fmocdmac — FM's OCD LaTeX Macro*

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Abstract

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

1   Implementation & Usage

1 ⟨*package⟩

Required external packages:

```
2
3 \RequirePackage{etoolbox}
4
5 \RequirePackage{xargs}
6 \RequirePackage{xspace}
7 \RequirePackage{stringstrings}
8
9 \RequirePackage{loops}
10
11 \RequirePackage{amsmath}
12 \RequirePackage{amssymb}
13 \interdisplaylinepenalty=2500
14
```

Package options:

```
15
16 %% Text macro generation
17 \newif\iftxtgen@ \txtgen@false
18 \DeclareOption{txtgen}{\txtgen@true}
19 \DeclareOption{notxtgen}
20   {\txtgen@false\text@false\com@false\gam@false\log@false\aut@false}
21
22 %% Math macro generation
23 \newif\ifmthgen@ \mthgen@false
24 \DeclareOption{mthgen}{\mthgen@true}
25 \DeclareOption{nomthgen}
26   {\mthgen@false\math@false\gam@false\log@false\aut@false}
27
28 %% Elementary macros for text
29 \newif\iftext@ \text@false
30 \DeclareOption{text}{\text@true\txtgen@true}
31 \DeclareOption{notext}{\text@false}
32
33 %% Elementary macros for math
34 \newif\ifmath@ \math@false
35 \DeclareOption{math}{\math@true\mthgen@true}
36 \DeclareOption{nomath}{\math@false}
```

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*This document describes version v0.0 of the fmocdmac package, last revised 2020/12/31.

```
37
38 %% Macros for computational-complexity classes
39 \newif\ifcom@ \com@false
40 \DeclareOption{com}{\com@true\txtgen@true}
41 \DeclareOption{nocom}{\com@false}
42
43 %% Macros for games
44 \newif\ifgam@ \gam@false
45 \DeclareOption{gam}{\gam@true\txtgen@true\mthgen@true}
46 \DeclareOption{nogam}{\gam@false}
47
48 %% Macros for logics
49 \newif\iflog@ \log@false
50 \DeclareOption{log}{\log@true\txtgen@true\mthgen@true}
51 \DeclareOption{nolog}{\log@false}
52
53 %% Macros for automata
54 \newif\ifaut@ \aut@false
55 \DeclareOption{aut}{\aut@true\txtgen@true\mthgen@true}
56 \DeclareOption{noaut}{\aut@false}
57
58 %% Format-related tricks
59 \newif\iffrm@ \frm@false
60 \DeclareOption{frm}{\frm@true}
61 \DeclareOption{nofrm}{\frm@false}
62
63 %% Figure-related tricks
64 \newif\iffig@ \fig@false
65 \DeclareOption{fig}{\fig@true}
66 \DeclareOption{nofig}{\fig@false}
67
68 %% Table-related tricks
69 \newif\iftab@ \tab@false
70 \DeclareOption{tab}{\tab@true}
71 \DeclareOption{notab}{\tab@false}
72
73 %% Algorithm-related tricks
74 \newif\ifalg@ \alg@false
75 \DeclareOption{alg}{\alg@true}
76 \DeclareOption{noalg}{\alg@false}
77
78 %% Auxiliary tricks
79 \newif\ifaux@ \aux@false
80 \DeclareOption{aux}{\aux@true}
81 \DeclareOption{noaux}{\aux@false}
82
83 %% Camera-ready version
84 \newif\ifcrv@ \crv@false
85 \DeclareOption{crv}{\crv@true}
86
```

Option-processing code:

```
87
88 \DeclareOption*{\PackageWarning{fmocdmac}{Unknown~\CurrentOption}}%
89
90 \ExecuteOptions{txtgen,mthgen,text,math,com,gam,log,aut,aux}%
91
92 \ProcessOptions\relax%
93
94 %%****************************************************************************%%
95 %%** Auxiliary Font Declarations ********************************************%%
96 %%****************************************************************************%%
```

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

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

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

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

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

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

100 `%%***********************************************************************%%`

101 `%%***********************************************************************%%`

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

103 `%%***********************************************************************%%`

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

104 `\csdef{omicron}{o}`

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

105 `\csdef{Alpha}{A} \csdef{Beta}{B} \csdef{Epsilon}{E} \csdef{varEpsilon}{E}`

106 `\csdef{Zeta}{Z} \csdef{Eta}{H} \csdef{Iota}{I} \csdef{Kappa}{K}`

107 `\csdef{varKappa}{K} \csdef{Mu}{M} \csdef{Nu}{N} \csdef{Omicron}{O}`

108 `\csdef{Rho}{P} \csdef{varRho}{P} \csdef{Tau}{T} \csdef{Chi}{X}`

109 `%%***********************************************************************%%`

110 `%%***********************************************************************%%`

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

112 `%%***********************************************************************%%`

\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"

113 `\newcommand{\empchk}[2]`

114 `{\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"

115 `\newcommand{\defval}[2]`

116 `{\if&#1&#2\else#1\fi}`

117 `%%***********************************************************************%%`

\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"

118 `\newcommand{\arglef}[2]`

119 `{\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"

120 `\newcommand{\argrig}[2]`

121 `{\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"

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

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

- \argsep{}{B}{C} = "C"
- \argsep{A}{B}{} = "A"
- \argsep{A}{}{C} = "AC"
- \argsep{A}{B}{C} = "ABC"

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

126 %%****************************************************************************%%
```

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

```
127 \newcommand{\varcmd}[6]
128   {\expandafter\newcommand\csname gobble#1arg\endcsname[2]
129     {\csname check#1arg\endcsname{\argsep{##1}{#4}{##2}}}%
130   \expandafter\newcommand\csname check#1arg\endcsname[1]
131     {\csname @ifnextchar\endcsname%
132       \bgroup{\csname gobble#1arg\endcsname{##1}}{#2{##1#5}#6}}%
133   \expandafter\newcommand\csname#1\endcsname[1]
134     {\csname check#1arg\endcsname{#3##1}}}

135 %%****************************************************************************%%
```

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

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

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

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

144 %%****************************************************************************%%
```

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

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

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

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

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

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

151 %%****************************************************************************%%
```

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

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

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

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

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

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

162 %%***********************************************************************%%
```

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

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

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

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

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

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

169 %%***********************************************************************%%
170 %%***********************************************************************%%
171 %%** Text Meta Commands *************************************************%%
172 %%***********************************************************************%%
```

\newtxt   ... to do!

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

```
173 \newcommandx{\newtxt}[5][1=, 3=, 4=, 5=]
174   {\text{#1#2\txtsubsup[#1]{#3}{#4}#5}\xspace}
```

\newtxtsty   ... to do!

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

```
175 \newcommandx{\newtxtsty}[2][2=]
176   {\newtxt[\defval{#2}{#1}]}
```

\newtxtarg   ... to do!

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

```
177 \newcommandx{\newtxtarg}[7][1=, 3=, 4=, 5=, 7=]
178   {\newtxt[#1]{#2}[#3][#4][#5\argmid{(}{#6}{)}]#7]}
```

\newtxtargsty   ... to do!

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

```
179 \newcommandx{\newtxtargsty}[2][2=]
180   {\newtxtarg[\defval{#2}{#1}]}
```

\newtxtoarg   ... to do!

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

```
181 \newcommandx{\newtxtoarg}[5][1=, 3=, 4=, 5=]
182    {\newtxtarg[#1]{#2}[#3][#4][]{#5}[]}
```

\newtxtoargsty   ... to do!

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

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

\newtxtpar   ... to do!

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

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

\newtxtparsty   ... to do!

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

```
187 \newcommandx{\newtxtparsty}[2][2=]
188    {\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] = "$\mathsf{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}]$"
- \newtxtopar[\ttfamily]{Name}[sub][sup][Par] = "$\mathtt{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}]$"

```
189 \newcommandx{\newtxtopar}[5][1=, 3=, 4=, 5=]
190    {\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] = "$\mathsf{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}]$"
- \newtxtoparsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Par] = "$\mathtt{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}]$"

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

\txtsubsup   ... to do!

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

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

```
195 %%********************************************************************%%
```

\txt   ... to do!

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

6

```
196 \newcommand{\txt}
197   {\newtxtsty{\txtsty}}
```

\txtarg ... to do!

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

```
198 \newcommand{\txtarg}
199   {\newtxtargsty{\txtsty}}
```

\txtoarg ... to do!

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

```
200 \newcommand{\txtoarg}
201   {\newtxtoargsty{\txtsty}}
```

\txtpar ... to do!

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

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

\txtopar ... to do!

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

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

\txtsty ... to do!

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

```
208 %%***********************************************************************%%
```

\cmdtxt ... to do!

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

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

\cmdtxtarg ... to do!

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

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

\cmdtxtoarg ... to do!

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

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

\cmdtxtpar ... to do!

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

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

\cmdtxtopar   ... to do!

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

217 \newcommand{\cmdtxtopar}[1]
218   {\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] $=$ $\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}[\textsc{Par}]$

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

221 %%***%%

\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]

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

224 %%***%%
225 %%***%%
226 %%** Math Meta Commands ***%%
227 %%***%%

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

228 \newcommandx{\newmth}[5][1=, 3=, 4=, 5=]
229   {\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] $=$ "$\mathtt{Name}^{sup}_{sub}Ext$"

230 \newcommandx{\newmthsty}[2][2=]
231   {\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] $=$ "$\mathtt{Name}^{sup}_{sub}Ext1(Arg)Ext2$"

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

\newmthargsty   ... to do!

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

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

\newmthoarg   ... to do!

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

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

\newmthoargsty   ... to do!

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

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

\newmthpar   ... to do!

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

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

\newmthparsty   ... to do!

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

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

\newmthopar   ... to do!

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

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

\newmthoparsty   ... to do!

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

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

\mthsubsup   ... to do!

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

250 %%**%%

\mth   ... to do!

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

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

\mtharg   ... to do!

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

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

\mthoarg   ... to do!

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

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

\mthpar   ... to do!

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

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

\mthopar   ... to do!

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

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

\mthsty   ... to do!

```
261 \newcommand{\mthsty}
262   {}

263 %%********************************************************************%%
```

\cmdmth   ... to do!

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

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

\cmdmtharg   ... to do!

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

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

\cmdmthoarg   ... to do!

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

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

\cmdmthpar   ... to do!

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

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

\cmdmthopar   ... to do!

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

```
272 \newcommand{\cmdmthopar}[1]
273   {\csdef{mthopar#1}{\newmthoparsty{mthsty#1}}}
```

\cmdmthall   ... to do!

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

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

276 %%************************************************************************%%
```

\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} $= newName[Par]$

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

279 %%************************************************************************%%
```

\usrmthlatlow   ... to do!

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

\usrmthlatupp   ... to do!

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

\usrmthlatlet   ... to do!

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

\usrmthgrklow   ... to do!

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

\usrmthgrkupp   ... to do!

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

\usrmthgrklet   ... to do!

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

`\usrmthlow` ... to do!

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

`\usrmthupp` ... to do!

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

`\usrmthlet` ... to do!

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

```
298 %%********************************************************************%%
299 %%********************************************************************%%
300 %%** Text Macro Generators *******************************************%%
301 %%********************************************************************%%
302 \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]` $= Name_{\mathrm{sub}}^{\mathrm{sup}}Ext1[Par]Ext2$

```
303 %% Style for Definitions
304 \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]` $= newName_{\mathrm{sub}}^{\mathrm{sub}}ext$

```
305 \newcommandx{\cmdtxtdef}[2][2=]
306   {\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]` $= newName_{\mathrm{sub}}^{\mathrm{sub}}ext1(arg)ext2$

```
307 \newcommandx{\cmdtxtargdef}[2][2=]
308   {\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]` $= newName_{\mathrm{sub}}^{\mathrm{sub}}(arg)$

```
309 \newcommandx{\cmdtxtoargdef}[2][2=]
310   {\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]` $= newName_{\mathrm{sub}}^{\mathrm{sub}}ext1[par]ext2$

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

`\cmdtxtopardef` ... to do!

- \cmdtxtopardef{cmdName};
  \cmdName[sub][sub][par] $= cmdName_{\mathrm{sub}}^{\mathrm{sub}}[par]$

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

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

\txtabr, ... to do!

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

```
315 %% Style for Abbreviations
316 \cmdtxtall{abr}\newcommand{\txtstyabr}{\em}
```

\cmdtxtabr ... to do!

- \cmdtxtabr{cmdName};
  \cmdName[sub][sub][ext] $= cmdName_{\mathrm{sub}}^{\mathrm{sub}}ext$

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

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

\cmdtxtargabr ... to do!

- \cmdtxtargabr{cmdName};
  \cmdName[sub][sub][ext1]{arg}[ext2] $= cmdName_{\mathrm{sub}}^{\mathrm{sub}}ext1(arg)ext2$

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

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

\cmdtxtoargabr ... to do!

- \cmdtxtoargabr{cmdName};
  \cmdName[sub][sub][arg] $= cmdName_{\mathrm{sub}}^{\mathrm{sub}}(arg)$

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

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

\cmdtxtparabr ... to do!

- \cmdtxtparabr{cmdName};
  \cmdName[sub][sub][ext1]{par}[ext2] $= cmdName_{\mathrm{sub}}^{\mathrm{sub}}ext1[par]ext2$

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

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

\cmdtxtoparabr ... to do!

- \cmdtxtoparabr{cmdName};
  \cmdName[sub][sub][par] $= cmdName_{\mathrm{sub}}^{\mathrm{sub}}[par]$

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

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

```
327 %%***********************************************************************%%
```

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

```
328 %% Style for Names
329 \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] = $\textsc{newName}_{\textsc{sub}}^{\textsc{sub}}\textsc{ext}$

```
330 \newcommandx{\cmdtxtname}[2][2=]
331   {\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] = $\textsc{newName}_{\textsc{sub}}^{\textsc{sub}}\textsc{ext1}(\textsc{arg})\textsc{ext2}$

```
332 \newcommandx{\cmdtxtargname}[2][2=]
333   {\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] = $\textsc{newName}_{\textsc{sub}}^{\textsc{sub}}(\textsc{arg})$

```
334 \newcommandx{\cmdtxtoargname}[2][2=]
335   {\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] = $\textsc{newName}_{\textsc{sub}}^{\textsc{sub}}\textsc{ext1}[\textsc{par}]\textsc{ext2}$

```
336 \newcommandx{\cmdtxtparname}[2][2=]
337   {\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] = $\textsc{newName}_{\textsc{sub}}^{\textsc{sub}}[\textsc{par}]$

```
338 \newcommandx{\cmdtxtoparname}[2][2=]
339   {\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] = $\textsc{Name}_{\textsc{sub}}^{\textsc{sup}}\textsc{Ext1}[\textsc{Par}]\textsc{Ext2}$

```
340 %% Style for Complexities
341 \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] $=$ NEWNAME$_{\text{SUB}}^{\text{SUB}}$EXT

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

\cmdtxtargcom   ... to do!

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

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

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

\cmdtxtoargcom   ... to do!

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

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

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

\cmdtxtparcom   ... to do!

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

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

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

\cmdtxtoparcom   ... to do!

- \cmdtxtoparcom{cmdName};
  \cmdName[sub][sub][par] $=$ CMDNAME$_{\text{SUB}}^{\text{SUB}}$[PAR]

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

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

352 \fi
353 %%**%%
354 %%**%%
355 %%** Math Macro Generators **%%
356 %%**%%
357 \ifmthgen@

\mthname, ... to do!

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

358 %% Style for Names
359 \cmdmthall{name}\newcommand{\mthstyname}{\mathcal}

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

360 \seqoflatupp{Name}{mthname}

\cmdmthname   ... to do!

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

15

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

```
361 \newcommandx{\cmdmthname}[2][2=]
362   {\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] $= \mathcal{NEWNAME}^{sub}_{sub}ext1(arg)ext2$

```
363 \newcommandx{\cmdmthargname}[2][2=]
364   {\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] $= \mathcal{NEWNAME}^{sub}_{sub}(arg)$

```
365 \newcommandx{\cmdmthoargname}[2][2=]
366   {\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] $= \mathcal{NEWNAME}^{sub}_{sub}ext1[par]ext2$

```
367 \newcommandx{\cmdmthparname}[2][2=]
368   {\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] $= \mathcal{NEWNAME}^{sub}_{sub}[par]$

```
369 \newcommandx{\cmdmthoparname}[2][2=]
370   {\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] $= \mathscr{NAME}^{sup}_{sub}Ext1[Par]Ext2$

```
371 %% Style for Families
372 \cmdmthall{fam}\newcommand{\mthstyfam}{\mathscr}
```

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

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

\cmdmthfam   ... to do!

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

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

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

\cmdmthargfam   ... to do!

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

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

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

\cmdmthoargfam   ... to do!

- \cmdmthoargfam{CMDNAME};
  \CMDNAMEFam[sub][sub][arg] $= \mathscr{CMDNAME}^{sub}_{sub}(arg)$

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

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

\cmdmthparfam   ... to do!

- \cmdmthparfam{CMDNAME};
  \CMDNAMEFam[sub][sub][ext1]{par}[ext2] $= \mathscr{CMDNAME}^{sub}_{sub}ext1[par]ext2$

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

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

\cmdmthoparfam   ... to do!

- \cmdmthoparfam{CMDNAME};
  \CMDNAMEFam[sub][sub][par] $= \mathscr{CMDNAME}^{sub}_{sub}[par]$

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

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

\mthcls, ... to do!

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

384 %% Style for Classes
385 \cmdmthall{cls}\newcommand{\mthstycls}{\matheus}

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

386 \seqoflatupp{Cls}{mthcls}

\cmdmthcls   ... to do!

- \cmdmthcls{CMDNAME};
  \CMDNAMECls[sub][sub][ext] $= \mathcal{CMDNAM}\mathscr{E}^{sub}_{sub}ext$

- \cmdmthcls{cmdName}[NEWNAME];
  \cmdNameCls[sub][sub][ext] $= \mathcal{NEWNAM}\mathscr{E}^{sub}_{sub}ext$

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

\cmdmthargcls   ... to do!

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

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

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

17

\cmdmthoargcls ... to do!

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

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

391 \newcommandx{\cmdmthoargcls}[2][2=]
392   {\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] $= \mathcal{NEWNAME}^{sub}_{sub}ext1[par]ext2$

393 \newcommandx{\cmdmthparcls}[2][2=]
394   {\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] $= \mathcal{NEWNAME}^{sub}_{sub}[par]$

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

\mthsig, ... to do!

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

397 %% Style for Signatures
398 \cmdmthall{sig}\newcommand{\mthstysig}{\mathpzc}

\aSig, ... to do!

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

399 \seqoflatlet{Sig}{mthsig}\seqofgrklow{Sig}{mthsig}

\cmdmthsig ... to do!

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

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

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

\cmdmthargsig ... to do!

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

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

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

\cmdmthoargsig ... to do!

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

18

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

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

\cmdmthparsig   ... to do!

- \cmdmthparsig{cmdName};
  \cmdNameSig[sub][sub][ext1]{par}[ext2] $= cmd\mathcal{N}ame^{sub}_{sub}ext1[par]ext2$

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

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

\cmdmthoparsig   ... to do!

- \cmdmthoparsig{cmdName};
  \cmdNameSig[sub][sub][par] $= cmd\mathcal{N}ame^{sub}_{sub}[par]$

- \cmdmthoparsig{cmdSig}[NewName];
  \cmdSigSig[sub][sub][par] $= \mathcal{N}ew\mathcal{N}ame^{sub}_{sub}[par]$

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

\mthstr, ... to do!

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

```
410 %% Style for Structures
411 \cmdmthall{str}\newcommand{\mthstystr}{\mathfrak}
```

\aStr, ... to do!

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

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

```
413 \newcommandx{\cmdmthstr}[2][2=]
414   {\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] $= \mathfrak{NewName}^{sub}_{sub}ext1(arg)ext2$

```
415 \newcommandx{\cmdmthargstr}[2][2=]
416   {\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] $= \mathfrak{NewName}^{sub}_{sub}(arg)$

```
417 \newcommandx{\cmdmthoargstr}[2][2=]
418   {\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] $= \mathfrak{NewName}_{sub}^{sub}ext1[par]ext2$

```
419 \newcommandx\cmdmthparstr}[2][2=]
420   {\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] $= \mathfrak{NewName}_{sub}^{sub}[par]$

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

\mthset, ... to do!

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

```
423 %% Style for Sets
424 \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
$\alpha, \beta, \gamma, \delta, \epsilon, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \varkappa, \lambda, \mu, \nu, \xi, o, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$
$A, B, \Gamma, \Delta, E, E, Z, H, \Theta, \Theta, I, K, K, \Lambda, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, \Upsilon, \Phi, \Phi, X, \Psi, \Omega$

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

\cmdmthset ... to do!

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

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

```
426 \newcommandx\cmdmthset}[2][2=]
427   {\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] $= \mathrm{NewName}_{sub}^{sub}ext1(arg)ext2$

```
428 \newcommandx\cmdmthargset}[2][2=]
429   {\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] $= \mathrm{NewName}_{sub}^{sub}(arg)$

```
430 \newcommandx\cmdmthoargset}[2][2=]
431   {\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] $= NewName_{sub}^{sub}ext1[par]ext2$

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

\cmdmthoparset   ... to do!

- \cmdmthoparset{cmdName};
  \cmdNameSet[sub][sub][par] $= cmdName_{sub}^{sub}[par]$

- \cmdmthoparset{cmdSet}[NewName];
  \cmdSetSet[sub][sub][par] $= NewName_{sub}^{sub}[par]$

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

\cmdmthsetext   ... to do!

```
436 \newcommandx{\cmdmthsetext}[3][2=, 3=]
437   {\cmdmthset{#1}[#2]\caselower[q]{#1}%
438   \usrmthlet{\thestring}{Sym}{sym}[\defval{#3}{\lowercase{#2}}]%
439   \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] $= Name_{sub}^{sup}Ext1[Par]Ext2$

```
440 %% Style for Relations
441 \cmdmthall{rel}\newcommand{\mthstyrel}{\mathit}
```

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

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

\cmdmthrel   ... to do!

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

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

```
443 \newcommandx{\cmdmthrel}[2][2=]
444   {\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] $= NewName_{sub}^{sub}ext1(arg)ext2$

```
445 \newcommandx{\cmdmthargrel}[2][2=]
446   {\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] $= NewName_{sub}^{sub}(arg)$

```
447 \newcommandx{\cmdmthoargrel}[2][2=]
448   {\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] $= NewName^{sub}_{sub}ext1[par]ext2$

449 \newcommandx{\cmdmthparrel}[2][2=]
450   {\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] $= NewName^{sub}_{sub}[par]$

451 \newcommandx{\cmdmthoparrel}[2][2=]
452   {\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] $= \mathsf{Name}^{sup}_{sub}Ext1[Par]Ext2$

453 %% Style for Functions
454 \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
$\alpha, \beta, \gamma, \delta, \epsilon, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \varkappa, \lambda, \mu, \nu, \xi, o, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$
A, B, 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

455 \seqoflet{Fun}{mthfun}

\cmdmthfun   ... to do!

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

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

456 \newcommandx{\cmdmthfun}[2][2=]
457   {\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] $= \mathsf{NewName}^{sub}_{sub}ext1(arg)ext2$

458 \newcommandx{\cmdmthargfun}[2][2=]
459   {\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] $= \mathsf{NewName}^{sub}_{sub}(arg)$

460 \newcommandx{\cmdmthoargfun}[2][2=]
461   {\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] $= \mathsf{NewName}^{sub}_{sub}ext1[par]ext2$

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

\cmdmthoparfun   ... to do!

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

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

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

\mthsym, ... to do!

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

```
466 %% Style for Symbols
467 \cmdmthall{sym}\newcommand{\mthstysym}{\mathtt}
```

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

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

\cmdmthsym   ... to do!

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

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

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

\cmdmthargsym   ... to do!

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

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

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

\cmdmthoargsym   ... to do!

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

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

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

\cmdmthparsym   ... to do!

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

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

```
475 \newcommandx{\cmdmthparsym}[2][2=]
476   {\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] $= NewName_{sub}^{sub}[par]$

```
477 \newcommandx{\cmdmthoparsym}[2][2=]
478   {\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] $= Name_{sub}^{sup}Ext1[Par]Ext2$

```
479 %% Style for Elements
480 \cmdmthall{elm}\newcommand{\mthstyelm}{\mathnormal}
```

`\aElm, ...`   ... to do!

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

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

`\cmdmthelm`   ... to do!

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

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

```
482 \newcommandx{\cmdmthelm}[2][2=]
483   {\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] $= NewName_{sub}^{sub}ext1(arg)ext2$

```
484 \newcommandx{\cmdmthargelm}[2][2=]
485   {\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] $= NewName_{sub}^{sub}(arg)$

```
486 \newcommandx{\cmdmthoargelm}[2][2=]
487   {\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] $= NewName_{sub}^{sub}ext1[par]ext2$

```
488 \newcommandx{\cmdmthparelm}[2][2=]
489   {\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] $= NewName_{sub}^{sub}[par]$

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

```
492 %%*********************************************************************%%
```

\cmdmthsymelm ... to do!

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

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

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

\cmdmthargsymelm ... to do!

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

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

\cmdmthoargsymelm ... to do!

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

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

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

\cmdmthparsymelm ... to do!

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

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

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

\cmdmthoparsymelm ... to do!

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

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

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

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

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

509 `%% Style for Sentences`
510 `\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

511 `\seqoflet{Snt}{mthsnt}`

`\cmdmthsnt`   ... to do!

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

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

`\cmdmthargsnt`   ... to do!

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

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

`\cmdmthoargsnt`   ... to do!

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

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

`\cmdmthparsnt`   ... to do!

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

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

`\cmdmthoparsnt`   ... to do!

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

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

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

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

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

```
522 %% Style for Formulae
523 \cmdmthall{frm}\newcommand{\mthstyfrm}{\mathit}
```

\aFrm, ... to do!

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

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

\cmdmthfrm ... to do!

- `\cmdmthfrm{cmdName};`
  $\mathtt{\backslash cmdNameFrm[sub][sub][ext]} = cmdName_{sub}^{sub}ext$
- `\cmdmthfrm{cmdName}[NewName];`
  $\mathtt{\backslash cmdNameFrm[sub][sub][ext]} = NewName_{sub}^{sub}ext$

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

\cmdmthargfrm ... to do!

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

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

\cmdmthoargfrm ... to do!

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

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

\cmdmthparfrm ... to do!

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

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

\cmdmthoparfrm ... to do!

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

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

```
535 %%****************************************************************%%
```

\mthmat, ... to do!

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

```
536 %% Style for Matrices
537 \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**
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**

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

\cmdmthmat   ... to do!

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

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

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

\cmdmthargmat   ... to do!

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

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

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

\cmdmthoargmat   ... to do!

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

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

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

\cmdmthparmat   ... to do!

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

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

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

\cmdmthoparmat   ... to do!

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

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

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

\mthvec, ... to do!

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

```
549 %% Style for Vectors
550 \cmdmthall{vec}\newcommand{\mthstyvec}[1]{\boldsymbol{\mathit{#1}}}
```

\aVec, ... to do!

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

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

\cmdmthvec   ... to do!

- \cmdmthvec{cmdName};
  \cmdNameVec[sub][sub][ext] $= cmdName_{sub}^{sub}ext$

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

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

\cmdmthargvec   ... to do!

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

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

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

\cmdmthoargvec   ... to do!

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

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

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

\cmdmthparvec   ... to do!

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

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

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

\cmdmthoparvec   ... to do!

- \cmdmthoparvec{cmdName};
  \cmdNameVec[sub][sub][par] $= cmdName_{sub}^{sub}[par]$

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

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

562 \fi
563 %%********************************************************************%%

564 %%********************************************************************%%
565 %%** Elementary Macros for Text **************************************%%
566 %%********************************************************************%%
567 \iftext@

568 %%** Latin Abbreviations *********************************************%%
```

\adhoc   - \adhoc $= ad\ hoc$

```
569 \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` $= w.r.t.$

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

`\wlogx`	• `\wlogx` $= w.l.o.g.$

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

613 `%%********************************************************************%%`

`\Contd`	• `\Contd` $= Contd.$

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

`\Wlogx`	• `\Wlogx` $= W.l.o.g.$

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

616 `\fi`
617 `%%********************************************************************%%`

618 `%%********************************************************************%%`
619 `%%** Elementary Macros for Math *************************************%%`
620 `%%********************************************************************%%`
621 `\ifmath@`

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

`\implies, ...`	...

623 `\DeclareRobustCommand{\implies}`
624 `  {\ensuremath{\Rightarrow}}`
625 `\DeclareRobustCommand{\coimplies}`
626 `  {\ensuremath{\Leftrightarrow}}`

627 `%%********************************************************************%%`

`\defeq, \seteq`	...

628 `\DeclareMathOperator{\defeq}`
629 `  {\ensuremath{\triangleq}}`
630 `\DeclareMathOperator{\seteq}`
631 `  {\ensuremath{:\!=\,}}`

632 `%%********************************************************************%%`

`\cmodels, ...`	...

633 `\DeclareRobustCommand{\cmodels}`
634 `  {\mth{\,\models}}`
635 `\DeclareRobustCommand{\notcmodels}`
636 `  {\mth{\,\not\models}}`

`\cequiv, ...`	...

637 `\DeclareRobustCommand{\cequiv}`
638 `  {\mth{\,\equiv}}`
639 `\DeclareRobustCommand{\notcequiv}`
640 `  {\mth{\,\not\equiv}}`

641 `%%********************************************************************%%`

`\dual, \adj, ...`	...

642 `\DeclareRobustCommand{\dual}[1]`
643 `  {\mth{\overline{#1}}}`
644 `\DeclareRobustCommand{\adj}[1]`
645 `  {\mth{\mathring{#1}}}`
646 `\DeclareRobustCommand{\der}[1]`
647 `  {\mth{\widehat{#1}}}`
648 `\DeclareRobustCommand{\trn}[1]`
649 `  {\mth{\widetilde{#1}}}`

```
        \vec   ...
              650 \let\oldvec\vec
              651 \DeclareRobustCommand{\vec}[1]
              652   {\mth{\oldvec{#1}}}

              653 %%************************************************************************%%
\enumeration, ...  ...
              654 \varcmd{enumeration}{\mth}{}{,}{}{}
              655 \varcmd{enumerationx}{\mth}{}{;}{}{}

  \sequence, ...   ...
              656 \varcmd{sequence}{\mth}{\left[}{,}{\right]}{}
              657 \varcmd{sequencex}{\mth}{\left[}{;}{\right]}{}

      \tuple, ...   ...
              658 \varcmd{tuple}{\mth}{\left\langle}{,}{\right\rangle}{}
              659 \varcmd{tuplex}{\mth}{\left\langle}{;}{\right\rangle}{}

              660 %%** Sets ****************************************************************%%
          \set   ...
              661 \DeclareRobustCommand{\set}[2]
              662   {\mth{\argmid{\{\,}{\argsep{#1}{\allowbreak\mid\allowbreak}{#2}}{\,\}}}}

         \card   ...
              663 \DeclareRobustCommand{\card}[1]
              664   {\mth{\argmid{\lvert}{#1}{\rvert}}}

        \denot   ...
              665 \DeclareRobustCommand{\denot}[1]
              666   {\mth{\argmid{\lVert}{#1}{\rVert}}}

          \pow   ...
              667 \DeclareRobustCommand{\pow}[1]
              668   {\ensuremath{2^{\defval{#1}{\cdot}}}}

              669 %%** Relations ***********************************************************%%
      \emptyrel   ...
              670 \DeclareRobustCommand{\emptyrel}
              671   {\mth{\varnothing}}

              672 %%************************************************************************%%
  \dom, \cod, ...   ...
              673 \DeclareRobustCommand{\dom}
              674   {\mthargfun{dom}}
              675 \DeclareRobustCommand{\cod}
              676   {\mthargfun{cod}}
              677 \DeclareRobustCommand{\rng}
              678   {\mthargfun{rng}}
              679 \DeclareRobustCommand{\img}
              680   {\mthargfun{img}}

              681 %%************************************************************************%%
          \prj   ...
              682 \DeclareRobustCommand{\prj}
              683   {\mthargfun{prj}}

          \rst   ...
              684 \DeclareMathOperator{\rst}
              685   {\ensuremath{\upharpoonright}}
```

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```
       \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]}
```

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```
727 \DeclareRobustCommand{\SetQ}
728   {\mthset[mathbb]{Q}}
729 \DeclareRobustCommand{\SetQI}[1][]
730   {\SetQ[\pm\infty #1]}
731 \DeclareRobustCommand{\SetQPI}[1][]
732   {\SetQ[+\infty #1]}
733 \DeclareRobustCommand{\SetQNI}[1][]
734   {\SetQ[-\infty #1]}
```

```
735 \DeclareRobustCommand{\SetR}
736   {\mthset[mathbb]{R}}
737 \DeclareRobustCommand{\SetRI}[1][]
738   {\SetR[\pm\infty #1]}
739 \DeclareRobustCommand{\SetRPI}[1][]
740   {\SetR[+\infty #1]}
741 \DeclareRobustCommand{\SetRNI}[1][]
742   {\SetR[-\infty #1]}
```

```
743 \DeclareRobustCommand{\SetC}
744   {\mthset[mathbb]{C}}
745 \DeclareRobustCommand{\SetCI}[1][]
746   {\SetC[\infty #1]}

747 %%********************************************************************%%
```

```
748 \DeclareRobustCommand{\num}[1]
749   {\mth{[#1]}}
750 \DeclareRobustCommand{\numcc}[2]
751   {\mth{[\argsep{#1}{,}{#2}]}}
752 \DeclareRobustCommand{\numco}[2]
753   {\mth{[\argsep{#1}{,}{#2})}}
754 \DeclareRobustCommand{\numoc}[2]
755   {\mth{(\argsep{#1}{,}{#2}]}}
756 \DeclareRobustCommand{\numoo}[2]
757   {\mth{(\argsep{#1}{,}{#2})}}

758 %%********************************************************************%%
```

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

763 %%********************************************************************%%
```

```
764 \DeclareRobustCommand{\arg}
765   {\mthfun{arg}}
```

```
766 \DeclareRobustCommand{\evn}
767   {\mthfun{evn}}
768 \DeclareRobustCommand{\odd}
769   {\mthfun{odd}}
```

```
770 \DeclareRobustCommand{\bst}
771   {\mthfun{bst}}
772 \DeclareRobustCommand{\argbst}
773   {\mthfun{arg bst}}
```

\min, \max, ...

```
774 \DeclareRobustCommand{\min}
775   {\mthfun{min}}
776 \DeclareRobustCommand{\max}
777   {\mthfun{max}}
778 \DeclareRobustCommand{\argmin}
779   {\mthfun{arg min}}
780 \DeclareRobustCommand{\argmax}
781   {\mthfun{arg max}}
```

\inf, \sup   ...

```
782 \DeclareRobustCommand{\inf}
783   {\mthfun{inf}}
784 \DeclareRobustCommand{\sup}
785   {\mthfun{sup}}

786 %%** Sequences ****************************************************%%
```

\fst, \lst   ...

```
787 \DeclareRobustCommand{\fst}
788   {\mthargfun{fst}}
789 \DeclareRobustCommand{\lst}
790   {\mthargfun{lst}}

791 \fi
792 %%*************************************************************************%%
793 %%*************************************************************************%%
794 %%** Macros for Computational-Complexity Classes *************************%%
795 %%*************************************************************************%%
796 \ifcom@
```

\defcomcls   ... to do!

- \defcomcls{CompClass};

  \CompClass[sub][sup][ext] $= \text{COMPCLASS}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoCompClass[sub][sup][ext] $= \text{COCOMPCLASS}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \CompClassE[sub][sup][ext] $= \text{COMPCLASS-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoCompClassE[sub][sup][ext] $= \text{COCOMPCLASS-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \CompClassH[sub][sup][ext] $= \text{COMPCLASS-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoCompClassH[sub][sup][ext] $= \text{COCOMPCLASS-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \CompClassC[sub][sup][ext] $= \text{COMPCLASS-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoCompClassC[sub][sup][ext] $= \text{COCOMPCLASS-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

  \NCompClass[sub][sup][ext] $= \text{NCOMPCLASS}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoNCompClass[sub][sup][ext] $= \text{CONCOMPCLASS}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NCompClassE[sub][sup][ext] $= \text{NCOMPCLASS-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoNCompClassE[sub][sup][ext] $= \text{CONCOMPCLASS-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NCompClassH[sub][sup][ext] $= \text{NCOMPCLASS-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoNCompClassH[sub][sup][ext] $= \text{CONCOMPCLASS-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NCompClassC[sub][sup][ext] $= \text{NCOMPCLASS-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoNCompClassC[sub][sup][ext] $= \text{CONCOMPCLASS-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

  \UCompClass[sub][sup][ext] $= \text{UCOMPCLASS}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoUCompClass[sub][sup][ext] $= \text{COUCOMPCLASS}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UCompClassE[sub][sup][ext] $= \text{UCOMPCLASS-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoUCompClassE[sub][sup][ext] $= \text{COUCOMPCLASS-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UCompClassH[sub][sup][ext] $= \text{UCOMPCLASS-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoUCompClassH[sub][sup][ext] $= \text{COUCOMPCLASS-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UCompClassC[sub][sup][ext] $= \text{UCOMPCLASS-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoUCompClassC[sub][sup][ext] $= \text{COUCOMPCLASS-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

  \ACompClass[sub][sup][ext] $= \text{ACOMPCLASS}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
  \CoACompClass[sub][sup][ext] $= \text{COACOMPCLASS}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ACompClassE[sub][sup][ext] $= \text{ACOMPCLASS-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;

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

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

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

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

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

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

```
797 \newcommandx{\defcomcls}[2][2=]
798   {\defcomclssem{#1}{\defval{#2}{#1}}%
799    \defcomclssem{#1}{\defval{#2}{#1}}[Co]}
800 \newcommandx{\defcomclssem}[3][3=]
801   {\defcomclsred{#3#1}{#2}[#3]%
802    \defcomclsred{#3N#1}{#2}[#3N]%
803    \defcomclsred{#3U#1}{#2}[#3U]%
804    \defcomclsred{#3A#1}{#2}[#3A]}
805 \newcommandx{\defcomclsred}[3][3=]
806   {\defcomclscmd{#1}{#2}[#3]%
807    \defcomclscmd{#1E}{#2}[#3][-easy]%
808    \defcomclscmd{#1H}{#2}[#3][-hard]%
809    \defcomclscmd{#1C}{#2}[#3][-complete]}%
810 \newcommandx{\defcomclscmd}[4][3=, 4=]
811   {\csdef{#1}{\txtcom{#3#2#4}}}
```

```
812 %%********************************************************************%%
```

`\Time, ...`
- $\verb|\Time[sub][sup][ext]| = \text{Time}_{\text{sub}}^{\text{sup}}\text{ext}$
  $\verb|\TimeE[sub][sup][ext]| = \text{Time-easy}_{\text{sub}}^{\text{sup}}\text{ext}$
  $\verb|\TimeH[sub][sup][ext]| = \text{Time-hard}_{\text{sub}}^{\text{sup}}\text{ext}$
  $\verb|\TimeC[sub][sup][ext]| = \text{Time-complete}_{\text{sub}}^{\text{sup}}\text{ext}$

- \NTime[sub][sup][ext] $= \text{NTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NTimeE[sub][sup][ext] $= \text{NTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NTimeH[sub][sup][ext] $= \text{NTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NTimeC[sub][sup][ext] $= \text{NTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \UTime[sub][sup][ext] $= \text{UTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UTimeE[sub][sup][ext] $= \text{UTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UTimeH[sub][sup][ext] $= \text{UTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UTimeC[sub][sup][ext] $= \text{UTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \ATime[sub][sup][ext] $= \text{ATIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ATimeE[sub][sup][ext] $= \text{ATIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ATimeH[sub][sup][ext] $= \text{ATIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ATimeC[sub][sup][ext] $= \text{ATIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

813 \defcomcls{Time}

\Space, ...

- \Space[sub][sup][ext] $= \text{SPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \SpaceE[sub][sup][ext] $= \text{SPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \SpaceH[sub][sup][ext] $= \text{SPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \SpaceC[sub][sup][ext] $= \text{SPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \NSpace[sub][sup][ext] $= \text{NSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NSpaceE[sub][sup][ext] $= \text{NSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NSpaceH[sub][sup][ext] $= \text{NSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NSpaceC[sub][sup][ext] $= \text{NSPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \USpace[sub][sup][ext] $= \text{USPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \USpaceE[sub][sup][ext] $= \text{USPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \USpaceH[sub][sup][ext] $= \text{USPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \USpaceC[sub][sup][ext] $= \text{USPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \ASpace[sub][sup][ext] $= \text{ASPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ASpaceE[sub][sup][ext] $= \text{ASPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ASpaceH[sub][sup][ext] $= \text{ASPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ASpaceC[sub][sup][ext] $= \text{ASPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

814 \defcomcls{Space}

\LogTime, ...

- \LogTime[sub][sup][ext] $= \text{LOGTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \LogTimeE[sub][sup][ext] $= \text{LOGTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \LogTimeH[sub][sup][ext] $= \text{LOGTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \LogTimeC[sub][sup][ext] $= \text{LOGTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \NLogTime[sub][sup][ext] $= \text{NLOGTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NLogTimeE[sub][sup][ext] $= \text{NLOGTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NLogTimeH[sub][sup][ext] $= \text{NLOGTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NLogTimeC[sub][sup][ext] $= \text{NLOGTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \ULogTime[sub][sup][ext] $= \text{ULOGTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ULogTimeE[sub][sup][ext] $= \text{ULOGTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ULogTimeH[sub][sup][ext] $= \text{ULOGTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ULogTimeC[sub][sup][ext] $= \text{ULOGTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \ALogTime[sub][sup][ext] $= \text{ALOGTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ALogTimeE[sub][sup][ext] $= \text{ALOGTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ALogTimeH[sub][sup][ext] $= \text{ALOGTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ALogTimeC[sub][sup][ext] $= \text{ALOGTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

815 \defcomcls{LogTime}

\LogSpace, ...

- \LogSpace[sub][sup][ext] $= \text{LOGSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \LogSpaceE[sub][sup][ext] $= \text{LOGSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \LogSpaceH[sub][sup][ext] $= \text{LOGSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \LogSpaceC[sub][sup][ext] $= \text{LOGSPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \NLogSpace[sub][sup][ext] $= \text{NLOGSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NLogSpaceE[sub][sup][ext] $= \text{NLOGSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NLogSpaceH[sub][sup][ext] $= \text{NLOGSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NLogSpaceC[sub][sup][ext] $= \text{NLOGSPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \ULogSpace[sub][sup][ext] = $\text{ULOGSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ULogSpaceE[sub][sup][ext] = $\text{ULOGSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ULogSpaceH[sub][sup][ext] = $\text{ULOGSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ULogSpaceC[sub][sup][ext] = $\text{ULOGSPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \ALogSpace[sub][sup][ext] = $\text{ALOGSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ALogSpaceE[sub][sup][ext] = $\text{ALOGSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ALogSpaceH[sub][sup][ext] = $\text{ALOGSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ALogSpaceC[sub][sup][ext] = $\text{ALOGSPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

816 \defcomcls{LogSpace}

\PTime, ...
- \PTime[sub][sup][ext] = $\text{PTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \PTimeE[sub][sup][ext] = $\text{PTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \PTimeH[sub][sup][ext] = $\text{PTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \PTimeC[sub][sup][ext] = $\text{PTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \NPTime[sub][sup][ext] = $\text{NPTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NPTimeE[sub][sup][ext] = $\text{NPTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NPTimeH[sub][sup][ext] = $\text{NPTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NPTimeC[sub][sup][ext] = $\text{NPTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \UPTime[sub][sup][ext] = $\text{UPTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UPTimeE[sub][sup][ext] = $\text{UPTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UPTimeH[sub][sup][ext] = $\text{UPTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UPTimeC[sub][sup][ext] = $\text{UPTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \APTime[sub][sup][ext] = $\text{APTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \APTimeE[sub][sup][ext] = $\text{APTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \APTimeH[sub][sup][ext] = $\text{APTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \APTimeC[sub][sup][ext] = $\text{APTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

817 \defcomcls{PTime}

\PSpace, ...
- \PSpace[sub][sup][ext] = $\text{PSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \PSpaceE[sub][sup][ext] = $\text{PSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \PSpaceH[sub][sup][ext] = $\text{PSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \PSpaceC[sub][sup][ext] = $\text{PSPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \NPSpace[sub][sup][ext] = $\text{NPSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NPSpaceE[sub][sup][ext] = $\text{NPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NPSpaceH[sub][sup][ext] = $\text{NPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NPSpaceC[sub][sup][ext] = $\text{NPSPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \UPSpace[sub][sup][ext] = $\text{UPSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UPSpaceE[sub][sup][ext] = $\text{UPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UPSpaceH[sub][sup][ext] = $\text{UPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UPSpaceC[sub][sup][ext] = $\text{UPSPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \APSpace[sub][sup][ext] = $\text{APSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \APSpaceE[sub][sup][ext] = $\text{APSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \APSpaceH[sub][sup][ext] = $\text{APSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \APSpaceC[sub][sup][ext] = $\text{APSPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

818 \defcomcls{PSpace}

\ExpTime, ...
- \ExpTime[sub][sup][ext] = $\text{EXPTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ExpTimeE[sub][sup][ext] = $\text{EXPTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ExpTimeH[sub][sup][ext] = $\text{EXPTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \ExpTimeC[sub][sup][ext] = $\text{EXPTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \NExpTime[sub][sup][ext] = $\text{NEXPTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NExpTimeE[sub][sup][ext] = $\text{NEXPTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NExpTimeH[sub][sup][ext] = $\text{NEXPTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \NExpTimeC[sub][sup][ext] = $\text{NEXPTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \UExpTime[sub][sup][ext] = $\text{UEXPTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UExpTimeE[sub][sup][ext] = $\text{UEXPTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UExpTimeH[sub][sup][ext] = $\text{UEXPTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  \UExpTimeC[sub][sup][ext] = $\text{UEXPTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \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, ...  ...
              851 \newcommand{\arenaname}{A}
              852 \usrmthlatupp{Arena}{Name}{name}[\arenaname]

    \PosSet, ...  ...
              853 \newcommand{\possym}{v}
              854 \newcommand{\posset}{Ps}
              855 \cmdmthsetext{Pos}[\posset][\possym]
              856 \cmdmthsymelm{ipos}[\possym_{I}]
              857 \cmdmthsymelm{fpos}[\possym_{F}]
              858 \cmdmthset{PPos}[\posset_{\PlrSym}]
              859 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
              860 \cmdmthset{OPos}[\posset_{\OppSym}]
              861 \cmdmthsymelm{opos}[\possym_{\OppSym}]

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

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

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

\ObsSet, \obsFun  ...
              868 \newcommand{\obsset}{Ob}
              869 \cmdmthset{Obs}[\obsset]
              870 \cmdmthfun{obs}

              871 %%** Semantics *************************************************%%

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

    \HstSet, ...  ...
              876 \newcommand{\hstsym}{\rho}
              877 \newcommand{\hstset}{Hst}
              878 \cmdmthsetext{Hst}[\hstset][\hstsym]
              879 \cmdmthset{PHst}[\hstset_{\PlrSym}]
              880 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
              881 \cmdmthset{OHst}[\hstset_{\OppSym}]
              882 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
              883 \cmdmthfun{hst}

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

    \StrSet, ...  ...
              888 \newcommand{\strsym}{\sigma}
              889 \newcommand{\strset}{Str}
              890 \cmdmthsetext{Str}[\strset][\strsym]
              891 \cmdmthset{PStr}[\strset_{\PlrSym}]
              892 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
              893 \cmdmthset{OStr}[\strset_{\OppSym}]
              894 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]
```

41

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

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

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

      \solFun   ...
                   902 \cmdmthfun{sol}

                   903 %%** Qualitative Games on Graph **********************************%%

   \BG, ...   ...
                   904 %% Buchi Games
                   905 \cmdtxtoparname{BG}
                   906
                   907 %% Co-Buchi Games
                   908 \cmdtxtoparname{CG}
                   909
                   910 %% Parity Games
                   911 \cmdtxtoparname{PG}
                   912
                   913 %% Rabin Games
                   914 \cmdtxtoparname{RG}
                   915
                   916 %% Streett Games
                   917 \cmdtxtoparname{SG}
                   918
                   919 %% Muller Games
                   920 \cmdtxtoparname{MG}

                   921 %%** Syntax *****************************************************%%

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

                   926 %%** Semantics **************************************************%%

                       ...

                   927 %%** Quantitative Games on Graph ********************************%%

   \EG, ...   ...
                   928 %% Energy Games
                   929 \cmdtxtoparname{EG}
                   930
                   931 %% Mean-Payoff Games
                   932 \cmdtxtoparname{MPG}
                   933
                   934 %% Discounted-Payoff Games
                   935 \cmdtxtoparname{DPG}

                   936 %%** Syntax *****************************************************%%
```

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

                  941 %%** Semantics ***********************************************%%
                      ...
                  942 \fi
                  943 %%*********************************************************************%%

                  944 %%*********************************************************************%%
                  945 %%** Macros for Logics ***************************************%%
                  946 %%*********************************************************************%%
                  947 \iflog@

                  948 %%** Propositional Logics ***********************************%%

  \BF, \QBF, ...  ...
                  949 % Boolean Formulae
                  950 \cmdtxtoparname{BF}
                  951
                  952 % Quantified Boolean Formulae
                  953 \DeclareRobustCommand{\QBF}
                  954   {{\txtname{Q}}\BF}
                  955 \DeclareRobustCommand{\EBF}
                  956   {\ensuremath{\exists}\BF}
                  957 \DeclareRobustCommand{\UBF}
                  958   {\ensuremath{\forall}\BF}

                  959 %%** Syntax ***************************************************%%

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

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

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

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

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

\Qnt,\QntSet, ...  ...
                  972 \usrmth{Qnt}{}{sym}[Qn]
                  973
                  974 \newcommand{\qntsym}{\wp}
                  975 \newcommand{\qntset}{Qn}
                  976 \cmdmthsetext{Qnt}[\qntset][\qntsym]

        \free  ...
                  977 \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, ...    ...
              1058 % Tree Logic
              1059 \cmdtxtoparname{TL}
              1060
              1061 % Monadic Tree Logic
              1062 \DeclareRobustCommand{\MTL}
              1063    {{\txtname{M}}\TL}
              1064
              1065 % Path Logic
              1066 \cmdtxtoparname{PL}
              1067
              1068 % Monadic Path Logic
              1069 \DeclareRobustCommand{\MPL}
              1070    {{\txtname{M}}\PL}

              1071 %%** Syntax ****************************************************%%

                  ...

              1072 %%** Semantics ************************************************%%

                  ...

              1073 %%** Modal Logics I *******************************************%%

\ML, \QML, ...   ...
              1074 % Modal Logic
              1075 \cmdtxtoparname{ML}
              1076
              1077 % Quantified Modal Logic
              1078 \DeclareRobustCommand{\QML}
              1079    {{\txtname{Q}}\ML}
              1080 \DeclareRobustCommand{\EML}
              1081    {\ensuremath{\exists}\ML}
              1082 \DeclareRobustCommand{\UML}
              1083    {\ensuremath{\forall}\ML}

              1084 %%** Syntax ****************************************************%%

        \Opr  ...
              1085 \usrmth{Opr}{}{sym}[Op]

  \DMod, \BMod  ...
              1086 \usrmth{DMod}{}{sym}[\Diamond]
              1087 \usrmth{BMod}{}{sym}[\Box]

   \Exs, \All  ...
              1088 \DeclareRobustCommand{\Exs}[1]
              1089    {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
              1090 \DeclareRobustCommand{\All}[1]
              1091    {\mth{\defval{\argmid{\left[}{#1}{\right]}}{\BMod}}}

              1092 %%** Semantics ************************************************%%

  \KrpStr, ...  ...
              1093 \newcommand{\krpstr}{K}
              1094 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

  \WrlSet, ...  ...
              1095 \newcommand{\wrlsym}{w}
              1096 \newcommand{\wrlset}{W}
              1097 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
              1098 \cmdmthsymelm{iwrl}[\wrlsym_{I}]
```

```
\AccRel, \TrnRel   ...
                   1099 \newcommand{\accsym}{R}
                   1100 \cmdmthrel{Acc}[\accsym]
                   1101 \cmdmthrel{Trn}[\accsym]

         \labFun   ...
                   1102 \newcommand{\labsym}{\lambda}
                   1103 \cmdmthfun{lab}[\labsym]

\PthSet, \pthFun   ...
                   1104 \providecommand{\pthsym}{\pi}
                   1105 \providecommand{\pthset}{Pth}
                   1106 \cmdmthsetext{Pth}[\pthset][\pthsym]
                   1107 \cmdmthfun{pth}

                   1108 %%** Modal Logics II ******************************************%%

  \MC, \QMC, ...   ...
                   1109 % Mu Calculus
                   1110 \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]
                   1111
                   1112 % Quantified Modal Logic
                   1113 \DeclareRobustCommand{\QMC}
                   1114   {{\txtname{Q}}\MC}
                   1115 \DeclareRobustCommand{\EMC}
                   1116   {\ensuremath{\exists}\MC}
                   1117 \DeclareRobustCommand{\UMC}
                   1118   {\ensuremath{\forall}\MC}

                   1119 %%** Syntax ******************************************************%%

                      ...

                   1120 %%** Semantics ***************************************************%%

                      ...

                   1121 %%** Temporal Logics I ******************************************%%

 \PTL, \LTL, ...   ...
                   1122 % Propositional Temporal Logic
                   1123 \cmdtxtoparname{PTL}
                   1124
                   1125 % Quantified Propositional Temporal Logic
                   1126 \DeclareRobustCommand{\QPTL}
                   1127   {{\txtname{Q}}\PTL}
                   1128 \DeclareRobustCommand{\EPTL}
                   1129   {\ensuremath{\exists}\PTL}
                   1130 \DeclareRobustCommand{\UPTL}
                   1131   {\ensuremath{\forall}\PTL}
                   1132
                   1133 % Linear Temporal Logic
                   1134 \cmdtxtoparname{LTL}
                   1135
                   1136 % Quantified Linear Temporal Logic
                   1137 \DeclareRobustCommand{\QLTL}
                   1138   {{\txtname{Q}}\LTL}
                   1139 \DeclareRobustCommand{\ELTL}
                   1140   {\ensuremath{\exists}\LTL}
                   1141 \DeclareRobustCommand{\ULTL}
                   1142   {\ensuremath{\forall}\LTL}

                   1143 %%** 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
```

```latex
1287 \DeclareRobustCommand{\ESL}
1288   {\ensuremath{\exists}\SL}
1289 \DeclareRobustCommand{\USL}
1290   {\ensuremath{\forall}\SL}
1291
1292 \DeclareRobustCommand{\FSL}
1293   {{\txtname{F}}\SL}
1294
1295 \DeclareRobustCommand{\EFSL}
1296   {\ensuremath{\exists}\FSL}
1297 \DeclareRobustCommand{\UFSL}
1298   {\ensuremath{\forall}\FSL}
1299
1300 % One-Goal Strategy Logic
1301 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
1302   {\SL[#1][#2][1g\arglef{,}{#3}]}
1303
1304 \DeclareRobustCommand{\EOGSL}
1305   {\ensuremath{\exists}\OGSL}
1306 \DeclareRobustCommand{\UOGSL}
1307   {\ensuremath{\forall}\OGSL}
1308
1309 \DeclareRobustCommand{\FOGSL}
1310   {{\txtname{F}}\OGSL}
1311
1312 \DeclareRobustCommand{\EFOGSL}
1313   {\ensuremath{\exists}\FOGSL}
1314 \DeclareRobustCommand{\UFOGSL}
1315   {\ensuremath{\forall}\FOGSL}
1316
1317 % Conjunctive-Goal Strategy Logic
1318 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
1319   {\SL[#1][#2][cg\arglef{,}{#3}]}
1320
1321 \DeclareRobustCommand{\ECGSL}
1322   {\ensuremath{\exists}\CGSL}
1323 \DeclareRobustCommand{\UCGSL}
1324   {\ensuremath{\forall}\CGSL}
1325
1326 \DeclareRobustCommand{\FCGSL}
1327   {{\txtname{F}}\xGSL}
1328
1329 \DeclareRobustCommand{\EFCGSL}
1330   {\ensuremath{\exists}\FCGSL}
1331 \DeclareRobustCommand{\UFCGSL}
1332   {\ensuremath{\forall}\FCGSL}
1333
1334 % Disjunctive-Goal Strategy Logic
1335 \DeclareRobustCommandx{\DGSL}[3][1=, 2=, 3=]
1336   {\SL[#1][#2][dg\arglef{,}{#3}]}
1337
1338 \DeclareRobustCommand{\EDGSL}
1339   {\ensuremath{\exists}\DGSL}
1340 \DeclareRobustCommand{\UDGSL}
1341   {\ensuremath{\forall}\DGSL}
1342
1343 \DeclareRobustCommand{\FDGSL}
1344   {{\txtname{F}}\xGSL}
1345
1346 \DeclareRobustCommand{\EFDGSL}
1347   {\ensuremath{\exists}\FDGSL}
1348 \DeclareRobustCommand{\UFDGSL}
1349   {\ensuremath{\forall}\FDGSL}
```

```latex
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 %% ...
```

```
              1464 %%** Syntax *********************************************************%%

\AutName, ...   ...
              1465 \newcommand{\autname}{A}
              1466 \usrmthlatupp{Aut}{Name}{name}[\autname]
              1467 \newcommand{\autset}{Aut}
              1468 \cmdmthset{Aut}[\autset]

    \WAutSet    ...
              1469 \newcommand{\wautset}{WAut}
              1470 \cmdmthset{WAut}[\wautset]

\SttSet, ...    ...
              1471 \def\sttsym{q}
              1472 \def\sttset{Q}
              1473 \cmdmthsetext{Stt}[\sttset][\sttsym]
              1474 \cmdmthset{IStt}[\sttset_{I}]
              1475 \cmdmthsymelm{istt}[\sttsym_{I}]
              1476 \cmdmthset{FStt}[\sttset_{F}]
              1477 \cmdmthsymelm{fstt}[\sttsym_{F}]

\SymSet, ...    ...
              1478 \newcommand{\symsym}{\sigma}
              1479 \newcommand{\symset}{\Sigma}
              1480 \cmdmthsetext{Sym}[\symset][\symsym]

    \trnFun     ...
              1481 \newcommand{\trnsym}{\delta}
              1482 \cmdmthfun{trn}[\trnsym]

              1483 %%** Semantics ******************************************************%%

    \LangFun    ...
              1484 \cmdmthfun{Lang}[L]

\WrdSet, ...    ...
              1485 \newcommand{\wrdsym}{w}
              1486 \newcommand{\wrdset}{Wr}
              1487 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

              1488 %%** Finite Tree Automata *******************************************%%

    \DTA, ...   ...
              1489 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
              1490
              1491 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
              1492 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
              1493 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
              1494 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
              1495 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
              1496 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
              1497 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}

              1498 %%** Syntax *********************************************************%%

    \TAutSet    ...
              1499 \newcommand{\tautset}{TAut}
              1500 \cmdmthset{TAut}[\tautset]

\DirSet, ...    ...
              1501 \newcommand{\dirsym}{d}
              1502 \newcommand{\dirset}{\Lambda}
              1503 \cmdmthsetext{Dir}[\dirset][\dirsym]
```

```
        1504 %%** Semantics ***************************************************%%

\TreeSet, ...   ...
        1505 \newcommand{\treesym}{T}
        1506 \newcommand{\treeset}{Tr}
        1507 \cmdmthsetext{Tree}[\treeset][\treesym]

  \wotFun   ...
        1508 \cmdmthfun{wot}

        1509 \fi
        1510 %%*************************************************************************%%

        1511 %%*************************************************************************%%
        1512 %%** Format Tricks ********************************************************%%
        1513 %%*************************************************************************%%
        1514 \iffrm@

    ...   ...
        1515 %%...

        1516 \fi
        1517 %%*************************************************************************%%

        1518 %%*************************************************************************%%
        1519 %%** Figure Tricks ********************************************************%%
        1520 %%*************************************************************************%%
        1521 \iffig@

    ...   ...
        1522 %%...

        1523 \fi
        1524 %%*************************************************************************%%

        1525 %%*************************************************************************%%
        1526 %%** Table Tricks *********************************************************%%
        1527 %%*************************************************************************%%
        1528 \iftab@

    ...   ...
        1529 %%...

        1530 \fi
        1531 %%*************************************************************************%%

        1532 %%*************************************************************************%%
        1533 %%** Algorithm Tricks *****************************************************%%
        1534 %%*************************************************************************%%
        1535 \ifalg@

        1536 \RequirePackage[ruled,vlined]{algorithm2e}

    ...   ...
        1537 %%...

        1538 \fi
        1539 %%*************************************************************************%%

        1540 %%*************************************************************************%%
        1541 %%** Auxiliary Tricks *****************************************************%%
        1542 %%*************************************************************************%%
        1543 \ifaux@

    ...   ...
        1544 %%...
```

```
1545    \ifcrv@
...   ...
1546      %%...
1547    \else
...   ...
1548      %%...
1549    \fi
1550 \fi
1551 %%******************************************************************%%
1552 \endinput
1553 ⟨/package⟩
```

2 Change History

3 Index

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

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