fmocdmac — FM's OCD LaTeX Macro*

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Abstract

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

1 Implementation & Usage

```
⟨*package⟩
```

Required external packages:

```
\RequirePackage{etoolbox}

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

\RequirePackage{loops}

\RequirePackage{amsmath}
\RequirePackage{amssymb}
\interdisplaylinepenalty=2500

```

Package options:

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

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

%% Elementary macros for text
\newif\iftext@ \text@false
\DeclareOption{text}{\text@true\txtgen@true}
\DeclareOption{notext}{\text@false}

%% Elementary macros for math
\newif\ifmath@ \math@false
\DeclareOption{math}{\math@true\mthgen@true}
\DeclareOption{nomath}{\math@false}
```

*This document describes version v0.1 of the fmocdmac package, last revised 2021/01/02.

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

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

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

%% Macros for automata
\newif\ifaut@ \aut@false
\DeclareOption{aut}{\aut@true\txtgen@true\mthgen@true}
\DeclareOption{noaut}{\aut@false}

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

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

%% 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}

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

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

Option-processing code:

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

\ExecuteOptions{txtgen,mthgen,text,math,com,gam,log,aut,aux}%

\ProcessOptions\relax%

%%*************************************************************************%%
%%** Auxiliary Font Declarations ******************************************%%
%%*************************************************************************%%
```

`\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}}

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```
\newcommand{\arglef}[2]
  {\empchk{#2}{#1\allowbreak#2}}
```

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

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

```
\newcommand{\argrig}[2]
  {\empchk{#1}{#1\allowbreak#2}}
```

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

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

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

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

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

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

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

`\varcmd` **Variadic commands:** `\varcmd{`$\langle A\rangle$`}{`$\langle B\rangle$`}{`$\langle C\rangle$`}{`$\langle D\rangle$`}{`$\langle E\rangle$`}{`$\langle F\rangle$`}` ... to do!

```
\newcommand{\varcmd}[6]
  {\expandafter\newcommand\csname gobble#1arg\endcsname[2]
    {\csname check#1arg\endcsname{\argsep{##1}{#4}{##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{`$\langle A\rangle$`}{`$\langle B\rangle$`}{`$\langle C\rangle$`}` ... to do!

```
\newcommand{\seqoftag}[3]
  {\newforeach \itr in {#1}%
    {\expandafter\csedef{\itr#2}%
      {\noexpand\csname #3\endcsname{\itr}}}}
```

`\seqofcmd` **Sequence of commands:** `\seqofcmd{`$\langle A\rangle$`}{`$\langle B\rangle$`}{`$\langle C\rangle$`}` ... to do!

```
\newcommand{\seqofcmd}[3]
  {\newforeach \itr in {#1}%
    {\expandafter\csedef{\itr#2}%
      {\noexpand\csname #3\endcsname{\csname \itr\endcsname}}}}

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

%%*****************************************************************************%%
%%** 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] = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext}$"

```
\newcommandx{\newtxt}[5][1=, 3=, 4=, 5=]
  {\text{#1#2\txtsubsup[#1]{#3}{#4}#5}\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] = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext}$"

```
\newcommandx{\newtxtsty}[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] = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1(Arg)Ext2}$"

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

```
\newcommandx{\newtxtargsty}[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]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}(\mathtt{Arg})$"

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

```
\newcommandx{\newtxtoargsty}[2][2=]
  {\newtxtoarg[\defval{#2}{#1}]}
```

`\newtxtpar` ... to do!

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

```
\newcommandx{\newtxtpar}[7][1=, 3=, 4=, 5=, 7=]
  {\newtxt[#1]{#2}[#3][#4][#5\argmid{[}{#6}{]}#7]}
```

`\newtxtparsty` ... to do!

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

```
\newcommandx{\newtxtparsty}[2][2=]
  {\newtxtpar[\defval{#2}{#1}]}
```

`\newtxtopar` ... to do!

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

```
\newcommandx{\newtxtopar}[5][1=, 3=, 4=, 5=]
  {\newtxtpar[#1]{#2}[#3][#4][]{#5}[]}
```

`\newtxtoparsty` ... to do!

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

```
\newcommandx{\newtxtoparsty}[2][2=]
  {\newtxtopar[\defval{#2}{#1}]}
```

`\txtsubsup` ... to do!

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

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

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

`\txt` ... to do!

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

```
\newcommand{\txt}
  {\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]` = "$\mathbf{Name}_{\mathbf{sub}}^{\mathbf{sup}}\mathbf{Ext1(Arg)Ext2}$"

```
\newcommand{\txtarg}
  {\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]` = "$\mathbf{Name}_{\mathbf{sub}}^{\mathbf{sup}}\mathbf{(Arg)}$"

```
\newcommand{\txtoarg}
  {\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]` = "$\mathbf{Name}_{\mathbf{sub}}^{\mathbf{sup}}\mathbf{Ext1[Par]Ext2}$"

```
\newcommand{\txtpar}
  {\newtxtparsty{\txtsty}}
```

`\txtopar` ... to do!

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

```
\newcommand{\txtopar}
  {\newtxtoparsty{\txtsty}}
```

`\txtsty` ... to do!

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

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

`\cmdtxt` ... to do!

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

```
\newcommand{\cmdtxt}[1]
  {\csdef{txt#1}{\newtxtsty{\csname txtsty#1\endcsname}}}
```

`\cmdtxtarg` ... to do!

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

```
\newcommand{\cmdtxtarg}[1]
  {\csdef{txtarg#1}{\newtxtargsty{\csname txtsty#1\endcsname}}}
```

`\cmdtxtoarg` ... to do!

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

```
\newcommand{\cmdtxtoarg}[1]
  {\csdef{txtoarg#1}{\newtxtoargsty{\csname txtsty#1\endcsname}}}
```

`\cmdtxtpar` ... to do!

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

```
\newcommand{\cmdtxtpar}[1]
  {\csdef{txtpar#1}{\newtxtparsty{\csname txtsty#1\endcsname}}}
```

`\cmdtxtopar` ... to do!

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

```
\newcommand{\cmdtxtopar}[1]
  {\csdef{txtopar#1}{\newtxtoparsty{\csname txtsty#1\endcsname}}}
```

`\cmdtxtall` ... to do!

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

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

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

`\usrtxt` ... to do!

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

```
\newcommandx{\usrtxt}[4][4=]
  {\csdef{#1#2}{\csname txt#3\endcsname{\defval{#4}{#1}}}}

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

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

`\newmth` ... to do!

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

```
\newcommandx{\newmth}[5][1=, 3=, 4=, 5=]
  {\ensuremath{\csname#1\endcsname{#2}\mthsubsup{#3}{#4}#5}}
```

`\newmthsty` ... to do!

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

```
\newcommandx{\newmthsty}[2][2=]
  {\newmth[\defval{#2}{#1}]}
```

`\newmtharg` ... to do!

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

```
\newcommandx{\newmtharg}[7][1=, 3=, 4=, 5=, 7=]
  {\newmth[#1]{#2}[#3][#4][#5\argmid{\!\left(}{#6}{\right)\!}#7]}
```

\newmthargsty ... to do!

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

```
\newcommandx{\newmthargsty}[2][2=]
  {\newmtharg[\defval{#2}{#1}]}
```

\newmthoarg ... to do!

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

```
\newcommandx{\newmthoarg}[5][1=, 3=, 4=, 5=]
  {\newmtharg[#1]{#2}[#3][#4][]{#5}[]}
```

\newmthoargsty ... to do!

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

```
\newcommandx{\newmthoargsty}[2][2=]
  {\newmthoarg[\defval{#2}{#1}]}
```

\newmthpar ... to do!

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

```
\newcommandx{\newmthpar}[7][1=, 3=, 4=, 5=, 7=]
  {\newmth[#1]{#2}[#3][#4][#5\argmid{\!\left[}{#6}{\right]\!}#7]}
```

\newmthparsty ... to do!

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

```
\newcommandx{\newmthparsty}[2][2=]
  {\newmthpar[\defval{#2}{#1}]}
```

\newmthopar ... to do!

- \newmthopar[mathrm]{Name}[sub][sup][Par] = "$\mathrm{Name}_{sub}^{sup}[Par]$"
- \newmthopar[mathsf]{Name}[sub][sup][Par] = "$\mathsf{Name}_{sub}^{sup}[Par]$"
- \newmthopar[mathtt]{Name}[sub][sup][Par] = "$\mathtt{Name}_{sub}^{sup}[Par]$"

```
\newcommandx{\newmthopar}[5][1=, 3=, 4=, 5=]
  {\newmthpar[#1]{#2}[#3][#4][]{#5}[]}
```

\newmthoparsty ... to do!

- \newmthoparsty{mathrm}{Name}[sub][sup][Par] = "$\mathrm{Name}_{sub}^{sup}[Par]$"
- \newmthoparsty{mathrm}[mathsf]{Name}[sub][sup][Par] = "$\mathsf{Name}_{sub}^{sup}[Par]$"
- \newmthoparsty{mathrm}[mathtt]{Name}[sub][sup][Par] = "$\mathtt{Name}_{sub}^{sup}[Par]$"

```
\newcommandx{\newmthoparsty}[2][2=]
  {\newmthopar[\defval{#2}{#1}]}
```

\mthsubsup ... to do!

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

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

`\mth` ... to do!

- `\mth{Name}[sub][sup][Ext]` = "$\texttt{Name}_{sub}^{sup}Ext$"
- `\mth[mathbf]{Name}[sub][sup][Ext]` = "$\mathbf{Name}_{sub}^{sup}Ext$"
- `\mth[mathtt]{Name}[sub][sup][Ext]` = "$\texttt{Name}_{sub}^{sup}Ext$"

```
\newcommand{\mth}
  {\newmthsty{\mthsty}}
```

`\mtharg` ... to do!

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

```
\newcommand{\mtharg}
  {\newmthargsty{\mthsty}}
```

`\mthoarg` ... to do!

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

```
\newcommand{\mthoarg}
  {\newmthoargsty{\mthsty}}
```

`\mthpar` ... to do!

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

```
\newcommand{\mthpar}
  {\newmthparsty{\mthsty}}
```

`\mthopar` ... to do!

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

```
\newcommand{\mthopar}
  {\newmthoparsty{\mthsty}}
```

`\mthsty` ... to do!

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

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

`\cmdmth` ... to do!

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

```
\newcommand{\cmdmth}[1]
  {\csdef{mth#1}{\newmthsty{mthsty#1}}}
```

`\cmdmtharg` ... to do!

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

```
\newcommand{\cmdmtharg}[1]
  {\csdef{mtharg#1}{\newmthargsty{mthsty#1}}}
```

`\cmdmthoarg` ... to do!

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

```
\newcommand{\cmdmthoarg}[1]
  {\csdef{mthoarg#1}{\newmthoargsty{mthsty#1}}}
```

`\cmdmthpar` ... to do!

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

```
\newcommand{\cmdmthpar}[1]
  {\csdef{mthpar#1}{\newmthparsty{mthsty#1}}}
```

`\cmdmthopar` ... to do!

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

```
\newcommand{\cmdmthopar}[1]
  {\csdef{mthopar#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}[Ext2]` = $\texttt{Name}_{sub}^{sup}Ext1(Arg)Ext2$
  `\mthoargNewCmd{Name}[sub][sup][Arg]` = $\texttt{Name}_{sub}^{sup}(Arg)$
  `\mthparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2]` = $\texttt{Name}_{sub}^{sup}Ext1[Par]Ext2$
  `\mthoparNewCmd{Name}[sub][sup][Par]` = $\texttt{Name}_{sub}^{sup}[Par]$

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

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

`\usrmth` ... to do!

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

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

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

`\usrmthlatlow` ... to do!

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

`\usrmthlatupp` ... to do!

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

`\usrmthlatlet` ... to do!

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

`\usrmthgrklow` ... to do!

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

`\usrmthgrkupp` ... to do!

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

`\usrmthgrklet` ... to do!

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

`\usrmthlow` ... to do!

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

`\usrmthupp` ... to do!

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

`\usrmthlet` ... to do!

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

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

`\txtdef, ...` ... to do!

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

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

`\cmdtxtdef` ... to do!

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

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

`\cmdtxtargdef` ... to do!

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

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

`\cmdtxtoargdef` ... to do!

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

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

`\cmdtxtpardef` ... to do!

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

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

`\cmdtxtopardef` ... to do!

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

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

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

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

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

`\cmdtxtabr` ... to do!

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

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

`\cmdtxtargabr` ... to do!

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

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

`\cmdtxtoargabr` ... to do!

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

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

`\cmdtxtparabr` ... to do!

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

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

`\cmdtxtoparabr` ... to do!

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

```
\newcommandx{\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}{\mdseries\scshape\sffamily}
```

`\cmdtxtname` ... to do!

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

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

`\cmdtxtargname` ... to do!

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

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

`\cmdtxtoargname` ... to do!

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

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

`\cmdtxtparname` ... to do!

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

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

`\cmdtxtoparname` ... to do!

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

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

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

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

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

`\cmdtxtcom` ... to do!

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

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

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

`\cmdtxtargcom` ... to do!

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

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

`\cmdtxtoargcom` ... to do!

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

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

`\cmdtxtparcom` ... to do!

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

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

`\cmdtxtoparcom` ... to do!

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

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

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

`\mthname, ...` ... to do!

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

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

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

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

`\cmdmthname` ... to do!

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

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

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

\cmdmthargname ... to do!

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

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

\cmdmthoargname ... to do!

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

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

\cmdmthparname ... to do!

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

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

\cmdmthoparname ... to do!

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

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

\mthfam, ... to do!

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

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

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

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

\cmdmthfam ... to do!

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

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

\cmdmthargfam ... to do!

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

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

`\cmdmthoargfam` ... to do!

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

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

`\cmdmthparfam` ... to do!

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

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

`\cmdmthoparfam` ... to do!

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

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

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

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

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

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

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

\cmdmthoargcls ... to do!

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

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

\cmdmthparcls ... to do!

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

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

\cmdmthoparcls ... to do!

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

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

\mthsig, ... to do!

- \mthsig{Name}[sub][sup][Ext] = $\mathit{Name}^{sup}_{sub}Ext$
- \mthargsig{Name}[sub][sup][Ext1]{Arg}[Ext2] = $\mathit{Name}^{sup}_{sub}Ext1(Arg)Ext2$
- \mthparsig{Name}[sub][sup][Ext1]{Par}[Ext2] = $\mathit{Name}^{sup}_{sub}Ext1[Par]Ext2$

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

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

\cmdmthargsig ... to do!

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

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

\cmdmthoargsig ... to do!

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

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

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

`\cmdmthparsig` ... to do!

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

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

`\cmdmthoparsig` ... to do!

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

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

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

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

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

`\aStr, ...` ... to do!

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

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

`\cmdmthstr` ... to do!

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

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

`\cmdmthargstr` ... to do!

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

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

`\cmdmthoargstr` ... to do!

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

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

`\cmdmthparstr` ... to do!

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

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

`\cmdmthoparstr` ... to do!

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

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

`\mthset, ...` ... to do!

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

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

`\aSet, ...` ... to do!

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

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

`\cmdmthset` ... to do!

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

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

`\cmdmthargset` ... to do!

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

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

`\cmdmthoargset` ... to do!

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

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

`\cmdmthparset` ... to do!

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

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

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

`\cmdmthoparset` ... to do!

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

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

`\cmdmthsetext` ... to do!

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

`\mthrel, ...` ... to do!

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

```
%% 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, 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{Rel}{mthrel}
```

`\cmdmthrel` ... to do!

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

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

`\cmdmthargrel` ... to do!

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

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

`\cmdmthoargrel` ... to do!

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

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

`\cmdmthparrel` ... to do!

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

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

`\cmdmthoparrel` ... to do!

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

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

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

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

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

`\aFun, ...` ... to do!

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

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

`\cmdmthfun` ... to do!

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

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

`\cmdmthargfun` ... to do!

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

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

`\cmdmthoargfun` ... to do!

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

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

`\cmdmthparfun` ... to do!

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

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

`\cmdmthoparfun` ... to do!

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

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

`\mthsym, ...` ... to do!

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

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

`\aSym, ...` ... to do!

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

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

`\cmdmthsym` ... to do!

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

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

`\cmdmthargsym` ... to do!

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

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

`\cmdmthoargsym` ... to do!

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

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

`\cmdmthparsym` ... to do!

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

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

`\cmdmthoparsym` ... to do!

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

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

\mthelm, ... to do!

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

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

\aElm, ... to do!

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

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

\cmdmthelm ... to do!

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

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

\cmdmthargelm ... to do!

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

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

\cmdmthoargelm ... to do!

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

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

\cmdmthparelm ... to do!

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

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

\cmdmthoparelm ... to do!

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

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

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

`\cmdmthsymelm` ... to do!

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

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

`\cmdmthargsymelm` ... to do!

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

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

`\cmdmthoargsymelm` ... to do!

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

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

`\cmdmthparsymelm` ... to do!

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

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

`\cmdmthoparsymelm` ... to do!

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

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

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

`\mthsnt, ...` ... to do!

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

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

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

`\cmdmthsnt` ... to do!

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

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

`\cmdmthargsnt` ... to do!

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

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

`\cmdmthoargsnt` ... to do!

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

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

`\cmdmthparsnt` ... to do!

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

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

`\cmdmthoparsnt` ... to do!

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

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

`\mthfrm, ...` ... to do!

- `\mthfrm{Name}[sub][sup][Ext]` = $Name_{sub}^{sup}Ext$

- `\mthargfrm{Name}[sub][sup][Ext1]{Arg}[Ext2]` = $Name_{sub}^{sup}Ext1(Arg)Ext2$
- `\mthparfrm{Name}[sub][sup][Ext1]{Par}[Ext2]` = $Name_{sub}^{sup}Ext1[Par]Ext2$

```
%% 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]` = $NewName_{sub}^{sub}ext$

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

`\cmdmthargfrm` ... to do!

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

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

`\cmdmthoargfrm` ... to do!

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

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

`\cmdmthparfrm` ... to do!

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

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

`\cmdmthoparfrm` ... to do!

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

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

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

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

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

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

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

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

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

`\cmdmthmat` ... to do!

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

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

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

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

`\cmdmthparmat` ... to do!

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

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

`\cmdmthoparmat` ... to do!

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

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

`\mthvec, ...` ... to do!

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

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

`\aVec, ...` ... to do!

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

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

`\cmdmthvec` ... to do!

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

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

`\cmdmthargvec` ... to do!

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

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

`\cmdmthoargvec` ... to do!

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

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

`\cmdmthparvec` ... to do!

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

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

`\cmdmthoparvec` ... to do!

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

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

\fi
%%*************************************************************************%%
%%*************************************************************************%%
%%** Elementary Macros for Text ********************************************%%
%%*************************************************************************%%
\iftext@
%%** Latin Abbreviations **************************************************%%
```

`\adhoc`

- `\adhoc` = *ad hoc*

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

```
\afortiori
```
- \afortiori = *a fortiori*

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

```
\apriori
```
- \apriori = *a priori*

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

```
\cf
```
- \cf = *cf.*

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

```
\dedicto
```
- \dedicto = *de dicto*

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

```
\defacto
```
- \defacto = *de facto*

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

```
\dere
```
- \dere = *de re*

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

```
\divideetimpera
```
- \divideetimpera = *divide et impera*

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

```
\eg
```
- \eg = *e.g.*

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

```
\ergo
```
- \ergo = *ergo*

```
578 \cmdtxtabr{ergo}
```

```
\errata
```
- \errata = *errata*

```
579 \cmdtxtabr{errata}
```

```
\erratum
```
- \erratum = *erratum*

```
580 \cmdtxtabr{erratum}
```

```
\etal
```
- \etal = *et al.*

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

```
\etc
```
- \etc = *etc.*

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

```
\ie
```
- \ie = *i.e.*

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

```
\mutatismutandis
```
- \mutatismutandis = *mutatis mutandis*

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

```
\percontra
```
- \percontra = *per contra*

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

```
\viceversa
```
- \viceversa = *vice versa*

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

```
\vs
```
- \vs = *vs.*

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

```
\viz
```
- \viz = *viz.*

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

589 %%*****************************************************************************%%
```

\Dedicto • \Dedicto = *De dicto*

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

\Defacto • \Defacto = *De facto*

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

\Dere • \Dere = *De re*

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

\Divideetimpera • \Divideetimpera = *Divide et impera*

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

\Eg • \Eg = *E.g.*

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

\Errata • \Errata = *Errata*

```
595 \cmdtxtabr{Errata}
```

\Erratum • \Erratum = *Erratum*

```
596 \cmdtxtabr{Erratum}
```

\Percontra • \Percontra = *Per contra*

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

\Viceversa • \Viceversa = *Vice versa*

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

```
599 %%** Italian Abbreviations ************************************************%%
```

...

```
600 %%*************************************************************************%%
```

...

```
601 %%** French Abbreviations **************************************************%%
```

\role • \role = *rôle*

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

```
603 %%*************************************************************************%%
```

\Role • \Role = *Rôle*

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

```
605 %%** English Abbreviations **************************************************%%
```

\aka • \aka = *a.k.a.*

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

\contd • \contd = *contd.*

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

\iff • \iff = *iff*

```
608 \cmdtxtabr{iff}
```

\stx • \stx = *s.t.*

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

\resp • \resp = *resp.*

```
610 \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 *******************************************%%
%%*************************************************************************%%
\ifmath@
%%** General Notation *****************************************************%%
```

\implies, ...

```
\DeclareRobustCommand{\implies}
  {\ensuremath{\Rightarrow}}
\DeclareRobustCommand{\coimplies}
  {\ensuremath{\Leftrightarrow}}

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

\defeq, \seteq ...

```
\DeclareMathOperator{\defeq}
  {\ensuremath{\triangleq}}
\DeclareMathOperator{\seteq}
  {\ensuremath{:\!=\,}}

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

\cmodels, ...

```
\DeclareRobustCommand{\cmodels}
  {\mth{\,\models}}
\DeclareRobustCommand{\notcmodels}
  {\mth{\,\not\models}}
```

\cequiv, ...

```
\DeclareRobustCommand{\cequiv}
  {\mth{\,\equiv}}
\DeclareRobustCommand{\notcequiv}
  {\mth{\,\not\equiv}}

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

\dual, \adj, ...

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

\vec …

```
\let\oldvec\vec
\DeclareRobustCommand{\vec}[1]
  {\mth{\oldvec{#1}}}
```

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

\enumeration, ... …

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

\sequence, ... …

```
\varcmd{sequence}{\mth}{\left[}{,}{\right]}{}
\varcmd{sequencex}{\mth}{\left[}{;}{\right]}{}
```

\tuple, ... …

```
\varcmd{tuple}{\mth}{\left\langle}{,}{\right\rangle}{}
\varcmd{tuplex}{\mth}{\left\langle}{;}{\right\rangle}{}
```

```
%%** Sets ********************************************************************%%
```

\set …

```
\DeclareRobustCommand{\set}[2]
  {\mth{\argmid{\{\,}{\argsep{#1}{\allowbreak\mid\allowbreak}{#2}}{\,\}}}}
```

\card …

```
\DeclareRobustCommand{\card}[1]
  {\mth{\argmid{\lvert}{#1}{\rvert}}}
```

\denot …

```
\DeclareRobustCommand{\denot}[1]
  {\mth{\argmid{\lVert}{#1}{\rVert}}}
```

\pow …

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

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

\emptyrel …

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

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

\dom, \cod, ... …

```
\DeclareRobustCommand{\dom}
  {\mthargfun{dom}}
\DeclareRobustCommand{\cod}
  {\mthargfun{cod}}
\DeclareRobustCommand{\rng}
  {\mthargfun{rng}}
\DeclareRobustCommand{\img}
  {\mthargfun{img}}
```

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

\prj …

```
\DeclareRobustCommand{\prj}
  {\mthargfun{prj}}
```

\rst …

```
\DeclareMathOperator{\rst}
  {\ensuremath{\upharpoonright}}
```

```
          \cmp  ...
                686 \DeclareMathOperator{\cmp}
                687   {\ensuremath{\circ}}

                688 %%** Functions ******************************************************************%%

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

                691 %%*************************************************************************************%%

  \pto, \pmapsto  ...
                692 \DeclareMathOperator{\pto}
                693   {\ensuremath{\rightharpoonup}}
                694 \DeclareMathOperator{\pmapsto}
                695   {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize${\llcorner}$}%
                696     \kern-1.5ex\rightharpoonup}}}

                697 %%*************************************************************************************%%

\Aomega, \AOmega  ...
                698 \DeclareRobustCommand{\Aomega}
                699   {\mthargset{\omega}}
                700 \DeclareRobustCommand{\AOmega}
                701   {\mthargset{\Omega}}

\Atheta, \ATheta  ...
                702 \DeclareRobustCommand{\Atheta}
                703   {\mthargset{\theta}}
                704 \DeclareRobustCommand{\ATheta}
                705   {\mthargset{\Theta}}

  \Aomicron, ...  ...
                706 \DeclareRobustCommand{\Aomicron}
                707   {\mthargset{\omicron}}
                708 \DeclareRobustCommand{\AOmicron}
                709   {\mthargset{\Omicron}}

                710 %%** Numbers *************************************************************************%%

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

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

      \SetN, ...  ...
                715 \DeclareRobustCommand{\SetN}
                716   {\mthset[mathbb]{N}}
                717 \DeclareRobustCommand{\SetNI}[1][]
                718   {\SetN[\infty #1]}

      \SetZ, ...  ...
                719 \DeclareRobustCommand{\SetZ}
                720   {\mthset[mathbb]{Z}}
                721 \DeclareRobustCommand{\SetZI}[1][]
                722   {\SetZ[\pm\infty #1]}
                723 \DeclareRobustCommand{\SetZPI}[1][]
                724   {\SetZ[+\infty #1]}
                725 \DeclareRobustCommand{\SetZNI}[1][]
                726   {\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})}}
```

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

\floor, \ceil ...

```
\DeclareRobustCommand{\floor}[1]
  {\mth{\argmid{\left\lfloor}{#1}{\right\rfloor}}}
\DeclareRobustCommand{\ceil}[1]
  {\mth{\argmid{\left\lceil}{#1}{\right\rceil}}}
```

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

\arg ...

```
\DeclareRobustCommand{\arg}
  {\mthfun{arg}}
```

\evn, \odd ...

```
\DeclareRobustCommand{\evn}
  {\mthfun{evn}}
\DeclareRobustCommand{\odd}
  {\mthfun{odd}}
```

\bst, ...

```
\DeclareRobustCommand{\bst}
  {\mthfun{bst}}
\DeclareRobustCommand{\argbst}
  {\mthfun{arg bst}}
```

`\min, \max, ...` ...

```
\DeclareRobustCommand{\min}
  {\mthfun{min}}
\DeclareRobustCommand{\max}
  {\mthfun{max}}
\DeclareRobustCommand{\argmin}
  {\mthfun{arg min}}
\DeclareRobustCommand{\argmax}
  {\mthfun{arg max}}
```

`\inf, \sup` ...

```
\DeclareRobustCommand{\inf}
  {\mthfun{inf}}
\DeclareRobustCommand{\sup}
  {\mthfun{sup}}

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

`\fst, \lst` ...

```
\DeclareRobustCommand{\fst}
  {\mthargfun{fst}}
\DeclareRobustCommand{\lst}
  {\mthargfun{lst}}

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

`\defcomcls` ... to do!

- `\defcomcls{CompClass}`;

  `\CompClass[sub][sup][ext]` = $\textsc{CompClass}^{\textsc{sup}}_{\textsc{sub}}\textsc{ext}$;
  `\CoCompClass[sub][sup][ext]` = $\textsc{CoCompClass}^{\textsc{sup}}_{\textsc{sub}}\textsc{ext}$
  `\CompClassE[sub][sup][ext]` = $\textsc{CompClass-easy}^{\textsc{sup}}_{\textsc{sub}}\textsc{ext}$;
  `\CoCompClassE[sub][sup][ext]` = $\textsc{CoCompClass-easy}^{\textsc{sup}}_{\textsc{sub}}\textsc{ext}$
  `\CompClassH[sub][sup][ext]` = $\textsc{CompClass-hard}^{\textsc{sup}}_{\textsc{sub}}\textsc{ext}$;
  `\CoCompClassH[sub][sup][ext]` = $\textsc{CoCompClass-hard}^{\textsc{sup}}_{\textsc{sub}}\textsc{ext}$
  `\CompClassC[sub][sup][ext]` = $\textsc{CompClass-complete}^{\textsc{sup}}_{\textsc{sub}}\textsc{ext}$;
  `\CoCompClassC[sub][sup][ext]` = $\textsc{CoCompClass-complete}^{\textsc{sup}}_{\textsc{sub}}\textsc{ext}$

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

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

  `\ACompClass[sub][sup][ext]` = $\textsc{ACompClass}^{\textsc{sup}}_{\textsc{sub}}\textsc{ext}$;
  `\CoACompClass[sub][sup][ext]` = $\textsc{CoACompClass}^{\textsc{sup}}_{\textsc{sub}}\textsc{ext}$
  `\ACompClassE[sub][sup][ext]` = $\textsc{ACompClass-easy}^{\textsc{sup}}_{\textsc{sub}}\textsc{ext}$;

\CoACompClassE[sub][sup][ext] = CoACompClass-easy$^{\text{SUP}}_{\text{SUB}}$EXT
\ACompClassH[sub][sup][ext] = ACompClass-hard$^{\text{SUP}}_{\text{SUB}}$EXT;
\CoACompClassH[sub][sup][ext] = CoACompClass-hard$^{\text{SUP}}_{\text{SUB}}$EXT
\ACompClassC[sub][sup][ext] = ACompClass-complete$^{\text{SUP}}_{\text{SUB}}$EXT;
\CoACompClassC[sub][sup][ext] = CoACompClass-complete$^{\text{SUP}}_{\text{SUB}}$EXT

- \defcomcls{CompClass}[NewClass];

\CompClass[sub][sup][ext] = NewClass$^{\text{SUP}}_{\text{SUB}}$EXT;
\CoCompClass[sub][sup][ext] = CoNewClass$^{\text{SUP}}_{\text{SUB}}$EXT
\CompClassE[sub][sup][ext] = NewClass-easy$^{\text{SUP}}_{\text{SUB}}$EXT;
\CoCompClassE[sub][sup][ext] = CoNewClass-easy$^{\text{SUP}}_{\text{SUB}}$EXT
\CompClassH[sub][sup][ext] = NewClass-hard$^{\text{SUP}}_{\text{SUB}}$EXT;
\CoCompClassH[sub][sup][ext] = CoNewClass-hard$^{\text{SUP}}_{\text{SUB}}$EXT
\CompClassC[sub][sup][ext] = NewClass-complete$^{\text{SUP}}_{\text{SUB}}$EXT;
\CoCompClassC[sub][sup][ext] = CoNewClass-complete$^{\text{SUP}}_{\text{SUB}}$EXT

\NCompClass[sub][sup][ext] = NNewClass$^{\text{SUP}}_{\text{SUB}}$EXT;
\CoNCompClass[sub][sup][ext] = CoNNewClass$^{\text{SUP}}_{\text{SUB}}$EXT
\NCompClassE[sub][sup][ext] = NNewClass-easy$^{\text{SUP}}_{\text{SUB}}$EXT;
\CoNCompClassE[sub][sup][ext] = CoNNewClass-easy$^{\text{SUP}}_{\text{SUB}}$EXT
\NCompClassH[sub][sup][ext] = NNewClass-hard$^{\text{SUP}}_{\text{SUB}}$EXT;
\CoNCompClassH[sub][sup][ext] = CoNNewClass-hard$^{\text{SUP}}_{\text{SUB}}$EXT
\NCompClassC[sub][sup][ext] = NNewClass-complete$^{\text{SUP}}_{\text{SUB}}$EXT;
\CoNCompClassC[sub][sup][ext] = CoNNewClass-complete$^{\text{SUP}}_{\text{SUB}}$EXT

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

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

```
\newcommandx{\defcomcls}[2][2=]
  {\defcomclssem{#1}{\defval{#2}{#1}}%
  \defcomclssem{#1}{\defval{#2}{#1}}[Co]}
\newcommandx{\defcomclssem}[3][3=]
  {\defcomclsred{#3#1}{#2}[#3]%
  \defcomclsred{#3N#1}{#2}[#3N]%
  \defcomclsred{#3U#1}{#2}[#3U]%
  \defcomclsred{#3A#1}{#2}[#3A]}
\newcommandx{\defcomclsred}[3][3=]
  {\defcomclscmd{#1}{#2}[#3]%
  \defcomclscmd{#1E}{#2}[#3][-easy]%
  \defcomclscmd{#1H}{#2}[#3][-hard]%
  \defcomclscmd{#1C}{#2}[#3][-complete]}%
\newcommandx{\defcomclscmd}[4][3=, 4=]
  {\csdef{#1}{\txtcom{#3#2#4}}}

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

\Time, ...

- \Time[sub][sup][ext] = Time$^{\text{SUP}}_{\text{SUB}}$EXT
  \TimeE[sub][sup][ext] = Time-easy$^{\text{SUP}}_{\text{SUB}}$EXT
  \TimeH[sub][sup][ext] = Time-hard$^{\text{SUP}}_{\text{SUB}}$EXT
  \TimeC[sub][sup][ext] = Time-complete$^{\text{SUP}}_{\text{SUB}}$EXT

- `\NTime[sub][sup][ext]` = $\mathrm{NTIME}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NTimeE[sub][sup][ext]` = $\mathrm{NTIME\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NTimeH[sub][sup][ext]` = $\mathrm{NTIME\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NTimeC[sub][sup][ext]` = $\mathrm{NTIME\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\UTime[sub][sup][ext]` = $\mathrm{UTIME}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UTimeE[sub][sup][ext]` = $\mathrm{UTIME\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UTimeH[sub][sup][ext]` = $\mathrm{UTIME\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UTimeC[sub][sup][ext]` = $\mathrm{UTIME\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\ATime[sub][sup][ext]` = $\mathrm{ATIME}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ATimeE[sub][sup][ext]` = $\mathrm{ATIME\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ATimeH[sub][sup][ext]` = $\mathrm{ATIME\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ATimeC[sub][sup][ext]` = $\mathrm{ATIME\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

813 `\defcomcls{Time}`

`\Space, ...`

- `\Space[sub][sup][ext]` = $\mathrm{SPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\SpaceE[sub][sup][ext]` = $\mathrm{SPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\SpaceH[sub][sup][ext]` = $\mathrm{SPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\SpaceC[sub][sup][ext]` = $\mathrm{SPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\NSpace[sub][sup][ext]` = $\mathrm{NSPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NSpaceE[sub][sup][ext]` = $\mathrm{NSPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NSpaceH[sub][sup][ext]` = $\mathrm{NSPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NSpaceC[sub][sup][ext]` = $\mathrm{NSPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\USpace[sub][sup][ext]` = $\mathrm{USPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\USpaceE[sub][sup][ext]` = $\mathrm{USPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\USpaceH[sub][sup][ext]` = $\mathrm{USPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\USpaceC[sub][sup][ext]` = $\mathrm{USPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\ASpace[sub][sup][ext]` = $\mathrm{ASPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ASpaceE[sub][sup][ext]` = $\mathrm{ASPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ASpaceH[sub][sup][ext]` = $\mathrm{ASPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ASpaceC[sub][sup][ext]` = $\mathrm{ASPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

814 `\defcomcls{Space}`

`\LogTime, ...`

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

815 `\defcomcls{LogTime}`

`\LogSpace, ...`

- `\LogSpace[sub][sup][ext]` = $\mathrm{LOGSPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\LogSpaceE[sub][sup][ext]` = $\mathrm{LOGSPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\LogSpaceH[sub][sup][ext]` = $\mathrm{LOGSPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\LogSpaceC[sub][sup][ext]` = $\mathrm{LOGSPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\NLogSpace[sub][sup][ext]` = $\mathrm{NLOGSPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NLogSpaceE[sub][sup][ext]` = $\mathrm{NLOGSPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NLogSpaceH[sub][sup][ext]` = $\mathrm{NLOGSPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NLogSpaceC[sub][sup][ext]` = $\mathrm{NLOGSPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- `\ULogSpace[sub][sup][ext]` = $\mathrm{ULogSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ULogSpaceE[sub][sup][ext]` = $\mathrm{ULogSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ULogSpaceH[sub][sup][ext]` = $\mathrm{ULogSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ULogSpaceC[sub][sup][ext]` = $\mathrm{ULogSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\ALogSpace[sub][sup][ext]` = $\mathrm{ALogSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ALogSpaceE[sub][sup][ext]` = $\mathrm{ALogSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ALogSpaceH[sub][sup][ext]` = $\mathrm{ALogSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ALogSpaceC[sub][sup][ext]` = $\mathrm{ALogSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

816 `\defcomcls{LogSpace}`

`\PTime, ...`

- `\PTime[sub][sup][ext]` = $\mathrm{PTime}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\PTimeE[sub][sup][ext]` = $\mathrm{PTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\PTimeH[sub][sup][ext]` = $\mathrm{PTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\PTimeC[sub][sup][ext]` = $\mathrm{PTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\NPTime[sub][sup][ext]` = $\mathrm{NPTime}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NPTimeE[sub][sup][ext]` = $\mathrm{NPTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NPTimeH[sub][sup][ext]` = $\mathrm{NPTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NPTimeC[sub][sup][ext]` = $\mathrm{NPTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\UPTime[sub][sup][ext]` = $\mathrm{UPTime}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UPTimeE[sub][sup][ext]` = $\mathrm{UPTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UPTimeH[sub][sup][ext]` = $\mathrm{UPTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UPTimeC[sub][sup][ext]` = $\mathrm{UPTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\APTime[sub][sup][ext]` = $\mathrm{APTime}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\APTimeE[sub][sup][ext]` = $\mathrm{APTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\APTimeH[sub][sup][ext]` = $\mathrm{APTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\APTimeC[sub][sup][ext]` = $\mathrm{APTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

817 `\defcomcls{PTime}`

`\PSpace, ...`

- `\PSpace[sub][sup][ext]` = $\mathrm{PSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\PSpaceE[sub][sup][ext]` = $\mathrm{PSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\PSpaceH[sub][sup][ext]` = $\mathrm{PSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\PSpaceC[sub][sup][ext]` = $\mathrm{PSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\NPSpace[sub][sup][ext]` = $\mathrm{NPSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NPSpaceE[sub][sup][ext]` = $\mathrm{NPSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NPSpaceH[sub][sup][ext]` = $\mathrm{NPSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NPSpaceC[sub][sup][ext]` = $\mathrm{NPSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\UPSpace[sub][sup][ext]` = $\mathrm{UPSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UPSpaceE[sub][sup][ext]` = $\mathrm{UPSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UPSpaceH[sub][sup][ext]` = $\mathrm{UPSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UPSpaceC[sub][sup][ext]` = $\mathrm{UPSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\APSpace[sub][sup][ext]` = $\mathrm{APSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\APSpaceE[sub][sup][ext]` = $\mathrm{APSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\APSpaceH[sub][sup][ext]` = $\mathrm{APSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\APSpaceC[sub][sup][ext]` = $\mathrm{APSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

818 `\defcomcls{PSpace}`

`\ExpTime, ...`

- `\ExpTime[sub][sup][ext]` = $\mathrm{ExpTime}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ExpTimeE[sub][sup][ext]` = $\mathrm{ExpTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ExpTimeH[sub][sup][ext]` = $\mathrm{ExpTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ExpTimeC[sub][sup][ext]` = $\mathrm{ExpTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\NExpTime[sub][sup][ext]` = $\mathrm{NExpTime}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NExpTimeE[sub][sup][ext]` = $\mathrm{NExpTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NExpTimeH[sub][sup][ext]` = $\mathrm{NExpTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NExpTimeC[sub][sup][ext]` = $\mathrm{NExpTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\UExpTime[sub][sup][ext]` = $\mathrm{UExpTime}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UExpTimeE[sub][sup][ext]` = $\mathrm{UExpTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UExpTimeH[sub][sup][ext]` = $\mathrm{UExpTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UExpTimeC[sub][sup][ext]` = $\mathrm{UExpTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- `\AExpTime[sub][sup][ext]` = $\mathrm{AExpTime}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\AExpTimeE[sub][sup][ext]` = $\mathrm{AExpTime\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\AExpTimeH[sub][sup][ext]` = $\mathrm{AExpTime\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\AExpTimeC[sub][sup][ext]` = $\mathrm{AExpTime\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

```
819 \defcomcls{ExpTime}
```

`\ExpSpace, ...`

- `\ExpSpace[sub][sup][ext]` = $\mathrm{ExpSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ExpSpaceE[sub][sup][ext]` = $\mathrm{ExpSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ExpSpaceH[sub][sup][ext]` = $\mathrm{ExpSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\ExpSpaceC[sub][sup][ext]` = $\mathrm{ExpSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\NExpSpace[sub][sup][ext]` = $\mathrm{NExpSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NExpSpaceE[sub][sup][ext]` = $\mathrm{NExpSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NExpSpaceH[sub][sup][ext]` = $\mathrm{NExpSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\NExpSpaceC[sub][sup][ext]` = $\mathrm{NExpSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\UExpSpace[sub][sup][ext]` = $\mathrm{UExpSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UExpSpaceE[sub][sup][ext]` = $\mathrm{UExpSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UExpSpaceH[sub][sup][ext]` = $\mathrm{UExpSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\UExpSpaceC[sub][sup][ext]` = $\mathrm{UExpSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
- `\AExpSpace[sub][sup][ext]` = $\mathrm{AExpSpace}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\AExpSpaceE[sub][sup][ext]` = $\mathrm{AExpSpace\text{-}easy}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\AExpSpaceH[sub][sup][ext]` = $\mathrm{AExpSpace\text{-}hard}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  `\AExpSpaceC[sub][sup][ext]` = $\mathrm{AExpSpace\text{-}complete}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

```
820 \defcomcls{ExpSpace}

821 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

...

```
822 \fi
823 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

824 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
825 %%** Macros for Games ***************************************************%%
826 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
827 \ifgam@

828 %%** Logic Games *********************************************************%%
```

`\SATG, ...` ...

```
829 %% Satisfiability Games
830 \cmdtxtoparname{SATG}[Sat]
831
832 %% Validity Games
833 \cmdtxtoparname{VALG}[Val]
834
835 %% Evaluation Games
836 \cmdtxtoparname{EVLG}[Evl]
837
838 %% Synthesis Games
839 \cmdtxtoparname{SYNG}[Syn]
840
841 %% Model-Checking Games
842 \cmdtxtoparname{MCG}[MC]
843
844 %% Ehrenfeucht-Fraisse Games
845 \cmdtxtoparname{EFG}[EF]

846 %%** Syntax ***************************************************************%%
```

`\PlrSym, \OppSym` ...

```
847 \newcommand{\plrsym}{E}
848 \cmdmthsym{Plr}[\plrsym]
849 \newcommand{\oppsym}{A}
850 \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}]

        \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 ********************************************************************%%

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

   \HstSet, ...  ...
                 \newcommand{\hstsym}{\rho}
                 \newcommand{\hstset}{Hst}
                 \cmdmthsetext{Hst}[\hstset][\hstsym]
                 \cmdmthset{PHst}[\hstset_{\PlrSym}]
                 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
                 \cmdmthset{OHst}[\hstset_{\OppSym}]
                 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
                 \cmdmthfun{hst}

\PlaySet,\playFun  ...
                 \newcommand{\playsym}{\pi}
                 \newcommand{\playset}{Play}
                 \cmdmthsetext{Play}[\playset][\playsym]
                 \cmdmthfun{play}

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

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

\prdFun, \sucFun  ...
                  \cmdmthfun{prd}
                  \cmdmthfun{suc}

\atrFun, \rchFun  ...
                  \cmdmthfun{atr}
                  \cmdmthfun{rch}

         \solFun  ...
                  \cmdmthfun{sol}

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

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

                  %% Co-Buchi Games
                  \cmdtxtoparname{CG}

                  %% Parity Games
                  \cmdtxtoparname{PG}

                  %% Rabin Games
                  \cmdtxtoparname{RG}

                  %% Streett Games
                  \cmdtxtoparname{SG}

                  %% Muller Games
                  \cmdtxtoparname{MG}

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

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

                  %%** Semantics *****************************************************************%%
                     ...
                  %%** Quantitative Games on Graph ***********************************************%%

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

                  %% Mean-Payoff Games
                  \cmdtxtoparname{MPG}

                  %% Discounted-Payoff Games
                  \cmdtxtoparname{DPG}

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

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

                  %%** Semantics *****************************************************************%%
                    ...
                  \fi
                  %%*****************************************************************************%%
                  %%*****************************************************************************%%
                  %%** Macros for Logics ***********************************************************%%
                  %%*****************************************************************************%%
                  \iflog@
                  %%** Propositional Logics ********************************************************%%

  \BF, \QBF, ...  ...
                  % Boolean Formulae
                  \cmdtxtoparname{BF}

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

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

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

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

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

           \Cnt   ...
                  \usrmth{Cnt}{}{sym}[Cn]

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

\Qnt,\QntSet, ...  ...
                  \usrmth{Qnt}{}{sym}[Qn]

                  \newcommand{\qntsym}{\wp}
                  \newcommand{\qntset}{Qn}
                  \cmdmthsetext{Qnt}[\qntset][\qntsym]

          \free   ...
                  \usrmth{free}{}{argfun}
```

```
  \dep, \alt  ...
               978 \usrmth{dep}{}{argfun}
               979 \usrmth{alt}{}{argfun}

               980 %%** Semantics ********************************************************************%%

\LogStr, ...  ...
               981 \newcommand{\logstr}{L}
               982 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet, ...  ...
               983 \newcommand{\valsym}{\xi}
               984 \newcommand{\valset}{Val}
               985 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet, ...  ...
               986 \newcommand{\asgsym}{\chi}
               987 \newcommand{\asgset}{Asg}
               988 \cmdmthsetext{Asg}[\asgset][\asgsym]

               989 %%** First-Order Logics I ********************************************************%%

   \FOL, ...  ...
               990 % First-Order Logic
               991 \cmdtxtoparname{FOL}[Fol]
               992
               993 % Monadic First-Order Logic
               994 \DeclareRobustCommand{\MFOL}
               995   {{\txtname{M}}\FOL}

               996 %%** Syntax ***********************************************************************%%

\VarSig, ...  ...
               997 \newcommand{\varsig}{V}
               998 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
               999 \newcommand{\varsym}{x}
              1000 \newcommand{\varset}{Vr}
              1001 \cmdmthsetext{Var}[\varset][\varsym]
              1002 \usrmth{var}{}{argfun}[vr]
              1003 \cmdmthfun{dim}[dm]\usrmth{dim}{}{argfun}[dm]

\ConSig, ...  ...
              1004 \newcommand{\consig}{C}
              1005 \usrmthlatupp{Con}{Sig}{sig}[\consig]
              1006 \newcommand{\consym}{c}
              1007 \newcommand{\conset}{Cn}
              1008 \cmdmthsetext{Con}[\conset][\consym]
              1009 \usrmth{con}{}{argfun}[cn]

\FunSig, ...  ...
              1010 \newcommand{\funsig}{F}
              1011 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
              1012 \newcommand{\funsym}{f}
              1013 \newcommand{\funset}{Fn}
              1014 \cmdmthsetext{Fun}[\funset][\funsym]
              1015 \usrmth{fun}{}{argfun}[fn]
              1016 \cmdmthfun{art}[ar]\usrmth{art}{}{argfun}[ar]

\TerSig, ...  ...
              1017 \newcommand{\tersig}{T}
              1018 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
              1019 \newcommand{\tersym}{t}
              1020 \newcommand{\terset}{Tr}
              1021 \cmdmthsetext{Ter}[\terset][\tersym]
              1022 \usrmth{ter}{}{argfun}
```

```
\RelSig, ...  ...
1023 \newcommand{\relsig}{R}
1024 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1025 \newcommand{\relsym}{r}
1026 \newcommand{\relset}{Rl}
1027 \cmdmthsetext{Rel}[\relset][\relsym]
1028 \usrmth{rel}{}{argfun}[rl]

      \skm  ...
1029 \usrmth{skm}{}{argfun}

1030 %%** Semantics ********************************************************%%

\ConStr, ...  ...
1031 \newcommand{\constr}{C}
1032 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr, ...  ...
1033 \newcommand{\funstr}{F}
1034 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr, ...  ...
1035 \newcommand{\terstr}{T}
1036 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr, ...  ...
1037 \newcommand{\relstr}{R}
1038 \usrmthlatupp{Rel}{Str}{str}[\relstr]

1039 %%** First-Order Logics II ********************************************%%
    ...
1040 %%** Syntax ***********************************************************%%
    ...
1041 %%** Semantics ********************************************************%%
    ...
1042 %%** Second-Order Logics I *********************************************%%

   \SOL, ...  ...
1043 % Second-Order Logic
1044 \cmdtxtoparname{SOL}[Sol]
1045
1046 % Monadic Second-Order Logic
1047 \DeclareRobustCommand{\MSOL}
1048   {{\txtname{M}}\SOL}

1049 %%** Syntax ***********************************************************%%

\FVarSet, ...  ...
1050 \newcommand{\fvarsym}{x}
1051 \newcommand{\fvarset}{FVr}
1052 \cmdmthsetext{FVar}[\fvarset][\fvarsym]

\SVarSet, ...  ...
1053 \newcommand{\svarsym}{X}
1054 \newcommand{\svarset}{SVr}
1055 \cmdmthsetext{SVar}[\svarset][\svarsym]

1056 %%** Semantics ********************************************************%%
    ...
1057 %%** Second-Order Logics II ********************************************%%
```

\TL, \PL, ...

```
% Tree Logic
\cmdtxtoparname{TL}

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

% Path Logic
\cmdtxtoparname{PL}

% Monadic Path Logic
\DeclareRobustCommand{\MPL}
  {{\txtname{M}}\PL}
```

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

...

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

...

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

\ML, \QML, ...

```
% Modal Logic
\cmdtxtoparname{ML}

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

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

\Opr ...

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

\DMod, \BMod ...

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

\Exs, \All ...

```
\DeclareRobustCommand{\Exs}[1]
  {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
\DeclareRobustCommand{\All}[1]
  {\mth{\defval{\argmid{\left[}{#1}{\right]}}{\BMod}}}
```

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

\KrpStr, ...

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

\WrlSet, ...

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

\AccRel, \TrnRel ...

```
\newcommand{\accsym}{R}
\cmdmthrel{Acc}[\accsym]
\cmdmthrel{Trn}[\accsym]
```

\labFun ...

```
\newcommand{\labsym}{\lambda}
\cmdmthfun{lab}[\labsym]
```

\PthSet, \pthFun ...

```
\providecommand{\pthsym}{\pi}
\providecommand{\pthset}{Pth}
\cmdmthsetext{Pth}[\pthset][\pthsym]
\cmdmthfun{pth}
```

```
%%** Modal Logics II ********************************************************%%
```

\MC, \QMC, ...

```
% Mu Calculus
\cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]

% Quantified Modal Logic
\DeclareRobustCommand{\QMC}
  {{\txtname{Q}}\MC}
\DeclareRobustCommand{\EMC}
  {\ensuremath{\exists}\MC}
\DeclareRobustCommand{\UMC}
  {\ensuremath{\forall}\MC}
```

```
%%** 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, ...  ...
1144 \usrmth{X}{}{sym}
1145 \usrmth{F}{}{sym}
1146 \usrmth{G}{}{sym}
1147 \usrmth{U}{}{sym}
1148 \usrmth{R}{}{sym}

\Y, ...  ...
1149 \usrmth{Y}{}{sym}
1150 \usrmth{P}{}{sym}\let\SavePilcrow\P
1151 \usrmth{H}{}{sym}\let\SaveDoubleAcute\H
1152 \usrmth{S}{}{sym}\let\SaveSectionSymbol\S
1153 \usrmth{B}{}{sym}

1154 %%** Semantics ****************************************************************%%

    ...

1155 %%** Temporal Logics II ********************************************************%%

\CTL, ...  ...
1156 % Computation Tree Logic
1157 \cmdtxtoparname{CTL}
1158
1159 % Quantified Computation Tree Logic
1160 \DeclareRobustCommand{\QCTL}
1161   {{\txtname{Q}}\CTL}
1162 \DeclareRobustCommand{\ECTL}
1163   {\ensuremath{\exists}\CTL}
1164 \DeclareRobustCommand{\UCTL}
1165   {\ensuremath{\forall}\CTL}
1166
1167 % Improved Computation Tree Logic
1168 \cmdtxtoparname{CTLP}[CTL$^{+}$]
1169
1170 % Quantified Improved Computation Tree Logic
1171 \DeclareRobustCommand{\QCTLP}
1172   {{\txtname{Q}}\CTLP}
1173 \DeclareRobustCommand{\ECTLP}
1174   {\ensuremath{\exists}\CTLP}
1175 \DeclareRobustCommand{\UCTLP}
1176   {\ensuremath{\forall}\CTLP}
1177
1178 % Full Computation Tree Logic
1179 \cmdtxtoparname{CTLS}[CTL*]
1180
1181 % Quantified Full Computation Tree Logic
1182 \DeclareRobustCommand{\QCTLS}
1183   {{\txtname{Q}}\CTLS}
1184 \DeclareRobustCommand{\ECTLS}
1185   {\ensuremath{\exists}\CTLS}
1186 \DeclareRobustCommand{\UCTLS}
1187   {\ensuremath{\forall}\CTLS}

1188 %%** Syntax ********************************************************************%%

\E, \A  ...
1189 \usrmth{E}{}{sym}
1190 \usrmth{A}{}{sym}

1191 %%** Semantics ****************************************************************%%

    ...

1192 %%** Strategic Logics I ********************************************************%%
```

```
\ATL, ...  ...
1193 % Alternating Temporal Logic
1194 \cmdtxtoparname{ATL}
1195
1196 % Quantified Alternating Temporal Logic
1197 \DeclareRobustCommand{\QATL}
1198   {{\txtname{Q}}\ATL}
1199 \DeclareRobustCommand{\EATL}
1200   {\ensuremath{\exists}\ATL}
1201 \DeclareRobustCommand{\UATL}
1202   {\ensuremath{\forall}\ATL}
1203
1204 % Improved Alternating Temporal Logic
1205 \cmdtxtoparname{ATLP}[ATL$^{+}$]
1206
1207 % Quantified Improved Alternating Temporal Logic
1208 \DeclareRobustCommand{\QATLP}
1209   {{\txtname{Q}}\ATLP}
1210 \DeclareRobustCommand{\EATLP}
1211   {\ensuremath{\exists}\ATLP}
1212 \DeclareRobustCommand{\UATLP}
1213   {\ensuremath{\forall}\ATLP}
1214
1215 % Full Alternating Temporal Logic
1216 \cmdtxtoparname{ATLS}[ATL*]
1217
1218 % Quantified Full Alternating Temporal Logic
1219 \DeclareRobustCommand{\QATLS}
1220   {{\txtname{Q}}\ATLS}
1221 \DeclareRobustCommand{\EATLS}
1222   {\ensuremath{\exists}\ATLS}
1223 \DeclareRobustCommand{\UATLS}
1224   {\ensuremath{\forall}\ATLS}

1225 %%** Syntax ********************************************************************%%

\EExs, \AAll  ...
1226 \DeclareRobustCommand{\EExs}[1]
1227   {\mth{\argmid{\langle\!\langle}{\defval{#1}{\emptyset}}{\rangle\!\rangle}}}
1228 \DeclareRobustCommand{\AAll}[1]
1229   {\mth{\argmid{\left[\left[}{\defval{#1}{\emptyset}}{\right]\right]}}}

1230 %%** Semantics ****************************************************************%%

      \CGS  ...
1231 \cmdtxtname{CGS}

\CGSStr, ...  ...
1232 \newcommand{\cgsstr}{G}
1233 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet, ...  ...
1234 \newcommand{\agnsym}{a}
1235 \newcommand{\agnset}{Ag}
1236 \cmdmthsetext{Agn}[\agnset][\agnsym]

\PosSet, ...  ...
1237 \providecommand{\possym}{v}
1238 \providecommand{\posset}{Ps}
1239 \cmdmthsetext{Pos}[\posset][\possym]
1240 \cmdmthsymelm{ipos}[\possym_{I}]
1241 \cmdmthsymelm{fpos}[\possym_{F}]
1242 \cmdmthset{PPos}[\posset_{\PlrSym}]
```

```
1243 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1244 \cmdmthset{OPos}[\posset_{\OppSym}]
1245 \cmdmthsymelm{opos}[\possym_{\OppSym}]
```

`\SttSet, ...` ...

```
1246 \newcommand{\sttsym}{s}
1247 \newcommand{\sttset}{St}
1248 \cmdmthsetext{Stt}[\sttset][\sttsym]
1249 \cmdmthset{IStt}[\sttset_{I}]
1250 \cmdmthsymelm{istt}[\sttsym_{I}]
1251 \cmdmthset{FStt}[\sttset_{F}]
1252 \cmdmthsymelm{fstt}[\sttsym_{F}]
```

`\ActSet, ...` ...

```
1253 \newcommand{\actsym}{c}
1254 \newcommand{\actset}{Ac}
1255 \cmdmthsetext{Act}[\actset][\actsym]
```

`\DecSet, ...` ...

```
1256 \newcommand{\decsym}{d}
1257 \newcommand{\decset}{Dc}
1258 \cmdmthsetext{Dec}[\decset][\decsym]
```

`\movFun` ...

```
1259 \newcommand{\movsym}{\tau}
1260 \cmdmthfun{mov}[\movsym]
```

`\HstSet, ...` ...

```
1261 \providecommand{\hstsym}{\rho}
1262 \providecommand{\hstset}{Hst}
1263 \cmdmthsetext{Hst}[\hstset][\hstsym]
1264 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1265 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1266 \cmdmthset{OHst}[\hstset_{\OppSym}]
1267 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1268 \cmdmthfun{hst}
```

`\PlaySet,\playFun` ...

```
1269 \providecommand{\playsym}{\pi}
1270 \providecommand{\playset}{Play}
1271 \cmdmthsetext{Play}[\playset][\playsym]
1272 \cmdmthfun{play}
```

`\StrSet, ...` ...

```
1273 \providecommand{\strsym}{\sigma}
1274 \providecommand{\strset}{Str}
1275 \cmdmthsetext{Str}[\strset][\strsym]
1276 \cmdmthset{PStr}[\strset_{\PlrSym}]
1277 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1278 \cmdmthset{OStr}[\strset_{\OppSym}]
1279 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]
```

`\PrfSet, \prfFun` ...

```
1280 \providecommand{\prfsym}{\xi}
1281 \providecommand{\prfset}{Prf}
1282 \cmdmthsetext{Prf}[\prfset][\prfsym]
```

```
1283 %%** Strategic Logics II ****************************************************%%
```

`\SL, ...` ...

```
1284 % Strategy Logic
1285 \cmdtxtoparname{SL}
1286
```

```
\DeclareRobustCommand{\ESL}
  {\ensuremath{\exists}\SL}
\DeclareRobustCommand{\USL}
  {\ensuremath{\forall}\SL}

\DeclareRobustCommand{\FSL}
  {{\txtname{F}}\SL}

\DeclareRobustCommand{\EFSL}
  {\ensuremath{\exists}\FSL}
\DeclareRobustCommand{\UFSL}
  {\ensuremath{\forall}\FSL}

% One-Goal Strategy Logic
\DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
  {\SL[#1][#2][1g\arglef{,}{#3}]}

\DeclareRobustCommand{\EOGSL}
  {\ensuremath{\exists}\OGSL}
\DeclareRobustCommand{\UOGSL}
  {\ensuremath{\forall}\OGSL}

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

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

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

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

\DeclareRobustCommand{\FCGSL}
  {{\txtname{F}}\xGSL}

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

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

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

\DeclareRobustCommand{\FDGSL}
  {{\txtname{F}}\xGSL}

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

```
1350
1351 % Alternating-Goal Strategy Logic
1352 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
1353   {\SL[#1][#2][ag\arglef{,}{#3}]}
1354
1355 \DeclareRobustCommand{\EAGSL}
1356   {\ensuremath{\exists}\AGSL}
1357 \DeclareRobustCommand{\UAGSL}
1358   {\ensuremath{\forall}\AGSL}
1359
1360 \DeclareRobustCommand{\FAGSL}
1361   {{\txtname{F}}\xGSL}
1362
1363 \DeclareRobustCommand{\EFAGSL}
1364   {\ensuremath{\exists}\FAGSL}
1365 \DeclareRobustCommand{\UFAGSL}
1366   {\ensuremath{\forall}\FAGSL}
1367
1368 % Extended-Goal Strategy Logic
1369 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
1370   {\SL[#1][#2][eg\arglef{,}{#3}]}
1371
1372 \DeclareRobustCommand{\EEGSL}
1373   {\ensuremath{\exists}\EGSL}
1374 \DeclareRobustCommand{\UEGSL}
1375   {\ensuremath{\forall}\EGSL}
1376
1377 \DeclareRobustCommand{\FEGSL}
1378   {{\txtname{F}}\xGSL}
1379
1380 \DeclareRobustCommand{\EFEGSL}
1381   {\ensuremath{\exists}\FEGSL}
1382 \DeclareRobustCommand{\UFEGSL}
1383   {\ensuremath{\forall}\FEGSL}
1384
1385 % Boolean-Goal Strategy Logic
1386 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
1387   {\SL[#1][#2][bg\arglef{,}{#3}]}
1388
1389 \DeclareRobustCommand{\EBGSL}
1390   {\ensuremath{\exists}\BGSL}
1391 \DeclareRobustCommand{\UBGSL}
1392   {\ensuremath{\forall}\BGSL}
1393
1394 \DeclareRobustCommand{\FBGSL}
1395   {{\txtname{F}}\xGSL}
1396
1397 \DeclareRobustCommand{\EFBGSL}
1398   {\ensuremath{\exists}\FBGSL}
1399 \DeclareRobustCommand{\UFBGSL}
1400   {\ensuremath{\forall}\FBGSL}
1401
1402 % Nested-Goal Strategy Logic
1403 \DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
1404   {\SL[#1][#2][ng\arglef{,}{#3}]}
1405
1406 \DeclareRobustCommand{\ENGSL}
1407   {\ensuremath{\exists}\NGSL}
1408 \DeclareRobustCommand{\UNGSL}
1409   {\ensuremath{\forall}\NGSL}
1410
1411 \DeclareRobustCommand{\FNGSL}
1412   {{\txtname{F}}\xGSL}
```

```
1413
1414 \DeclareRobustCommand{\EFNGSL}
1415   {\ensuremath{\exists}\FNGSL}
1416 \DeclareRobustCommand{\UFNGSL}
1417   {\ensuremath{\forall}\FNGSL}
1418
1419 % Undefined-Goal Strategy Logic
1420 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
1421   {\SL[#1][#2][xg\arglef{,}{#3}]}
1422
1423 \DeclareRobustCommand{\EXGSL}
1424   {\ensuremath{\exists}\XGSL}
1425 \DeclareRobustCommand{\UXGSL}
1426   {\ensuremath{\forall}\XGSL}
1427
1428 \DeclareRobustCommand{\FXGSL}
1429   {{\txtname{F}}\xGSL}
1430
1431 \DeclareRobustCommand{\EFXGSL}
1432   {\ensuremath{\exists}\FXGSL}
1433 \DeclareRobustCommand{\UFXGSL}
1434   {\ensuremath{\forall}\FXGSL}

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

\BndSet, ...  ...
1436 \newcommand{\bndsym}{\flat}
1437 \newcommand{\bndset}{Bn}
1438 \cmdmthsetext{Bnd}[\bndset][\bndsym]
1439 \usrmth{bnd}{}{argfun}

    \psn  ...
1440 \usrmth{psn}{}{argfun}

1441 %%** Semantics *********************************************************%%

  \nxtFun  ...
1442 \cmdmthfun{nxt}

1443 \fi
1444 %%*************************************************************************%%
1445 %%*************************************************************************%%
1446 %%** Macros for Automata ************************************************%%
1447 %%*************************************************************************%%
1448 \ifaut@
1449 %%** Finite Word Automata **********************************************%%

 \DWA, ...  ...
1450 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
1451
1452 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
1453 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
1454 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
1455 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
1456 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
1457 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
1458 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

\GFG, \PD, ...  ...
1459 \cmdtxtoparname{GFG}
1460
1461 \cmdtxtoparname{PD}
1462
1463 %% ...
```

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

\AutName, ...

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

\WAutSet ...

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

\SttSet, ...

```
\def\sttsym{q}
\def\sttset{Q}
\cmdmthsetext{Stt}[\sttset][\sttsym]
\cmdmthset{IStt}[\sttset_{I}]
\cmdmthsymelm{istt}[\sttsym_{I}]
\cmdmthset{FStt}[\sttset_{F}]
\cmdmthsymelm{fstt}[\sttsym_{F}]
```

\SymSet, ...

```
\newcommand{\symsym}{\sigma}
\newcommand{\symset}{\Sigma}
\cmdmthsetext{Sym}[\symset][\symsym]
```

\trnFun ...

```
\newcommand{\trnsym}{\delta}
\cmdmthfun{trn}[\trnsym]
```

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

\LangFun ...

```
\cmdmthfun{Lang}[L]
```

\WrdSet, ...

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

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

\DTA, ...

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

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

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

\TAutSet ...

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

\DirSet, ...

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

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

\TreeSet, ...  ...
\newcommand{\treesym}{T}
\newcommand{\treeset}{Tr}
\cmdmthsetext{Tree}[\treeset][\treesym]

    \wotFun  ...
\cmdmthfun{wot}

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

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

      ...  ...
%%...

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

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

      ...  ...
%%...

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

%%*****************************************************************************%%
%%** Table Tricks *************************************************************%%
%%*****************************************************************************%%
\iftab@

      ...  ...
%%...

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

%%*****************************************************************************%%
%%** Algorithm Tricks *********************************************************%%
%%*****************************************************************************%%
\ifalg@
\RequirePackage[ruled,vlined]{algorithm2e}
\DontPrintSemicolon

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

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

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

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

```
%%****************************************************************************%%
%%** Auxiliary Tricks ********************************************************%%
%%****************************************************************************%%
\ifaux@
```

... …

```
%%...
```

```
  \ifcrv@
```

... …

```
    %%...
```

```
  \else
```

... …

```
    %%...
```

```
  \fi
```

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

```
\endinput
⟨/package⟩
```

2 Change History

v0.0

General: First public release 1

v0.1

General: 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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