremath{\exists}\EGSL}
\DeclareRobustCommand{\UEGSL}
  {\ensuremath{\forall}\EGSL}

\DeclareRobustCommand{\FEGSL}
  {{\txtname{F}}\EGSL}

\DeclareRobustCommand{\EFEGSL}
  {\ensuremath{\exists}\FEGSL}
\DeclareRobustCommand{\UFEGSL}
  {\ensuremath{\forall}\FEGSL}

% Boolean-Goal Strategy Logic
\DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][bg\arglef{,}{#3}]}

\DeclareRobustCommand{\EBGSL}
  {\ensuremath{\exists}\BGSL}
\DeclareRobustCommand{\UBGSL}
  {\ensuremath{\forall}\BGSL}

\DeclareRobustCommand{\FBGSL}
  {{\txtname{F}}\BGSL}

\DeclareRobustCommand{\EFBGSL}
  {\ensuremath{\exists}\FBGSL}
\DeclareRobustCommand{\UFBGSL}
  {\ensuremath{\forall}\FBGSL}

% Nested-Goal Strategy Logic
\DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][ng\arglef{,}{#3}]}

\DeclareRobustCommand{\ENGSL}
  {\ensuremath{\exists}\NGSL}
\DeclareRobustCommand{\UNGSL}
  {\ensuremath{\forall}\NGSL}

\DeclareRobustCommand{\FNGSL}
  {{\txtname{F}}\NGSL}

\DeclareRobustCommand{\EFNGSL}
  {\ensuremath{\exists}\FNGSL}
\DeclareRobustCommand{\UFNGSL}
  {\ensuremath{\forall}\FNGSL}

% Undefined-Goal Strategy Logic
\DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][xg\arglef{,}{#3}]}

\DeclareRobustCommand{\EXGSL}
  {\ensuremath{\exists}\XGSL}
\DeclareRobustCommand{\UXGSL}
  {\ensuremath{\forall}\XGSL}

\DeclareRobustCommand{\FXGSL}
  {{\txtname{F}}\XGSL}

\DeclareRobustCommand{\EFXGSL}
  {\ensuremath{\exists}\FXGSL}
```

```
\DeclareRobustCommand{\UFXGSL}
  {\ensuremath{\forall}\FXGSL}
%%** Syntax ********************************************************************%%

\BndSet ...
... \newcommand{\bndsym}{\flat}
\newcommand{\bndset}{Bn}
\cmdmthsetext{Bnd}[\bndset][\bndsym]
\cmdmthsymelm{idbnd}[\bndsym_{\text{id}}]
\usrmth{bnd}{}{argfun}

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

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

\nxt ...
\usrmth{nxt}{}{argfun}

\fi
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Macros for Automata ********************************************************%%
%%*****************************************************************************%%
\ifaut@
%%** Finite Word Automata ******************************************************%%

\DFA ...
... \cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}

\cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}

\cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
\cmdtxtoparname{DWW}\cmdtxtoparname{NWW}\cmdtxtoparname{UWW}\cmdtxtoparname{AWW}
\cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
\cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
\cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
\cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
\cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
\cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

\GFG ...
... \cmdtxtoparname{GFG}

\cmdtxtoparname{PD}
\cmdtxtoparname{PN}

\cmdtxtoparname{LD}
\cmdtxtoparname{LN}
%%** Syntax ********************************************************************%%

\AutName ...
... \newcommand{\autname}{A}
\usrmthlatupp{Aut}{Name}{name}[\autname]
\newcommand{\autset}{Aut}
\cmdmthset{Aut}[\autset]

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

```
\SymSet ...
    ... 2214 \newcommand{\symsym}{\sigma}
        2215 \newcommand{\symset}{\Sigma}
        2216 \cmdmthsetext{Sym}[\symset][\symsym]

\SttSet ...
    ... 2217 \providecommand{\sttsym}{q}
        2218 \providecommand{\sttset}{Q}
        2219 \cmdmthsetext{Stt}[\sttset][\sttsym]
        2220 \cmdmthset{IStt}[\sttset_{I}]
        2221 \cmdmthsymelm{istt}[\sttsym_{I}]
        2222 \cmdmthset{FStt}[\sttset_{F}]
        2223 \cmdmthsymelm{fstt}[\sttsym_{F}]

\trnFun ...
\trnRel 2224 \providecommand{\trnsym}{\delta}
        2225 \cmdmthfun{trn}[\trnsym]
        2226 \cmdmthrel{trn}[\trnsym]
        2227 %%** Semantics ********************************************************************%%

\WrdSet ...
    ... 2228 \newcommand{\wrdsym}{w}
        2229 \newcommand{\wrdset}{Wr}
        2230 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

  \Lang ...
        2231 \usrmth{Lang}{}{argfun}[L]

        2232 %%** Finite Tree Automata *********************************************************%%

   \DTA ...
    ... 2233 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
        2234
        2235 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
        2236 \cmdtxtoparname{DWT}\cmdtxtoparname{NWT}\cmdtxtoparname{UWT}\cmdtxtoparname{AWT}
        2237 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
        2238 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
        2239 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
        2240 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
        2241 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
        2242 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}
        2243 %%** Syntax ************************************************************************%%

\TAutSet ...
        2244 \newcommand{\tautset}{TAut}
        2245 \cmdmthset{TAut}[\tautset]

\DirSet ...
    ... 2246 \newcommand{\dirsym}{d}
        2247 \newcommand{\dirset}{\Lambda}
        2248 \cmdmthsetext{Dir}[\dirset][\dirsym]
        2249 %%** Semantics ********************************************************************%%

\TreeSet ...
    ... 2250 \newcommand{\treesym}{T}
        2251 \newcommand{\treeset}{Tr}
        2252 \cmdmthsetext{Tree}[\treeset][\treesym]

   \wot ...
        2253 \usrmth{wot}{}{argfun}
```

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

... ...
%%...

\fi
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Figure Tricks ************************************************************%%
%%*****************************************************************************%%
\iffig@
\RequirePackage{tikz}
\usetikzlibrary{arrows,shapes,patterns,graphs,matrix}
\tikzstyle{every node} =
  [draw = none, fill = none, black, thin]
\tikzstyle{every edge} +=
  [black, thick]
\tikzstyle{noall} =
  [draw = none, fill = none]
\tikzstyle{nodraw} =
  [draw = none, fill = white]
\tikzstyle{nofill} =
  [draw = black, fill = none]
\ifwrpfig@
  % Wrapfig Package
  \RequirePackage{wrapfig}
\fi
\fi
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Table Tricks *************************************************************%%
%%*****************************************************************************%%
\iftab@

... ...
%%...

\fi
%%*****************************************************************************%%
%%*****************************************************************************%%
%%** Algorithm Tricks *********************************************************%%
%%*****************************************************************************%%
\ifalg@
\RequirePackage[ruled,vlined]{algorithm2e}
\DontPrintSemicolon
\SetInd{0.25em}{0.5em}
\setlength{\algomargin}{1.25em}

\Signature ...
\SetKw{Signature}{signature}

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

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

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

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

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

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

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

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

      \endinput
      ⟨/package⟩
```

2 Change History

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

3 Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

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