

fmocdmac — FM's OCD L^AT_EX Macro*

Fabio Mogavero
fm@fabiomogavero.com

Released 2023/02/16

Abstract

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

1 Implementation & Usage

1 `\package`

Required external packages:

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

Package options:

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

*This document describes version v0.16 of the fmocdmac package, last revised 2023/02/16.

```

35 %% Font tools
36 \newif\iffnttts@ \fnttts@true
37 \DeclareOption{nofnttts}{\fnttts@false}
38
39 %% Camera-ready version
40 \newif\ifcrv@ \crv@false
41 \DeclareOption{crv}{\crv@true}
42
43 %% Change bars
44 \newif\ifchgbar@ \chgbar@false
45 \DeclareOption{chgbar}{\chgbar@true}
46
47 %% Line numbers
48 \newif\iflinnum@ \linnum@false
49 \DeclareOption{linnum}{\linnum@true}
50
51
52 %% Text macro generation
53 \newif\iftxtgen@ \txtgen@false
54 \DeclareOption{txtgen}{\txtgen@true}
55 \DeclareOption{notxtgen}
56   {\txtgen@false\txt@false\com@false\gam@false\log@false\aut@false}
57
58 %% Math macro generation
59 \newif\ifmthgen@ \mthgen@false
60 \DeclareOption{mthgen}{\mthgen@true}
61 \DeclareOption{nomthgen}
62   {\mthgen@false\mth@false\gam@false\log@false\aut@false}
63
64
65 %% Elementary macros for text
66 \newif\iftxt@ \txt@false
67 \DeclareOption{txt}{\txt@true\txtgen@true}
68 \DeclareOption{notxt}{\txt@false}
69
70 %% Elementary macros for math
71 \newif\ifmth@ \mth@false
72 \DeclareOption{mth}{\mth@true\mthgen@true}
73 \DeclareOption{nomth}{\mth@false}
74
75
76 %% Macros for computational-complexity classes
77 \newif\ifcom@ \com@false
78 \DeclareOption{com}{\com@true\txtgen@true}
79 \DeclareOption{nocom}{\com@false}
80
81
82 %% Macros for games
83 \newif\ifgam@ \gam@false
84 \DeclareOption{gam}{\gam@true\txtgen@true\mthgen@true}
85 \DeclareOption{nogam}{\gam@false}
86
87 %% Macros for logics
88 \newif\iflog@ \log@false
89 \DeclareOption{log}{\log@true\txtgen@true\mthgen@true}
90 \DeclareOption{nolog}{\log@false}
91
92 %% Macros for automata
93 \newif\ifaut@ \aut@false
94 \DeclareOption{aut}{\aut@true\txtgen@true\mthgen@true}
95 \DeclareOption{noaut}{\aut@false}
96
97

```

```

98 %% Format-related tricks
99 \newif\iffirm@ \frm@false
100 \DeclareOption{frm}{\frm@true}
101 \DeclareOption{nofrm}{\frm@false}
102
103
104 %% Figure-related tricks
105 \newif\iffig@ \fig@false
106 \DeclareOption{fig}{\fig@true}
107 \DeclareOption{nofig}{\fig@false}
108
109 %% Wrapfig package
110 \newif\ifwrpfig@ \wrpfig@true
111 \DeclareOption{nowrpfig}{\wrpfig@false}
112
113
114 %% Table-related tricks
115 \newif\iftab@ \tab@false
116 \DeclareOption{tab}{\tab@true}
117 \DeclareOption{notab}{\tab@false}
118
119
120 %% Algorithm-related tricks
121 \newif\ifalg@ \alg@false
122 \DeclareOption{alg}{\alg@true}
123 \DeclareOption{noalg}{\alg@false}
124

```

Option-processing code:

```

125
126 \DeclareOption*{\PackageWarning{fmocdmac}{Unknown~'\CurrentOption'}}%
127
128 \ExecuteOptions{aux,txtgen,mthgen,txt,mth,com,gam,log,aut}%
129
130 \ProcessOptions\relax%
131
132 \ifcsdef{if@twocolumn}{\newif\if@twocolumn}
133

```

Package main body:

```

134
135 %%*****%
136 %** Auxiliary Alphabet Letters *****%
137 %*****%

```

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

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

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

```

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

```

```

143 %%*****%
144 %*****%
145 %** Tools *****%
146 %*****%

```

\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.

- $\empchk{}{B} = ""$
- $\empchk{A}{B} = "B"$

```

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

\defval Default value: \defval{<A>}{<B>} evaluates to Argument <B>, if Argument <A> is empty, and to
Argument <A> itself, otherwise.
    • \defval{}{B} = “B”
    • \defval{A}{B} = “A”
149 \newcommand{\defval}[2]
150   {\if&#1&#2\else#1\fi}

151 %%*****%

\arglef Left extension: \arglef{<A>}{<B>} evaluates to the concatenation <AB> of the two arguments, if
Argument <B> is non-empty, and to the empty string, otherwise.
    • \arglef{A}{} = “”
    • \arglef{A}{B} = “AB”
152 \newcommand{\arglef}[2]
153   {\empchk{#2}{#1#2}}

\argrig Right extension: \argrig{<A>}{<B>} evaluates to the concatenation <AB> of the two arguments,
if Argument <A> is non-empty, and to the empty string, otherwise.
    • \argrig{}{B} = “”
    • \argrig{A}{B} = “AB”
154 \newcommand{\argrig}[2]
155   {\empchk{#1}{#1#2}}

\argmid Middle extension: \argmid{<A>}{<B>}{<C>} evaluates to the concatenation <ABC> of the three
arguments, if Argument <B> is non-empty, and to the empty string, otherwise.
    • \argmid{A}{}{C} = “”
    • \argmid{A}{B}{C} = “ABC”
156 \newcommand{\argmid}[3]
157   {\empchk{#2}{#1#2#3}}

\argsep Separators: \argsep{<A>}{<B>}{<C>} evaluates to Argument <C>, if Argument <A> is empty, to
Argument <A>, if Argument <C> is empty, and to the concatenation <ABC>, otherwise.
    • \argsep{}{B}{C} = “C”
    • \argsep{A}{B}{} = “A”
    • \argsep{A}{}{C} = “AC”
    • \argsep{A}{B}{C} = “ABC”
158 \newcommand{\argsep}[3]
159   {\if&#1&#3\else#1\arglef{#2}{#3}\fi}

160 %%*****%

\varcmd Variadic commands: \varcmd{<A>}{<B>}{<C>}{<D>}{<E>}{<F>} ... to do!
161 \newcommand{\varcmd}[6]
162   {\expandafter\newcommand\csname gobble#1arg\endcsname[2]
163     {\csname check#1arg\endcsname{\argsep{##1}{#4}{\empchk{##2}{#{##2}}}}}
164   \expandafter\newcommand\csname check#1arg\endcsname[1]
165     {\csname @ifnextchar\endcsname%
166       \bgroup{\csname gobble#1arg\endcsname{##1}{#2{##1#5}#6}}%
167   \expandafter\newcommand\csname#1\endcsname[1]
168     {\csname check#1arg\endcsname{#3##1}}
169 %%*****%

```

```

\seqoftag Sequence of tags: \seqoftag{⟨A⟩}{⟨B⟩}{⟨C⟩} ... to do!
170 \newcommand{\seqoftag}[3]
171   {\@for\itr:={#1}\do%
172     {\expandafter\csedef{\itr#2}%
173       {\noexpand\csname #3\endcsname{\itr}}}}

\seqofcmd Sequence of commands: \seqofcmd{⟨A⟩}{⟨B⟩}{⟨C⟩} ... to do!
174 \newcommand{\seqofcmd}[3]
175   {\@for\itr:={#1}\do%
176     {\expandafter\csedef{\itr#2}%
177       {\noexpand\csname #3\endcsname{\csname \itr\endcsname}}}}

178 %%*****%

\seqoflatlow Sequence of Latin lowercase letters: \seqoflatlow{⟨A⟩}{⟨B⟩} ... to do!
179 \newcommand{\seqoflatlow}
180   {\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!
181 \newcommand{\seqoflatupp}
182   {\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!
183 \newcommand{\seqoflatlet}[2]
184   {\seqoflatlow{#1}{#2}\seqoflatupp{#1}{#2}}

185 %%*****%

\seqofgrklow Sequence of Greek lowercase letters: \seqofgrklow{⟨A⟩}{⟨B⟩} ... to do!
186 \newcommand{\seqofgrklow}
187   {\seqofcmd{alpha,beta,gamma,delta,epsilon,varepsilon,zeta,eta,theta,vartheta,%
188     iota,kappa,varkappa,lambda,mu,nu,xi,omicron,pi,varpi,rho,varrho,sigma,%
189     varsigma,tau,upsilon,phi,varphi,chi,psi,omega}}

\seqofgrkupp Sequence of Greek uppercase letters: \seqofgrkupp{⟨A⟩}{⟨B⟩} ... to do!
190 \newcommand{\seqofgrkupp}
191   {\seqofcmd{Alpha,Beta,Gamma,Delta,Epsilon,varEpsilon,Zeta,Eta,Theta,varTheta,%
192     Iota,Kappa,varKappa,Lambda,Mu,Nu,Xi,Omicron,Pi,varPi,Rho,varRho,Sigma,%
193     varSigma,Tau,Upsilon,Phi,varPhi,Chi,Psi,Omega}}

\seqofgrklet Sequence of Greek letters: \seqofgrklet{⟨A⟩}{⟨B⟩} ... to do!
194 \newcommand{\seqofgrklet}[2]
195   {\seqofgrklow{#1}{#2}\seqofgrkupp{#1}{#2}}

196 %%*****%

\seqoflow Sequence of lowercase letters: \seqoflow{⟨A⟩}{⟨B⟩} ... to do!
197 \newcommand{\seqoflow}[2]
198   {\seqoflatlow{#1}{#2}\seqofgrklow{#1}{#2}}

\seqofupp Sequence of uppercase letters: \seqofupp{⟨A⟩}{⟨B⟩} ... to do!
199 \newcommand{\seqofupp}[2]
200   {\seqoflatupp{#1}{#2}\seqofgrkupp{#1}{#2}}

\seqoflet Sequence of all letters: \seqoflet{⟨A⟩}{⟨B⟩} ... to do!
201 \newcommand{\seqoflet}[2]
202   {\seqoflow{#1}{#2}\seqofupp{#1}{#2}}

203 %%*****%

```

```

204 %*****%
205 %** Auxiliary Packages *****%
206 %*****%
207 \ifaux@
208
209 \ifamsdef@
210   % AMS Packages
211   \RequirePackage{mathtools}
212   \RequirePackage{amssymb}
213   \RequirePackage{stmaryrd}
214   \interdisplaylinepenalty=2500
215 \fi
216
217 \ifamsthm@
218   % AMS Theorem Tools
219   \RequirePackage{amsthm}
220 \fi
221
222 \ifthmtls@
223   % Extended Theorem Tools
224   \RequirePackage{thmtools, thm-restate}
225 \fi
226
227 \ifenmtls@
228   % Enumeration Tools
229   \RequirePackage{paralist}
230 \fi
231
232 \ifhympref@
233   % Hyper References
234   \RequirePackage{hyperref}
235   \hypersetup {
236     pdfsubject    = {},
237     pdfkeywords   = {},
238     pdfproducer   = {},
239     pdfcreator    = {},
240     pdfpagemode   = {UseNone},
241     pdfstartview  = {FitH},
242     urlcolor      = {blue},
243     colorlinks
244   }
245 \fi
246
247 \iffnttts@
248   % Font Tools
249   \RequirePackage[final]{microtype}
250 \fi
251
252 \ifcrv@
253   % Camera-Ready Version
254
255   %...
256
257 \else
258   % Draft Version
259
260   %...
261
262   \ifchgbar@
263     % Change Bars
264     \RequirePackage{changebar}
265   \fi
266

```

```

267 \iflinnu@
268 % Line Numbers
269 \if@twocolumn
270 \RequirePackage[switch, columnwise, mathlines]{lineno}\linenumbers
271 \else
272 \RequirePackage[columnwise, mathlines]{lineno}\linenumbers
273 \fi
274 \fi
275
276 %...
277
278 \fi
279
280 \fi
281 %%*****%
282 %%*****%
283 %%** Auxiliary Font Declarations *****%
284 %%*****%

```

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

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

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

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

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

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

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

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

```

289 %%*****%
290 %%*****%
291 %%** Text Meta Commands *****%
292 %%*****%

```

\newtxt ... to do!

- $\backslash\newtxt[\rmfamily]{Name}[sub][sup][Ext] = \text{“Name}_{sub}^{sup}Ext\text{”}$
- $\backslash\newtxt[\sfamily]{Name}[sub][sup][Ext] = \text{“Name}_{sub}^{sup}Ext\text{”}$
- $\backslash\newtxt[\ttfamily]{Name}[sub][sup][Ext] = \text{“Name}_{sub}^{sup}Ext\text{”}$

```

293 \newcommandx{\newtxt}[5][1=, 3=, 4=, 5=]
294 {\text{#1#2\textsubsup{#1}{#3}{#4}{#5}\xspace}}

```

\newtxtsty ... to do!

- $\backslash\newtxtsty[\rmfamily]{Name}[sub][sup][Ext] = \text{“Name}_{sub}^{sup}Ext\text{”}$
- $\backslash\newtxtsty[\rmfamily][\sfamily]{Name}[sub][sup][Ext] = \text{“Name}_{sub}^{sup}Ext\text{”}$
- $\backslash\newtxtsty[\rmfamily][\ttfamily]{Name}[sub][sup][Ext] = \text{“Name}_{sub}^{sup}Ext\text{”}$

```

295 \newcommandx{\newtxtsty}[2][2=]
296 {\newtxt[\defval{#2}{#1}]}

```

\newxtarg ... to do!

- $\backslash\newxtarg[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2\text{”}$
- $\backslash\newxtarg[\sfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2\text{”}$
- $\backslash\newxtarg[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2\text{”}$

```

297 \newcommandx{\newxtarg}[7][1=, 3=, 4=, 5=, 7=]
298 {\newtxt{#1}{#2}{#3}{#4}[\argmid{#5}{#6}{#7}]}

```

\newxtargsty ... to do!

- $\backslash\newxtargsty[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2\text{”}$

- $\newtxxargsty{\rmfamily}\{\textsf{family}\}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Arg}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}(\text{Arg})\text{Ext2}$
- $\newtxxargsty{\rmfamily}\{\ttfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Arg}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}(\text{Arg})\text{Ext2}$

```

299 \newcommandx{\newtxxargsty}[2][2=]
300   {\newtxxarg[\defval{#2}{#1}]}

```

\newtxxtoarg ... to do!

- $\newtxxtoarg[\rmfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$
- $\newtxxtoarg[\textsf{family}]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$
- $\newtxxtoarg[\ttfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$

```

301 \newcommandx{\newtxxtoarg}[5][1=, 3=, 4=, 5=]
302   {\newtxxarg[#1]{#2}[#3][#4][#5]}

```

\newtxxtoargsty ... to do!

- $\newtxxtoargsty{\rmfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$
- $\newtxxtoargsty{\rmfamily}\{\textsf{family}\}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$
- $\newtxxtoargsty{\rmfamily}\{\ttfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$

```

303 \newcommandx{\newtxxtoargsty}[2][2=]
304   {\newtxxtoarg[\defval{#2}{#1}]}

```

\newtxxtpar ... to do!

- $\newtxxtpar[\rmfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$
- $\newtxxtpar[\textsf{family}]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$
- $\newtxxtpar[\ttfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$

```

305 \newcommandx{\newtxxtpar}[7][1=, 3=, 4=, 5=, 7=]
306   {\newtxxtpar[#1]{#2}[#3][#4][\argmid{#5}{#6}{#7}]}

```

\newtxxtparsty ... to do!

- $\newtxxtparsty{\rmfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$
- $\newtxxtparsty{\rmfamily}\{\textsf{family}\}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$
- $\newtxxtparsty{\rmfamily}\{\ttfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$

```

307 \newcommandx{\newtxxtparsty}[2][2=]
308   {\newtxxtpar[\defval{#2}{#1}]}

```

\newtxxtopar ... to do!

- $\newtxxtopar[\rmfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\newtxxtopar[\textsf{family}]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\newtxxtopar[\ttfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$

```

309 \newcommandx{\newtxxtopar}[5][1=, 3=, 4=, 5=]
310   {\newtxxtpar[#1]{#2}[#3][#4][#5]}

```

\newtxxtoparsty ... to do!

- $\newtxxtoparsty{\rmfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\newtxxtoparsty{\rmfamily}\{\textsf{family}\}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\newtxxtoparsty{\rmfamily}\{\ttfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$

```

311 \newcommandx{\newtxxtoparsty}[2][2=]
312   {\newtxxtopar[\defval{#2}{#1}]}

```

\txxsubsup ... to do!

- $\txxsubsup_{\text{sub}} = \text{“}_{\text{sub}}\text{”}$; $\txxsubsup^{\text{sup}} = \text{“}^{\text{sup}}\text{”}$; $\txxsubsup_{\text{sub}}^{\text{sup}} = \text{“}_{\text{sub}}^{\text{sup}}\text{”}$
- $\txxsubsup[\textsf{family}]\{\text{Aa}\}\{\text{Bb}\} = \text{“}_{\text{Aa}}^{\text{Bb}}\text{”}$
- $\txxsubsup[\ttfamily]\{\text{Aa}\}\{\text{Bb}\} = \text{“}_{\text{Aa}}^{\text{Bb}}\text{”}$

```

313 \newcommand{\txxsubsup}[3]{}
314   {\ensuremath{\empchk{#2}{\text{#1#2}}}\empchk{#3}{\text{#1#3}}}}

```

```

315 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```



```

\txt ... to do!
    • \txt{Name}[sub][sup][Ext] = "NamesubExt"
    • \txt{\scshape}{Name}[sub][sup][Ext] = "NAMESUBEXT"
    • \txt{\bfseries}{Name}[sub][sup][Ext] = "NamesubExt"
316 \newcommand{\txt}
317 {\newtxtsty{\txtsty}}

\txtgarg ... to do!
    • \txtgarg{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
    • \txtgarg{\scshape}{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NAMESUBEXT1(ARG)EXT2"
    • \txtgarg{\bfseries}{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
318 \newcommand{\txtgarg}
319 {\newtxtgargsty{\txtsty}}

\txtoarg ... to do!
    • \txtoarg{Name}[sub][sup][Arg] = "Namesub(Arg)"
    • \txtoarg{\scshape}{Name}[sub][sup][Arg] = "NAMESUB(ARG)"
    • \txtoarg{\bfseries}{Name}[sub][sup][Arg] = "Namesub(Arg)"
320 \newcommand{\txtoarg}
321 {\newtxtoargsty{\txtsty}}

\txtpar ... to do!
    • \txtpar{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"
    • \txtpar{\scshape}{Name}[sub][sup][Ext1]{Par}[Ext2] = "NAMESUBEXT1[PAR]EXT2"
    • \txtpar{\bfseries}{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"
322 \newcommand{\txtpar}
323 {\newtxtparsty{\txtsty}}

\txtopar ... to do!
    • \txtopar{Name}[sub][sup][Par] = "Namesub[Par]"
    • \txtopar{\scshape}{Name}[sub][sup][Par] = "NAMESUB[PAR]"
    • \txtopar{\bfseries}{Name}[sub][sup][Par] = "Namesub[Par]"
324 \newcommand{\txtopar}
325 {\newtxtoparsty{\txtsty}}

\txtsty ... to do!
326 \newcommand{\txtsty}
327 {\mdseries\upshape\rmfamily}

328 %*****%

\cmdtxt ... to do!
    • \cmdtxt{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
    \txtNewCmd{Name}[sub][sup][Ext] = NAMESUBEXT
329 \newcommand{\cmdtxt}[1]
330 {\csdef{txt#1}{\newtxtsty{\csname txtsty#1\endcsname}}}

\cmdtxtgarg ... to do!
    • \cmdtxtgarg{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
    \txtgargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBEXT1(ARG)EXT2
331 \newcommand{\cmdtxtgarg}[1]
332 {\csdef{txtgarg#1}{\newtxtgargsty{\csname txtsty#1\endcsname}}}

\cmdtxtoarg ... to do!
    • \cmdtxtoarg{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
    \txtoargNewCmd{Name}[sub][sup][Arg] = NAMESUB(ARG)

```

```

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

\cmdtxtpar ... to do!


- \cmdtxtpar{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
  \txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUBEXT1[PAR]EXT2


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

\cmdtxtopar ... to do!


- \cmdtxtopar{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
  \txtoparNewCmd{Name}[sub][sup][Par] = NAMESUB[PAR]


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

\cmdtxtall ... to do!


- \cmdtxtall{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
  \txtNewCmd{Name}[sub][sup][Ext] = NAMESUBEXT
  \txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBEXT1(ARG)EXT2
  \txtoargNewCmd{Name}[sub][sup][Arg] = NAMESUB(ARG)
  \txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUBEXT1[PAR]EXT2
  \txtoparNewCmd{Name}[sub][sup][Par] = NAMESUB[PAR]


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

341 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\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]


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

344 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
345 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
346 %** Math Meta Commands %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
347 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\newmth ... to do!


- \newmth[mathrm]{Name}[sub][sup][Ext] = "NamesupsubExt"
- \newmth[mathsf]{Name}[sub][sup][Ext] = "NamesupsubExt"
- \newmth[mathtt]{Name}[sub][sup][Ext] = "NamesupsubExt"


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

\newmthsty ... to do!


- \newmthsty[mathrm]{Name}[sub][sup][Ext] = "NamesupsubExt"
- \newmthsty[mathsf]{Name}[sub][sup][Ext] = "NamesupsubExt"
- \newmthsty[mathtt]{Name}[sub][sup][Ext] = "NamesupsubExt"


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

\newmtharg ... to do!


- \newmtharg[mathrm]{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = "NamesupsubExt1(ArgExEx)Ext2"

```

- ```

352 \newcommand{\newmtharg}
353 {\@ifstar{\@snewmtharg}{\@newmtharg}}
354 \newcommandx{\@newmtharg}[7][1=, 3=, 4=, 5=, 7=]
355 {\newmth{#1}{#2}{#3}{#4}[\argmid{#5}\left{}{#6}{\right)}\anglef{!}{#7}]}
356 \newcommandx{\@snewmtharg}[7][1=, 3=, 4=, 5=, 7=]
357 {\newmth{#1}{#2}{#3}{#4}[\argmid{#5}{#6}{#7}]}

```

- `\newmthargsty{\mathrm}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = “Name<sub>sub</sub><sup>sup</sup>Ext1(*Arg*<sup>Ex<sup>Ex</sup></sup>)Ext2”
- `\newmthargsty{\mathrm}[mathsf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = “Name<sub>sub</sub><sup>sup</sup>Ext1(*Arg*<sup>Ex<sup>Ex</sup></sup>)Ext2”
- `\newmthargsty{\mathrm}[mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = “Name<sub>sub</sub><sup>sup</sup>Ext1(*Arg*<sup>Ex<sup>Ex</sup></sup>)Ext2”
- `\newmthargsty*{\mathrm}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = “Name<sub>sub</sub><sup>sup</sup>Ext1(*Arg*<sup>Ex<sup>Ex</sup></sup>)Ext2”
- `\newmthargsty*{\mathrm}[mathsf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = “Name<sub>sub</sub><sup>sup</sup>Ext1(*Arg*<sup>Ex<sup>Ex</sup></sup>)Ext2”
- `\newmthargsty*{\mathrm}[mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2]` = “Name<sub>sub</sub><sup>sup</sup>Ext1(*Arg*<sup>Ex<sup>Ex</sup></sup>)Ext2”

- `\newmthoarg[mathrm]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex</sup>Ex)”
- `\newmthoarg[mathsf]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex</sup>Ex)”
- `\newmthoarg[mathtt]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex</sup>Ex)”
- `\newmthoarg*[mathrm]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex</sup>Ex)”
- `\newmthoarg*[mathsf]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex</sup>Ex)”
- `\newmthoarg*[mathtt]{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex</sup>Ex)”

- `\newmthoargsty{\mathrm}{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex<sup>Ex</sup></sup>)”
- `\newmthoargsty{\mathsf}{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex<sup>Ex</sup></sup>)”
- `\newmthoargsty{\mathtt}{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex<sup>Ex</sup></sup>)”
- `\newmthoargsty*{\mathrm}{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex<sup>Ex</sup></sup>)”
- `\newmthoargsty*{\mathsf}{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex<sup>Ex</sup></sup>)”
- `\newmthoargsty*{\mathtt}{Name}[sub][sup][Arg^{Ex^{Ex}}]` = “Name<sub>sub</sub><sup>sup</sup>(Arg<sup>Ex<sup>Ex</sup></sup>)”

```

370 \newcommand{\newmthoargsty}
371 {\@ifstar{\@snewmthoargsty}{\@newmthoargsty}}
372 \newcommandx{\@newmthoargsty}[2][2=]
373 {\newmthoarg[\defval{#2}{#1}]}
374 \newcommandx{\@snewmthoargsty}[2][2=]
375 {\newmthoarg*[\defval{#2}{#1}]}

```

\newmthpar ... to do!

- $\newmthpar[\mathrm]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$
- $\newmthpar[\mathsf]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$
- $\newmthpar[\mathtt]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$
- $\newmthpar*[\mathrm]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$
- $\newmthpar*[\mathsf]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$
- $\newmthpar*[\mathtt]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$

```

376 \newcommand{\newmthpar}
377 {\@ifstar{\@snewmthpar}{\@newmthpar}}
378 \newcommandx{\@newmthpar}[7][1=, 3=, 4=, 5=, 7=]
379 {\newmth[#1]{#2}[#3][#4][\argmid{#5}\left[\right]\arglef{!}{#7}]}
380 \newcommandx{\@snewmthpar}[7][1=, 3=, 4=, 5=, 7=]
381 {\newmth[#1]{#2}[#3][#4][\argmid{#5}]{#6}{#7}}

```

\newmthparsty ... to do!

- $\newmthparsty[\mathrm]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$
- $\newmthparsty[\mathrm]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$
- $\newmthparsty[\mathrm]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$
- $\newmthparsty*[\mathrm]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$
- $\newmthparsty*[\mathsf]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$
- $\newmthparsty*[\mathtt]{Name}[\mathrm{sub}][\mathrm{sup}][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2\text{”}$

```

382 \newcommand{\newmthparsty}
383 {\@ifstar{\@snewmthparsty}{\@newmthparsty}}
384 \newcommandx{\@newmthparsty}[2][2=]
385 {\newmthpar[\defval{#2}{#1}]}
386 \newcommandx{\@snewmthparsty}[2][2=]
387 {\newmthpar*[\defval{#2}{#1}]}

```

\newmthopar ... to do!

- $\newmthopar[\mathrm]{Name}[\mathrm{sub}][\mathrm{sup}][Par^{Ex^{Ex}}] = \text{“Name}_{sub}^{sup}[Par^{Ex^{Ex}}]\text{”}$
- $\newmthopar[\mathsf]{Name}[\mathrm{sub}][\mathrm{sup}][Par^{Ex^{Ex}}] = \text{“Name}_{sub}^{sup}[Par^{Ex^{Ex}}]\text{”}$
- $\newmthopar[\mathtt]{Name}[\mathrm{sub}][\mathrm{sup}][Par^{Ex^{Ex}}] = \text{“Name}_{sub}^{sup}[Par^{Ex^{Ex}}]\text{”}$
- $\newmthopar*[\mathrm]{Name}[\mathrm{sub}][\mathrm{sup}][Par^{Ex^{Ex}}] = \text{“Name}_{sub}^{sup}[Par^{Ex^{Ex}}]\text{”}$
- $\newmthopar*[\mathsf]{Name}[\mathrm{sub}][\mathrm{sup}][Par^{Ex^{Ex}}] = \text{“Name}_{sub}^{sup}[Par^{Ex^{Ex}}]\text{”}$
- $\newmthopar*[\mathtt]{Name}[\mathrm{sub}][\mathrm{sup}][Par^{Ex^{Ex}}] = \text{“Name}_{sub}^{sup}[Par^{Ex^{Ex}}]\text{”}$

```

388 \newcommand{\newmthopar}
389 {\@ifstar{\@snewmthopar}{\@newmthopar}}
390 \newcommandx{\@newmthopar}[5][1=, 3=, 4=, 5=]
391 {\newmthpar[#1]{#2}[#3][#4][\argmid{#5}]}
392 \newcommandx{\@snewmthopar}[5][1=, 3=, 4=, 5=]
393 {\newmthpar*[#1]{#2}[#3][#4][\argmid{#5}]}

```

\newmthoparsty ... to do!

```

394 \newcommand{\newmthoparsty}
395 {\@ifstar{\@snewmthoparsty}{\@newmthoparsty}}
396 \newcommandx{\@newmthoparsty}[2][2=]
397 {\newmthopar[\defval{#2}{#1}]}
398 \newcommandx{\@snewmthopar}[2][2=]
399 {\newmthopar*[\defval{#2}{#1}]}

```

```

400 \newcommand{\mthsubsup}[2]
401 {\empchk{#1}_{#1}\empchk{#2}^{#2}}
402 %%*****%

```

- $\text{\textbackslash mth{Name}}_{\text{sub}}^{\text{sup}}[\text{Ext}] = \textit{Name}_{\text{sub}}^{\text{sup}}\textit{Ext}$
- $\text{\textbackslash mth{\bf{Name}}}_{\text{sub}}^{\text{sup}}[\text{Ext}] = \textbf{NAME}_{\text{sub}}^{\text{sup}}\textit{Ext}$
- $\text{\textbackslash mth{\mathtt{Name}}}_{\text{sub}}^{\text{sup}}[\text{Ext}] = \text{\texttt{Name}}_{\text{sub}}^{\text{sup}}\textit{Ext}$

- $\mathrm{\mtharg{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textit{Name}_{sub}^{sup}Ext1\left(\mathrm{Arg}^{Ex^{Ex}}\right)Ext2$
- $\mathrm{\mtharg{\mathbf{f}}{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textbf{Name}_{sub}^{sup}Ext1\left(\mathrm{Arg}^{Ex^{Ex}}\right)Ext2$
- $\mathrm{\mtharg{\mathtt{t}}{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textit{Name}_{sub}^{sup}Ext1\left(\mathrm{Arg}^{Ex^{Ex}}\right)Ext2$
- $\mathrm{\mtharg*{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textit{Name}_{sub}^{sup}Ext1(\mathrm{Arg}^{Ex^{Ex}})Ext2$
- $\mathrm{\mtharg*{\mathbf{f}}{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textbf{Name}_{sub}^{sup}Ext1(\mathrm{Arg}^{Ex^{Ex}})Ext2$
- $\mathrm{\mtharg*{\mathtt{t}}{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textit{Name}_{sub}^{sup}Ext1(\mathrm{Arg}^{Ex^{Ex}})Ext2$

```

5 \newcommand{\mtharg}
6 {\@ifstar{\newmthargsty*{\mthsty}}{\newmthargsty{\mthsty}}

```

- $\backslash\text{mthoarg}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Arg}^{\sim}\{\text{Ex}^{\sim}\{\text{Ex}\}}] = \textit{“Name}_{sub}^{sup}\left(\textit{Arg}^{Ex^{Ex}}\right)”$
- $\backslash\text{mthoarg}[\text{mathbf}]{\text{Name}}[\text{sub}][\text{sup}][\text{Arg}^{\sim}\{\text{Ex}^{\sim}\{\text{Ex}\}}] = \textit{“Name}_{sub}^{sup}\left(\textit{Arg}^{Ex^{Ex}}\right)”$
- $\backslash\text{mthoarg}[\text{mathtt}]{\text{Name}}[\text{sub}][\text{sup}][\text{Arg}^{\sim}\{\text{Ex}^{\sim}\{\text{Ex}\}}] = \textit{“Name}_{sub}^{sup}\left(\textit{Arg}^{Ex^{Ex}}\right)”$
- $\backslash\text{mthoarg}^{*}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Arg}^{\sim}\{\text{Ex}^{\sim}\{\text{Ex}\}}] = \textit{“Name}_{sub}^{sup}(\textit{Arg}^{Ex^{Ex}})”$
- $\backslash\text{mthoarg}^{*}[\text{mathbf}]{\text{Name}}[\text{sub}][\text{sup}][\text{Arg}^{\sim}\{\text{Ex}^{\sim}\{\text{Ex}\}}] = \textit{“Name}_{sub}^{sup}(\textit{Arg}^{Ex^{Ex}})”$
- $\backslash\text{mthoarg}^{*}[\text{mathtt}]{\text{Name}}[\text{sub}][\text{sup}][\text{Arg}^{\sim}\{\text{Ex}^{\sim}\{\text{Ex}\}}] = \textit{“Name}_{sub}^{sup}(\textit{Arg}^{Ex^{Ex}})”$

```

7 \newcommand{\mthoarg}
8 {\@ifstar{\newmthoargsty*}{\mthsty}}{\newmthoargsty{\mthsty}}}

```

13

- $\text{\textbackslash mthpar}[\textbf{Name}][\textsubscript]{\textsupscript}[\text{Ext1}]{\text{\textasciitilde}{\text{Ex}}^{\text{Ex}}}{\text{Ext2}} = \text{"Name}_{sub}^{sup}Ext1\left[Par^{Ex\,Ex}\right]Ext2"$
- $\text{\textbackslash mthpar}[\texttt{Name}][\textsubscript]{\textsupscript}[\text{Ext1}]{\text{\textasciitilde}{\text{Ex}}^{\text{Ex}}}{\text{Ext2}} = \text{"Name}_{sub}^{sup}Ext1\left[Par^{Ex\,Ex}\right]Ext2"$
- $\text{\textbackslash mthpar}*\{\text{Name}\}[\textsubscript]{\textsupscript}[\text{Ext1}]{\text{\textasciitilde}{\text{Ex}}^{\text{Ex}}}{\text{Ext2}} = \text{"Name}_{sub}^{sup}Ext1[Par^{Ex\,Ex}]Ext2"$
- $\text{\textbackslash mthpar}*\{\textbf{Name}\}[\textsubscript]{\textsupscript}[\text{Ext1}]{\text{\textasciitilde}{\text{Ex}}^{\text{Ex}}}{\text{Ext2}} = \text{"Name}_{sub}^{sup}Ext1[Par^{Ex\,Ex}]Ext2"$
- $\text{\textbackslash mthpar}*\{\texttt{Name}\}[\textsubscript]{\textsupscript}[\text{Ext1}]{\text{\textasciitilde}{\text{Ex}}^{\text{Ex}}}{\text{Ext2}} = \text{"Name}_{sub}^{sup}Ext1[Par^{Ex\,Ex}]Ext2"$

\mthopar ... to do!

```

411 \newcommand{\mthopar}
412 {\@ifstar{\newmthoparsty*{\mthsty}}{\newmthoparsty{\mthsty}}}

```

```

413 \newcommand{\mthsty}
414 {}

```

`\cmdmth` ... to do!

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

- `\cmdmtharg{NewCmd}; \newcommand{mthstyNewCmd}{\mathhtt{;}}`  

$$\backslash\mathrm{mthargNewCmd}\{\mathrm{Name}\}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}\mathrm{Ex}}\{\mathrm{Ext2}\} = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\left(\mathrm{Arg}^{\mathrm{Ex}}\mathrm{Ex}\right)\mathrm{Ext2}$$
  

$$\backslash\mathrm{mthargNewCmd}*\{\mathrm{Name}\}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}\mathrm{Ex}}\{\mathrm{Ext2}\} = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}}\mathrm{Ex})\mathrm{Ext2}$$

```

418 \newcommand{\cmdmtharg}[1]
419 {\csdef{mtharg#1}%
420 {\@ifstar{newmthargsty*{mthsty#1}}{\newmthargsty{mthsty#1}}}}

```

- `\cmdmthoarg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt{t};`  

$$\mthoargNewCmd{Name}[sub][sup][Arg^{\text{Ex}^{\text{Ex}}}] = \text{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$$
  

$$\mthoargNewCmd*{Name}[sub][sup][Arg^{\text{Ex}^{\text{Ex}}}] = \text{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})$$

```

1 \newcommand{\cmdmthoarg}[1]
2 {\csdef{mthoarg#1}%
3 {\@ifstar{\newmthoargsty*{mthsty#1}}{\newmthoargsty{mthsty#1}}}}

```

```

424 \newcommand{\cmdmthpar}[1]
425 {\csdef{mthpar#1}%
426 {\@ifstar{\newmthparsty*{mthsty#1}}{\newmthparsty{mthsty#1}}}}

\cmdmthpar ... to do!
 • \cmdmthpar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
 \mthparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = Name_{sub}^{sup}[Par^{Ex^{Ex}}]
 \mthparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = Name_{sub}^{sup}[Par^{Ex^{Ex}}]
427 \newcommand{\cmdmthpar}[1]
428 {\csdef{mthpar#1}%
429 {\@ifstar{\newmthparsty*{mthsty#1}}{\newmthparsty{mthsty#1}}}}

\cmdmthall ... to do!
 • \cmdmthall{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
 \mthNewCmd{Name}[sub][sup][Ext] = Name_{sub}^{sup}Ext
 \mthargNewCmd{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
 \mthargNewCmd*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
 \mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}] = Name_{sub}^{sup}(Arg^{Ex^{Ex}})
 \mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = Name_{sub}^{sup}(Arg^{Ex^{Ex}})
 \mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2
 \mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2
 \mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = Name_{sub}^{sup}[Par^{Ex^{Ex}}]
 \mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = Name_{sub}^{sup}[Par^{Ex^{Ex}}]
430 \newcommand{\cmdmthall}[1]
431 {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#1}}
432 %%*****

\usrmth ... to do!
 • \usrmth{cmdName}{Suf}{}; \cmdNameSuf = cmdName
 \usrmth{cmdName}{Suf}{arg};
 \cmdNameSuf{Arg^{Ex^{Ex}}} = cmdName(Arg^{Ex^{Ex}})
 \cmdNameSuf*{Arg^{Ex^{Ex}}} = cmdName(Arg^{Ex^{Ex}})
 \usrmth{cmdName}{Suf}{par};
 \cmdNameSuf{Par^{Ex^{Ex}}} = cmdName[Par^{Ex^{Ex}}]
 \cmdNameSuf*{Par^{Ex^{Ex}}} = cmdName[Par^{Ex^{Ex}}]
 • \usrmth{cmdName}{Suf}{}[newName]; \cmdNameSuf = newName
 \usrmth{cmdName}{Suf}{arg}[newName];
 \cmdNameSuf{Arg^{Ex^{Ex}}} = newName(Arg^{Ex^{Ex}})
 \cmdNameSuf*{Arg^{Ex^{Ex}}} = newName(Arg^{Ex^{Ex}})
 \usrmth{cmdName}{Suf}{par}[newName];
 \cmdNameSuf{Par^{Ex^{Ex}}} = newName[Par^{Ex^{Ex}}]
 \cmdNameSuf*{Par^{Ex^{Ex}}} = newName[Par^{Ex^{Ex}}]
433 \newcommandx{\usrmth}[4][4=]
434 {\csdef{#1#2}{%
435 \@ifstar%
436 {\csname mth#3\endcsname*{\defval{#4}{#1}}}%
437 {\csname mth#3\endcsname{\defval{#4}{#1}}}%
438 }}
439 %%*****

\usrmthlatlow ... to do!
440 \newcommandx{\usrmthlatlow}[4][4=]
441 {\usrmth{#1}{#2}{#3}[#4]\seqoflatlow{#1#2}{mth#3}}

```

```

\usrmthlatupp ... to do!
442 \newcommandx{\usrmthlatupp}[4][4=]
443 {\usrmth{#1}{#2}{#3}[#4]\seqoflatupp{#1#2}{mth#3}}

\usrmthlatlet ... to do!
444 \newcommandx{\usrmthlatlet}[4][4=]
445 {\usrmth{#1}{#2}{#3}[#4]\seqoflatlet{#1#2}{mth#3}}

\usrmthgrklow ... to do!
446 \newcommandx{\usrmthgrklow}[4][4=]
447 {\usrmth{#1}{#2}{#3}[#4]\seqofgrklow{#1#2}{mth#3}}

\usrmthgrkupp ... to do!
448 \newcommandx{\usrmthgrkupp}[4][4=]
449 {\usrmth{#1}{#2}{#3}[#4]\seqofgrkupp{#1#2}{mth#3}}

\usrmthgrklet ... to do!
450 \newcommandx{\usrmthgrklet}[4][4=]
451 {\usrmth{#1}{#2}{#3}[#4]\seqofgrklet{#1#2}{mth#3}}

\usrmthlow ... to do!
452 \newcommandx{\usrmthlow}[4][4=]
453 {\usrmth{#1}{#2}{#3}[#4]\seqoflow{#1#2}{mth#3}}

\usrmthupp ... to do!
454 \newcommandx{\usrmthupp}[4][4=]
455 {\usrmth{#1}{#2}{#3}[#4]\seqofupp{#1#2}{mth#3}}

\usrmthlet ... to do!
456 \newcommandx{\usrmthlet}[4][4=]
457 {\usrmth{#1}{#2}{#3}[#4]\seqoflet{#1#2}{mth#3}}

458 %%*****%
459 %%*****%
460 %%** Text Macro Generators *****%
461 %%*****%
462 \iftxtgen@

\txtdf, to do!
• \txtdf{Name}[sub][sup][Ext] = $Name_{sub}^{sup}Ext$
• \txtdf{Name}[sub][sup][Ext1]{Arg}[Ext2] = $Name_{sub}^{sup}Ext1(Arg)Ext2$
• \txtdf{Name}[sub][sup][Ext1]{Par}[Ext2] = $Name_{sub}^{sup}Ext1[Par]Ext2$

463 %% Style for Definitions
464 \cmdtxtall{def}\newcommand{\txtstydef}{\normalfont\bfseries\em}

\cmdtxtdef ... to do!
• \cmdtxtdef{cmdName};
 \cmdName[sub][sub][ext] = $cmdName_{sub}^{sub}ext$
• \cmdtxtdef{cmdName}[newName];
 \cmdName[sub][sub][ext] = $newName_{sub}^{sub}ext$

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

\cmdtxtargdef ... to do!
• \cmdtxtargdef{cmdName};
 \cmdName[sub][sub][ext1]{arg}[ext2] = $cmdName_{sub}^{sub}ext1(arg)ext2$
• \cmdtxtargdef{cmdName}[newName];
 \cmdName[sub][sub][ext1]{arg}[ext2] = $newName_{sub}^{sub}ext1(arg)ext2$

```



```

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

\cmdtxttoargdef ... to do!
 • \cmdtxttoargdef{cmdName};
 \cmdName[sub][sub][arg] = $cmdName_{sub}^{sub}(arg)$
 • \cmdtxttoargdef{cmdName}[newName];
 \cmdName[sub][sub][arg] = $newName_{sub}^{sub}(arg)$
469 \newcommandx{\cmdtxttoargdef}[2][2=]
470 {\usrtxt{#1}{\oargdef}[#2]}

\cmdtxtpardef ... to do!
 • \cmdtxtpardef{cmdName};
 \cmdName[sub][sub][ext1]{par}[ext2] = $cmdName_{sub}^{sub}ext1[par]ext2$
 • \cmdtxtpardef{cmdName}[newName];
 \cmdName[sub][sub][ext1]{par}[ext2] = $newName_{sub}^{sub}ext1[par]ext2$
471 \newcommandx{\cmdtxtpardef}[2][2=]
472 {\usrtxt{#1}{\pardef}[#2]}

\cmdtxtopardef ... to do!
 • \cmdtxtopardef{cmdName};
 \cmdName[sub][sub][par] = $cmdName_{sub}^{sub}[par]$
 • \cmdtxtopardef{cmdName}[newName];
 \cmdName[sub][sub][par] = $newName_{sub}^{sub}[par]$
473 \newcommandx{\cmdtxtopardef}[2][2=]
474 {\usrtxt{#1}{\opardef}[#2]}

\txtabr, to do!
 • \txtabr{Name}[sub][sup][Ext] = $Name_{sub}^{sup}Ext$
 • \txtargabr{Name}[sub][sup][Ext1]{Arg}[Ext2] = $Name_{sub}^{sup}Ext1(Arg)Ext2$
 • \txtparabr{Name}[sub][sup][Ext1]{Par}[Ext2] = $Name_{sub}^{sup}Ext1[Par]Ext2$
475 %% Style for Abbreviations
476 \cmdtxtall{abr}\newcommand{\txtstyabr}{\em}

\cmdtxtabr ... to do!
 • \cmdtxtabr{cmdName};
 \cmdName[sub][sub][ext] = $cmdName_{sub}^{sub}ext$
 • \cmdtxtabr{cmdName}[newName];
 \cmdName[sub][sub][ext] = $newName_{sub}^{sub}ext$
477 \newcommandx{\cmdtxtabr}[2][2=]
478 {\usrtxt{#1}{\abr}[#2]}

\cmdtxtargabr ... to do!
 • \cmdtxtargabr{cmdName};
 \cmdName[sub][sub][ext1]{arg}[ext2] = $cmdName_{sub}^{sub}ext1(arg)ext2$
 • \cmdtxtargabr{cmdName}[newName];
 \cmdName[sub][sub][ext1]{arg}[ext2] = $newName_{sub}^{sub}ext1(arg)ext2$
479 \newcommandx{\cmdtxtargabr}[2][2=]
480 {\usrtxt{#1}{\argabr}[#2]}

\cmdtxttoargabr ... to do!
 • \cmdtxttoargabr{cmdName};
 \cmdName[sub][sub][arg] = $cmdName_{sub}^{sub}(arg)$
 • \cmdtxttoargabr{cmdName}[newName];
 \cmdName[sub][sub][arg] = $newName_{sub}^{sub}(arg)$
481 \newcommandx{\cmdtxttoargabr}[2][2=]
482 {\usrtxt{#1}{\oargabr}[#2]}

```

```

\cmdtxtparabr ... to do!
 • \cmdtxtparabr{cmdName};
 \cmdName[sub][sub][ext1]{par}[ext2] = $\text{cmdName}_{\text{sub}}^{\text{sub}} \text{ext1}[\text{par}]\text{ext2}$
 • \cmdtxtparabr{cmdName}[newName];
 \cmdName[sub][sub][ext1]{par}[ext2] = $\text{newName}_{\text{sub}}^{\text{sub}} \text{ext1}[\text{par}]\text{ext2}$
483 \newcommandx{\cmdtxtparabr}[2][2=]
484 {\usrtxt{#1}{-}{parabr}[#2]}

\cmdtxtoparabr ... to do!
 • \cmdtxtoparabr{cmdName};
 \cmdName[sub][sub][par] = $\text{cmdName}_{\text{sub}}^{\text{sub}}[\text{par}]$
 • \cmdtxtoparabr{cmdName}[newName];
 \cmdName[sub][sub][par] = $\text{newName}_{\text{sub}}^{\text{sub}}[\text{par}]$
485 \newcommandx{\cmdtxtoparabr}[2][2=]
486 {\usrtxt{#1}{-}{oparabr}[#2]}

487 %%*****%

\txtname, to do!
 • \txtname{Name}[sub][sup][Ext] = $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 • \txtargname{Name}[sub][sup][Ext1]{Arg}[Ext2] = $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}(\text{ARG})\text{EXT2}$
 • \txtparname{Name}[sub][sup][Ext1]{Par}[Ext2] = $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}[\text{PAR}]\text{EXT2}$
488 %% Style for Names
489 \cmdtxtall{name}\newcommand{\txtstyname}{\normalfont\mdseries\scshape\sffamily}

\cmdtxtname ... to do!
 • \cmdtxtname{cmdName};
 \cmdName[sub][sub][ext] = $\text{CMDNAME}_{\text{SUB}}^{\text{SUB}}\text{EXT}$
 • \cmdtxtname{cmdName}[newName];
 \cmdName[sub][sub][ext] = $\text{NEWNAME}_{\text{SUB}}^{\text{SUB}}\text{EXT}$
490 \newcommandx{\cmdtxtname}[2][2=]
491 {\usrtxt{#1}{-}{name}[#2]}

\cmdtxtargname ... to do!
 • \cmdtxtargname{cmdName};
 \cmdName[sub][sub][ext1]{arg}[ext2] = $\text{CMDNAME}_{\text{SUB}}^{\text{SUB}}\text{EXT1}(\text{ARG})\text{EXT2}$
 • \cmdtxtargname{cmdName}[newName];
 \cmdName[sub][sub][ext1]{arg}[ext2] = $\text{NEWNAME}_{\text{SUB}}^{\text{SUB}}\text{EXT1}(\text{ARG})\text{EXT2}$
492 \newcommandx{\cmdtxtargname}[2][2=]
493 {\usrtxt{#1}{-}{argname}[#2]}

\cmdtxtoargname ... to do!
 • \cmdtxtoargname{cmdName};
 \cmdName[sub][sub][arg] = $\text{CMDNAME}_{\text{SUB}}^{\text{SUB}}(\text{ARG})$
 • \cmdtxtoargname{cmdName}[newName];
 \cmdName[sub][sub][arg] = $\text{NEWNAME}_{\text{SUB}}^{\text{SUB}}(\text{ARG})$
494 \newcommandx{\cmdtxtoargname}[2][2=]
495 {\usrtxt{#1}{-}{oargname}[#2]}

\cmdtxtparname ... to do!
 • \cmdtxtparname{cmdName};
 \cmdName[sub][sub][ext1]{par}[ext2] = $\text{CMDNAME}_{\text{SUB}}^{\text{SUB}}\text{EXT1}[\text{PAR}]\text{EXT2}$
 • \cmdtxtparname{cmdName}[newName];
 \cmdName[sub][sub][ext1]{par}[ext2] = $\text{NEWNAME}_{\text{SUB}}^{\text{SUB}}\text{EXT1}[\text{PAR}]\text{EXT2}$
496 \newcommandx{\cmdtxtparname}[2][2=]
497 {\usrtxt{#1}{-}{parname}[#2]}

```

```

\cmdtxtoparname ... to do!
 • \cmdtxtoparname{cmdName};
 \cmdName[sub][sub][par] = CMDNAMESUB[PAR]
 • \cmdtxtoparname{cmdName}[newName];
 \cmdName[sub][sub][par] = NEWNAMESUB[PAR]
498 \newcommandx{\cmdtxtoparname}[2][2=]
499 {\usrtxt{#1}{-}{oparname}{#2}}

\txtcom, to do!
 • \txtcom{Name}[sub][sup][Ext] = NAMESUBEXT
 • \txtargcom{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBEXT1(ARG)EXT2
 • \txtparcom{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUBEXT1[PAR]EXT2
500 %% Style for Complexities
501 \cmdtxtall{com}\newcommand{\txtstycom}{\normalfont\mdseries\scshape\rmfamily}

\cmdtxtcom ... to do!
 • \cmdtxtcom{cmdName};
 \cmdName[sub][sub][ext] = CMDNAMESUBEXT
 • \cmdtxtcom{cmdName}[newName];
 \cmdName[sub][sub][ext] = NEWNAMESUBEXT
502 \newcommandx{\cmdtxtcom}[2][2=]
503 {\usrtxt{#1}{-}{com}{#2}}

\cmdtxtargcom ... to do!
 • \cmdtxtargcom{cmdName};
 \cmdName[sub][sub][ext1]{arg}[ext2] = CMDNAMESUBEXT1(ARG)EXT2
 • \cmdtxtargcom{cmdName}[newName];
 \cmdName[sub][sub][ext1]{arg}[ext2] = NEWNAMESUBEXT1(ARG)EXT2
504 \newcommandx{\cmdtxtargcom}[2][2=]
505 {\usrtxt{#1}{-}{argcom}{#2}}

\cmdtxtoargcom ... to do!
 • \cmdtxtoargcom{cmdName};
 \cmdName[sub][sub][arg] = CMDNAMESUB(ARG)
 • \cmdtxtoargcom{cmdName}[newName];
 \cmdName[sub][sub][arg] = NEWNAMESUB(ARG)
506 \newcommandx{\cmdtxtoargcom}[2][2=]
507 {\usrtxt{#1}{-}{oargcom}{#2}}

\cmdtxtparcom ... to do!
 • \cmdtxtparcom{cmdName};
 \cmdName[sub][sub][ext1]{par}[ext2] = CMDNAMESUBEXT1[PAR]EXT2
 • \cmdtxtparcom{cmdName}[newName];
 \cmdName[sub][sub][ext1]{par}[ext2] = NEWNAMESUBEXT1[PAR]EXT2
508 \newcommandx{\cmdtxtparcom}[2][2=]
509 {\usrtxt{#1}{-}{parcom}{#2}}

\cmdtxtoparcom ... to do!
 • \cmdtxtoparcom{cmdName};
 \cmdName[sub][sub][par] = CMDNAMESUB[PAR]
 • \cmdtxtoparcom{cmdName}[newName];
 \cmdName[sub][sub][par] = NEWNAMESUB[PAR]
510 \newcommandx{\cmdtxtoparcom}[2][2=]
511 {\usrtxt{#1}{-}{oparcom}{#2}}

512 \fi
513 %%*****%

```

```

514 %*****%
515 %** Math Macro Generators *****%
516 %*****%
517 \ifmthgen@

```

\mthname, ... to do!

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

518 % Style for Names

519 \cmdmthall{name}\newcommand{\mthstname}{\mathcal}

\Aname, ... to do!

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

520 \seqoflatupp{Name}{mthname}

\cmdmthname ... to do!

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

521 \newcommandx{\cmdmthname}[2][2=]

522 {\usrmth{#1}{Name}{name}[#2]}

\cmdmthargname ... to do!

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

523 \newcommandx{\cmdmthargname}[2][2=]

524 {\usrmth{#1}{Name}{argname}[#2]}

\cmdmthoargname ... to do!

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

525 \newcommandx{\cmdmthoargname}[2][2=]

526 {\usrmth{#1}{Name}{oargname}[#2]}

\cmdmthparname ... to do!

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

527 \newcommandx{\cmdmthparname}[2][2=]

528 {\usrmth{#1}{Name}{parname}[#2]}

\cmdmthoparname ... to do!

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

```

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

\mthfam, to do!
 • \mthfam{NAME}[sub][sup][Ext] = $\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sup}Ext$
 • \mthargfam{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargfam*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthparfam{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparfam*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
531 %% Style for Families
532 \cmdmthall{fam}\newcommand{\mthstyfam}{\mathscr}

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

\cmdmthfam ... to do!
 • \cmdmthfam{CMDNAME};
 \CMDNAMEFam[sub][sub][ext] = $\mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext$
 • \cmdmthfam{cmdName}{NEWNAME};
 \cmdNameFam[sub][sub][ext] = $\mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext$
534 \newcommandx{\cmdmthfam}[2][2=]
535 {\usrmth{#1}{Fam}{fam}[#2]}

\cmdmthargfam ... to do!
 • \cmdmthargfam{CMDNAME};
 \CMDNAMEFam[sub][sub][ext1]{arg}[ext2] = $\mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext1(arg)ext2$
 • \cmdmthargfam{cmdName}{NEWNAME};
 \cmdNameFam[sub][sub][ext1]{arg}[ext2] = $\mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext1(arg)ext2$
536 \newcommandx{\cmdmthargfam}[2][2=]
537 {\usrmth{#1}{Fam}{argfam}[#2]}

\cmdmthoargfam ... to do!
 • \cmdmthoargfam{CMDNAME};
 \CMDNAMEFam[sub][sub][arg] = $\mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}(arg)$
 • \cmdmthoargfam{cmdFam}{NEWNAME};
 \cmdFamFam[sub][sub][arg] = $\mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}(arg)$
538 \newcommandx{\cmdmthoargfam}[2][2=]
539 {\usrmth{#1}{Fam}{oargfam}[#2]}

\cmdmthparfam ... to do!
 • \cmdmthparfam{CMDNAME};
 \CMDNAMEFam[sub][sub][ext1]{par}[ext2] = $\mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext1[par]ext2$
 • \cmdmthparfam{cmdName}{NEWNAME};
 \cmdNameFam[sub][sub][ext1]{par}[ext2] = $\mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext1[par]ext2$
540 \newcommandx{\cmdmthparfam}[2][2=]
541 {\usrmth{#1}{Fam}{parfam}[#2]}

\cmdmthoparfam ... to do!
 • \cmdmthoparfam{CMDNAME};
 \CMDNAMEFam[sub][sub][par] = $\mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}[par]$
 • \cmdmthoparfam{cmdFam}{NEWNAME};
 \cmdFamFam[sub][sub][par] = $\mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}[par]$
542 \newcommandx{\cmdmthoparfam}[2][2=]
543 {\usrmth{#1}{Fam}{oparfam}[#2]}

```

```

\mthcls, to do!
 • \mthcls{NAME}[sub][sup][Ext] = $\mathcal{NAME}_{sub}^{sup}Ext$
 • \mthargcls{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargcls*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
 • \mthparcls{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparcls*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$
544 %% Style for Classes
545 \cmdmthall{cls}\newcommand{\mthstycls}{\matheus}

\ACls, 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
546 \seqoflatupp{Cls}{mthcls}

\cmdmthcls ... to do!
 • \cmdmthcls{CMDNAME};
 \CMDNAMECls[sub][sub][ext] = $\mathcal{CMDNAME}_{sub}^{sub}ext$
 • \cmdmthcls{cmdName}[NEWNAME];
 \cmdNameCls[sub][sub][ext] = $\mathcal{NEWNAME}_{sub}^{sub}ext$
547 \newcommandx{\cmdmthcls}[2][2=]
548 {\usrmth{#1}{Cls}{cls}[#2]}

\cmdmthargcls ... to do!
 • \cmdmthargcls{CMDNAME};
 \CMDNAMECls[sub][sub][ext1]{arg}[ext2] = $\mathcal{CMDNAME}_{sub}^{sub}ext1(arg)ext2$
 • \cmdmthargcls{cmdName}[NEWNAME];
 \cmdNameCls[sub][sub][ext1]{arg}[ext2] = $\mathcal{NEWNAME}_{sub}^{sub}ext1(arg)ext2$
549 \newcommandx{\cmdmthargcls}[2][2=]
550 {\usrmth{#1}{Cls}{argcls}[#2]}

\cmdmthoargcls ... to do!
 • \cmdmthoargcls{CMDNAME};
 \CMDNAMECls[sub][sub][arg] = $\mathcal{CMDNAME}_{sub}^{sub}(arg)$
 • \cmdmthoargcls{cmdCls}[NEWNAME];
 \cmdClsCls[sub][sub][arg] = $\mathcal{NEWNAME}_{sub}^{sub}(arg)$
551 \newcommandx{\cmdmthoargcls}[2][2=]
552 {\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] = $\mathcal{NEWNAME}_{sub}^{sub}ext1[par]ext2$
553 \newcommandx{\cmdmthparcls}[2][2=]
554 {\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] = $\mathcal{NEWNAME}_{sub}^{sub}[par]$
555 \newcommandx{\cmdmthoparcls}[2][2=]
556 {\usrmth{#1}{Cls}{oparcls}[#2]}

\mthsig, to do!
 • \mthsig{Name}[sub][sup][Ext] = $\mathcal{ame}_{sub}^{sup}Ext$

```

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

557 %% Style for Signatures

558  $\backslash\mathrm{cmdmthall}\{\mathrm{sig}\}\backslash\mathrm{newcommand}\{\mathrm{mthstysig}\}\{\mathrm{mathpzc}\}$

$\backslash\mathrm{aSig}$ , ... ... to do!

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

559  $\backslash\mathrm{seqoflatlet}\{\mathrm{Sig}\}\{\mathrm{mthsig}\}\backslash\mathrm{seqofgrklow}\{\mathrm{Sig}\}\{\mathrm{mthsig}\}$

$\backslash\mathrm{cmdmthsig}$  ... to do!

- $\backslash\mathrm{cmdmthsig}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameSig}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext}] = \mathrm{cmd}\mathcal{N}\mathrm{ame}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext}$
- $\backslash\mathrm{cmdmthsig}\{\mathrm{cmdName}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdNameSig}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext}] = \mathcal{N}\mathrm{ew}\mathcal{N}\mathrm{ame}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext}$

560  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthsig}\}[2][2=]$

561  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{sig}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthargsig}$  ... to do!

- $\backslash\mathrm{cmdmthargsig}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameSig}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathrm{cmd}\mathcal{N}\mathrm{ame}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}(\mathrm{arg})\mathrm{ext2}$
- $\backslash\mathrm{cmdmthargsig}\{\mathrm{cmdName}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdNameSig}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathcal{N}\mathrm{ew}\mathcal{N}\mathrm{ame}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}(\mathrm{arg})\mathrm{ext2}$

562  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthargsig}\}[2][2=]$

563  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{argsig}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthoargsig}$  ... to do!

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

564  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoargsig}\}[2][2=]$

565  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{oargsig}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthparsig}$  ... to do!

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

566  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthparsig}\}[2][2=]$

567  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{parsig}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthoparsig}$  ... to do!

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

568  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoparsig}\}[2][2=]$

569  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{oparsig}\}\{\#2\}\}$

$\backslash\mathrm{mthstr}$ , ... ... to do!

- $\backslash\mathrm{mthstr}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \mathcal{N}\mathrm{ame}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$
- $\backslash\mathrm{mthargstr}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{N}\mathrm{ame}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\left(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\right)\mathrm{Ext2}$

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

570 %% Style for Structures

571  $\backslash\mathrm{cmdmthall}\{\mathrm{str}\}\backslash\mathrm{newcommand}\{\backslash\mathrm{mthstyststr}\}\{\mathrm{mathfrakak}\}$

$\backslash\mathrm{aStr}, \dots$  ... 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  
 $\mathfrak{A}, \mathfrak{B}, \mathfrak{C}, \mathfrak{D}, \mathfrak{E}, \mathfrak{F}, \mathfrak{G}, \mathfrak{H}, \mathfrak{I}, \mathfrak{J}, \mathfrak{K}, \mathfrak{L}, \mathfrak{M}, \mathfrak{N}, \mathfrak{O}, \mathfrak{P}, \mathfrak{Q}, \mathfrak{R}, \mathfrak{S}, \mathfrak{T}, \mathfrak{U}, \mathfrak{V}, \mathfrak{W}, \mathfrak{X}, \mathfrak{Y}, \mathfrak{Z}$   
 $\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$   
572  $\backslash\mathrm{seqoflatlet}\{\mathrm{Str}\}\{\mathrm{mthstr}\}\backslash\mathrm{seqofgrklow}\{\mathrm{Str}\}\{\mathrm{mthstr}\}$

$\backslash\mathrm{cmdmthstr}$  ... to do!

- $\backslash\mathrm{cmdmthstr}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext}] = \mathrm{cmd}\mathfrak{Name}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext}$
- $\backslash\mathrm{cmdmthstr}\{\mathrm{cmdName}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext}] = \mathfrak{New}\mathfrak{Name}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext}$

573  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthstr}\}[2][2=]$

574  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Str}\}\{\mathrm{str}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthargstr}$  ... to do!

- $\backslash\mathrm{cmdmthargstr}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathrm{cmd}\mathfrak{Name}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}(\mathrm{arg})\mathrm{ext2}$
- $\backslash\mathrm{cmdmthargstr}\{\mathrm{cmdName}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathfrak{New}\mathfrak{Name}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}(\mathrm{arg})\mathrm{ext2}$

575  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthargstr}\}[2][2=]$

576  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Str}\}\{\mathrm{argstr}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthoargstr}$  ... to do!

- $\backslash\mathrm{cmdmthoargstr}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathrm{cmd}\mathfrak{Name}_{\mathrm{sub}}^{\mathrm{sub}}(\mathrm{arg})$
- $\backslash\mathrm{cmdmthoargstr}\{\mathrm{cmdStr}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdStrStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathfrak{New}\mathfrak{Name}_{\mathrm{sub}}^{\mathrm{sub}}(\mathrm{arg})$

577  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoargstr}\}[2][2=]$

578  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Str}\}\{\mathrm{oargstr}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthparstr}$  ... to do!

- $\backslash\mathrm{cmdmthparstr}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{par}\}[\mathrm{ext2}] = \mathrm{cmd}\mathfrak{Name}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}[\mathrm{par}]\mathrm{ext2}$
- $\backslash\mathrm{cmdmthparstr}\{\mathrm{cmdName}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{par}\}[\mathrm{ext2}] = \mathfrak{New}\mathfrak{Name}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}[\mathrm{par}]\mathrm{ext2}$

579  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthparstr}\}[2][2=]$

580  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Str}\}\{\mathrm{parstr}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthoparstr}$  ... to do!

- $\backslash\mathrm{cmdmthoparstr}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathrm{cmd}\mathfrak{Name}_{\mathrm{sub}}^{\mathrm{sub}}[\mathrm{par}]$
- $\backslash\mathrm{cmdmthoparstr}\{\mathrm{cmdStr}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdStrStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathfrak{New}\mathfrak{Name}_{\mathrm{sub}}^{\mathrm{sub}}[\mathrm{par}]$

581  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoparstr}\}[2][2=]$

582  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Str}\}\{\mathrm{oparstr}\}\{\#2\}\}$

$\backslash\mathrm{mthset}, \dots$  ... to do!

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



- $\backslash\mathrm{mthparset}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\left[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\right]\mathrm{Ext2}$
- $\backslash\mathrm{mthparset}^*\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}]\mathrm{Ext2}$

583 %% Style for Sets

584  $\backslash\mathrm{cmdmthall}\{\mathrm{set}\}\backslash\mathrm{newcommand}\{\backslash\mathrm{mthstyset}\}\{\mathrm{mathrm}\}$

$\backslash\mathrm{aSet}, \dots$  ... 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  
 $\alpha, \beta, \gamma, \delta, \epsilon, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \varkappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$   
 $\mathrm{A}, \mathrm{B}, \mathrm{I}, \Delta, \mathrm{E}, \mathrm{E}, \mathrm{Z}, \mathrm{H}, \Theta, \Theta, \mathrm{I}, \mathrm{K}, \mathrm{K}, \Lambda, \mathrm{M}, \mathrm{N}, \Xi, \mathrm{O}, \Pi, \mathrm{II}, \mathrm{P}, \mathrm{P}, \Sigma, \Sigma, \mathrm{T}, \Upsilon, \Phi, \Phi, \mathrm{X}, \Psi, \Omega$   
585  $\backslash\mathrm{seqoflet}\{\mathrm{Set}\}\{\mathrm{mthset}\}$

$\backslash\mathrm{cmdmthset}$  ... to do!

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

586  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthset}\}[2][2=]$   
587  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{set}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthargset}$  ... to do!

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

588  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthargset}\}[2][2=]$   
589  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{argset}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthoargset}$  ... to do!

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

590  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoargset}\}[2][2=]$   
591  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{oargset}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthparset}$  ... to do!

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

592  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthparset}\}[2][2=]$   
593  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{parset}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthoparset}$  ... to do!

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

594  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoparset}\}[2][2=]$   
595  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{oparset}\}\{\#2\}\}$

$\backslash\mathrm{cmdmthsetext}$  ... to do!

596  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthsetext}\}[3][2=, 3=]$   
597  $\{\backslash\mathrm{cmdmthset}\{\#1\}\{\#2\}\backslash\mathrm{caselower}[q]\{\#1\}\%$   
598  $\backslash\mathrm{usrmthlet}\{\mathrm{thestring}\}\{\mathrm{Sym}\}\{\mathrm{sym}\}$   
599  $[\backslash\mathrm{defval}\{\#3\}\{\backslash\mathrm{defval}\{\backslash\mathrm{empchk}\{\#2\}\{\backslash\mathrm{lowercase}\{\#2\}\}\}\{\mathrm{thestring}\}\}\%$   
600  $\backslash\mathrm{usrmthlet}\{\mathrm{thestring}\}\{\mathrm{Elm}\}\{\mathrm{elm}\}$   
601  $[\backslash\mathrm{defval}\{\#3\}\{\backslash\mathrm{defval}\{\backslash\mathrm{empchk}\{\#2\}\{\backslash\mathrm{lowercase}\{\#2\}\}\}\{\mathrm{thestring}\}\}\}$

```

\mthrel, to do!
 • \mthrel{Name}[sub][sup][Ext] = NamesubsubExt
 • \mthargrel{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
 • \mthargrel*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
 • \mthparrel{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
 • \mthparrel*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
602 %% Style for Relations
603 \cmdmthall{rel}\newcommand{\mthstyrel}{\mathit}

\arel, to do!
a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, L, T, U, V, W, X, Y, Z
α, β, γ, δ, ε, ζ, η, θ, ϑ, ι, κ, λ, μ, ν, ξ, ο, π, ϖ, ρ, ϑ, 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
604 \seqoflet{Rel}{mthrel}

\cmdmthrel ... to do!
 • \cmdmthrel{cmdName};
 \cmdNameRel[sub][sub][ext] = cmdNamesubsubext
 • \cmdmthrel{cmdName}[NewName];
 \cmdNameRel[sub][sub][ext] = NewNamesubsubext
605 \newcommandx{\cmdmthrel}[2][2=]
606 {\usrmth{#1}{Rel}{rel}{#2}}

\cmdmthargrel ... to do!
 • \cmdmthargrel{cmdName};
 \cmdNameRel[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
 • \cmdmthargrel{cmdName}[NewName];
 \cmdNameRel[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
607 \newcommandx{\cmdmthargrel}[2][2=]
608 {\usrmth{#1}{Rel}{argrel}{#2}}

\cmdmthoargrel ... to do!
 • \cmdmthoargrel{cmdName};
 \cmdNameRel[sub][sub][arg] = cmdNamesubsub(arg)
 • \cmdmthoargrel{cmdRel}[NewName];
 \cmdRelRel[sub][sub][arg] = NewNamesubsub(arg)
609 \newcommandx{\cmdmthoargrel}[2][2=]
610 {\usrmth{#1}{Rel}{oargrel}{#2}}

\cmdmthparrel ... to do!
 • \cmdmthparrel{cmdName};
 \cmdNameRel[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
 • \cmdmthparrel{cmdName}[NewName];
 \cmdNameRel[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
611 \newcommandx{\cmdmthparrel}[2][2=]
612 {\usrmth{#1}{Rel}{parrel}{#2}}

\cmdmthoparrel ... to do!
 • \cmdmthoparrel{cmdName};
 \cmdNameRel[sub][sub][par] = cmdNamesubsub[par]
 • \cmdmthoparrel{cmdRel}[NewName];
 \cmdRelRel[sub][sub][par] = NewNamesubsub[par]
613 \newcommandx{\cmdmthoparrel}[2][2=]
614 {\usrmth{#1}{Rel}{oparrel}{#2}}

```

```

\mthfun, to do!
 • \mthfun{Name}[sub][sup][Ext] = NamesupsubExt
 • \mthargfun{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthargfun*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthparfun{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
 • \mthparfun*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
615 %% Style for Functions
616 \cmdmthall{fun}\newcommand{\mthstyfun}{\mathsf}

\afun, to do!
a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, ϱ, σ, ς, τ, υ, φ, ϕ, χ, ψ, ω
Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, Ψ, Ρ, Σ, Τ, Υ, Φ, Ψ, Χ, Ψ, Ω
617 \seqoflet{Fun}{mthfun}

\cmdmthfun ... to do!
 • \cmdmthfun{cmdName};
 \cmdNameFun[sub][sub][ext] = cmdNamesubsubext
 • \cmdmthfun{cmdName}[NewName];
 \cmdNameFun[sub][sub][ext] = NewNamesubsubext
618 \newcommandx{\cmdmthfun}[2][2=]
619 {\usrmth{#1}{Fun}{fun}{#2}}

\cmdmthargfun ... to do!
 • \cmdmthargfun{cmdName};
 \cmdNameFun[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
 • \cmdmthargfun{cmdName}[NewName];
 \cmdNameFun[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
620 \newcommandx{\cmdmthargfun}[2][2=]
621 {\usrmth{#1}{Fun}{argfun}{#2}}

\cmdmthoargfun ... to do!
 • \cmdmthoargfun{cmdName};
 \cmdNameFun[sub][sub][arg] = cmdNamesubsub(arg)
 • \cmdmthoargfun{cmdFun}[NewName];
 \cmdFunFun[sub][sub][arg] = NewNamesubsub(arg)
622 \newcommandx{\cmdmthoargfun}[2][2=]
623 {\usrmth{#1}{Fun}{oargfun}{#2}}

\cmdmthparfun ... to do!
 • \cmdmthparfun{cmdName};
 \cmdNameFun[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
 • \cmdmthparfun{cmdName}[NewName];
 \cmdNameFun[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
624 \newcommandx{\cmdmthparfun}[2][2=]
625 {\usrmth{#1}{Fun}{parfun}{#2}}

\cmdmthoparfun ... to do!
 • \cmdmthoparfun{cmdName};
 \cmdNameFun[sub][sub][par] = cmdNamesubsub[par]
 • \cmdmthoparfun{cmdFun}[NewName];
 \cmdFunFun[sub][sub][par] = NewNamesubsub[par]
626 \newcommandx{\cmdmthoparfun}[2][2=]
627 {\usrmth{#1}{Fun}{oparfun}{#2}}

```

```

\mthsym, to do!
 • \mthsym{Name}[sub][sup][Ext] = NamesubsupExt
 • \mthargsym{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsupExt1(ArgExEx)Ext2
 • \mthargsym*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsupExt1(ArgExEx)Ext2
 • \mthparsym{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsupExt1[ParExEx]Ext2
 • \mthparsym*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsupExt1[ParExEx]Ext2
628 %% Style for Symbols
629 \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, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, ϱ, σ, ς, τ, υ, φ, ϕ, χ, ψ, ω
Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, Ο, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, ΙΙ, Ρ, Σ, Ϛ, Τ, Υ, Φ, Ψ, Ω
630 \seqoflet{Sym}{mthsym}

\cmdmthsym ... to do!
 • \cmdmthsym{cmdName};
 \cmdNameSym[sub][sub][ext] = cmdNamesubsubext
 • \cmdmthsym{cmdName}[NewName];
 \cmdNameSym[sub][sub][ext] = NewNamesubsubext
631 \newcommandx{\cmdmthsym}[2][2=]
632 {\usrmth{#1}{Sym}{sym}[#2]}

\cmdmthargsym ... to do!
 • \cmdmthargsym{cmdName};
 \cmdNameSym[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
 • \cmdmthargsym{cmdName}[NewName];
 \cmdNameSym[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
633 \newcommandx{\cmdmthargsym}[2][2=]
634 {\usrmth{#1}{Sym}{argsym}[#2]}

\cmdmthoargsym ... to do!
 • \cmdmthoargsym{cmdName};
 \cmdNameSym[sub][sub][arg] = cmdNamesubsub(arg)
 • \cmdmthoargsym{cmdSym}[NewName];
 \cmdSymSym[sub][sub][arg] = NewNamesubsub(arg)
635 \newcommandx{\cmdmthoargsym}[2][2=]
636 {\usrmth{#1}{Sym}{oargsym}[#2]}

\cmdmthparsym ... to do!
 • \cmdmthparsym{cmdName};
 \cmdNameSym[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
 • \cmdmthparsym{cmdName}[NewName];
 \cmdNameSym[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
637 \newcommandx{\cmdmthparsym}[2][2=]
638 {\usrmth{#1}{Sym}{parsym}[#2]}

\cmdmthoparsym ... to do!
 • \cmdmthoparsym{cmdName};
 \cmdNameSym[sub][sub][par] = cmdNamesubsub[par]
 • \cmdmthoparsym{cmdSym}[NewName];
 \cmdSymSym[sub][sub][par] = NewNamesubsub[par]
639 \newcommandx{\cmdmthoparsym}[2][2=]
640 {\usrmth{#1}{Sym}{oparsym}[#2]}

```

```

\mthelm, to do!
 • \mthelm{Name}[sub][sup][Ext] = NamesupsubExt
 • \mthargelm{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthargelm*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthparelm{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
 • \mthparelm*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
641 %% Style for Elements
642 \cmdmthall{elm}\newcommand{\mthstyelm}{\mathnormal}

\aelm, to do!
a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ε, ζ, η, θ, ϑ, ι, κ, λ, μ, ν, ξ, ο, π, ϖ, ρ, ϑ, σ, ς, τ, υ, φ, ϕ, χ, ψ, ω
Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, ϒ, Φ, Ψ, Ω
643 \seqoflet{Elm}{mthelm}

\cmdmthelm ... to do!
 • \cmdmthelm{cmdName};
 \cmdNameElm[sub][sub][ext] = cmdNamesubsubext
 • \cmdmthelm{cmdName}[NewName];
 \cmdNameElm[sub][sub][ext] = NewNamesubsubext
644 \newcommandx{\cmdmthelm}[2][2=]
645 {\usrmth{#1}{Elm}{elm}[#2]}

\cmdmthargelm ... to do!
 • \cmdmthargelm{cmdName};
 \cmdNameElm[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
 • \cmdmthargelm{cmdName}[NewName];
 \cmdNameElm[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
646 \newcommandx{\cmdmthargelm}[2][2=]
647 {\usrmth{#1}{Elm}{argelm}[#2]}

\cmdmthoargelm ... to do!
 • \cmdmthoargelm{cmdName};
 \cmdNameElm[sub][sub][arg] = cmdNamesubsub(arg)
 • \cmdmthoargelm{cmdElm}[NewName];
 \cmdElmElm[sub][sub][arg] = NewNamesubsub(arg)
648 \newcommandx{\cmdmthoargelm}[2][2=]
649 {\usrmth{#1}{Elm}{oargelm}[#2]}

\cmdmthparelm ... to do!
 • \cmdmthparelm{cmdName};
 \cmdNameElm[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
 • \cmdmthparelm{cmdName}[NewName];
 \cmdNameElm[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
650 \newcommandx{\cmdmthparelm}[2][2=]
651 {\usrmth{#1}{Elm}{parelm}[#2]}

\cmdmthoparelm ... to do!
 • \cmdmthoparelm{cmdName};
 \cmdNameElm[sub][sub][par] = cmdNamesubsub[par]
 • \cmdmthoparelm{cmdElm}[NewName];
 \cmdElmElm[sub][sub][par] = NewNamesubsub[par]
652 \newcommandx{\cmdmthoparelm}[2][2=]
653 {\usrmth{#1}{Elm}{oparelm}[#2]}

```

654 %%\*\*\*\*\*%

\cmdmthsymelm ... to do!

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

655 \newcommandx{\cmdmthsymelm}[2][2=]  
656 {\cmdmthsym{#1}[#2]}%  
657 \cmdmthelm{#1}[#2]}

\cmdmthargsymelm ... to do!

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

658 \newcommandx{\cmdmthargsymelm}[2][2=]  
659 {\cmdmthargsym{#1}[#2]}%  
660 \cmdmthargelm{#1}[#2]}

\cmdmthoargsymelm ... to do!

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

661 \newcommandx{\cmdmthoargsymelm}[2][2=]  
662 {\cmdmthoargsym{#1}[#2]}%  
663 \cmdmthoargelm{#1}[#2]}

\cmdmthparsymelm ... to do!

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

664 \newcommandx{\cmdmthparsymelm}[2][2=]  
665 {\cmdmthparsym{#1}[#2]}%  
666 \cmdmthparelm{#1}[#2]}

\cmdmthoparsymelm ... to do!

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

667 \newcommandx{\cmdmthoparsymelm}[2][2=]  
668 {\cmdmthoparsym{#1}[#2]}%  
669 \cmdmthoparelm{#1}[#2]}

670 %%\*\*\*\*\*%

\mthluop, ... ... to do!

- $\backslash\mathrm{mthluop}\{\backslash\mathrm{oplus}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \oplus_{\mathrm{sub}}^{\mathrm{sup}} \mathrm{Ext}$
- $\backslash\mathrm{mthlbop}\{\backslash\mathrm{oplus}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \oplus_{\mathrm{sub}}^{\mathrm{sup}} \mathrm{Ext}$

```
671 %% Style for \LaTeX Operators
672 \cmdmth{luop}\newcommand{\mthstyluop}[1]{\textstyle\mathop{\#1}}
673 \cmdmth{lbop}\newcommand{\mthstylbop}[1]{\textstyle\mathbin{\#1}}
```

$\backslash\mathrm{cmdmthluop}$ , ... ... to do!

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

```
674 \newcommandx{\cmdmthluop}[2][2=]
675 {\usrmth{\#1}\{UOp\}\{luop\}\{#2\}}
676 \newcommandx{\cmdmthlbop}[2][2=]
677 {\usrmth{\#1}\{BOp\}\{lbop\}\{#2\}}
```

$\backslash\mathrm{mthlrel}$  ... to do!

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

```
678 %% Style for \LaTeX Relations
679 \cmdmth{lrel}\newcommand{\mthstylrel}{\mathrel}
```

$\backslash\mathrm{cmdmthlrel}$  ... to do!

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

```
680 \newcommandx{\cmdmthlrel}[2][2=]
681 {\usrmth{\#1}\{Rel\}\{lrel\}\{#2\}}
```

```
682 %%*****%
```

$\backslash\mathrm{mthsnt}$ , ... ... to do!

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

```
683 %% Style for Sentences
684 \cmdmthall{snt}\newcommand{\mthstysnt}{\mathsf}
```

$\backslash\mathrm{aSnt}$ , ... ... 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  
 $\alpha, \beta, \gamma, \delta, \epsilon, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \varkappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$   
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,  $\Psi$ ,  $\Omega$

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

$\backslash\mathrm{cmdmthsnt}$  ... to do!

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

```

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

\cmdmthargsnt ... to do!
 • \cmdmthargsnt{cmdName};
 \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2
 • \cmdmthargsnt{cmdName}[NewName];
 \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = NewNamesubext1(arg)ext2
688 \newcommandx{\cmdmthargsnt}[2][2=]
689 {\usrmth{#1}{Snt}{argsnt}{#2}}

\cmdmthoargsnt ... to do!
 • \cmdmthoargsnt{cmdName};
 \cmdNameSnt[sub][sub][arg] = cmdNamesub(arg)
 • \cmdmthoargsnt{cmdName}[NewName];
 \cmdNameSnt[sub][sub][arg] = NewNamesub(arg)
690 \newcommandx{\cmdmthoargsnt}[2][2=]
691 {\usrmth{#1}{Snt}{oargsnt}{#2}}

\cmdmthparsnt ... to do!
 • \cmdmthparsnt{cmdName};
 \cmdNameSnt[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2
 • \cmdmthparsnt{cmdName}[NewName];
 \cmdNameSnt[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2
692 \newcommandx{\cmdmthparsnt}[2][2=]
693 {\usrmth{#1}{Snt}{parsnt}{#2}}

\cmdmthoparsnt ... to do!
 • \cmdmthoparsnt{cmdName};
 \cmdNameSnt[sub][sub][par] = cmdNamesub[par]
 • \cmdmthoparsnt{cmdName}[NewName];
 \cmdNameSnt[sub][sub][par] = NewNamesub[par]
694 \newcommandx{\cmdmthoparsnt}[2][2=]
695 {\usrmth{#1}{Snt}{oparsnt}{#2}}

\mthfrm, to do!
 • \mthfrm{Name}[sub][sup][Ext] = NamesupsubExt
 • \mthargfrm{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthargfrm*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthparfrm{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
 • \mthparfrm*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
696 %% Style for Formulae
697 \cmdmthall{frm}\newcommand{\mthstyfrm}{\mathit}

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

\cmdmthfrm ... to do!
 • \cmdmthfrm{cmdName};
 \cmdNameFrm[sub][sub][ext] = cmdNamesubsubext
 • \cmdmthfrm{cmdName}[NewName];
 \cmdNameFrm[sub][sub][ext] = NewNamesubsubext

```



```

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

\cmdmthargfrm ... to do!
 • \cmdmthargfrm{cmdName};
 \cmdNameFrm[sub][sub][ext1]{arg}[ext2] = $\text{cmdName}_{sub}^{sub}ext1(arg)ext2$
 • \cmdmthargfrm{cmdName}[NewName];
 \cmdNameFrm[sub][sub][ext1]{arg}[ext2] = $\text{NewName}_{sub}^{sub}ext1(arg)ext2$
701 \newcommandx{\cmdmthargfrm}[2][2=]
702 {\usrmth{#1}{Frm}{argfrm}{#2}}

\cmdmthoargfrm ... to do!
 • \cmdmthoargfrm{cmdName};
 \cmdNameFrm[sub][sub][arg] = $\text{cmdName}_{sub}^{sub}(arg)$
 • \cmdmthoargfrm{cmdName}[NewName];
 \cmdNameFrm[sub][sub][arg] = $\text{NewName}_{sub}^{sub}(arg)$
703 \newcommandx{\cmdmthoargfrm}[2][2=]
704 {\usrmth{#1}{Frm}{oargfrm}{#2}}

\cmdmthparfrm ... to do!
 • \cmdmthparfrm{cmdName};
 \cmdNameFrm[sub][sub][ext1]{par}[ext2] = $\text{cmdName}_{sub}^{sub}ext1[par]ext2$
 • \cmdmthparfrm{cmdName}[NewName];
 \cmdNameFrm[sub][sub][ext1]{par}[ext2] = $\text{NewName}_{sub}^{sub}ext1[par]ext2$
705 \newcommandx{\cmdmthparfrm}[2][2=]
706 {\usrmth{#1}{Frm}{parfrm}{#2}}

\cmdmthoparfrm ... to do!
 • \cmdmthoparfrm{cmdName};
 \cmdNameFrm[sub][sub][par] = $\text{cmdName}_{sub}^{sub}[par]$
 • \cmdmthoparfrm{cmdName}[NewName];
 \cmdNameFrm[sub][sub][par] = $\text{NewName}_{sub}^{sub}[par]$
707 \newcommandx{\cmdmthoparfrm}[2][2=]
708 {\usrmth{#1}{Frm}{oparfrm}{#2}}

709 %%*****%

\mthmat, to do!
 • \mthmat{Name}[sub][sup][Ext] = $\text{Name}_{sub}^{sup}Ext$
 • \mthargmat{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\text{Name}_{sub}^{sup}Ext1\left(\text{Arg}^{Ex^{Ex}}\right)Ext2$
 • \mthargmat*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\text{Name}_{sub}^{sup}Ext1\left(\text{Arg}^{Ex^{Ex}}\right)Ext2$
 • \mthparmat{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\text{Name}_{sub}^{sup}Ext1\left[\text{Par}^{Ex^{Ex}}\right]Ext2$
 • \mthparmat*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\text{Name}_{sub}^{sup}Ext1\left[\text{Par}^{Ex^{Ex}}\right]Ext2$
710 %% Style for Matrices
711 \cmdmthall{mat}\newcommand{\mthstymat}[1]{\boldsymbol{\mathsf{#1}}}

\Mat, 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
 $\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$
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, T, Φ, Φ, X, Ψ, Ω
712 \seqoflet{Mat}{mthmat}

\cmdmthmat ... to do!
 • \cmdmthmat{cmdName};
 \cmdNameMat[sub][sub][ext] = $\text{cmdName}_{sub}^{sub}ext$

```

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

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

$\backslash\text{cmdmthargmat}$  ... to do!

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

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

$\backslash\text{cmdmthoargmat}$  ... to do!

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

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

$\backslash\text{cmdmthparmat}$  ... to do!

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

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

$\backslash\text{cmdmthoparmat}$  ... to do!

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

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

$\backslash\text{mthvec}$ , ... to do!

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

```
723 %% Style for Vectors
```

```
724 \cmdmthall{\vec}\newcommand{\mthstyvec}[1]{\boldsymbol{\mathit{\#1}}}
```

$\backslash\text{aVec}$ , ... to do!

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

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

$\backslash\text{cmdmthvec}$  ... to do!

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

```

 • \cmdmthvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][ext] = NewNamesubsubext
726 \newcommandx{\cmdmthvec}[2][2=]
727 {\usrmth{#1}{Vec}{vec}[#2]}

\cmdmthargvec ... to do!
 • \cmdmthargvec{cmdName};
 \cmdNameVec[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
 • \cmdmthargvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
728 \newcommandx{\cmdmthargvec}[2][2=]
729 {\usrmth{#1}{Vec}{argvec}[#2]}

\cmdmthoargvec ... to do!
 • \cmdmthoargvec{cmdName};
 \cmdNameVec[sub][sub][arg] = cmdNamesubsub(arg)
 • \cmdmthoargvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][arg] = NewNamesubsub(arg)
730 \newcommandx{\cmdmthoargvec}[2][2=]
731 {\usrmth{#1}{Vec}{oargvec}[#2]}

\cmdmthparvec ... to do!
 • \cmdmthparvec{cmdName};
 \cmdNameVec[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
 • \cmdmthparvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
732 \newcommandx{\cmdmthparvec}[2][2=]
733 {\usrmth{#1}{Vec}{parvec}[#2]}

\cmdmthoparvec ... to do!
 • \cmdmthoparvec{cmdName};
 \cmdNameVec[sub][sub][par] = cmdNamesubsub[par]
 • \cmdmthoparvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][par] = NewNamesubsub[par]
734 \newcommandx{\cmdmthoparvec}[2][2=]
735 {\usrmth{#1}{Vec}{oparvec}[#2]}

736 \fi
737 %*****%
738 %*****%
739 %** Elementary Macros for Text *****%
740 %*****%
741 \iftxt@
742 %** Latin Abbreviations *****%

\adhoc • \adhoc = ad hoc
743 \cmdtxtabr{adhoc}[ad hoc]

\afortiori • \afortiori = a fortiori
744 \cmdtxtabr{afortiori}[a fortiori]

\apriori • \apriori = a priori
745 \cmdtxtabr{apriori}[a priori]

\aposteriori • \aposteriori = a posteriori
746 \cmdtxtabr{aposteriori}[a posteriori]

\cf • \cf = cf.
747 \cmdtxtabr{cf}[cf.]

```

`\dedicto`      • `\dedicto = de dicto`  
748 `\cmdtxtabr{dedicto}[de dicto]`

`\defacto`      • `\defacto = de facto`  
749 `\cmdtxtabr{defacto}[de facto]`

`\dere`          • `\dere = de re`  
750 `\cmdtxtabr{dere}[de re]`

`\divideetimpera`      • `\divideetimpera = divide et impera`  
751 `\cmdtxtabr{divideetimpera}[divide et impera]`

`\eg`            • `\eg = e.g.`  
752 `\cmdtxtabr{eg}[e.g.]`

`\ergo`          • `\ergo = ergo`  
753 `\cmdtxtabr{ergo}`

`\errata`        • `\errata = errata`  
754 `\cmdtxtabr{errata}`

`\erratum`      • `\erratum = erratum`  
755 `\cmdtxtabr{erratum}`

`\etal`          • `\etal = et al.`  
756 `\cmdtxtabr{etal}[et al.]`

`\etc`           • `\etc = etc.`  
757 `\cmdtxtabr{etc}[etc.]`

`\ie`            • `\ie = i.e.`  
758 `\cmdtxtabr{ie}[i.e.]`

`\mutatismutandis`      • `\mutatismutandis = mutatis mutandis`  
759 `\cmdtxtabr{mutatismutandis}[mutatis mutandis]`

`\percontra`      • `\percontra = per contra`  
760 `\cmdtxtabr{percontra}[per contra]`

`\primafacie`      • `\primafacie = prima facie`  
761 `\cmdtxtabr{primafacie}[prima facie]`

`\viceversa`      • `\viceversa = vice versa`  
762 `\cmdtxtabr{viceversa}[vice versa]`

`\vs`            • `\vs = vs.`  
763 `\cmdtxtabr{vs}[vs.]`

`\viz`           • `\viz = viz.`  
764 `\cmdtxtabr{viz}[viz.]`  
765 `%%*****%`

`\Afortiori`      • `\Afortiori = A fortiori`  
766 `\cmdtxtabr{Afortiori}[A fortiori]`

`\Apriori`        • `\Apriori = A priori`  
767 `\cmdtxtabr{Apriori}[A priori]`

$\backslash$ Aposteriori      •  $\backslash$ Aposteriori = *A posteriori*  
768 \cmdtxtabr{Aposteriori}[A posteriori]

$\backslash$ Dedicto      •  $\backslash$ Dedicto = *De dicto*  
769 \cmdtxtabr{Dedicto}[De dicto]

$\backslash$ Defacto      •  $\backslash$ Defacto = *De facto*  
770 \cmdtxtabr{Defacto}[De facto]

$\backslash$ Dere      •  $\backslash$ Dere = *De re*  
771 \cmdtxtabr{Dere}[De re]

$\backslash$ Divideetimperā      •  $\backslash$ Divideetimperā = *Divide et impera*  
772 \cmdtxtabr{Divideetimperā}[Divide et impera]

$\backslash$ Eg      •  $\backslash$ Eg = *E.g.*  
773 \cmdtxtabr{Eg}[E.g.]

$\backslash$ Errata      •  $\backslash$ Errata = *Errata*  
774 \cmdtxtabr{Errata}

$\backslash$ Erratum      •  $\backslash$ Erratum = *Erratum*  
775 \cmdtxtabr{Erratum}

$\backslash$ Mutatismutandis      •  $\backslash$ Mutatismutandis = *Mutatis mutandis*  
776 \cmdtxtabr{Mutatismutandis}[Mutatis mutandis]

$\backslash$ Percontra      •  $\backslash$ Percontra = *Per contra*  
777 \cmdtxtabr{Percontra}[Per contra]

$\backslash$ Prima facie      •  $\backslash$ Prima facie = *Prima facie*  
778 \cmdtxtabr{Prima facie}[Prima facie]

$\backslash$ Viceversa      •  $\backslash$ Viceversa = *Vice versa*  
779 \cmdtxtabr{Viceversa}[Vice versa]

780 %\*\* Italian Abbreviations \*\*\*\*\*%  
...  
781 %\*\*\*\*\*%  
...  
782 %\*\* French Abbreviations \*\*\*\*\*%

$\backslash$ naif      •  $\backslash$ naif = *naïf*  
783 \cmdtxtabr{naif}[na\{i}f]

$\backslash$ naive      •  $\backslash$ naive = *naïve*  
784 \cmdtxtabr{naive}[na\{i}ve]

$\backslash$ role      •  $\backslash$ role = *rôle*  
785 \cmdtxtabr{role}[r\^{o}le]

786 %\*\*\*\*\*%

$\backslash$ Role      •  $\backslash$ Role = *Rôle*  
787 \cmdtxtabr{Role}[R\^{o}le]

788 %\*\* English Abbreviations \*\*\*\*\*%

```

\aka • \aka = a.k.a.
789 \cmdtxtabr{aka}[a.k.a.]

\contd • \contd = contd.
790 \cmdtxtabr{contd}[contd.]

\iff • \iff = iff
791 \cmdtxtabr{iff}

\iht • \iht = i.h.t.
792 \cmdtxtabr{iht}[i.h.t.]

\stx • \stx = s.t.
793 \cmdtxtabr{stx}[s.t.]

\resp • \resp = resp.
794 \cmdtxtabr{resp}[resp.]

\wrt • \wrt = w.r.t.
795 \cmdtxtabr{wrt}[w.r.t.]

\wlogx • \wlogx = w.l.o.g.
796 \cmdtxtabr{wlogx}[w.l.o.g.]
797 %%*****%

\Contd • \Contd = Contd.
798 \cmdtxtabr{Contd}[Contd.]

\Wlogx • \Wlogx = W.l.o.g.
799 \cmdtxtabr{Wlogx}[W.l.o.g.]

800 \fi
801 %%*****%
802 %%*****%
803 %%** Elementary Macros for Math *****%
804 %%*****%
805 \ifmth@
806 %%** General Notation *****%

\defeq, \seteq ...
807 \DeclareRobustCommand{\defeq}
808 {\@ifstar%
809 {\mthlbop{\stackrel{\text{\textup{def}}}{=}}}%
810 {\mthlbop{\triangleq}}}
811 \DeclareRobustCommand{\seteq}
812 {\@ifstar{\mthlbop{\Coloneqq}}{\mthlbop{\coloneqq}}}
813 %%*****%

\implies,
814 \DeclareRobustCommand{\implies}
815 {\mthlrel{\Rightarrow}}
816 \DeclareRobustCommand{\notimplies}
817 {\mthlrel{\not\Rightarrow}}

\implied,
818 \DeclareRobustCommand{\implied}
819 {\mthlrel{\Leftarrow}}
820 \DeclareRobustCommand{\notimplied}
821 {\mthlrel{\not\Leftarrow}}

```

```

\coimplies,
822 \DeclareRobustCommand{\coimplies}
823 {\mthlrel{\Leftrightarrow}}
824 \DeclareRobustCommand{\notcoimplies}
825 {\mthlrel{\not\!\Leftrightarrow}}

826 %%*****%

\cmodels,
827 \DeclareRobustCommand{\cmodels}
828 {\mthlrel{\models}}
829 \DeclareRobustCommand{\notcmodels}
830 {\mthlrel{\not\models}}

\cequiv,
831 \DeclareRobustCommand{\cequiv}
832 {\mthlrel{\equiv}}
833 \DeclareRobustCommand{\notcequiv}
834 {\mthlrel{\not\equiv}}

835 %%*****%

\denot ...
836 \DeclareRobustCommand{\denot}
837 {\@ifstar{\@denot}{\@denot[\left][\right]}}
838 \DeclareRobustCommandx{\@denot}[3][1=, 2=]
839 {\mth{\argmid{\#1\llbracket}{\#3}{\#2\rrbracket}}}

840 %%*****%

\dual, \adj,
841 \DeclareRobustCommand{\dual}[1]
842 {\mth{\overline{\#1}}}
843 \DeclareRobustCommand{\adj}[1]
844 {\mth{\mathring{\#1}}}
845 \DeclareRobustCommand{\der}[1]
846 {\mth{\widehat{\#1}}}
847 \DeclareRobustCommand{\trn}[1]
848 {\mth{\widetilde{\#1}}}

\vec ...
849 \DeclareRobustCommand{\vec}
850 {\@ifstar{\@svec}{\@vec}}
851 \DeclareRobustCommand{\@vec}[1]
852 {\mth{\mathaccent"017E{\#1}}}
853 \DeclareRobustCommand{\@svec}[1]
854 {\mth{\overline{\#1}}}

855 %%*****%

\enumeration,
856 \varcmd{enumeration}{\mth}{\{,\}{}}
857 \varcmd{enumerationx}{\mth}{\{;\}{}}

\sequence,
858 \DeclareRobustCommand{\sequence}
859 {\@ifstar{\@ssequence}{\@sequence}}
860 \varcmd{@sequence}{\mth}{\left[\{,\}{\right]}}
861 \varcmd{@ssequence}{\mth}{\left[\{,\}{\right]}}
862 \DeclareRobustCommand{\sequence1}
863 {\@ifstar{\@ssequence1}{\@sequence1}}
864 \varcmd{@sequence1}{\mth}{\left[\{,\}{\right.}\}}
865 \varcmd{@ssequence1}{\mth}{\left[\{,\}{\right.}\}}

```

```

866 \DeclareRobustCommand{\sequencer}
867 {\@ifstar{\@ssequencer}{\@sequencer}}
868 \varcmd{\sequencer}{\mth}{\left.}{,}{\right]}{}
869 \varcmd{\ssequencer}{\mth}{,}{,}{}{}
870 \DeclareRobustCommand{\sequencex}
871 {\@ifstar{\@ssequencex}{\@sequencex}}
872 \varcmd{\sequencex}{\mth}{\left[}{;}{\right]}{}
873 \varcmd{\ssequencex}{\mth}{[}{;}{]}{}
874 \DeclareRobustCommand{\sequencexl}
875 {\@ifstar{\@ssequencexl}{\@sequencexl}}
876 \varcmd{\sequencexl}{\mth}{\left[}{;}{\right.]}{}
877 \varcmd{\ssequencexl}{\mth}{[}{;}{]}{}
878 \DeclareRobustCommand{\sequencexr}
879 {\@ifstar{\@ssequencexr}{\@sequencexr}}
880 \varcmd{\sequencexr}{\mth}{\left.}{;}{\right]}{}
881 \varcmd{\ssequencexr}{\mth}{;}{;}{]}{}

```

\tuple, ... ..

```

882 \DeclareRobustCommand{\tuple}
883 {\@ifstar{\@stuple}{\@tuple}}
884 \varcmd{\tuple}{\mth}{\left\langle}{,}{\right\rangle}{}
885 \varcmd{\stuple}{\mth}{\langle}{,}{\rangle}{}
886 \DeclareRobustCommand{\tuplel}
887 {\@ifstar{\@stupl}{\@tuplel}}
888 \varcmd{\tuplel}{\mth}{\left\langle}{,}{\right.]}{}
889 \varcmd{\stupl}{\mth}{\langle}{,}{\rangle}{}
890 \DeclareRobustCommand{\tupler}
891 {\@ifstar{\@stupler}{\@tupler}}
892 \varcmd{\tupler}{\mth}{\left.}{,}{\right\rangle}{}
893 \varcmd{\stupler}{\mth}{,}{,}{\rangle}{}
894 \DeclareRobustCommand{\tuplex}
895 {\@ifstar{\@stuplex}{\@tuplex}}
896 \varcmd{\tuplex}{\mth}{\left\langle}{;}{\right\rangle}{}
897 \varcmd{\stuplex}{\mth}{\langle}{;}{\rangle}{}
898 \DeclareRobustCommand{\tuplexl}
899 {\@ifstar{\@stuplexl}{\@tuplexl}}
900 \varcmd{\tuplexl}{\mth}{\left\langle}{;}{\right.]}{}
901 \varcmd{\stuplexl}{\mth}{\langle}{;}{\rangle}{}
902 \DeclareRobustCommand{\tuplexr}
903 {\@ifstar{\@stuplexr}{\@tuplexr}}
904 \varcmd{\tuplexr}{\mth}{\left.}{;}{\right\rangle}{}
905 \varcmd{\stuplexr}{\mth}{;}{;}{\rangle}{}

906 %** Sets *****%

```

\set, ... ..

```

907 \DeclareRobustCommand{\set}
908 {\@ifstar{\@set}{\@set[\left][\middle][\right]}}
909 \DeclareRobustCommandx{\@set}[5][1=, 2=, 3=]
910 {\mth{\argmid{#1\lbrace}{\argsep{#4}{\, #2\vert\,}{#5}}{#3\rbbrace}}}
911 \DeclareRobustCommand{\setl}
912 {\@ifstar{\@setl}{\@setl[\left][\right]}}
913 \DeclareRobustCommandx{\@setl}[3][1=, 2=]
914 {\mth{\argmid{#1\lbrace}{#3}{\, #2\vert\!}}}
915 \DeclareRobustCommand{\setr}
916 {\@ifstar{\@setr}{\@setr[\left.][\right]}}
917 \DeclareRobustCommandx{\@setr}[3][1=, 2=]
918 {\mth{\argmid{#1}{#3}{#2\rbbrace}}}

```

\card ...

```

919 \DeclareRobustCommand{\card}
920 {\@ifstar{\@card}{\@card[\left][\right]}}
921 \DeclareRobustCommandx{\@card}[3][1=, 2=]
922 {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}

```



```

\pow ...
923 \DeclareRobustCommand{\pow}[1]
924 {\mth{2^{\defval{#1}{\cdot}}}}

925 %%** Relations *****%%

\emptyrel ...
926 \DeclareRobustCommand{\emptyrel}
927 {\mth{\varnothing}}

928 %%*****%%

\dom, \cod,
929 \usrmth{dom}{-}{argfun}
930 \usrmth{cod}{-}{argfun}
931 \usrmth{rng}{-}{argfun}
932 \usrmth{img}{-}{argfun}

933 %%*****%%

\prj ...
934 \DeclareRobustCommand{\prj}
935 {\mthargfun{prj}}

\rst ...
936 \DeclareRobustCommand{\rst}
937 {\mthlbop{\upharpoonright}}

\cmp ...
938 \DeclareRobustCommand{\cmp}
939 {\mthlbop{\circ}}

940 %%** Functions *****%%

\emptyfun ...
941 \DeclareRobustCommand{\emptyfun}
942 {\mth{\varnothing}}

943 %%*****%%

\pto, \pmapsto ...
944 \DeclareMathOperator{\pto}
945 {\ensuremath{\rightharpoonup}}
946 \DeclareMathOperator{\pmapsto}
947 {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize\llcorner}}}%
948 \kern-1.5ex\rightharpoonup}}

949 %%*****%%

\fix, \ifp,
950 \usrmth{fix}{-}{fun}
951 \usrmth{ifp}{-}{fun}
952 \usrmth{lfp}{-}{fun}
953 \usrmth{gfp}{-}{fun}

954 %%*****%%

\Aomega, \AOmega ...
955 \usrmth{Aomega}{-}{argset}[\omega]
956 \usrmth{AOmega}{-}{argset}[\Omega]

\Atheta, \ATheta ...
957 \usrmth{Atheta}{-}{argset}[\theta]
958 \usrmth{ATheta}{-}{argset}[\Theta]

```

```

\Aomicron,
 959 \usrmth{Aomicron}{\argset}{\omicron}
 960 \usrmth{A0micron}{\argset}{\0micron}

 961 %%** Numbers *****%

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

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

\SetN,
 966 \DeclareRobustCommand{\SetN}
 967 {\mthset[mathbb]{N}}
 968 \DeclareRobustCommand{\SetNI}[1] []
 969 {\SetN[\infty #1]}

\SetZ,
 970 \DeclareRobustCommand{\SetZ}
 971 {\mthset[mathbb]{Z}}
 972 \DeclareRobustCommand{\SetZI}[1] []
 973 {\SetZ[\pm\infty #1]}
 974 \DeclareRobustCommand{\SetZPI}[1] []
 975 {\SetZ[+\infty #1]}
 976 \DeclareRobustCommand{\SetZNI}[1] []
 977 {\SetZ[-\infty #1]}

\SetQ,
 978 \DeclareRobustCommand{\SetQ}
 979 {\mthset[mathbb]{Q}}
 980 \DeclareRobustCommand{\SetQI}[1] []
 981 {\SetQ[\pm\infty #1]}
 982 \DeclareRobustCommand{\SetQPI}[1] []
 983 {\SetQ[+\infty #1]}
 984 \DeclareRobustCommand{\SetQNI}[1] []
 985 {\SetQ[-\infty #1]}

\SetR,
 986 \DeclareRobustCommand{\SetR}
 987 {\mthset[mathbb]{R}}
 988 \DeclareRobustCommand{\SetRI}[1] []
 989 {\SetR[\pm\infty #1]}
 990 \DeclareRobustCommand{\SetRPI}[1] []
 991 {\SetR[+\infty #1]}
 992 \DeclareRobustCommand{\SetRNI}[1] []
 993 {\SetR[-\infty #1]}

\SetC,
 994 \DeclareRobustCommand{\SetC}
 995 {\mthset[mathbb]{C}}
 996 \DeclareRobustCommand{\SetCI}[1] []
 997 {\SetC[\infty #1]}

 998 %*****%

\num,
 999 \DeclareRobustCommand{\num}[1]
 1000 {\mth{[#1]}}
 1001 \DeclareRobustCommand{\numcc}[2]
 1002 {\mth{[\argsep{#1}{,}{#2}]}}

```

```

1003 \DeclareRobustCommand{\numco}[2]
1004 {\mth{\argsep{#1}{,}{#2}}}}
1005 \DeclareRobustCommand{\numoc}[2]
1006 {\mth{(\argsep{#1}{,}{#2})}}
1007 \DeclareRobustCommand{\numoo}[2]
1008 {\mth{(\argsep{#1}{,}{#2})}}

```

```

1009 %%*****%

```

\abs, \norm ...

```

1010 \DeclareRobustCommand{\abs}
1011 {\@ifstar{\@abs}{\@abs[\left][\right]}}
1012 \DeclareRobustCommandx{\@abs}[3][1=, 2=]
1013 {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}}
1014 \DeclareRobustCommand{\norm}
1015 {\@ifstar{\@norm}{\@norm[\left][\right]}}
1016 \DeclareRobustCommandx{\@norm}[3][1=, 2=]
1017 {\mth{\argmid{#1\lVert}{#3}{#2\rVert}}}}

```

\floor, \ceil ...

```

1018 \DeclareRobustCommand{\floor}
1019 {\@ifstar{\@floor}{\@floor[\left][\right]}}
1020 \DeclareRobustCommandx{\@floor}[3][1=, 2=]
1021 {\mth{\argmid{#1\lfloor}{#3}{#2\rfloor}}}}
1022 \DeclareRobustCommand{\ceil}
1023 {\@ifstar{\@ceil}{\@ceil[\left][\right]}}
1024 \DeclareRobustCommandx{\@ceil}[3][1=, 2=]
1025 {\mth{\argmid{#1\lceil}{#3}{#2\rceil}}}}

```

```

1026 %%*****%

```

\arg ...

```

1027 \usrmth{arg}{\fun}

```

\evn, \odd ...

```

1028 \usrmth{evn}{\fun}
1029 \usrmth{odd}{\fun}

```

\bst, ... ...

```

1030 \usrmth{bst}{\fun}
1031 \usrmth{argbst}{\fun}[arg\,bst]

```

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

```

1032 \usrmth{min}{\fun}
1033 \usrmth{max}{\fun}
1034 \usrmth{argmin}{\fun}[arg\,min]
1035 \usrmth{argmax}{\fun}[arg\,max]

```

\inf, \sup ...

```

1036 \usrmth{inf}{\fun}
1037 \usrmth{sup}{\fun}

```

```

1038 %%** Sequences *****%

```

\emptyseq ...

```

1039 \DeclareRobustCommand{\emptyseq}
1040 {\mth{\varepsilon}}

```

\len ...

```

1041 \DeclareRobustCommand{\len}
1042 {\@ifstar{\@len}{\@len[\left][\right]}}
1043 \DeclareRobustCommandx{\@len}[3][1=, 2=]
1044 {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}}

```

```

\fst, \lst ...
1045 \usrmth{fst}{-}{argfun}
1046 \usrmth{lst}{-}{argfun}

1047 \fi
1048 %*****%
1049 %*****%
1050 %** Macros for Computational-Complexity Classes *****%
1051 %*****%
1052 \ifcom@

\defcomcls ... to do!
 • \defcomcls{CompClass};

 \CompClass[sub][sup][arg] = COMPCLASSSUB(ARG)

 • \defcomcls{CompClass}[NewClass];

 \CompClass[sub][sup][arg] = NEWCLASSSUB(ARG)

1053 \newcommandx{\defcomcls}[2][2=]
1054 {\csdef{#1}{\txtoargcom{\defval{#2}{#1}}}}

\defcomclsgrp ... to do!
 • \defcomclsgrp{CompClass};

 \CompClass[sub][sup][arg] = COMPCLASSSUB(ARG)
 \CoCompClass[sub][sup][arg] = COCOMPCLASSSUB(ARG)
 \CompClassE[sub][sup][arg] = COMPCLASS-EASYSUB(ARG)
 \CoCompClassE[sub][sup][arg] = COCOMPCLASS-EASYSUB(ARG)
 \CompClassH[sub][sup][arg] = COMPCLASS-HARDSUB(ARG)
 \CoCompClassH[sub][sup][arg] = COCOMPCLASS-HARDSUB(ARG)
 \CompClassC[sub][sup][arg] = COMPCLASS-COMPLETESUB(ARG)
 \CoCompClassC[sub][sup][arg] = COCOMPCLASS-COMPLETESUB(ARG)

 \DCompClass[sub][sup][arg] = DCOMPCLASSSUB(ARG)
 \CoDCompClass[sub][sup][arg] = CODCOMPCLASSSUB(ARG)
 \DCompClassE[sub][sup][arg] = DCOMPCLASS-EASYSUB(ARG)
 \CoDCompClassE[sub][sup][arg] = CODCOMPCLASS-EASYSUB(ARG)
 \DCompClassH[sub][sup][arg] = DCOMPCLASS-HARDSUB(ARG)
 \CoDCompClassH[sub][sup][arg] = CODCOMPCLASS-HARDSUB(ARG)
 \DCompClassC[sub][sup][arg] = DCOMPCLASS-COMPLETESUB(ARG)
 \CoDCompClassC[sub][sup][arg] = CODCOMPCLASS-COMPLETESUB(ARG)

 \NCompClass[sub][sup][arg] = NCOMPCLASSSUB(ARG)
 \CoNCompClass[sub][sup][arg] = CONCOMPCLASSSUB(ARG)
 \NCompClassE[sub][sup][arg] = NCOMPCLASS-EASYSUB(ARG)
 \CoNCompClassE[sub][sup][arg] = CONCOMPCLASS-EASYSUB(ARG)
 \NCompClassH[sub][sup][arg] = NCOMPCLASS-HARDSUB(ARG)
 \CoNCompClassH[sub][sup][arg] = CONCOMPCLASS-HARDSUB(ARG)
 \NCompClassC[sub][sup][arg] = NCOMPCLASS-COMPLETESUB(ARG)
 \CoNCompClassC[sub][sup][arg] = CONCOMPCLASS-COMPLETESUB(ARG)

 \UCompClass[sub][sup][arg] = UCOMPCLASSSUB(ARG)
 \CoUCompClass[sub][sup][arg] = COUCOMPCLASSSUB(ARG)
 \UCompClassE[sub][sup][arg] = UCOMPCLASS-EASYSUB(ARG)
 \CoUCompClassE[sub][sup][arg] = COUCOMPCLASS-EASYSUB(ARG)
 \UCompClassH[sub][sup][arg] = UCOMPCLASS-HARDSUB(ARG)
 \CoUCompClassH[sub][sup][arg] = COUCOMPCLASS-HARDSUB(ARG)
 \UCompClassC[sub][sup][arg] = UCOMPCLASS-COMPLETESUB(ARG)
 \CoUCompClassC[sub][sup][arg] = COUCOMPCLASS-COMPLETESUB(ARG)

 \ACompClass[sub][sup][arg] = ACOMPCLASSSUB(ARG)

```

```

\CoACompClass[sub][sup][arg] = CoACOMPCLASSSUB(ARG)
\ACompClassE[sub][sup][arg] = ACOMPCLASS-EASYSUB(ARG)
\CoACompClassE[sub][sup][arg] = CoACOMPCLASS-EASYSUB(ARG)
\ACompClassH[sub][sup][arg] = ACOMPCLASS-HARDSUB(ARG)
\CoACompClassH[sub][sup][arg] = CoACOMPCLASS-HARDSUB(ARG)
\ACompClassC[sub][sup][arg] = ACOMPCLASS-COMPLETESUB(ARG)
\CoACompClassC[sub][sup][arg] = CoACOMPCLASS-COMPLETESUB(ARG)
• \defcomclsgrp{CompClass}[NewClass];

\CompClass[sub][sup][arg] = NEWCLASSSUB(ARG)
\CoCompClass[sub][sup][arg] = CoNEWCLASSSUB(ARG)
\CompClassE[sub][sup][arg] = NEWCLASS-EASYSUB(ARG)
\CoCompClassE[sub][sup][arg] = CoNEWCLASS-EASYSUB(ARG)
\CompClassH[sub][sup][arg] = NEWCLASS-HARDSUB(ARG)
\CoCompClassH[sub][sup][arg] = CoNEWCLASS-HARDSUB(ARG)
\CompClassC[sub][sup][arg] = NEWCLASS-COMPLETESUB(ARG)
\CoCompClassC[sub][sup][arg] = CoNEWCLASS-COMPLETESUB(ARG)

\DCompClass[sub][sup][arg] = DNEWCLASSSUB(ARG)
\CoDCompClass[sub][sup][arg] = CoDNEWCLASSSUB(ARG)
\DCompClassE[sub][sup][arg] = DNEWCLASS-EASYSUB(ARG)
\CoDCompClassE[sub][sup][arg] = CoDNEWCLASS-EASYSUB(ARG)
\DCompClassH[sub][sup][arg] = DNEWCLASS-HARDSUB(ARG)
\CoDCompClassH[sub][sup][arg] = CoDNEWCLASS-HARDSUB(ARG)
\DCompClassC[sub][sup][arg] = DNEWCLASS-COMPLETESUB(ARG)
\CoDCompClassC[sub][sup][arg] = CoDNEWCLASS-COMPLETESUB(ARG)

\NCompClass[sub][sup][arg] = NNEWCLASSSUB(ARG)
\CoNCompClass[sub][sup][arg] = CoNNEWCLASSSUB(ARG)
\NCompClassE[sub][sup][arg] = NNEWCLASS-EASYSUB(ARG)
\CoNCompClassE[sub][sup][arg] = CoNNEWCLASS-EASYSUB(ARG)
\NCompClassH[sub][sup][arg] = NNEWCLASS-HARDSUB(ARG)
\CoNCompClassH[sub][sup][arg] = CoNNEWCLASS-HARDSUB(ARG)
\NCompClassC[sub][sup][arg] = NNEWCLASS-COMPLETESUB(ARG)
\CoNCompClassC[sub][sup][arg] = CoNNEWCLASS-COMPLETESUB(ARG)

\UCompClass[sub][sup][arg] = UNEWCLASSSUB(ARG)
\CoUCompClass[sub][sup][arg] = CoUNEWCLASSSUB(ARG)
\UCompClassE[sub][sup][arg] = UNEWCLASS-EASYSUB(ARG)
\CoUCompClassE[sub][sup][arg] = CoUNEWCLASS-EASYSUB(ARG)
\UCompClassH[sub][sup][arg] = UNEWCLASS-HARDSUB(ARG)
\CoUCompClassH[sub][sup][arg] = CoUNEWCLASS-HARDSUB(ARG)
\UCompClassC[sub][sup][arg] = UNEWCLASS-COMPLETESUB(ARG)
\CoUCompClassC[sub][sup][arg] = CoUNEWCLASS-COMPLETESUB(ARG)

\ACompClass[sub][sup][arg] = ANEWCLASSSUB(ARG)
\CoACompClass[sub][sup][arg] = CoANEWCLASSSUB(ARG)
\ACompClassE[sub][sup][arg] = ANEWCLASS-EASYSUB(ARG)
\CoACompClassE[sub][sup][arg] = CoANEWCLASS-EASYSUB(ARG)
\ACompClassH[sub][sup][arg] = ANEWCLASS-HARDSUB(ARG)
\CoACompClassH[sub][sup][arg] = CoANEWCLASS-HARDSUB(ARG)
\ACompClassC[sub][sup][arg] = ANEWCLASS-COMPLETESUB(ARG)
\CoACompClassC[sub][sup][arg] = CoANEWCLASS-COMPLETESUB(ARG)

1055 \newcommandx{\defcomclsgrp}[2][2=]
1056 {\defcomclsgrpsem{#1}{\defval{#2}{#1}}%
1057 \defcomclsgrpsem{#1}{\defval{#2}{#1}}[Co]}
1058 \newcommandx{\defcomclsgrpsem}[3][3=]
1059 {\defcomclsgrpred{#3#1}{#2}{#3}%
1060 \defcomclsgrpred{#3D#1}{#2}{#3D}%
1061 \defcomclsgrpred{#3N#1}{#2}{#3N}%
1062 \defcomclsgrpred{#3U#1}{#2}{#3U}%
1063 \defcomclsgrpred{#3A#1}{#2}{#3A}}
1064 \newcommandx{\defcomclsgrpred}[3][3=]
1065 {\defcomclsgrpcmd{#1}{#2}{#3}%

```

```

1066 \defcomclsgrpcmd{#1E}{#2}{#3}[-easy]%
1067 \defcomclsgrpcmd{#1H}{#2}{#3}[-hard]%
1068 \defcomclsgrpcmd{#1C}{#2}{#3}[-complete]]%
1069 \newcommandx{\defcomclsgrpcmd}[4][3=, 4=]
1070 {\csdef{#1}{\txttoargcom{#3#2#4}}}

\defcomhrc ... to do!
 • \defcomhrc{CompHierarchy};

 CompHierarchy[sub][sup][par] = COMPHIERARCHYSUB[PAR]

 • \defcomhrc{CompHierarchy}[NewHierarchy];

 CompHierarchy[sub][sup][par] = NEWHIERARCHYSUB[PAR]

1071 \newcommandx{\defcomhrc}[2][2=]
1072 {\csdef{#1}{\txttoparcom{\defval{#2}{#1}}}}

1073 %%*****%

```

\Easy, \Hard, ...

```

1074 \cmdtxtcom{Easy}
1075 \cmdtxtcom{Hard}
1076 \cmdtxtcom{Complete}

1077 %%*****%

\FPT • \FPT[sub][sup][arg] = FPTSUB(ARG)
1078 \defcomcls{FPT}

1079 %%*****%

```

\Time, ...

```

 • \Time[sub][sup][arg] = TIMESUB(ARG)
 \TimeE[sub][sup][arg] = TIME-EASYSUB(ARG)
 \TimeH[sub][sup][arg] = TIME-HARDSUB(ARG)
 \TimeC[sub][sup][arg] = TIME-COMPLETESUB(ARG)

 • \DTime[sub][sup][arg] = DTIMESUB(ARG)
 \DTimeE[sub][sup][arg] = DTIME-EASYSUB(ARG)
 \DTimeH[sub][sup][arg] = DTIME-HARDSUB(ARG)
 \DTimeC[sub][sup][arg] = DTIME-COMPLETESUB(ARG)

 • \NTime[sub][sup][arg] = NTIMESUB(ARG)
 \NTimeE[sub][sup][arg] = NTIME-EASYSUB(ARG)
 \NTimeH[sub][sup][arg] = NTIME-HARDSUB(ARG)
 \NTimeC[sub][sup][arg] = NTIME-COMPLETESUB(ARG)

 • \UTime[sub][sup][arg] = UTIMESUB(ARG)
 \UTimeE[sub][sup][arg] = UTIME-EASYSUB(ARG)
 \UTimeH[sub][sup][arg] = UTIME-HARDSUB(ARG)
 \UTimeC[sub][sup][arg] = UTIME-COMPLETESUB(ARG)

 • \ATime[sub][sup][arg] = ATIMESUB(ARG)
 \ATimeE[sub][sup][arg] = ATIME-EASYSUB(ARG)
 \ATimeH[sub][sup][arg] = ATIME-HARDSUB(ARG)
 \ATimeC[sub][sup][arg] = ATIME-COMPLETESUB(ARG)

```

```

1080 \defcomclsgrp{Time}

```

\Space, ...

```

 • \Space[sub][sup][arg] = SPACESUB(ARG)
 \SpaceE[sub][sup][arg] = SPACE-EASYSUB(ARG)
 \SpaceH[sub][sup][arg] = SPACE-HARDSUB(ARG)
 \SpaceC[sub][sup][arg] = SPACE-COMPLETESUB(ARG)

 • \DSpace[sub][sup][arg] = DSPACESUB(ARG)
 \DSpaceE[sub][sup][arg] = DSPACE-EASYSUB(ARG)
 \DSpaceH[sub][sup][arg] = DSPACE-HARDSUB(ARG)
 \DSpaceC[sub][sup][arg] = DSPACE-COMPLETESUB(ARG)

```



\PTime, ...

- \PTime[sub][sup][arg] = PTIME<sub>SUB</sub><sup>SUP</sup>(ARG)
- \PTimeE[sub][sup][arg] = PTIME-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \PTimeH[sub][sup][arg] = PTIME-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \PTimeC[sub][sup][arg] = PTIME-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DPTIME[sub][sup][arg] = DPTIME<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DPTIMEE[sub][sup][arg] = DPTIME-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DPTIMEH[sub][sup][arg] = DPTIME-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DPTIMEC[sub][sup][arg] = DPTIME-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NPTime[sub][sup][arg] = NPTime<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NPTimeE[sub][sup][arg] = NPTime-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NPTimeH[sub][sup][arg] = NPTime-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NPTimeC[sub][sup][arg] = NPTime-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UPTIME[sub][sup][arg] = UPTIME<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UPTIMEE[sub][sup][arg] = UPTIME-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UPTIMEH[sub][sup][arg] = UPTIME-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UPTIMEC[sub][sup][arg] = UPTIME-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \APTime[sub][sup][arg] = APTime<sub>SUB</sub><sup>SUP</sup>(ARG)
- \APTimeE[sub][sup][arg] = APTime-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \APTimeH[sub][sup][arg] = APTime-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \APTimeC[sub][sup][arg] = APTime-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)

1084 \defcomclsgrp{PTime}

\PSpace, ...

- \PSpace[sub][sup][arg] = PSPACE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \PSpaceE[sub][sup][arg] = PSPACE-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \PSpaceH[sub][sup][arg] = PSPACE-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \PSpaceC[sub][sup][arg] = PSPACE-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DPSpace[sub][sup][arg] = DPSpace<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DPSpaceE[sub][sup][arg] = DPSpace-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DPSpaceH[sub][sup][arg] = DPSpace-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DPSpaceC[sub][sup][arg] = DPSpace-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NPSpace[sub][sup][arg] = NPSpace<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NPSpaceE[sub][sup][arg] = NPSpace-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NPSpaceH[sub][sup][arg] = NPSpace-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NPSpaceC[sub][sup][arg] = NPSpace-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UPSpace[sub][sup][arg] = UPSPACE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UPSpaceE[sub][sup][arg] = UPSPACE-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UPSpaceH[sub][sup][arg] = UPSPACE-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UPSpaceC[sub][sup][arg] = UPSPACE-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \APSpace[sub][sup][arg] = APSpace<sub>SUB</sub><sup>SUP</sup>(ARG)
- \APSpaceE[sub][sup][arg] = APSpace-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \APSpaceH[sub][sup][arg] = APSpace-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \APSpaceC[sub][sup][arg] = APSpace-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)

1085 \defcomclsgrp{PSpace}

\QPTIME, ...

- \QPTIME[sub][sup][arg] = QPTIME<sub>SUB</sub><sup>SUP</sup>(ARG)
- \QPTIMEE[sub][sup][arg] = QPTIME-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \QPTIMEH[sub][sup][arg] = QPTIME-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \QPTIMEC[sub][sup][arg] = QPTIME-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DQPTIME[sub][sup][arg] = DQPTIME<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DQPTIMEE[sub][sup][arg] = DQPTIME-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DQPTIMEH[sub][sup][arg] = DQPTIME-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \DQPTIMEC[sub][sup][arg] = DQPTIME-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NQPTIME[sub][sup][arg] = NQPTIME<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NQPTIMEE[sub][sup][arg] = NQPTIME-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NQPTIMEH[sub][sup][arg] = NQPTIME-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \NQPTIMEC[sub][sup][arg] = NQPTIME-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UQPTIME[sub][sup][arg] = UQPTIME<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UQPTIMEE[sub][sup][arg] = UQPTIME-EASY<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UQPTIMEH[sub][sup][arg] = UQPTIME-HARD<sub>SUB</sub><sup>SUP</sup>(ARG)
- \UQPTIMEC[sub][sup][arg] = UQPTIME-COMPLETE<sub>SUB</sub><sup>SUP</sup>(ARG)





- $\backslash\text{NExpSpace}[\text{sub}][\text{sup}][\text{arg}] = \text{NEXPSPACE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{NExpSpaceE}[\text{sub}][\text{sup}][\text{arg}] = \text{NEXPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{NExpSpaceH}[\text{sub}][\text{sup}][\text{arg}] = \text{NEXPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{NExpSpaceC}[\text{sub}][\text{sup}][\text{arg}] = \text{NEXPSPACE-COMplete}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{UExpSpace}[\text{sub}][\text{sup}][\text{arg}] = \text{UEXPSPACE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{UExpSpaceE}[\text{sub}][\text{sup}][\text{arg}] = \text{UEXPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{UExpSpaceH}[\text{sub}][\text{sup}][\text{arg}] = \text{UEXPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{UExpSpaceC}[\text{sub}][\text{sup}][\text{arg}] = \text{UEXPSPACE-COMplete}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{AExpSpace}[\text{sub}][\text{sup}][\text{arg}] = \text{AEXPSPACE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{AExpSpaceE}[\text{sub}][\text{sup}][\text{arg}] = \text{AEXPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{AExpSpaceH}[\text{sub}][\text{sup}][\text{arg}] = \text{AEXPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{AExpSpaceC}[\text{sub}][\text{sup}][\text{arg}] = \text{AEXPSPACE-COMplete}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

```

1089 \defcomclsggrp{ExpSpace}

1090 %*****%

\PH • \PH[sub][sup][par] = PH_{SUB}^{SUP}[PAR]
1091 \defcomhrc{PH}

\WH • \WH[sub][sup][par] = W_{SUB}^{SUP}[PAR]
1092 \defcomhrc{WH}[W]

\AH • \AH[sub][sup][par] = A_{SUB}^{SUP}[PAR]
1093 \defcomhrc{AH}[A]

\DLH, \DBH • \DLH[sub][sup][par] = \Delta_{SUB}^{SUP}[PAR]
 • \DBH[sub][sup][par] = \Delta_{SUB}^{SUP}[PAR]
1094 \defcomhrc{DLH}[\{\mth{\Delta}\}]
1095 \defcomhrc{DBH}[\{\mth[mathbf]{\Delta}\}]

\ELH, \EBH • \ELH[sub][sup][par] = \Sigma_{SUB}^{SUP}[PAR]
 • \EBH[sub][sup][par] = \Sigma_{SUB}^{SUP}[PAR]
1096 \defcomhrc{ELH}[\{\mth{\Sigma}\}]
1097 \defcomhrc{EBH}[\{\mth[mathbf]{\Sigma}\}]

\ULH, \UBH • \ULH[sub][sup][par] = \Pi_{SUB}^{SUP}[PAR]
 • \UBH[sub][sup][par] = \Pi_{SUB}^{SUP}[PAR]
1098 \defcomhrc{ULH}[\{\mth{\Pi}\}]
1099 \defcomhrc{UBH}[\{\mth[mathbf]{\Pi}\}]

1100 \fi
1101 %*****%
1102 %*****%
1103 %** Macros for Games *****%
1104 %*****%
1105 \ifgam@
1106 %** Logic Games *****%

\SATG,
1107 % Satisfiability Games
1108 \cmdtxtoparname{SATG}[Sat]
1109
1110 % Validity Games
1111 \cmdtxtoparname{VALG}[Val]
1112
1113 % Evaluation Games
1114 \cmdtxtoparname{EVLG}[Evl]
1115
1116 % Synthesis Games
1117 \cmdtxtoparname{SYNG}[Syn]

```

```

1118
1119 %% Model-Checking Games
1120 \cmdtxttoparname{MCG}[MC]
1121
1122 %% Ehrenfeucht-Fraisse Games
1123 \cmdtxttoparname{EFG}[EF]

1124 %** Syntax *****%

```

\PlrSym, \OppSym ...

```

1125 \newcommand{\plrsym}{E}
1126 \cmdmthsym{Plr}[\plrsym]
1127 \newcommand{\oppsym}{A}
1128 \cmdmthsym{Opp}[\oppsym]

```

\ArenaName, ...

```

1129 \newcommand{\arenaname}{A}
1130 \usrmthlatupp{Arena}{Name}{name}[\arenaname]

```

\PosSet, ...

```

1131 \newcommand{\possym}{v}
1132 \newcommand{\posset}{Ps}
1133 \cmdmthsetext{Pos}[\posset][\possym]
1134 \cmdmthsymelm{ipos}[\possym_{I}]
1135 \cmdmthsymelm{fpos}[\possym_{F}]
1136 \cmdmthset{PPos}[\posset_{\PlrSym}]
1137 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1138 \cmdmthset{OPos}[\posset_{\OppSym}]
1139 \cmdmthsymelm{opos}[\possym_{\OppSym}]

```

\PlrFun ...

```

1140 \newcommand{\plrfun}{pl}
1141 \cmdmthfun{plr}[\plrfun]

```

\MovRel ...

```

1142 \newcommand{\movrel}{Mv}
1143 \cmdmthrel{Mov}[\movrel]

```

\GameName, ...

```

1144 \newcommand{\gamename}{Game}
1145 \usrmthlatupp{Game}{Name}{name}[\gamename]

```

\WinSet ...

```

1146 \newcommand{\winset}{Wn}
1147 \cmdmthset{Win}[\winset]

```

\ObsSet, \obsFun ...

```

1148 \newcommand{\obsset}{Ob}
1149 \cmdmthset{Obs}[\obsset]
1150 \cmdmthfun{obs}

```

```

1151 %** Semantics *****%

```

\PthSet, \pthFun ...

```

1152 \newcommand{\pthsym}{pi}
1153 \newcommand{\pthset}{Pth}
1154 \cmdmthsetext{Pth}[\pthset][\pthsym]
1155 \cmdmthfun{pth}

```

\HstSet, ...

```

1156 \newcommand{\hstsym}{rho}
1157 \newcommand{\hstset}{Hst}
1158 \cmdmthsetext{Hst}[\hstset][\hstsym]

```

```

1159 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1160 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1161 \cmdmthset{OHst}[\hstset_{\OppSym}]
1162 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1163 \cmdmthfun{hst}

\PlaySet, \playFun ...
1164 \newcommand{\playsym}{\pi}
1165 \newcommand{\playset}{\Play}
1166 \cmdmthsetext{Play}[\playset][\playsym]
1167 \cmdmthfun{play}

\StrSet,
1168 \newcommand{\strsym}{\sigma}
1169 \newcommand{\strset}{\Str}
1170 \cmdmthsetext{Str}[\strset][\strsym]
1171 \cmdmthset{PStr}[\strset_{\PlrSym}]
1172 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1173 \cmdmthset{OStr}[\strset_{\OppSym}]
1174 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1175 \newcommand{\prfsym}{\xi}
1176 \newcommand{\prfset}{\Prf}
1177 \cmdmthsetext{Prf}[\prfset][\prfsym]

\preFun, \sucFun ...
1178 \newcommand{\prefun}{\pre}
1179 \cmdmthoargfun{pre}[\prefun]
1180 \newcommand{\sucfun}{\suc}
1181 \cmdmthoargfun{suc}[\sucfun]

\entFun, \escFun ...
1182 \newcommand{\entfun}{\ent}
1183 \cmdmthoargfun{ent}[\entfun]
1184 \newcommand{\escfun}{\esc}
1185 \cmdmthoargfun{esc}[\escfun]

\intFun, \outFun ...
1186 \newcommand{\intfun}{\int}
1187 \cmdmthoargfun{int}[\intfun]
1188 \newcommand{\outfun}{\out}
1189 \cmdmthoargfun{out}[\outfun]

\atrFun, \rchFun ...
1190 \newcommand{\atrfun}{\atr}
1191 \cmdmthoargfun{atr}[\atrfun]
1192 \newcommand{\rchfun}{\rch}
1193 \cmdmthoargfun{rch}[\rchfun]

\liftFun ...
1194 \newcommand{\liftfun}{\lift}
1195 \cmdmthoargfun{lift}[\liftfun]

\solFun ...
1196 \newcommand{\solfun}{\sol}
1197 \cmdmthoargfun{sol}[\solfun]

1198 %** Qualitative Games on Graph *****%

```

```

\BG,
1199 %% Buchi Games
1200 \cmdtxttoparname{BG}
1201
1202 %% Co-Buchi Games
1203 \cmdtxttoparname{CG}
1204
1205 %% Parity Games
1206 \cmdtxttoparname{PG}
1207
1208 %% Rabin Games
1209 \cmdtxttoparname{RG}
1210
1211 %% Streett Games
1212 \cmdtxttoparname{SG}
1213
1214 %% Muller Games
1215 \cmdtxttoparname{MG}

1216 %** Syntax *****%%

\EvnSym, \OddSym ...
1217 \newcommand{\evnsym}{0}
1218 \cmdmthsym{Evnsym}[\evnsym]
1219 \newcommand{\oddsym}{1}
1220 \cmdmthsym{Oddsym}[\oddsym]

\PrtSet, \prtFun ...
1221 \newcommand{\prtsym}{p}
1222 \newcommand{\prtset}{Pr}
1223 \cmdmthsetext{Prt}[\prtset][\prtsym]
1224 \cmdmthfun{prt}[pr]

1225 %** Semantics *****%%
...
1226 %** Quantitative Games on Graph *****%%

\EG,
1227 %% Energy Games
1228 \cmdtxttoparname{EG}
1229
1230 %% Mean-Payoff Games
1231 \cmdtxttoparname{MPG}
1232
1233 %% Discounted-Payoff Games
1234 \cmdtxttoparname{DPG}

1235 %** Syntax *****%%

\MaxSym, \MinSym ...
1236 \newcommand{\maxsym}{\oplus}
1237 \cmdmthsym{Max}[\maxsym]
1238 \newcommand{\minsym}{\boxminus}
1239 \cmdmthsym{Min}[\minsym]

\WghSet, \wghFun ...
1240 \newcommand{\wghsym}{w}
1241 \newcommand{\wghset}{Wg}
1242 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1243 \cmdmthfun{wgh}[wg]

1244 %** Semantics *****%%

```

```

...
1245 \fi
1246 %*****
1247 %*****
1248 %** Macros for Logics *****
1249 %*****
1250 \iflog@
1251 %** Propositional Logics *****

\BF, \QBF,
1252 % Boolean Formulae
1253 \cmdtxttoparname{BF}
1254
1255 % Quantified Boolean Formulae
1256 \DeclareRobustCommand{\QBF}
1257 {\{\textname{Q}\}\BF}
1258 \DeclareRobustCommand{\EBF}
1259 {\ensuremath{\exists}\BF}
1260 \DeclareRobustCommand{\UBF}
1261 {\ensuremath{\forall}\BF}

1262 %** Syntax *****

\LogSig,
1263 \newcommand{\logsig}{L}
1264 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

\Tt, \Ff ...
1265 \newcommand{\ttsym}{\top}
1266 \usrmth{Tt}{\}{sym}[\ttsym]
1267 \newcommand{\ffsym}{\bot}
1268 \usrmth{Ff}{\}{sym}[\ffsym]

\LNeg, \LNot ...
1269 \newcommand{\lnegsym}{\neg}
1270 \usrmth{LNeg}{\}{luop}[\lnegsym]
1271 \newcommand{\lnotsym}{\sim}
1272 \usrmth{LNot}{\}{luop}[\lnotsym]

\LCon, \LDis ...
1273 \newcommand{\lconsym}{\land}
1274 \usrmth{LCon}{\}{lbop}[\lconsym]
1275 \newcommand{\ldissym}{\lor}
1276 \usrmth{LDis}{\}{lbop}[\ldissym]

\LImp, \LCoi ...
1277 \newcommand{\limpsym}{\rightarrow}
1278 \usrmth{LImp}{\}{lbop}[\limpsym]
1279 \newcommand{\lcoisym}{\leftrightarrow}
1280 \usrmth{LCoi}{\}{lbop}[\lcoisym]

\LExs, \LAll ...
1281 \newcommand{\lexssym}{\exists}
1282 \usrmth{LExs}{\}{luop}[\lexssym]
1283 \newcommand{\lallsym}{\forall}
1284 \usrmth{LAll}{\}{luop}[\lallsym]

\APSet,
1285 \newcommand{\apsym}{p}
1286 \newcommand{\apset}{AP}
1287 \cmdmthsetext{AP}[\apset] [\apsym]
1288 \cmdmthfun{ap}\usrmth{ap}{\}{argfun}

```

```

\sub ...
1289 \usrmth{sub}{-}{argfun}

\Cnt, \Qnt, \Sym ...
1290 \usrmth{Cnt}{-}{sym}[C]
1291 \usrmth{Qnt}{-}{sym}[Q]
1292 \usrmth{Sym}{-}{sym}[\odot]

\QAE, \QEA ...
1293 \usrmth{QAE}{-}{sym}[\forall\exists]
1294 \usrmth{QEA}{-}{sym}[\exists\forall]

\QntSet,
1295 \newcommand{\qntsym}{\wp}
1296 \newcommand{\qntset}{\Qn}
1297 \cmdmthsetext{Qnt}[\qntset][\qntsym]

\free, \bound ...
1298 \usrmth{free}{-}{argfun}
1299 \usrmth{bound}{-}{argfun}

\dep, \alt ...
1300 \usrmth{dep}{-}{argfun}
1301 \usrmth{alt}{-}{argfun}

\cnf, \dnf,
1302 \cmdtxtabr{cnf}
1303 \cmdtxtabr{dnf}
1304 \cmdtxtabr{pnf}
1305 \cmdtxtabr{nnf}

1306 %** Semantics *****%

\LogStr,
1307 \newcommand{\logstr}{L}
1308 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet,
1309 \newcommand{\valsym}{\xi}
1310 \newcommand{\valset}{Val}
1311 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet,
1312 \newcommand{\asgsym}{\chi}
1313 \newcommand{\asgset}{Asg}
1314 \cmdmthsetext{Asg}[\asgset][\asgsym]

1315 %** First-Order Logics I *****%

\FOL,
1316 % First-Order Logic
1317 \cmdtxtoparname{FOL}[Fol]
1318 \cmdtxtoparname{FO}[FO]
1319
1320 % Monadic First-Order Logic
1321 \DeclareRobustCommand{\MFOL}
1322 {\{\txname{M}\}\FOL}
1323 \DeclareRobustCommand{\MFO}
1324 {\{\txname{M}\}\FO}

1325 %** Syntax *****%

```

```

\VarSig,
1326 \newcommand{\varsig}{V}
1327 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1328 \newcommand{\varsym}{x}
1329 \newcommand{\varset}{Vr}
1330 \cmdmthsetext{Var}[\varset][\varsym]
1331 \usrmth{var}{}{argfun}[vr]
1332 \cmdmthfun{dim}[dm]\usrmth{dim}{}{argfun}[dm]

\ConSig,
1333 \newcommand{\consig}{C}
1334 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1335 \newcommand{\consym}{c}
1336 \newcommand{\conset}{Cn}
1337 \cmdmthsetext{Con}[\conset][\consym]
1338 \usrmth{con}{}{argfun}[cn]

\FunSig,
1339 \newcommand{\funsig}{F}
1340 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1341 \newcommand{\funsym}{f}
1342 \newcommand{\funset}{Fn}
1343 \cmdmthsetext{Fun}[\funset][\funsym]
1344 \usrmth{fun}{}{argfun}[fn]
1345 \cmdmthfun{art}[ar]\usrmth{art}{}{argfun}[ar]

\TerSig,
1346 \newcommand{\tersig}{T}
1347 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1348 \newcommand{\tersym}{t}
1349 \newcommand{\terset}{Tr}
1350 \cmdmthsetext{Ter}[\terset][\tersym]
1351 \usrmth{ter}{}{argfun}

\RelSig,
1352 \newcommand{\relsig}{R}
1353 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1354 \newcommand{\relsym}{r}
1355 \newcommand{\relset}{Rl}
1356 \cmdmthsetext{Rel}[\relset][\relsym]
1357 \usrmth{rel}{}{argfun}[rl]

\skm ...
1358 \usrmth{skm}{}{argfun}

1359 %** Semantics *****%

\ConStr,
1360 \newcommand{\constr}{C}
1361 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr,
1362 \newcommand{\funstr}{F}
1363 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr,
1364 \newcommand{\terstr}{T}
1365 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr,
1366 \newcommand{\relstr}{R}
1367 \usrmthlatupp{Rel}{Str}{str}[\relstr]

```



```

1368 %** First-Order Logics II *****%%
\DF, \IF,
1369 % Dependence-Friendly Logic
1370 \cmdtxtoparname{DF}
1371
1372 % Independence-Friendly Logic
1373 \cmdtxtoparname{IF}
1374
1375 % Dependence/Independence-Friendly Logic
1376 \cmdtxtoparname{DIF}
1377
1378 % Dependence Logic
1379 \cmdtxtoparname{DL}
1380
1381 % Team Logic
1382 \cmdtxtoparname{TL}
1383
1384 % Alternating Dependence-Friendly Logic
1385 \cmdtxtoparname{ADF}
1386
1387 % Alternating Independence-Friendly Logic
1388 \cmdtxtoparname{AIF}
1389
1390 % Alternating Dependence/Independence-Friendly Logic
1391 \cmdtxtoparname{ADIF}
...
1392 %** Syntax *****%%

\LEExs, \LAA11 ...
1393 \newcommand{\leexssym}{\Sigma}
1394 \usrmth{LEExs}{\luop}{\leexssym}
1395 \newcommand{\laallsym}{\Pi}
1396 \usrmth{LAA11}{\luop}{\laallsym}

1397 %** Semantics *****%%
...
1398 %** Second-Order Logics I *****%%

\SOL,
1399 % Second-Order Logic
1400 \cmdtxtoparname{SOL}[Sol]
1401 \cmdtxtoparname{SO}
1402
1403 % Weak Second-Order Logic
1404 \DeclareRobustCommand{\WSOL}
1405 {\{\txtname{W}\}\SOL}
1406 \DeclareRobustCommand{\WSO}
1407 {\{\txtname{W}\}\SO}
1408
1409 % coWeak Second-Order Logic
1410 \DeclareRobustCommand{\coWSOL}
1411 {\{\txtname{coW}\}\SOL}
1412 \DeclareRobustCommand{\coWSO}
1413 {\{\txtname{coW}\}\SO}
1414
1415 % Monadic Second-Order Logic
1416 \DeclareRobustCommand{\MSOL}
1417 {\{\txtname{M}\}\SOL}
1418 \DeclareRobustCommand{\MSO}
1419 {\{\txtname{M}\}\SO}

```

```

1420
1421 % Weak Monadic Second-Order Logic
1422 \DeclareRobustCommand{\WMSOL}
1423 {\txtname{W}}\MSOL}
1424 \DeclareRobustCommand{\WMSO}
1425 {\txtname{W}}\MSO}
1426
1427 % coWeak Monadic Second-Order Logic
1428 \DeclareRobustCommand{\coWMSOL}
1429 {\txtname{coW}}\MSOL}
1430 \DeclareRobustCommand{\coWMSO}
1431 {\txtname{coW}}\MSO}

1432 %** Syntax *****%

\FVarSet,
1433 \newcommand{\fvarsym}{x}
1434 \newcommand{\fvarset}{FVr}
1435 \cmdmthsettext{FVar}[\fvarset][\fvarsym]

\SVarSet,
1436 \newcommand{\svarsym}{X}
1437 \newcommand{\svarset}{SVr}
1438 \cmdmthsettext{SVar}[\svarset][\svarsym]

1439 %** Semantics *****%
...

1440 %** Second-Order Logics II *****%

\TL, \PL,
1441 % Tree Logic
1442 \cmdtxttoparname{TL}
1443
1444 % Weak Tree Logic
1445 \DeclareRobustCommand{\WTL}
1446 {\txtname{W}}\TL}
1447
1448 % coWeak Tree Logic
1449 \DeclareRobustCommand{\coWTL}
1450 {\txtname{coW}}\TL}
1451
1452 % Monadic Tree Logic
1453 \DeclareRobustCommand{\MTL}
1454 {\txtname{M}}\TL}
1455
1456 % Weak Monadic Tree Logic
1457 \DeclareRobustCommand{\WMTL}
1458 {\txtname{W}}\MTL}
1459
1460 % coWeak Monadic Tree Logic
1461 \DeclareRobustCommand{\coWMTL}
1462 {\txtname{coW}}\MTL}
1463
1464 % Path Logic
1465 \cmdtxttoparname{PL}
1466
1467 % Weak Path Logic
1468 \DeclareRobustCommand{\WPL}
1469 {\txtname{W}}\PL}
1470
1471 % coWeak Path Logic
1472 \DeclareRobustCommand{\coWPL}
1473 {\txtname{coW}}\PL}

```

```

1474
1475 % Monadic Path Logic
1476 \DeclareRobustCommand{\MPL}
1477 {\txtname{M}}\PL}
1478
1479 % Weak Monadic Path Logic
1480 \DeclareRobustCommand{\WMPL}
1481 {\txtname{W}}\MPL}
1482
1483 % coWeak Monadic Path Logic
1484 \DeclareRobustCommand{\coWMPL}
1485 {\txtname{coW}}\MPL}
1486 %** Syntax *****%
...
1487 %** Semantics *****%
...
1488 %** Modal Logics I *****%

\ML, \GML,
1489 % Modal Logic
1490 \cmdtxttoparname{ML}
1491
1492 % Graded Modal Logic
1493 \DeclareRobustCommand{\GML}
1494 {\txtname{G}}\ML}
1495
1496 % Quantified Modal Logic
1497 \DeclareRobustCommand{\QML}
1498 {\txtname{Q}}\ML}
1499 \DeclareRobustCommand{\EML}
1500 {\ensuremath{\exists}\ML}
1501 \DeclareRobustCommand{\UML}
1502 {\ensuremath{\forall}\ML}
1503 %** Syntax *****%

\Opr ...
1504 \usrmth{Opr}{\sym}[Op]

\DMod, \BMod ...
1505 \usrmth{DMod}{\sym}[\Diamond]
1506 \usrmth{BMod}{\sym}[\Box]

\Exs, \All ...
1507 \DeclareRobustCommand{\Exs}[1]
1508 {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1509 \DeclareRobustCommand{\All}[1]
1510 {\mth{\defval{\argmid{\left[}{#1}{\right]}}{\BMod}}}
1511 %** Semantics *****%

\KrpStr,
1512 \newcommand{\krpstr}{K}
1513 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

\WrlSet,
1514 \newcommand{\wrlsym}{w}
1515 \newcommand{\wrlset}{W}
1516 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
1517 \cmdmthsymelm{iwrl}[\wrlsym_{I}]

```

```

\AccRel, \TrnRel ...
1518 \newcommand{\accsym}{R}
1519 \cmdmthrel{Acc}[\accsym]
1520 \cmdmthrel{Trn}[\accsym]

\labFun ...
1521 \newcommand{\labsym}{\lambda}
1522 \cmdmthfun{lab}[\labsym]

\PthSet, \pthFun ...
1523 \providecommand{\pthsym}{\pi}
1524 \providecommand{\pthset}{Pth}
1525 \cmdmthsetext{Pth}[\pthset][\pthsym]
1526 \cmdmthfun{pth}

1527 %** Modal Logics II *****%%

\MC, \GMC,
1528 % Mu Calculus
1529 \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]
1530
1531 % Graded Mu Calculus
1532 \DeclareRobustCommand{\GMC}
1533 {\{\textrm{G}\}\MC}
1534
1535 % Quantified Mu Calculus
1536 \DeclareRobustCommand{\QMC}
1537 {\{\textrm{Q}\}\MC}
1538 \DeclareRobustCommand{\EMC}
1539 {\ensuremath{\exists}\MC}
1540 \DeclareRobustCommand{\UMC}
1541 {\ensuremath{\forall}\MC}
1542
1543 % Alternation-Free Mu Calculus
1544 \DeclareRobustCommand{\AFMC}
1545 {\{\textrm{AF}\}\MC}
1546
1547 % Alternation-Free Graded Mu Calculus
1548 \DeclareRobustCommand{\AFGMC}
1549 {\{\textrm{AF}\}\GMC}
1550
1551 % Quantified Alternation-Free Mu Calculus
1552 \DeclareRobustCommand{\QAFMC}
1553 {\{\textrm{Q}\}\AFMC}
1554 \DeclareRobustCommand{\EAFMC}
1555 {\ensuremath{\exists}\AFMC}
1556 \DeclareRobustCommand{\UAFMC}
1557 {\ensuremath{\forall}\AFMC}
1558

1559 %** Syntax *****%%

...

1560 %** Semantics *****%%

...

1561 %** Temporal Logics I *****%%

\PTL, \LTL,
1562 % Propositional Temporal Logic
1563 \cmdtxtoparname{PTL}
1564
1565 % Quantified Propositional Temporal Logic

```

```

1566 \DeclareRobustCommand{\QPTL}
1567 {\textname{Q}}\PTL}
1568 \DeclareRobustCommand{\EPTL}
1569 {\ensuremath{\exists}\PTL}
1570 \DeclareRobustCommand{\UPTL}
1571 {\ensuremath{\forall}\PTL}
1572
1573 % Linear Temporal Logic
1574 \cmdtxttoparname{LTL}
1575
1576 % Quantified Linear Temporal Logic
1577 \DeclareRobustCommand{\QLTL}
1578 {\textname{Q}}\LTL}
1579 \DeclareRobustCommand{\ELTL}
1580 {\ensuremath{\exists}\LTL}
1581 \DeclareRobustCommand{\ULTL}
1582 {\ensuremath{\forall}\LTL}
1583 %** Syntax *****%

```

\X, ... ..

```

1584 \usrmth{X}{}{sym}[X\,]
1585 \usrmth{F}{}{sym}[F\,]
1586 \usrmth{G}{}{sym}[G\,]
1587 \usrmth{U}{}{sym}[\,U\,]
1588 \usrmth{R}{}{sym}[\,R\,]

```

\Y, ... ..

```

1589 \usrmth{Y}{}{sym}[G\,]
1590 \usrmth{P}{}{sym}[P\,]\let\SavePildcrow\P
1591 \usrmth{H}{}{sym}[H\,]\let\SaveDoubleAcute\H
1592 \usrmth{S}{}{sym}[\,S\,]\let\SaveSectionSymbol\S
1593 \usrmth{B}{}{sym}[\,B\,]

```

```

1594 %** Semantics *****%

```

...

```

1595 %** Temporal Logics II *****%

```

\PDL, \CTL, ... ..

```

1596
1597 % Propositional Dynamic Logic
1598 \cmdtxttoparname{PDL}
1599
1600 % Computation Tree Logic
1601 \cmdtxttoparname{CTL}
1602
1603 % Weak Computation Tree Logic
1604 \DeclareRobustCommand{\WCTL}
1605 {\textname{W}}\CTL}
1606
1607 % Quantified Computation Tree Logic
1608 \DeclareRobustCommand{\QCTL}
1609 {\textname{Q}}\CTL}
1610 \DeclareRobustCommand{\ECTL}
1611 {\ensuremath{\exists}\CTL}
1612 \DeclareRobustCommand{\UCTL}
1613 {\ensuremath{\forall}\CTL}
1614
1615 % Improved Computation Tree Logic
1616 \cmdtxttoparname{CTLP}[CTL$^{+}$]
1617
1618 % Weak Improved Computation Tree Logic
1619 \DeclareRobustCommand{\WCTLP}

```

```

1620 {\txtname{W}}\CTLP}
1621
1622 % Quantified Improved Computation Tree Logic
1623 \DeclareRobustCommand{\QCTLP}
1624 {\txtname{Q}}\CTLP}
1625 \DeclareRobustCommand{\ECTLP}
1626 {\ensuremath{\exists}\CTLP}
1627 \DeclareRobustCommand{\UCTLP}
1628 {\ensuremath{\forall}\CTLP}
1629
1630 % Full Computation Tree Logic
1631 \cmdtxttoparname{CTLS}[CTL*]
1632
1633 % Weak Full Computation Tree Logic
1634 \DeclareRobustCommand{\WCTLS}
1635 {\txtname{W}}\CTLS}
1636
1637 % Quantified Full Computation Tree Logic
1638 \DeclareRobustCommand{\QCTLS}
1639 {\txtname{Q}}\CTLS}
1640 \DeclareRobustCommand{\ECTLS}
1641 {\ensuremath{\exists}\CTLS}
1642 \DeclareRobustCommand{\UCTLS}
1643 {\ensuremath{\forall}\CTLS}
1644 %** Syntax *****%

\E, \A ...
1645 \usrmth{E}{\sym}
1646 \usrmth{A}{\sym}
1647 %** Semantics *****%
...
1648 %** Strategic Logics I *****%

\ATL,
1649 % Alternating Temporal Logic
1650 \cmdtxttoparname{ATL}
1651
1652 % Weak Alternating Tree Logic
1653 \DeclareRobustCommand{\WATL}
1654 {\txtname{W}}\ATL}
1655
1656 % Quantified Alternating Temporal Logic
1657 \DeclareRobustCommand{\QATL}
1658 {\txtname{Q}}\ATL}
1659 \DeclareRobustCommand{\EATL}
1660 {\ensuremath{\exists}\ATL}
1661 \DeclareRobustCommand{\UATL}
1662 {\ensuremath{\forall}\ATL}
1663
1664 % Improved Alternating Temporal Logic
1665 \cmdtxttoparname{ATLP}[ATL$^{+}$]
1666
1667 % Weak Improved Alternating Tree Logic
1668 \DeclareRobustCommand{\WATLP}
1669 {\txtname{W}}\ATLP}
1670
1671 % Quantified Improved Alternating Temporal Logic
1672 \DeclareRobustCommand{\QATLP}
1673 {\txtname{Q}}\ATLP}
1674 \DeclareRobustCommand{\EATLP}
1675 {\ensuremath{\exists}\ATLP}

```

```

1676 \DeclareRobustCommand{\UATLP}
1677 {\ensuremath{\forall}\ATLP}
1678
1679 % Full Alternating Temporal Logic
1680 \cmdtxttoparname{ATLS}[ATL*]
1681
1682 % Weak Full Alternating Tree Logic
1683 \DeclareRobustCommand{\WATLS}
1684 {\txtname{W}\ATLS}
1685
1686 % Quantified Full Alternating Temporal Logic
1687 \DeclareRobustCommand{\QATLS}
1688 {\txtname{Q}\ATLS}
1689 \DeclareRobustCommand{\EATLS}
1690 {\ensuremath{\exists}\ATLS}
1691 \DeclareRobustCommand{\UATLS}
1692 {\ensuremath{\forall}\ATLS}
1693 %** Syntax *****%

\EExs, \AA11 ...
1694 \DeclareRobustCommand{\EExs}[1]
1695 {\mth{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1696 \DeclareRobustCommand{\AA11}[1]
1697 {\mth{\argmid{\left[\left[\defval{#1}{\emptyset}]{\right]\right}}}}
1698 %** Semantics *****%

\CGS ...
1699 \cmdtxtname{CGS}

\CGSStr,
1700 \newcommand{\cgsstr}{G}
1701 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet,
1702 \newcommand{\agnsym}{a}
1703 \newcommand{\agnset}{Ag}
1704 \cmdmthsetext{Agn}[\agnset][\agnsym]

\PosSet,
1705 \providecommand{\possym}{v}
1706 \providecommand{\posset}{Ps}
1707 \cmdmthsetext{Pos}[\posset][\possym]
1708 \cmdmthsymelm{ipos}[\possym_{I}]
1709 \cmdmthsymelm{fpos}[\possym_{F}]
1710 \cmdmthset{PPos}[\posset_{PlrSym}]
1711 \cmdmthsymelm{ppos}[\possym_{PlrSym}]
1712 \cmdmthset{OPos}[\posset_{OppSym}]
1713 \cmdmthsymelm{opos}[\possym_{OppSym}]

\SttSet,
1714 \newcommand{\sttsym}{s}
1715 \newcommand{\sttset}{St}
1716 \cmdmthsetext{Stt}[\sttset][\sttsym]
1717 \cmdmthset{IStt}[\sttset_{I}]
1718 \cmdmthsymelm{istt}[\sttsym_{I}]
1719 \cmdmthset{FStt}[\sttset_{F}]
1720 \cmdmthsymelm{fstt}[\sttsym_{F}]

\ActSet,
1721 \newcommand{\actsym}{c}
1722 \newcommand{\actset}{Ac}
1723 \cmdmthsetext{Act}[\actset][\actsym]

```

```

\DecSet,
1724 \newcommand{\decsym}{d}
1725 \newcommand{\decset}{Dc}
1726 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ...
1727 \newcommand{\movsym}{\tau}
1728 \cmdmthfun{mov}[\movsym]

\HstSet,
1729 \providecommand{\hstsym}{\rho}
1730 \providecommand{\hstset}{Hst}
1731 \cmdmthsetext{Hst}[\hstset][\hstsym]
1732 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1733 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1734 \cmdmthset{OHst}[\hstset_{\OppSym}]
1735 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1736 \cmdmthfun{hst}

\PlaySet, \playFun ...
1737 \providecommand{\playsym}{\pi}
1738 \providecommand{\playset}{Play}
1739 \cmdmthsetext{Play}[\playset][\playsym]
1740 \cmdmthfun{play}

\StrSet,
1741 \providecommand{\strsym}{\sigma}
1742 \providecommand{\strset}{Str}
1743 \cmdmthsetext{Str}[\strset][\strsym]
1744 \cmdmthset{PStr}[\strset_{\PlrSym}]
1745 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1746 \cmdmthset{OStr}[\strset_{\OppSym}]
1747 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1748 \providecommand{\prfsym}{\xi}
1749 \providecommand{\prfset}{Prf}
1750 \cmdmthsetext{Prf}[\prfset][\prfsym]

1751 %** Strategic Logics II *****%%

\SL,
1752 % Strategy Logic
1753 \cmdtxttoparname{SL}
1754
1755 \DeclareRobustCommand{\ESL}
1756 {\ensuremath{\exists}\SL}
1757 \DeclareRobustCommand{\USL}
1758 {\ensuremath{\forall}\SL}
1759
1760 \DeclareRobustCommand{\FSL}
1761 {\{\textname{F}\}\SL}
1762
1763 \DeclareRobustCommand{\EFSL}
1764 {\ensuremath{\exists}\FSL}
1765 \DeclareRobustCommand{\UFSL}
1766 {\ensuremath{\forall}\FSL}
1767
1768 % One-Goal Strategy Logic
1769 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
1770 {\SL[#1][#2][1g\arglef{,}{#3}]}
1771
1772 \DeclareRobustCommand{\EOGSL}

```



```

1773 {\ensuremath{\exists}\OGSL}
1774 \DeclareRobustCommand{\UOGSL}
1775 {\ensuremath{\forall}\OGSL}
1776
1777 \DeclareRobustCommand{\FOGSL}
1778 {\{\textname{F}\}\OGSL}
1779
1780 \DeclareRobustCommand{\EFOGSL}
1781 {\ensuremath{\exists}\FOGSL}
1782 \DeclareRobustCommand{\UFOGSL}
1783 {\ensuremath{\forall}\FOGSL}
1784
1785 % Conjunctive-Goal Strategy Logic
1786 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
1787 {\SL[#1][#2][cg\arglef{,}{#3}]}
1788
1789 \DeclareRobustCommand{\ECGSL}
1790 {\ensuremath{\exists}\CGSL}
1791 \DeclareRobustCommand{\UCGSL}
1792 {\ensuremath{\forall}\CGSL}
1793
1794 \DeclareRobustCommand{\FCGSL}
1795 {\{\textname{F}\}\xGSL}
1796
1797 \DeclareRobustCommand{\EFCGSL}
1798 {\ensuremath{\exists}\FCGSL}
1799 \DeclareRobustCommand{\UFCGSL}
1800 {\ensuremath{\forall}\FCGSL}
1801
1802 % Disjunctive-Goal Strategy Logic
1803 \DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]
1804 {\SL[#1][#2][dg\arglef{,}{#3}]}
1805
1806 \DeclareRobustCommand{\EDGPL}
1807 {\ensuremath{\exists}\DGPL}
1808 \DeclareRobustCommand{\UDGPL}
1809 {\ensuremath{\forall}\DGPL}
1810
1811 \DeclareRobustCommand{\FDGPL}
1812 {\{\textname{F}\}\xGSL}
1813
1814 \DeclareRobustCommand{\EFDGPL}
1815 {\ensuremath{\exists}\FDGPL}
1816 \DeclareRobustCommand{\UFDGPL}
1817 {\ensuremath{\forall}\FDGPL}
1818
1819 % Alternating-Goal Strategy Logic
1820 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
1821 {\SL[#1][#2][ag\arglef{,}{#3}]}
1822
1823 \DeclareRobustCommand{\EAGSL}
1824 {\ensuremath{\exists}\AGSL}
1825 \DeclareRobustCommand{\UAGSL}
1826 {\ensuremath{\forall}\AGSL}
1827
1828 \DeclareRobustCommand{\FAGSL}
1829 {\{\textname{F}\}\xGSL}
1830
1831 \DeclareRobustCommand{\EFAGSL}
1832 {\ensuremath{\exists}\FAGSL}
1833 \DeclareRobustCommand{\UFAGSL}
1834 {\ensuremath{\forall}\FAGSL}
1835

```

```

1836 % Extended-Goal Strategy Logic
1837 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
1838 {\SL[#1][#2][eg\arglef{,}{#3}]}
1839
1840 \DeclareRobustCommand{\EEGSL}
1841 {\ensuremath{\exists}\EGSL}
1842 \DeclareRobustCommand{\UEGSL}
1843 {\ensuremath{\forall}\EGSL}
1844
1845 \DeclareRobustCommand{\FEGSL}
1846 {\{\txtname{F}\}\xGSL}
1847
1848 \DeclareRobustCommand{\EFEGSL}
1849 {\ensuremath{\exists}\FEGSL}
1850 \DeclareRobustCommand{\UFEGSL}
1851 {\ensuremath{\forall}\FEGSL}
1852
1853 % Boolean-Goal Strategy Logic
1854 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
1855 {\SL[#1][#2][bg\arglef{,}{#3}]}
1856
1857 \DeclareRobustCommand{\EBGSL}
1858 {\ensuremath{\exists}\BGSL}
1859 \DeclareRobustCommand{\UBGSL}
1860 {\ensuremath{\forall}\BGSL}
1861
1862 \DeclareRobustCommand{\FBGSL}
1863 {\{\txtname{F}\}\xGSL}
1864
1865 \DeclareRobustCommand{\EFBGSL}
1866 {\ensuremath{\exists}\FBGSL}
1867 \DeclareRobustCommand{\UFBGSL}
1868 {\ensuremath{\forall}\FBGSL}
1869
1870 % Nested-Goal Strategy Logic
1871 \DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
1872 {\SL[#1][#2][ng\arglef{,}{#3}]}
1873
1874 \DeclareRobustCommand{\ENGSL}
1875 {\ensuremath{\exists}\NGSL}
1876 \DeclareRobustCommand{\UNGSL}
1877 {\ensuremath{\forall}\NGSL}
1878
1879 \DeclareRobustCommand{\FNGSL}
1880 {\{\txtname{F}\}\xGSL}
1881
1882 \DeclareRobustCommand{\EFNGSL}
1883 {\ensuremath{\exists}\FNGSL}
1884 \DeclareRobustCommand{\UFNGSL}
1885 {\ensuremath{\forall}\FNGSL}
1886
1887 % Undefined-Goal Strategy Logic
1888 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
1889 {\SL[#1][#2][xg\arglef{,}{#3}]}
1890
1891 \DeclareRobustCommand{\EXGSL}
1892 {\ensuremath{\exists}\XGSL}
1893 \DeclareRobustCommand{\UXGSL}
1894 {\ensuremath{\forall}\XGSL}
1895
1896 \DeclareRobustCommand{\FXGSL}
1897 {\{\txtname{F}\}\xGSL}
1898

```

```

1899 \DeclareRobustCommand{\EFXGSL}
1900 {\ensuremath{\exists}\FXGSL}
1901 \DeclareRobustCommand{\UFXGSL}
1902 {\ensuremath{\forall}\FXGSL}

1903 %%** Syntax *****%%

\BndSet,
1904 \newcommand{\bndsym}{\flat}
1905 \newcommand{\bndset}{\Bn}
1906 \cmdmthsetext{Bnd}[\bndset][\bndsym]
1907 \usrmth{bnd}{-}{argfun}

\psn ...
1908 \usrmth{psn}{-}{argfun}

1909 %%** Semantics *****%%

\nxtFun ...
1910 \newcommand{\nxtfun}{nxt}
1911 \cmdmthfun{nxt}[\nxtfun]

1912 \fi
1913 %*****%%
1914 %*****%%
1915 %%** Macros for Automata *****%%
1916 %*****%%
1917 \ifaut@

1918 %%** Finite Word Automata *****%%

\DFA,
1919 \cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}
1920
1921 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
1922
1923 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
1924 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
1925 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
1926 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
1927 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
1928 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
1929 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

\GFG, \PD,
1930 \cmdtxtoparname{GFG}
1931
1932 \cmdtxtoparname{PD}
1933
1934 %% ...

1935 %%** Syntax *****%%

\AutName,
1936 \newcommand{\autname}{A}
1937 \usrmthlatupp{Aut}{Name}{name}[\autname]
1938 \newcommand{\autset}{Aut}
1939 \cmdmthset{Aut}[\autset]

\WAutSet ...
1940 \newcommand{\wautset}{WAut}
1941 \cmdmthset{WAut}[\wautset]

```

```

\SttSet,
1942 \def\sttsym{q}
1943 \def\sttset{Q}
1944 \cmdmthsetext{Stt}[\sttset][\sttsym]
1945 \cmdmthset{IStt}[\sttset_{I}]
1946 \cmdmthsymelm{istt}[\sttsym_{I}]
1947 \cmdmthset{FStt}[\sttset_{F}]
1948 \cmdmthsymelm{fstt}[\sttsym_{F}]

\SymSet,
1949 \newcommand{\symsym}{\sigma}
1950 \newcommand{\symset}{\Sigma}
1951 \cmdmthsetext{Sym}[\symset][\symsym]

\trnFun ...
1952 \newcommand{\trnsym}{\delta}
1953 \cmdmthfun{trn}[\trnsym]

1954 %** Semantics *****%

\LangFun ...
1955 \newcommand{\langfun}{L}
1956 \cmdmthfun{Lang}[\langfun]

\WrdSet,
1957 \newcommand{\wrdsym}{w}
1958 \newcommand{\wrddset}{Wr}
1959 \cmdmthsetext{Wrd}[\wrddset][\wrdsym]

1960 %** Finite Tree Automata *****%

\DTA,
1961 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
1962
1963 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
1964 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
1965 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
1966 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
1967 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
1968 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
1969 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}

1970 %** Syntax *****%

\TAutSet ...
1971 \newcommand{\tautset}{TAut}
1972 \cmdmthset{TAut}[\tautset]

\DirSet,
1973 \newcommand{\dirsym}{d}
1974 \newcommand{\dirset}{\Lambda}
1975 \cmdmthsetext{Dir}[\dirset][\dirsym]

1976 %** Semantics *****%

\TreeSet,
1977 \newcommand{\treesym}{T}
1978 \newcommand{\treeset}{Tr}
1979 \cmdmthsetext{Tree}[\treeset][\treesym]

\wotFun ...
1980 \newcommand{\wotfun}{wot}
1981 \cmdmthfun{wot}[\wotfun]

```

```

1982 \fi
1983 %%*****%
1984 %%*****%
1985 %%** Format Tricks *****%
1986 %%*****%
1987 \iffirm@

... ..

1988 %%...

1989 \fi
1990 %%*****%
1991 %%*****%
1992 %%** Figure Tricks *****%
1993 %%*****%
1994 \iffig@

1995 \RequirePackage{tikz}
1996 \usetikzlibrary{arrows,graphs,matrix,patterns,shapes}

1997 \tikzstyle{every node} =
1998 [draw = none, fill = none, black, thin]
1999 \tikzstyle{every edge} +=
2000 [black, thick]

2001 \tikzstyle{noall} =
2002 [draw = none, fill = none]
2003 \tikzstyle{nodraw} =
2004 [draw = none, fill = white]
2005 \tikzstyle{nofill} =
2006 [draw = black, fill = none]

2007 \ifwrpfig@
2008 % Wrapfig Package
2009 \RequirePackage{wrapfig}
2010 \fi

2011 \fi
2012 %%*****%
2013 %%*****%
2014 %%** Table Tricks *****%
2015 %%*****%
2016 \iftab@

... ..

2017 %%...

2018 \fi
2019 %%*****%
2020 %%*****%
2021 %%** Algorithm Tricks *****%
2022 %%*****%
2023 \ifalg@

2024 \RequirePackage[ruled,vlined]{algorithm2e}
2025 \DontPrintSemicolon
2026 \SetInd{0.25em}{0.5em}
2027 \setlength{\algomargin}{1.25em}

\Signature ...

2028 \SetKw{Signature}{signature}

\Macro,

2029 \SetKwFor{Macro}{macro}{}{}
2030 \SetKwFor{Function}{function}{}{}
2031 \SetKwFor{Procedure}{procedure}{}{}

```

```

\Let ...
2032 \SetKwFor{Let}{let}{in}{}

\True, \False ...
2033 \SetKw{True}{true}
2034 \SetKw{False}{false}

\From,
2035 \SetKw{From}{from}
2036 \SetKw{To}{to}
2037 \SetKw{DownTo}{downto}

\GoTo,
2038 \SetKw{GoTo}{goto}
2039 \SetKw{Break}{break}
2040 \SetKw{Continue}{continue}

\MIf,
2041 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
2042 \DeclareRobustCommand{\nlr}[1]
2043 {\addtocounter{AlgoLine}{1}%
2044 \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

2045 \fi
2046 %%*****%
2047 \endinput
2048 \</package>

```

## 2 Change History

|       |                                                    |      |                                                               |
|-------|----------------------------------------------------|------|---------------------------------------------------------------|
| v0.0  | General: First public release . . . . . 1          | v0.2 | General: Changes in ‘Auxiliary tricks’ . . . . . 1            |
| v0.1  | General: Algorithm tricks . . . . . 1              | v0.3 | General: Few problems solved . . . . . 1                      |
| v0.10 | General: Small refinements . . . . . 1             | v0.4 | General: Refactoring, corrections, and extensions . . . . . 1 |
| v0.11 | General: Few additions and corrections . . . . . 1 | v0.5 | General: Figure tricks . . . . . 1                            |
| v0.12 | General: New starred variants . . . . . 1          | v0.6 | General: Small refinements . . . . . 1                        |
| v0.13 | General: Further starred variants . . . . . 1      | v0.7 | General: Refinements, corrections, and extensions . . . . . 1 |
| v0.14 | General: Few additions and corrections . . . . . 1 | v0.8 | General: Few refinements and corrections . . . 1              |
| v0.15 | General: Refactoring of dtx sources . . . . . 1    | v0.9 | General: Small addition to ‘Algorithm tricks’ 1               |
| v0.16 | General: Small refinements and few additions 1     |      |                                                               |

## 3 Index

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

| Symbols         |                                                                                                                                                                                                                       |                  |                        |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------|
| \!              | 355, 379, 825, 914, 1695                                                                                                                                                                                              | \@sequence       | 859                    |
| \"              | 783, 784                                                                                                                                                                                                              | \@sequence1      | 863                    |
| \#              | 2041                                                                                                                                                                                                                  | \@sequencer      | 867                    |
| \,              | 910, 914, 1031, 1034, 1035, 1584, 1585, 1586, 1587, 1588, 1589, 1590, 1591, 1592, 1593                                                                                                                                | \@sequencecx     | 871                    |
| \...            | 1988, 2017                                                                                                                                                                                                            | \@sequencecx1    | 875                    |
| \@abs           | 1011, 1012                                                                                                                                                                                                            | \@sequencecxr    | 879                    |
| \@card          | 920, 921                                                                                                                                                                                                              | \@set            | 908, 909               |
| \@ceil          | 1023, 1024                                                                                                                                                                                                            | \@set1           | 912, 913               |
| \@denot         | 837, 838                                                                                                                                                                                                              | \@setr           | 916, 917               |
| \@floor         | 1019, 1020                                                                                                                                                                                                            | \@snewmtharg     | 353, 356               |
| \@for           | 171, 175                                                                                                                                                                                                              | \@snewmthargsty  | 359, 362               |
| \@ifstar        | 353, 359, 365, 371, 377, 383, 389, 395, 406, 408, 410, 412, 420, 423, 426, 429, 435, 808, 812, 837, 850, 859, 863, 867, 871, 875, 879, 883, 887, 891, 895, 899, 903, 908, 912, 916, 920, 1011, 1015, 1019, 1023, 1042 | \@snewmthoarg    | 365, 368               |
| \@len           | 1042, 1043                                                                                                                                                                                                            | \@snewmthoargsty | 371, 374               |
| \@newmtharg     | 353, 354                                                                                                                                                                                                              | \@snewmthopar    | 389, 392               |
| \@newmthargsty  | 359, 360                                                                                                                                                                                                              | \@snewmthoparsty | 395, 398               |
| \@newmthoarg    | 365, 366                                                                                                                                                                                                              | \@snewmthpar     | 377, 380               |
| \@newmthoargsty | 371, 372                                                                                                                                                                                                              | \@snewmthparsty  | 383, 386               |
| \@newmthopar    | 389, 390                                                                                                                                                                                                              | \@ssequence      | 859                    |
| \@newmthoparsty | 395, 396                                                                                                                                                                                                              | \@ssequence1     | 863                    |
| \@newmthpar     | 377, 378                                                                                                                                                                                                              | \@ssequencer     | 867                    |
| \@newmthparsty  | 383, 384                                                                                                                                                                                                              | \@ssequencecx    | 871                    |
| \@norm          | 1015, 1016                                                                                                                                                                                                            | \@ssequencecx1   | 875                    |
|                 |                                                                                                                                                                                                                       | \@ssequencecxr   | 879                    |
|                 |                                                                                                                                                                                                                       | \@stuple         | 883                    |
|                 |                                                                                                                                                                                                                       | \@stuple1        | 887                    |
|                 |                                                                                                                                                                                                                       | \@stupler        | 891                    |
|                 |                                                                                                                                                                                                                       | \@stuplex        | 895                    |
|                 |                                                                                                                                                                                                                       | \@stuplex1       | 899                    |
|                 |                                                                                                                                                                                                                       | \@stuplexr       | 903                    |
|                 |                                                                                                                                                                                                                       | \@svec           | 850, 853               |
|                 |                                                                                                                                                                                                                       | \@tuple          | 883                    |
|                 |                                                                                                                                                                                                                       | \@tuple1         | 887                    |
|                 |                                                                                                                                                                                                                       | \@tupler         | 891                    |
|                 |                                                                                                                                                                                                                       | \@tuplex         | 895                    |
|                 |                                                                                                                                                                                                                       | \@tuplex1        | 899                    |
|                 |                                                                                                                                                                                                                       | \@tuplexr        | 903                    |
|                 |                                                                                                                                                                                                                       | \@vec            | 850, 851               |
|                 |                                                                                                                                                                                                                       | \^               | 785, 787               |
|                 |                                                                                                                                                                                                                       |                  |                        |
|                 |                                                                                                                                                                                                                       | <b>A</b>         |                        |
|                 |                                                                                                                                                                                                                       | \abs, \norm      | 1010                   |
|                 |                                                                                                                                                                                                                       | \AccRel, \TrnRel | 1518                   |
|                 |                                                                                                                                                                                                                       | \accsym          | 1518, 1519, 1520       |
|                 |                                                                                                                                                                                                                       | \ACls, \...      | 546                    |
|                 |                                                                                                                                                                                                                       | \actset          | 1722, 1723             |
|                 |                                                                                                                                                                                                                       | \ActSet, \...    | 1721                   |
|                 |                                                                                                                                                                                                                       | \actsym          | 1721, 1723             |
|                 |                                                                                                                                                                                                                       | \addtocounter    | 2043, 2044             |
|                 |                                                                                                                                                                                                                       | \adhoc           | 743                    |
|                 |                                                                                                                                                                                                                       | \aElm, \...      | 643                    |
|                 |                                                                                                                                                                                                                       | \AFam, \...      | 533                    |
|                 |                                                                                                                                                                                                                       | \AFGMC           | 1548                   |
|                 |                                                                                                                                                                                                                       | \AFMC            | 1544, 1553, 1555, 1557 |
|                 |                                                                                                                                                                                                                       | \afortiori       | 766                    |
|                 |                                                                                                                                                                                                                       | \afortiori       | 744                    |
|                 |                                                                                                                                                                                                                       | \aFrm, \...      | 698                    |
|                 |                                                                                                                                                                                                                       | \aFun, \...      | 617                    |
|                 |                                                                                                                                                                                                                       | \agnset          | 1703, 1704             |
|                 |                                                                                                                                                                                                                       | \AgnSet, \...    | 1702                   |
|                 |                                                                                                                                                                                                                       | \agnsym          | 1702, 1704             |
|                 |                                                                                                                                                                                                                       | \AGSL            | 1820, 1824, 1826       |
|                 |                                                                                                                                                                                                                       | \AH              | 1093                   |
|                 |                                                                                                                                                                                                                       | \aka             | 789                    |
|                 |                                                                                                                                                                                                                       | \alg@false       | 121, 123               |
|                 |                                                                                                                                                                                                                       | \alg@true        | 122                    |
|                 |                                                                                                                                                                                                                       | \algomargin      | 2027                   |
|                 |                                                                                                                                                                                                                       | \Alpha, \...     | 139                    |
|                 |                                                                                                                                                                                                                       | \aMat, \...      | 712                    |

|                                         |                                                                                                                              |                                         |                                                                                                                                   |                                          |                                                                                                                                                                                                                                                        |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>\amsdef@false</code> . . . . .    | 17                                                                                                                           | <code>\bot</code> . . . . .             | 1267                                                                                                                              | <code>\cmdmthoargname</code> . . . . .   | 525                                                                                                                                                                                                                                                    |
| <code>\amsdef@true</code> . . . . .     | 16                                                                                                                           | <code>\Box</code> . . . . .             | 1506                                                                                                                              | <code>\cmdmthoargrel</code> . . . . .    | 609                                                                                                                                                                                                                                                    |
| <code>\amsthm@false</code> . . . . .    | 21                                                                                                                           | <code>\boxminus</code> . . . . .        | 1238                                                                                                                              | <code>\cmdmthoargset</code> . . . . .    | 590                                                                                                                                                                                                                                                    |
| <code>\amsthm@true</code> . . . . .     | 20                                                                                                                           | <code>\bst,□</code> . . . . .           | 1030                                                                                                                              | <code>\cmdmthoargsig</code> . . . . .    | 564                                                                                                                                                                                                                                                    |
| <code>\AName,□</code> . . . . .         | 520                                                                                                                          | <b>C</b>                                |                                                                                                                                   |                                          |                                                                                                                                                                                                                                                        |
| <code>\Aomega,□\AOmega</code> . . . . . | 955                                                                                                                          |                                         |                                                                                                                                   |                                          |                                                                                                                                                                                                                                                        |
| <code>\Aomicron,□</code> . . . . .      | 959                                                                                                                          | <code>\card</code> . . . . .            | 919                                                                                                                               | <code>\cmdmthoargsnt</code> . . . . .    | 690                                                                                                                                                                                                                                                    |
| <code>\Aposteriori</code> . . . . .     | 768                                                                                                                          | <code>\caselower</code> . . . . .       | 597                                                                                                                               | <code>\cmdmthoargstr</code> . . . . .    | 577                                                                                                                                                                                                                                                    |
| <code>\Aposteriori</code> . . . . .     | 746                                                                                                                          | <code>\cdot</code> . . . . .            | 924                                                                                                                               | <code>\cmdmthoargsym</code> . . . . .    | 635, 662                                                                                                                                                                                                                                               |
| <code>\Apriori</code> . . . . .         | 767                                                                                                                          | <code>\cequiv,□</code> . . . . .        | 831                                                                                                                               | <code>\cmdmthoargsymelm</code> . . . . . | 661                                                                                                                                                                                                                                                    |
| <code>\apriori</code> . . . . .         | 745                                                                                                                          | <code>\cf</code> . . . . .              | 747                                                                                                                               | <code>\cmdmthoargvec</code> . . . . .    | 730                                                                                                                                                                                                                                                    |
| <code>\apset</code> . . . . .           | 1286, 1287                                                                                                                   | <code>\CGS</code> . . . . .             | 1699                                                                                                                              | <code>\cmdmthopar</code> . . . . .       | 427, 431                                                                                                                                                                                                                                               |
| <code>\APSet,□</code> . . . . .         | 1285                                                                                                                         | <code>\CGSL</code> . . . . .            | 1786, 1790, 1792                                                                                                                  | <code>\cmdmthoparcls</code> . . . . .    | 555                                                                                                                                                                                                                                                    |
| <code>\apsym</code> . . . . .           | 1285, 1287                                                                                                                   | <code>\cgsstr</code> . . . . .          | 1700, 1701                                                                                                                        | <code>\cmdmthoparelm</code> . . . . .    | 652, 669                                                                                                                                                                                                                                               |
| <code>\arabic</code> . . . . .          | 2044                                                                                                                         | <code>\CGSStr,□</code> . . . . .        | 1700                                                                                                                              | <code>\cmdmthoparfam</code> . . . . .    | 542                                                                                                                                                                                                                                                    |
| <code>\aRel,□</code> . . . . .          | 604                                                                                                                          | <code>\chgbar@false</code> . . . . .    | 44                                                                                                                                | <code>\cmdmthoparfam</code> . . . . .    | 707                                                                                                                                                                                                                                                    |
| <code>\arenaname</code> . . . . .       | 1129, 1130                                                                                                                   | <code>\chgbar@true</code> . . . . .     | 45                                                                                                                                | <code>\cmdmthoparfun</code> . . . . .    | 626                                                                                                                                                                                                                                                    |
| <code>\ArenaName,□</code> . . . . .     | 1129                                                                                                                         | <code>\chi</code> . . . . .             | 1312                                                                                                                              | <code>\cmdmthoparmat</code> . . . . .    | 721                                                                                                                                                                                                                                                    |
| <code>\arg</code> . . . . .             | 1027                                                                                                                         | <code>\circ</code> . . . . .            | 939                                                                                                                               | <code>\cmdmthoparname</code> . . . . .   | 529                                                                                                                                                                                                                                                    |
| <code>\arglef</code> . . . . .          | 152, 159, 355, 379,<br>1770, 1787, 1804, 1821,<br>1838, 1855, 1872, 1889                                                     | <code>\cmdmth</code> . . . . .          | 416, 431, 672, 673, 679                                                                                                           | <code>\cmdmthoparrel</code> . . . . .    | 613                                                                                                                                                                                                                                                    |
| <code>\argmid</code> . . . . .          | 156, 298, 306,<br>355, 357, 379, 381, 839,<br>910, 914, 918, 922, 1013,<br>1017, 1021, 1025, 1044,<br>1508, 1510, 1695, 1697 | <code>\cmdmthall</code> . . . . .       | 430, 519, 532, 545,<br>558, 571, 584, 603, 616,<br>629, 642, 684, 697, 711, 724                                                   | <code>\cmdmthoparset</code> . . . . .    | 594                                                                                                                                                                                                                                                    |
| <code>\argrig</code> . . . . .          | 154                                                                                                                          | <code>\cmdmtharg</code> . . . . .       | 418, 431                                                                                                                          | <code>\cmdmthoparsig</code> . . . . .    | 568                                                                                                                                                                                                                                                    |
| <code>\argsep</code> . . . . .          | 158, 163,<br>910, 1002, 1004, 1006, 1008                                                                                     | <code>\cmdmthargcls</code> . . . . .    | 549                                                                                                                               | <code>\cmdmthoparsnt</code> . . . . .    | 694                                                                                                                                                                                                                                                    |
| <code>\aSet,□</code> . . . . .          | 585                                                                                                                          | <code>\cmdmthargelm</code> . . . . .    | 646, 660                                                                                                                          | <code>\cmdmthoparstr</code> . . . . .    | 581                                                                                                                                                                                                                                                    |
| <code>\asgset</code> . . . . .          | 1313, 1314                                                                                                                   | <code>\cmdmthargfam</code> . . . . .    | 536                                                                                                                               | <code>\cmdmthoparsym</code> . . . . .    | 639, 668                                                                                                                                                                                                                                               |
| <code>\AsgSet,□</code> . . . . .        | 1312                                                                                                                         | <code>\cmdmthargfrm</code> . . . . .    | 701                                                                                                                               | <code>\cmdmthoparsymelm</code> . . . . . | 667                                                                                                                                                                                                                                                    |
| <code>\asgsym</code> . . . . .          | 1312, 1314                                                                                                                   | <code>\cmdmthargfun</code> . . . . .    | 620                                                                                                                               | <code>\cmdmthoparvec</code> . . . . .    | 734                                                                                                                                                                                                                                                    |
| <code>\aSig,□</code> . . . . .          | 559                                                                                                                          | <code>\cmdmthargmat</code> . . . . .    | 715                                                                                                                               | <code>\cmdmthpar</code> . . . . .        | 424, 431                                                                                                                                                                                                                                               |
| <code>\aSnt,□</code> . . . . .          | 685                                                                                                                          | <code>\cmdmthargname</code> . . . . .   | 523                                                                                                                               | <code>\cmdmthparcls</code> . . . . .     | 553                                                                                                                                                                                                                                                    |
| <code>\aStr,□</code> . . . . .          | 572                                                                                                                          | <code>\cmdmthargrel</code> . . . . .    | 607                                                                                                                               | <code>\cmdmthparelm</code> . . . . .     | 650, 666                                                                                                                                                                                                                                               |
| <code>\aSym,□</code> . . . . .          | 630                                                                                                                          | <code>\cmdmthargset</code> . . . . .    | 588                                                                                                                               | <code>\cmdmthparfam</code> . . . . .     | 540                                                                                                                                                                                                                                                    |
| <code>\Atheta,□\ATheta</code> . . . . . | 957                                                                                                                          | <code>\cmdmthargsig</code> . . . . .    | 562                                                                                                                               | <code>\cmdmthparfirm</code> . . . . .    | 705                                                                                                                                                                                                                                                    |
| <code>\ATL,□</code> . . . . .           | 1649                                                                                                                         | <code>\cmdmthargsnt</code> . . . . .    | 688                                                                                                                               | <code>\cmdmthparfun</code> . . . . .     | 624                                                                                                                                                                                                                                                    |
| <code>\ATLP</code> . . . . .            | 1669, 1673, 1675, 1677                                                                                                       | <code>\cmdmthargstr</code> . . . . .    | 575                                                                                                                               | <code>\cmdmthparmat</code> . . . . .     | 719                                                                                                                                                                                                                                                    |
| <code>\ATLS</code> . . . . .            | 1684, 1688, 1690, 1692                                                                                                       | <code>\cmdmthargsym</code> . . . . .    | 633, 659                                                                                                                          | <code>\cmdmthparname</code> . . . . .    | 527                                                                                                                                                                                                                                                    |
| <code>\atrfun</code> . . . . .          | 1190, 1191                                                                                                                   | <code>\cmdmthargsymelm</code> . . . . . | 658                                                                                                                               | <code>\cmdmthparrel</code> . . . . .     | 611                                                                                                                                                                                                                                                    |
| <code>\atrFun,□\rchFun</code> . . . . . | 1190                                                                                                                         | <code>\cmdmthargvec</code> . . . . .    | 728                                                                                                                               | <code>\cmdmthparset</code> . . . . .     | 592                                                                                                                                                                                                                                                    |
| <code>\aut@false</code> . . . . .       | 56, 62, 93, 95                                                                                                               | <code>\cmdmthcls</code> . . . . .       | 547                                                                                                                               | <code>\cmdmthparsig</code> . . . . .     | 566                                                                                                                                                                                                                                                    |
| <code>\aut@true</code> . . . . .        | 94                                                                                                                           | <code>\cmdmthclm</code> . . . . .       | 644, 657                                                                                                                          | <code>\cmdmthparsnt</code> . . . . .     | 692                                                                                                                                                                                                                                                    |
| <code>\autname</code> . . . . .         | 1936, 1937                                                                                                                   | <code>\cmdmthfam</code> . . . . .       | 534                                                                                                                               | <code>\cmdmthparstr</code> . . . . .     | 579                                                                                                                                                                                                                                                    |
| <code>\AutName,□</code> . . . . .       | 1936                                                                                                                         | <code>\cmdmthfrm</code> . . . . .       | 699                                                                                                                               | <code>\cmdmthparsym</code> . . . . .     | 637, 665                                                                                                                                                                                                                                               |
| <code>\autset</code> . . . . .          | 1938, 1939                                                                                                                   | <code>\cmdmthfun</code> . . . . .       | 618, 1141, 1150, 1155,<br>1163, 1167, 1224, 1243,<br>1288, 1332, 1345, 1522,<br>1526, 1728, 1736, 1740,<br>1911, 1953, 1956, 1981 | <code>\cmdmthparsymelm</code> . . . . .  | 664                                                                                                                                                                                                                                                    |
| <code>\aux@false</code> . . . . .       | 11, 13                                                                                                                       | <code>\cmdmthbop</code> . . . . .       | 676                                                                                                                               | <code>\cmdmthparvec</code> . . . . .     | 732                                                                                                                                                                                                                                                    |
| <code>\aux@true</code> . . . . .        | 12                                                                                                                           | <code>\cmdmthlrel</code> . . . . .      | 680                                                                                                                               | <code>\cmdmthrel</code> . . . . .        | 605, 1143, 1519, 1520                                                                                                                                                                                                                                  |
| <code>\aVec,□</code> . . . . .          | 725                                                                                                                          | <code>\cmdmthluop,□</code> . . . . .    | 674                                                                                                                               | <code>\cmdmthset</code> . . . . .        | 586, 597, 1136,<br>1138, 1147, 1149, 1159,<br>1161, 1171, 1173, 1710,<br>1712, 1717, 1719, 1732,<br>1734, 1744, 1746, 1939,<br>1941, 1945, 1947, 1972                                                                                                  |
| <b>B</b>                                |                                                                                                                              |                                         |                                                                                                                                   | <code>\cmdmthsetext</code> . . . . .     | 596,<br>1133, 1154, 1158, 1166,<br>1170, 1177, 1223, 1242,<br>1287, 1297, 1311, 1314,<br>1330, 1337, 1343, 1350,<br>1356, 1435, 1438, 1516,<br>1525, 1704, 1707, 1716,<br>1723, 1726, 1731, 1739,<br>1743, 1750, 1906, 1944,<br>1951, 1959, 1975, 1979 |
|                                         |                                                                                                                              |                                         |                                                                                                                                   | <code>\cmdmthsig</code> . . . . .        | 560                                                                                                                                                                                                                                                    |
| <code>\BF,□\QBF,□</code> . . . . .      | 1252                                                                                                                         | <code>\cmdmthmat</code> . . . . .       | 713                                                                                                                               | <code>\cmdmthnsnt</code> . . . . .       | 686                                                                                                                                                                                                                                                    |
| <code>\bfseries</code> . . . . .        | 464                                                                                                                          | <code>\cmdmthname</code> . . . . .      | 521                                                                                                                               | <code>\cmdmthstr</code> . . . . .        | 573                                                                                                                                                                                                                                                    |
| <code>\BG,□</code> . . . . .            | 1199                                                                                                                         | <code>\cmdmthoarg</code> . . . . .      | 421, 431                                                                                                                          |                                          |                                                                                                                                                                                                                                                        |
| <code>\bgroup</code> . . . . .          | 166                                                                                                                          | <code>\cmdmthoargcls</code> . . . . .   | 551                                                                                                                               |                                          |                                                                                                                                                                                                                                                        |
| <code>\BGSL</code> . . . . .            | 1854, 1858, 1860                                                                                                             | <code>\cmdmthoargelm</code> . . . . .   | 648, 663                                                                                                                          |                                          |                                                                                                                                                                                                                                                        |
| <code>\BMod</code> . . . . .            | 1510                                                                                                                         | <code>\cmdmthoargfam</code> . . . . .   | 538                                                                                                                               |                                          |                                                                                                                                                                                                                                                        |
| <code>\bndset</code> . . . . .          | 1905, 1906                                                                                                                   | <code>\cmdmthoargfirm</code> . . . . .  | 703                                                                                                                               |                                          |                                                                                                                                                                                                                                                        |
| <code>\BndSet,□</code> . . . . .        | 1904                                                                                                                         | <code>\cmdmthoargfun</code> . . . . .   | 622, 1179, 1181,<br>1183, 1185, 1187, 1189,<br>1191, 1193, 1195, 1197                                                             |                                          |                                                                                                                                                                                                                                                        |
| <code>\bndsym</code> . . . . .          | 1904, 1906                                                                                                                   |                                         |                                                                                                                                   |                                          |                                                                                                                                                                                                                                                        |
| <code>\boldsymbol</code> . . . . .      | 711, 724                                                                                                                     | <code>\cmdmthoargmat</code> . . . . .   | 717                                                                                                                               |                                          |                                                                                                                                                                                                                                                        |



|                                                 |                                                 |            |                                               |
|-------------------------------------------------|-------------------------------------------------|------------|-----------------------------------------------|
| <code>\cmdmthsym</code> . . . . .               | <code>\cmp</code> . . . . .                     | 938        | 1010, 1014, 1018, 1022,                       |
| . 631, 656, 1126, 1128,                         | <code>\cnf, \dnf, \...</code> . . . . .         | 1302       | 1039, 1041, 1256, 1258,                       |
| 1218, 1220, 1237, 1239                          | <code>\Cnt, \Qnt, \Sym</code> . . . . .         | 1290       | 1260, 1321, 1323, 1404,                       |
| <code>\cmdmthsymelm</code> . . . . .            | <code>\coimplies, \...</code> . . . . .         | 822        | 1406, 1410, 1412, 1416,                       |
| 655, 1134,                                      | <code>\Coloneqq</code> . . . . .                | 812        | 1418, 1422, 1424, 1428,                       |
| 1135, 1137, 1139, 1160,                         | <code>\coloneqq</code> . . . . .                | 812        | 1430, 1445, 1449, 1453,                       |
| 1162, 1172, 1174, 1517,                         | <code>\com@false</code> . . . . .               | 56, 77, 79 | 1457, 1461, 1468, 1472,                       |
| 1708, 1709, 1711, 1713,                         | <code>\com@true</code> . . . . .                | 78         | 1476, 1480, 1484, 1493,                       |
| 1718, 1720, 1733, 1735,                         | <code>\conset</code> . . . . .                  | 1336, 1337 | 1497, 1499, 1501, 1507,                       |
| 1745, 1747, 1946, 1948                          | <code>\consig</code> . . . . .                  | 1333, 1334 | 1509, 1532, 1536, 1538,                       |
| <code>\cmdmthvec</code> . . . . .               | <code>\ConSig, \...</code> . . . . .            | 1333       | 1540, 1544, 1548, 1552,                       |
| <code>\cmdtxt</code> . . . . .                  | <code>\constr</code> . . . . .                  | 1360, 1361 | 1554, 1556, 1566, 1568,                       |
| <code>\cmdtxtabr</code> . . . . .               | <code>\ConStr, \...</code> . . . . .            | 1360       | 1570, 1577, 1579, 1581,                       |
| 477, 743, 744, 745, 746,                        | <code>\consym</code> . . . . .                  | 1335, 1337 | 1604, 1608, 1610, 1612,                       |
| 747, 748, 749, 750, 751,                        | <code>\Contd</code> . . . . .                   | 798        | 1619, 1623, 1625, 1627,                       |
| 752, 753, 754, 755, 756,                        | <code>\contd</code> . . . . .                   | 790        | 1634, 1638, 1640, 1642,                       |
| 757, 758, 759, 760, 761,                        | <code>\coW MPL</code> . . . . .                 | 1484       | 1653, 1657, 1659, 1661,                       |
| 762, 763, 764, 766, 767,                        | <code>\coWMSO</code> . . . . .                  | 1430       | 1668, 1672, 1674, 1676,                       |
| 768, 769, 770, 771, 772,                        | <code>\coWMSOL</code> . . . . .                 | 1428       | 1683, 1687, 1689, 1691,                       |
| 773, 774, 775, 776, 777,                        | <code>\coWMTL</code> . . . . .                  | 1461       | 1694, 1696, 1755, 1757,                       |
| 778, 779, 783, 784, 785,                        | <code>\coWPL</code> . . . . .                   | 1472       | 1760, 1763, 1765, 1772,                       |
| 787, 789, 790, 791, 792,                        | <code>\coWSO</code> . . . . .                   | 1412       | 1774, 1777, 1780, 1782,                       |
| 793, 794, 795, 796, 798,                        | <code>\coWSOL</code> . . . . .                  | 1410       | 1789, 1791, 1794, 1797,                       |
| 799, 1302, 1303, 1304, 1305                     | <code>\coWTL</code> . . . . .                   | 1449       | 1799, 1806, 1808, 1811,                       |
| <code>\cmdtxtall</code> 339, 464, 476, 489, 501 | <code>\crv@false</code> . . . . .               | 40         | 1814, 1816, 1823, 1825,                       |
| <code>\cmdtxtarg</code> . . . . .               | <code>\crv@true</code> . . . . .                | 41         | 1828, 1831, 1833, 1840,                       |
| <code>\cmdtxtargabr</code> . . . . .            | <code>\csdef</code> 138, 139, 140, 141, 142,    |            | 1842, 1845, 1848, 1850,                       |
| <code>\cmdtxtargcom</code> . . . . .            | 330, 332, 334, 336, 338,                        |            | 1857, 1859, 1862, 1865,                       |
| <code>\cmdtxtargdef</code> . . . . .            | 343, 417, 419, 422, 425,                        |            | 1867, 1874, 1876, 1879,                       |
| <code>\cmdtxtargname</code> . . . . .           | 428, 434, 1054, 1070, 1072                      |            | 1882, 1884, 1891, 1893,                       |
| <code>\cmdtxtcom</code> 502, 1074, 1075, 1076   | <code>\csedef</code> . . . . .                  | 172, 176   | 1896, 1899, 1901, 2042                        |
| <code>\cmdtxtdef</code> . . . . .               | <code>\csname</code> . . . . .                  | 162, 163,  | <code>\DeclareRobustCommandx</code> 838,      |
| <code>\cmdtxtname</code> . . . . .              | 164, 165, 166, 167, 168,                        |            | 909, 913, 917, 921, 1012,                     |
| <code>\cmdtxtoarg</code> . . . . .              | 173, 177, 330, 332, 334,                        |            | 1016, 1020, 1024, 1043,                       |
| <code>\cmdtxtoargabr</code> . . . . .           | 336, 338, 343, 349, 436, 437                    |            | 1769, 1786, 1803, 1820,                       |
| <code>\cmdtxtoargcom</code> . . . . .           | <code>\CTLP</code> . . . 1620, 1624, 1626, 1628 |            | 1837, 1854, 1871, 1888                        |
| <code>\cmdtxtoargdef</code> . . . . .           | <code>\CTLS</code> . . . 1635, 1639, 1641, 1643 |            | <code>\decset</code> . . . . . 1725, 1726     |
| <code>\cmdtxtoargname</code> . . . . .          | <code>\CurrentOption</code> . . . . .           | 126        | <code>\DecSet, \...</code> . . . . . 1724     |
| <code>\cmdtxtopar</code> . . . . .              |                                                 |            | <code>\decsym</code> . . . . . 1724, 1726     |
| <code>\cmdtxtoparabr</code> . . . . .           |                                                 |            | <code>\Dedicto</code> . . . . . 769           |
| <code>\cmdtxtoparcom</code> . . . . .           |                                                 |            | <code>\dedicto</code> . . . . . 748           |
| <code>\cmdtxtopardef</code> . . . . .           |                                                 |            | <code>\def</code> . . . . . 1942, 1943        |
| <code>\cmdtxtoparname</code> 498, 1108,         |                                                 |            | <code>\Defacto</code> . . . . . 770           |
| 1111, 1114, 1117, 1120,                         |                                                 |            | <code>\defacto</code> . . . . . 749           |
| 1123, 1200, 1203, 1206,                         |                                                 |            | <code>\defcomcls</code> . . . . . 1053, 1078  |
| 1209, 1212, 1215, 1228,                         |                                                 |            | <code>\defcomclsgrp</code> . . . . .          |
| 1231, 1234, 1253, 1317,                         |                                                 |            | . . . . . 1055, 1080, 1081,                   |
| 1318, 1370, 1373, 1376,                         |                                                 |            | 1082, 1083, 1084, 1085,                       |
| 1379, 1382, 1385, 1388,                         |                                                 |            | 1086, 1087, 1088, 1089                        |
| 1391, 1400, 1401, 1442,                         |                                                 |            | <code>\defcomclsgrpcmd</code> . . . . . 1065, |
| 1465, 1490, 1529, 1563,                         |                                                 |            | 1066, 1067, 1068, 1069                        |
| 1574, 1598, 1601, 1616,                         |                                                 |            | <code>\defcomclsgrpred</code> 1059, 1060,     |
| 1631, 1650, 1665, 1680,                         |                                                 |            | 1061, 1062, 1063, 1064                        |
| 1753, 1919, 1921, 1923,                         |                                                 |            | <code>\defcomclsgrpsem</code> . . . . .       |
| 1924, 1925, 1926, 1927,                         |                                                 |            | . . . . . 1056, 1057, 1058                    |
| 1928, 1929, 1930, 1932,                         |                                                 |            | <code>\defcomhrc</code> . . . . . 1071, 1091, |
| 1961, 1963, 1964, 1965,                         |                                                 |            | 1092, 1093, 1094, 1095,                       |
| 1966, 1967, 1968, 1969                          |                                                 |            | 1096, 1097, 1098, 1099                        |
| <code>\cmdtxtpar</code> . . . . .               |                                                 |            | <code>\defeq, \seteq</code> . . . . . 807     |
| <code>\cmdtxtparabr</code> . . . . .            |                                                 |            | <code>\defval</code> . . . . . 149,           |
| <code>\cmdtxtparcom</code> . . . . .            |                                                 |            | 296, 300, 304, 308, 312,                      |
| <code>\cmdtxtpardef</code> . . . . .            |                                                 |            | 343, 351, 361, 363, 373,                      |
| <code>\cmdtxtparname</code> . . . . .           |                                                 |            | 375, 385, 387, 397, 399,                      |
| <code>\models, \...</code> . . . . .            |                                                 |            |                                               |
|                                                 | <code>\D</code>                                 |            |                                               |
|                                                 | <code>\DeclareMathAlphabet</code> . . . .       |            |                                               |
|                                                 | . . . . . 285, 286, 287, 288                    |            |                                               |
|                                                 | <code>\DeclareMathOperator</code> 944, 946      |            |                                               |
|                                                 | <code>\DeclareOption</code> . . . . 12, 13,     |            |                                               |
|                                                 | 17, 21, 25, 29, 33, 37,                         |            |                                               |
|                                                 | 41, 45, 49, 54, 55, 60,                         |            |                                               |
|                                                 | 61, 67, 68, 72, 73, 78,                         |            |                                               |
|                                                 | 79, 84, 85, 89, 90, 94,                         |            |                                               |
|                                                 | 95, 100, 101, 106, 107,                         |            |                                               |
|                                                 | 111, 116, 117, 122, 123, 126                    |            |                                               |
|                                                 | <code>\DeclareRobustCommand</code> 807,         |            |                                               |
|                                                 | 811, 814, 816, 818, 820,                        |            |                                               |
|                                                 | 822, 824, 827, 829, 831,                        |            |                                               |
|                                                 | 833, 836, 841, 843, 845,                        |            |                                               |
|                                                 | 847, 849, 851, 853, 858,                        |            |                                               |
|                                                 | 862, 866, 870, 874, 878,                        |            |                                               |
|                                                 | 882, 886, 890, 894, 898,                        |            |                                               |
|                                                 | 902, 907, 911, 915, 919,                        |            |                                               |
|                                                 | 923, 926, 934, 936, 938,                        |            |                                               |
|                                                 | 941, 962, 964, 966, 968,                        |            |                                               |
|                                                 | 970, 972, 974, 976, 978,                        |            |                                               |
|                                                 | 980, 982, 984, 986, 988,                        |            |                                               |
|                                                 | 990, 992, 994, 996, 999,                        |            |                                               |
|                                                 | 1001, 1003, 1005, 1007,                         |            |                                               |

|                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 436, 437, 599, 601, 924,<br>1054, 1056, 1057, 1072,<br>1508, 1510, 1695, 1697 | $\backslash empchk$ . . . . . 147, 153, 155,<br>157, 163, 314, 401, 599, 601                                                                                                                                                                                                                                                                                                                                                                                                       | $\backslash ExpTime, \square \dots$ . . . . . 1088                                                                                                                                                                                                         |
| $\backslash Delta$ . . . . . 1094, 1095                                       | $\backslash emptyfun$ . . . . . 941                                                                                                                                                                                                                                                                                                                                                                                                                                                | $\backslash Exs, \square \backslash All$ . . . . . 1507                                                                                                                                                                                                    |
| $\backslash delta$ . . . . . 1952                                             | $\backslash emptyrel$ . . . . . 926                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                            |
| $\backslash denot$ . . . . . 836                                              | $\backslash emptyseq$ . . . . . 1039                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>F</b>                                                                                                                                                                                                                                                   |
| $\backslash dep, \square \backslash alt$ . . . . . 1300                       | $\backslash emptyset$ . . . . . 1695, 1697                                                                                                                                                                                                                                                                                                                                                                                                                                         | $\backslash FAGSL$ . . . . . 1828, 1832, 1834                                                                                                                                                                                                              |
| $\backslash der$ . . . . . 845                                                | $\backslash endcsname$ . . . . . 162, 163,<br>164, 165, 166, 167, 168,<br>173, 177, 330, 332, 334,<br>336, 338, 343, 349, 436, 437                                                                                                                                                                                                                                                                                                                                                 | $\backslash FBGSL$ . . . . . 1862, 1866, 1868                                                                                                                                                                                                              |
| $\backslash Dere$ . . . . . 771                                               | $\backslash endinput$ . . . . . 2047                                                                                                                                                                                                                                                                                                                                                                                                                                               | $\backslash FCGSL$ . . . . . 1794, 1798, 1800                                                                                                                                                                                                              |
| $\backslash dere$ . . . . . 750                                               | $\backslash ENGSL$ . . . . . 1874                                                                                                                                                                                                                                                                                                                                                                                                                                                  | $\backslash FDGSL$ . . . . . 1811, 1815, 1817                                                                                                                                                                                                              |
| $\backslash DF, \square \backslash IF, \square \dots$ . . . . . 1369          | $\backslash enmtls@false$ . . . . . 29                                                                                                                                                                                                                                                                                                                                                                                                                                             | $\backslash FEGSL$ . . . . . 1845, 1849, 1851                                                                                                                                                                                                              |
| $\backslash DFA, \square \dots$ . . . . . 1919                                | $\backslash enmtls@true$ . . . . . 28                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\backslash ffsym$ . . . . . 1267, 1268                                                                                                                                                                                                                    |
| $\backslash DGSL$ . . . . . 1803, 1807, 1809                                  | $\backslash ensuremath$ . . . . . 314,<br>349, 945, 947, 1259,<br>1261, 1500, 1502, 1529,<br>1539, 1541, 1555, 1557,<br>1569, 1571, 1580, 1582,<br>1611, 1613, 1626, 1628,<br>1641, 1643, 1660, 1662,<br>1675, 1677, 1690, 1692,<br>1756, 1758, 1764, 1766,<br>1773, 1775, 1781, 1783,<br>1790, 1792, 1798, 1800,<br>1807, 1809, 1815, 1817,<br>1824, 1826, 1832, 1834,<br>1841, 1843, 1849, 1851,<br>1858, 1860, 1866, 1868,<br>1875, 1877, 1883, 1885,<br>1892, 1894, 1900, 1902 | $\backslash fi$ . 148, 150, 159, 215, 220,<br>225, 230, 245, 250, 265,<br>273, 274, 278, 280, 512,<br>736, 800, 1047, 1100,<br>1245, 1912, 1982, 1989,<br>2010, 2011, 2018, 2045                                                                           |
| $\backslash Diamond$ . . . . . 1505                                           | $\backslash entfun$ . . . . . 1182, 1183                                                                                                                                                                                                                                                                                                                                                                                                                                           | $\backslash fig@false$ . . . . . 105, 107                                                                                                                                                                                                                  |
| $\backslash dirset$ . . . . . 1974, 1975                                      | $\backslash entFun, \square \backslash escFun$ . . . . . 1182                                                                                                                                                                                                                                                                                                                                                                                                                      | $\backslash fig@true$ . . . . . 106                                                                                                                                                                                                                        |
| $\backslash DirSet, \square \dots$ . . . . . 1973                             | $\backslash enumeration, \square \dots$ . . . . . 856                                                                                                                                                                                                                                                                                                                                                                                                                              | $\backslash fix, \square \backslash ifp, \square \dots$ . . . . . 950                                                                                                                                                                                      |
| $\backslash dirsym$ . . . . . 1973, 1975                                      | $\backslash EOGSL$ . . . . . 1772                                                                                                                                                                                                                                                                                                                                                                                                                                                  | $\backslash flat$ . . . . . 1904                                                                                                                                                                                                                           |
| $\backslash Divideetimpera$ . . . . . 772                                     | $\backslash EPTL$ . . . . . 1568                                                                                                                                                                                                                                                                                                                                                                                                                                                   | $\backslash floor, \square \backslash ceil$ . . . . . 1018                                                                                                                                                                                                 |
| $\backslash divideetimpera$ . . . . . 751                                     | $\backslash equiv$ . . . . . 832, 834                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\backslash FNGSL$ . . . . . 1879, 1883, 1885                                                                                                                                                                                                              |
| $\backslash DLH, \square \backslash DBH$ . . . . . 1094                       | $\backslash ergo$ . . . . . 753                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash fnttts@false$ . . . . . 37                                                                                                                                                                                                                     |
| $\backslash DMod$ . . . . . 1508                                              | $\backslash Errata$ . . . . . 774                                                                                                                                                                                                                                                                                                                                                                                                                                                  | $\backslash fnttts@true$ . . . . . 36                                                                                                                                                                                                                      |
| $\backslash DMod, \square \backslash BMod$ . . . . . 1505                     | $\backslash errata$ . . . . . 754                                                                                                                                                                                                                                                                                                                                                                                                                                                  | $\backslash FO$ . . . . . 1324                                                                                                                                                                                                                             |
| $\backslash do$ . . . . . 171, 175                                            | $\backslash Erratum$ . . . . . 775                                                                                                                                                                                                                                                                                                                                                                                                                                                 | $\backslash FOGSL$ . . . . . 1777, 1781, 1783                                                                                                                                                                                                              |
| $\backslash dom, \square \backslash cod, \square \dots$ . . . . . 929         | $\backslash erratum$ . . . . . 755                                                                                                                                                                                                                                                                                                                                                                                                                                                 | $\backslash FOL, \square \dots$ . . . . . 1316                                                                                                                                                                                                             |
| $\backslash DontPrintSemicolon$ . . . . . 2025                                | $\backslash escfun$ . . . . . 1184, 1185                                                                                                                                                                                                                                                                                                                                                                                                                                           | $\backslash footnotesize$ . . . . . 947                                                                                                                                                                                                                    |
| $\backslash DTA, \square \dots$ . . . . . 1961                                | $\backslash ESL$ . . . . . 1755                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash forall$ . . . . . 1261,<br>1283, 1293, 1294, 1502,<br>1541, 1557, 1571, 1582,<br>1613, 1628, 1643, 1662,<br>1677, 1692, 1758, 1766,<br>1775, 1783, 1792, 1800,<br>1809, 1817, 1826, 1834,<br>1843, 1851, 1860, 1868,<br>1877, 1885, 1894, 1902 |
| $\backslash dual, \square \backslash adj, \square \dots$ . . . . . 841        | $\backslash etal$ . . . . . 756                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash FPT$ . . . . . 1078                                                                                                                                                                                                                            |
|                                                                               | $\backslash etc$ . . . . . 757                                                                                                                                                                                                                                                                                                                                                                                                                                                     | $\backslash free, \square \backslash bound$ . . . . . 1298                                                                                                                                                                                                 |
| <b>E</b>                                                                      | $\backslash evn, \square \backslash odd$ . . . . . 1028                                                                                                                                                                                                                                                                                                                                                                                                                            | $\backslash frm@false$ . . . . . 99, 101                                                                                                                                                                                                                   |
| $\backslash E, \square \backslash A$ . . . . . 1645                           | $\backslash evnsym$ . . . . . 1217, 1218                                                                                                                                                                                                                                                                                                                                                                                                                                           | $\backslash frm@true$ . . . . . 100                                                                                                                                                                                                                        |
| $\backslash EAFMC$ . . . . . 1554                                             | $\backslash EvnSym, \square \backslash OddSym$ . . . . . 1217                                                                                                                                                                                                                                                                                                                                                                                                                      | $\backslash From, \square \dots$ . . . . . 2035                                                                                                                                                                                                            |
| $\backslash EAGSL$ . . . . . 1823                                             | $\backslash ExecuteOptions$ . . . . . 128                                                                                                                                                                                                                                                                                                                                                                                                                                          | $\backslash FSL$ . . . . . 1760, 1764, 1766                                                                                                                                                                                                                |
| $\backslash Easy, \square \backslash Hard, \square \dots$ . . . . . 1074      | $\backslash EXGSL$ . . . . . 1891                                                                                                                                                                                                                                                                                                                                                                                                                                                  | $\backslash fst, \square \backslash lst$ . . . . . 1045                                                                                                                                                                                                    |
| $\backslash EATL$ . . . . . 1659                                              | $\backslash exists$ . . . . . 1259,<br>1281, 1293, 1294, 1500,<br>1539, 1555, 1569, 1580,<br>1611, 1626, 1641, 1660,<br>1675, 1690, 1756, 1764,<br>1773, 1781, 1790, 1798,<br>1807, 1815, 1824, 1832,<br>1841, 1849, 1858, 1866,<br>1875, 1883, 1892, 1900                                                                                                                                                                                                                         | $\backslash funset$ . . . . . 1342, 1343                                                                                                                                                                                                                   |
| $\backslash EATLP$ . . . . . 1674                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash funsig$ . . . . . 1339, 1340                                                                                                                                                                                                                   |
| $\backslash EATLS$ . . . . . 1689                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash FunSig, \square \dots$ . . . . . 1339                                                                                                                                                                                                          |
| $\backslash EBF$ . . . . . 1258                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash funstr$ . . . . . 1362, 1363                                                                                                                                                                                                                   |
| $\backslash EBGSL$ . . . . . 1857                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash FunStr, \square \dots$ . . . . . 1362                                                                                                                                                                                                          |
| $\backslash ECGSL$ . . . . . 1789                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash funsym$ . . . . . 1341, 1343                                                                                                                                                                                                                   |
| $\backslash ECTL$ . . . . . 1610                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash fvarset$ . . . . . 1434, 1435                                                                                                                                                                                                                  |
| $\backslash ECTLP$ . . . . . 1625                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash FVarSet, \square \dots$ . . . . . 1433                                                                                                                                                                                                         |
| $\backslash ECTLS$ . . . . . 1640                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash fvarsym$ . . . . . 1433, 1435                                                                                                                                                                                                                  |
| $\backslash EDGSL$ . . . . . 1806                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash FXGSL$ . . . . . 1896, 1900, 1902                                                                                                                                                                                                              |
| $\backslash EEGSL$ . . . . . 1840                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash EExs, \square \backslash AAll$ . . . . . 1694                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>G</b>                                                                                                                                                                                                                                                   |
| $\backslash EFAGSL$ . . . . . 1831                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash gam@false$ . . . . . 56, 62, 83, 85                                                                                                                                                                                                            |
| $\backslash EFBGSL$ . . . . . 1865                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash gam@true$ . . . . . 84                                                                                                                                                                                                                         |
| $\backslash EFCGSL$ . . . . . 1797                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash Game$ . . . . . 1144                                                                                                                                                                                                                           |
| $\backslash EFDGSL$ . . . . . 1814                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash gamename$ . . . . . 1144, 1145                                                                                                                                                                                                                 |
| $\backslash EFEGSL$ . . . . . 1848                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash GameName, \square \dots$ . . . . . 1144                                                                                                                                                                                                        |
| $\backslash EFNGSL$ . . . . . 1882                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash GFG, \square \backslash PD, \square \dots$ . . . . . 1930                                                                                                                                                                                      |
| $\backslash EFOGSL$ . . . . . 1780                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\backslash GoTo, \square \dots$ . . . . . 2038                                                                                                                                                                                                            |
| $\backslash EFSL$ . . . . . 1763                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash EFXGSL$ . . . . . 1899                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash Eg$ . . . . . 773                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash eg$ . . . . . 752                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash EG, \square \dots$ . . . . . 1227                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash EGSL$ . . . . . 1837, 1841, 1843                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash ELH, \square \backslash EBH$ . . . . . 1096                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash else$ . . 148, 150, 159, 257, 271                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash ELTL$ . . . . . 1579                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash em$ . . . . . 464, 476                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash EMC$ . . . . . 1538                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |
| $\backslash EML$ . . . . . 1499                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |

|                                                |                         |  |
|------------------------------------------------|-------------------------|--|
| <b>H</b>                                       |                         |  |
| <code>\H</code> .....                          | 1591                    |  |
| <code>\hstset</code> .....                     |                         |  |
| 1157, 1158, 1159, 1161,                        |                         |  |
| 1730, 1731, 1732, 1734                         |                         |  |
| <code>\HstSet,□</code> .....                   | 1156, 1729              |  |
| <code>\hstsym</code> .....                     |                         |  |
| 1156, 1158, 1160, 1162,                        |                         |  |
| 1729, 1731, 1733, 1735                         |                         |  |
| <code>\hypersetup</code> .....                 | 235                     |  |
| <code>\hypref@false</code> .....               | 33                      |  |
| <code>\hypref@true</code> .....                | 32                      |  |
| <b>I</b>                                       |                         |  |
| <code>\ie</code> .....                         | 758                     |  |
| <code>\if</code> .....                         | 148, 150, 159           |  |
| <code>\if@twocolumn</code> .....               | 132, 269                |  |
| <code>\ifalg@</code> .....                     | 121, 2023               |  |
| <code>\ifamsdef@</code> .....                  | 16, 209                 |  |
| <code>\ifamsthm@</code> .....                  | 20, 217                 |  |
| <code>\ifaut@</code> .....                     | 93, 1917                |  |
| <code>\ifaux@</code> .....                     | 11, 207                 |  |
| <code>\ifchgbar@</code> .....                  | 44, 262                 |  |
| <code>\ifcom@</code> .....                     | 77, 1052                |  |
| <code>\ifcrv@</code> .....                     | 40, 252                 |  |
| <code>\ifcsdef</code> .....                    | 132                     |  |
| <code>\ifdef</code> .....                      | 285, 286, 287, 288      |  |
| <code>\ifenmtls@</code> .....                  | 28, 227                 |  |
| <code>\iff</code> .....                        | 791                     |  |
| <code>\iffig@</code> .....                     | 105, 1994               |  |
| <code>\iffnttls@</code> .....                  | 36, 247                 |  |
| <code>\iffrm@</code> .....                     | 99, 1987                |  |
| <code>\ifgam@</code> .....                     | 83, 1105                |  |
| <code>\ifhypref@</code> .....                  | 32, 232                 |  |
| <code>\iflinnum@</code> .....                  | 48, 267                 |  |
| <code>\iflog@</code> .....                     | 88, 1250                |  |
| <code>\ifmth@</code> .....                     | 71, 805                 |  |
| <code>\ifmthgen@</code> .....                  | 59, 517                 |  |
| <code>\iftab@</code> .....                     | 115, 2016               |  |
| <code>\ifthmtls@</code> .....                  | 24, 222                 |  |
| <code>\iftxt@</code> .....                     | 66, 741                 |  |
| <code>\iftxtgen@</code> .....                  | 53, 462                 |  |
| <code>\ifwrpfig@</code> .....                  | 110, 2007               |  |
| <code>\iht</code> .....                        | 792                     |  |
| <code>\implied,□</code> .....                  | 818                     |  |
| <code>\implies,□</code> .....                  | 814                     |  |
| <code>\inf,□sup</code> .....                   | 1036                    |  |
| <code>\infty</code> 969, 973, 975, 977, 981,   |                         |  |
| 983, 985, 989, 991, 993, 997                   |                         |  |
| <code>\interdisplaylinepenalty</code> .....    | 214                     |  |
| <code>\intfun</code> .....                     | 1186, 1187              |  |
| <code>\intFun,□outFun</code> .....             | 1186                    |  |
| <code>\itr</code> 171, 172, 173, 175, 176, 177 |                         |  |
| <b>K</b>                                       |                         |  |
| <code>\kern</code> .....                       | 948                     |  |
| <code>\krpstr</code> .....                     | 1512, 1513              |  |
| <code>\KrpStr,□</code> .....                   | 1512                    |  |
| <b>L</b>                                       |                         |  |
| <code>\laallsym</code> .....                   | 1395, 1396              |  |
| <code>\labFun</code> .....                     | 1521                    |  |
| <code>\labsym</code> .....                     | 1521, 1522              |  |
| <code>\lallsym</code> .....                    | 1283, 1284              |  |
| <code>\Lambda</code> .....                     | 1974                    |  |
| <code>\lambda</code> .....                     | 1521                    |  |
| <code>\land</code> .....                       | 1273                    |  |
| <code>\LangFun</code> .....                    | 1955                    |  |
| <code>\langfun</code> .....                    | 1955, 1956              |  |
| <code>\langle</code> .....                     |                         |  |
| 884, 885, 888, 889, 896,                       |                         |  |
| 897, 900, 901, 1508, 1695                      |                         |  |
| <code>\LaTeX</code> .....                      | 671, 678                |  |
| <code>\lbrace</code> .....                     | 910, 914                |  |
| <code>\lceil</code> .....                      | 1025                    |  |
| <code>\lcoisym</code> .....                    | 1279, 1280              |  |
| <code>\LCon,□\LDis</code> .....                | 1273                    |  |
| <code>\lconsym</code> .....                    | 1273, 1274              |  |
| <code>\ldissym</code> .....                    | 1275, 1276              |  |
| <code>\LEExs,□\LAA11</code> .....              | 1393                    |  |
| <code>\leexssym</code> .....                   | 1393, 1394              |  |
| <code>\left</code> .....                       | 355, 379, 837,          |  |
| 860, 864, 868, 872, 876,                       |                         |  |
| 880, 884, 888, 892, 896,                       |                         |  |
| 900, 904, 908, 912, 916,                       |                         |  |
| 920, 1011, 1015, 1019,                         |                         |  |
| 1023, 1042, 1510, 1697                         |                         |  |
| <code>\Leftarrow</code> .....                  | 819, 821                |  |
| <code>\Leftrightarrow</code> .....             | 823, 825                |  |
| <code>\leftrightharpoonrightarrow</code> ..... | 1279                    |  |
| <code>\len</code> .....                        | 1041                    |  |
| <code>\let</code> .....                        | 2032                    |  |
| <code>\let</code> .....                        | 1590, 1591, 1592        |  |
| <code>\LExs,□\LAl1</code> .....                | 1281                    |  |
| <code>\lexssym</code> .....                    | 1281, 1282              |  |
| <code>\lfloor</code> .....                     | 1021                    |  |
| <code>\liftFun</code> .....                    | 1194                    |  |
| <code>\liftfun</code> .....                    | 1194, 1195              |  |
| <code>\LImp,□\LCoi</code> .....                | 1277                    |  |
| <code>\limpsym</code> .....                    | 1277, 1278              |  |
| <code>\linenumbers</code> .....                | 270, 272                |  |
| <code>\linnum@false</code> .....               | 48                      |  |
| <code>\linnum@true</code> .....                | 49                      |  |
| <code>\llbracket</code> .....                  | 839                     |  |
| <code>\llcorner</code> .....                   | 947                     |  |
| <code>\LNeg,□\LNot</code> .....                | 1269                    |  |
| <code>\lnegsym</code> .....                    | 1269, 1270              |  |
| <code>\lnotsym</code> .....                    | 1271, 1272              |  |
| <code>\log@false</code> .....                  | 56, 62, 88, 90          |  |
| <code>\log@true</code> .....                   | 89                      |  |
| <code>\logsig</code> .....                     | 1263, 1264              |  |
| <code>\LogSig,□</code> .....                   | 1263                    |  |
| <code>\LogSpace,□</code> .....                 | 1083                    |  |
| <code>\logstr</code> .....                     | 1307, 1308              |  |
| <code>\LogStr,□</code> .....                   | 1307                    |  |
| <code>\LogTime,□</code> .....                  | 1082                    |  |
| <code>\lor</code> .....                        | 1275                    |  |
| <code>\lowercase</code> .....                  | 599, 601                |  |
| <code>\lVert</code> .....                      | 1017                    |  |
| <code>\lvert</code> .....                      | 922, 1013, 1044         |  |
| <b>M</b>                                       |                         |  |
| <code>\Macro,□</code> .....                    | 2029                    |  |
| <code>\mathaccent</code> .....                 | 852                     |  |
| <code>\mathbbo</code> .....                    | 285                     |  |
| <code>\mathbin</code> .....                    | 673                     |  |
| <code>\mathcal</code> .....                    | 519                     |  |
| <code>\matheus</code> .....                    | 286, 545                |  |
| <code>\mathfrak</code> .....                   | 571                     |  |
| <code>\mathit</code> .....                     | 603, 697, 724           |  |
| <code>\mathnormal</code> .....                 | 642                     |  |
| <code>\mathop</code> .....                     | 672                     |  |
| <code>\mathpzc</code> .....                    | 287, 558                |  |
| <code>\mathrel</code> .....                    | 679, 947                |  |
| <code>\mathring</code> .....                   | 844                     |  |
| <code>\mathrm</code> .....                     | 584                     |  |
| <code>\mathscr</code> .....                    | 288, 532                |  |
| <code>\mathsf</code> .....                     | 616, 684, 711           |  |
| <code>\mathtt</code> .....                     | 629                     |  |
| <code>\maxsym</code> .....                     | 1236, 1237              |  |
| <code>\MaxSym,□\MinSym</code> .....            | 1236                    |  |
| <code>\MC,□\GMC,□</code> .....                 | 1528                    |  |
| <code>\mdseries</code> .....                   | 327, 489, 501           |  |
| <code>\MFO</code> .....                        | 1323                    |  |
| <code>\MFOL</code> .....                       | 1321                    |  |
| <code>\middle</code> .....                     | 908                     |  |
| <code>\Mif,□</code> .....                      | 2041                    |  |
| <code>\min,□\max,□</code> .....                | 1032                    |  |
| <code>\minsym</code> .....                     | 1238, 1239              |  |
| <code>\ML,□\GML,□</code> .....                 | 1489                    |  |
| <code>\models</code> .....                     | 828, 830                |  |
| <code>\movFun</code> .....                     | 1727                    |  |
| <code>\MovRel</code> .....                     | 1142                    |  |
| <code>\movrel</code> .....                     | 1142, 1143              |  |
| <code>\movsym</code> .....                     | 1727, 1728              |  |
| <code>\MPL</code> .....                        | 1476, 1481, 1485        |  |
| <code>\MSO</code> .....                        | 1418, 1425, 1431        |  |
| <code>\MSOL</code> .....                       | 1416, 1423, 1429        |  |
| <code>\mth</code> .....                        | 403, 839,               |  |
| 842, 844, 846, 848, 852,                       |                         |  |
| 854, 856, 857, 860, 861,                       |                         |  |
| 864, 865, 868, 869, 872,                       |                         |  |
| 873, 876, 877, 880, 881,                       |                         |  |
| 884, 885, 888, 889, 892,                       |                         |  |
| 893, 896, 897, 900, 901,                       |                         |  |
| 904, 905, 910, 914, 918,                       |                         |  |
| 922, 924, 927, 942, 1000,                      |                         |  |
| 1002, 1004, 1006, 1008,                        |                         |  |
| 1013, 1017, 1021, 1025,                        |                         |  |
| 1040, 1044, 1094, 1095,                        |                         |  |
| 1096, 1097, 1098, 1099,                        |                         |  |
| 1508, 1510, 1695, 1697                         |                         |  |
| <code>\mth@false</code> .....                  | 62, 71, 73              |  |
| <code>\mth@true</code> .....                   | 72                      |  |
| <code>\mtharg</code> .....                     | 405                     |  |
| <code>\mthargfun</code> .....                  | 935                     |  |
| <code>\mthcls,□</code> .....                   | 544                     |  |
| <code>\mthelm,□</code> .....                   | 641                     |  |
| <code>\mthfam,□</code> .....                   | 531                     |  |
| <code>\mthfrm,□</code> .....                   | 696                     |  |
| <code>\mthfun,□</code> .....                   | 615                     |  |
| <code>\mthgen@false</code> .....               | 59, 62                  |  |
| <code>\mthgen@true</code> .....                | 60, 72, 84, 89, 94      |  |
| <code>\mthlbop</code> .....                    | 809, 810, 812, 937, 939 |  |
| <code>\mthlrel</code> .....                    |                         |  |
| 678, 815, 817, 819, 821,                       |                         |  |
| 823, 825, 828, 830, 832, 834                   |                         |  |
| <code>\mthluop,□</code> .....                  | 671                     |  |
| <code>\mthmat,□</code> .....                   | 710                     |  |
| <code>\mthname,□</code> .....                  | 518                     |  |
| <code>\mthoarg</code> .....                    | 407                     |  |

|                                              |                                  |                                                                         |                                                                                                        |
|----------------------------------------------|----------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| $\backslash\mathrm{mthpar}$ .....            | <a href="#">411</a>              | 676, 680, 686, 688, 690,                                                | 1173, 1174, 1712, 1713,                                                                                |
| $\backslash\mathrm{mthpar}$ .....            | <a href="#">409</a>              | 692, 694, 699, 701, 703,                                                | 1734, 1735, 1746, 1747                                                                                 |
| $\backslash\mathrm{mthrel}, \square$ .....   | <a href="#">602</a>              | 705, 707, 713, 715, 717,                                                | $\backslash\mathrm{oppsym}$ .....                                                                      |
| $\backslash\mathrm{mthset}$ .....            | 963,                             | 719, 721, 726, 728, 730,                                                | 1127, 1128                                                                                             |
| 965, 967, 971, 979, 987, 995                 |                                  | 732, 734, 1053, 1055,                                                   | $\backslash\mathrm{Opr}$ .....                                                                         |
| $\backslash\mathrm{mthset}, \square$ .....   | <a href="#">583</a>              | 1058, 1064, 1069, 1071                                                  | 1504                                                                                                   |
| $\backslash\mathrm{mthsig}, \square$ .....   | <a href="#">557</a>              | $\backslash\mathrm{newif}$ 11, 16, 20, 24, 28, 32,                      | $\backslash\mathrm{outfun}$ .....                                                                      |
| $\backslash\mathrm{mthsnt}, \square$ .....   | <a href="#">683</a>              | 36, 40, 44, 48, 53, 59,                                                 | 1188, 1189                                                                                             |
| $\backslash\mathrm{mthstr}, \square$ .....   | <a href="#">570</a>              | 66, 71, 77, 83, 88, 93,                                                 | $\backslash\mathrm{overline}$ .....                                                                    |
| $\backslash\mathrm{mthsty}$ .....            |                                  | 99, 105, 110, 115, 121, 132                                             | 842, 854                                                                                               |
| 404, 406, 408, 410, 412, <a href="#">413</a> |                                  | $\backslash\mathrm{newmth}$ .....                                       |                                                                                                        |
| $\backslash\mathrm{mthstycls}$ .....         | <a href="#">545</a>              | 348, 351, 355, 357, 379, 381                                            | <b>P</b>                                                                                               |
| $\backslash\mathrm{mthstyelm}$ .....         | <a href="#">642</a>              | $\backslash\mathrm{newmtharg}$ <a href="#">352</a> , 361, 363, 367, 369 | $\backslash\mathrm{P}$ .....                                                                           |
| $\backslash\mathrm{mthstyfam}$ .....         | <a href="#">532</a>              | $\backslash\mathrm{newmthargsty}$ .. <a href="#">358</a> , 406, 420     | $\backslash\mathrm{PackageWarning}$ .....                                                              |
| $\backslash\mathrm{mthstyfirm}$ .....        | <a href="#">697</a>              | $\backslash\mathrm{newmthoarg}$ .... <a href="#">364</a> , 373, 375     | 126                                                                                                    |
| $\backslash\mathrm{mthstyfun}$ .....         | <a href="#">616</a>              | $\backslash\mathrm{newmthoargsty}$ . <a href="#">370</a> , 408, 423     | $\backslash\mathrm{PDL}, \square\mathrm{CTL}, \square$ .....                                           |
| $\backslash\mathrm{mthstybop}$ .....         | <a href="#">673</a>              | $\backslash\mathrm{newmthopar}$ .... <a href="#">388</a> , 397, 399     | <a href="#">1596</a>                                                                                   |
| $\backslash\mathrm{mthstyrel}$ .....         | <a href="#">679</a>              | $\backslash\mathrm{newmthoparsty}$ . <a href="#">394</a> , 412, 429     | $\backslash\mathrm{Percontra}$ .....                                                                   |
| $\backslash\mathrm{mthstyluop}$ .....        | <a href="#">672</a>              | $\backslash\mathrm{newmthpar}$ <a href="#">376</a> , 385, 387, 391, 393 | <a href="#">777</a>                                                                                    |
| $\backslash\mathrm{mthstymat}$ .....         | <a href="#">711</a>              | $\backslash\mathrm{newmthparsty}$ .. <a href="#">382</a> , 410, 426     | $\backslash\mathrm{percontra}$ .....                                                                   |
| $\backslash\mathrm{mthstyname}$ .....        | <a href="#">519</a>              | $\backslash\mathrm{newmthsty}$ .... <a href="#">350</a> , 404, 417      | <a href="#">760</a>                                                                                    |
| $\backslash\mathrm{mthstyrel}$ .....         | <a href="#">603</a>              | $\backslash\mathrm{newtxt}$ .... <a href="#">293</a> , 296, 298, 306    | $\backslash\mathrm{PH}$ .....                                                                          |
| $\backslash\mathrm{mthstyset}$ .....         | <a href="#">584</a>              | $\backslash\mathrm{newtxtarg}$ .... <a href="#">297</a> , 300, 302      | $\backslash\mathrm{Pi}$ .....                                                                          |
| $\backslash\mathrm{mthstysig}$ .....         | <a href="#">558</a>              | $\backslash\mathrm{newtxtargsty}$ .. <a href="#">299</a> , 319, 332     | 1098, 1099, 1395                                                                                       |
| $\backslash\mathrm{mthstysnt}$ .....         | <a href="#">684</a>              | $\backslash\mathrm{newtxtoarg}$ .... <a href="#">301</a> , 304          | $\backslash\mathrm{pi}$ .....                                                                          |
| $\backslash\mathrm{mthstystr}$ .....         | <a href="#">571</a>              | $\backslash\mathrm{newtxtoargsty}$ . <a href="#">303</a> , 321, 334     | 1152, 1164, 1523, 1737                                                                                 |
| $\backslash\mathrm{mthstysym}$ .....         | <a href="#">629</a>              | $\backslash\mathrm{newtxtopar}$ .... <a href="#">309</a> , 312          | $\backslash\mathrm{playset}$ 1165, 1166, 1738, 1739                                                    |
| $\backslash\mathrm{mthstyvec}$ .....         | <a href="#">724</a>              | $\backslash\mathrm{newtxtoparsty}$ . <a href="#">311</a> , 325, 338     | $\backslash\mathrm{PlaySet}, \backslash\mathrm{playFun}$ . <a href="#">1164</a> , <a href="#">1737</a> |
| $\backslash\mathrm{mthsubsup}$ .....         | 349, <a href="#">400</a>         | $\backslash\mathrm{newtxtpar}$ .... <a href="#">305</a> , 308, 310      | $\backslash\mathrm{playsym}$ 1164, 1166, 1737, 1739                                                    |
| $\backslash\mathrm{mthsym}, \square$ .....   | <a href="#">628</a>              | $\backslash\mathrm{newtxtparsty}$ .. <a href="#">307</a> , 323, 336     | $\backslash\mathrm{PlrFun}$ .....                                                                      |
| $\backslash\mathrm{mthvec}, \square$ .....   | <a href="#">723</a>              | $\backslash\mathrm{newtxtsty}$ .... <a href="#">295</a> , 317, 330      | <a href="#">1140</a>                                                                                   |
| $\backslash\mathrm{MTL}$ .....               | 1453, 1458, <a href="#">1462</a> | $\backslash\mathrm{NGSL}$ .....                                         | $\backslash\mathrm{plrfun}$ .....                                                                      |
| $\backslash\mathrm{mu}$ .....                | <a href="#">1529</a>             | 1871, 1875, 1877                                                        | 1140, 1141                                                                                             |
| $\backslash\mathrm{Mutatismutandis}$ .....   | <a href="#">776</a>              | $\backslash\mathrm{nlr}$ .....                                          | $\backslash\mathrm{PlrSym}$ .....                                                                      |
| $\backslash\mathrm{mutatismutandis}$ .....   | <a href="#">759</a>              | 2042                                                                    | 1136, 1137, 1159, 1160,                                                                                |
|                                              |                                  | $\backslash\mathrm{nlset}$ .....                                        | 1171, 1172, 1710, 1711,                                                                                |
|                                              |                                  | 2044                                                                    | 1732, 1733, 1744, 1745                                                                                 |
|                                              |                                  | $\backslash\mathrm{noexpand}$ .....                                     | $\backslash\mathrm{plrsym}$ .....                                                                      |
|                                              |                                  | 173, 177                                                                | 1125, 1126                                                                                             |
|                                              |                                  | $\backslash\mathrm{normalfont}$ ....                                    | $\backslash\mathrm{PlrSym}, \square\backslash\mathrm{OppSym}$ .....                                    |
|                                              |                                  | 464, 489, 501                                                           | 1125                                                                                                   |
|                                              |                                  | $\backslash\mathrm{not}$ ... 817, 821, 825, 830, 834                    | $\backslash\mathrm{pm}$ .....                                                                          |
|                                              |                                  | $\backslash\mathrm{notcequiv}$ .....                                    | 973, 981, 989                                                                                          |
|                                              |                                  | 833                                                                     | $\backslash\mathrm{posset}$ .....                                                                      |
|                                              |                                  | $\backslash\mathrm{notcmodels}$ .....                                   | 1132, 1133, 1136, 1138,                                                                                |
|                                              |                                  | 829                                                                     | 1706, 1707, 1710, 1712                                                                                 |
|                                              |                                  | $\backslash\mathrm{notcoimplies}$ .....                                 | $\backslash\mathrm{PosSet}, \square$ ....                                                              |
|                                              |                                  | 824                                                                     | <a href="#">1131</a> , <a href="#">1705</a>                                                            |
|                                              |                                  | $\backslash\mathrm{notimplied}$ .....                                   | $\backslash\mathrm{possym}$ .....                                                                      |
|                                              |                                  | 820                                                                     | 1131, 1133, 1134, 1135,                                                                                |
|                                              |                                  | $\backslash\mathrm{notimplies}$ .....                                   | 1137, 1139, 1705, 1707,                                                                                |
|                                              |                                  | 816                                                                     | 1708, 1709, 1711, 1713                                                                                 |
|                                              |                                  | $\backslash\mathrm{num}, \square$ .....                                 | $\backslash\mathrm{pow}$ .....                                                                         |
|                                              |                                  | <a href="#">999</a>                                                     | <a href="#">923</a>                                                                                    |
|                                              |                                  | $\backslash\mathrm{numcc}$ .....                                        | $\backslash\mathrm{prefun}$ .....                                                                      |
|                                              |                                  | 1001                                                                    | 1178, 1179                                                                                             |
|                                              |                                  | $\backslash\mathrm{numco}$ .....                                        | $\backslash\mathrm{preFun}, \square\backslash\mathrm{sucFun}$ .....                                    |
|                                              |                                  | 1003                                                                    | <a href="#">1178</a>                                                                                   |
|                                              |                                  | $\backslash\mathrm{numoc}$ .....                                        | $\backslash\mathrm{prfset}$ . 1176, 1177, 1749, 1750                                                   |
|                                              |                                  | 1005                                                                    | $\backslash\mathrm{PrfSet}, \square\backslash\mathrm{prfFun}$ ..                                       |
|                                              |                                  | $\backslash\mathrm{numoo}$ .....                                        | <a href="#">1175</a> , <a href="#">1748</a>                                                            |
|                                              |                                  | 1007                                                                    | $\backslash\mathrm{prfsym}$ . 1175, 1177, 1748, 1750                                                   |
|                                              |                                  | $\backslash\mathrm{nxtFun}$ .....                                       | $\backslash\mathrm{PrimaFacie}$ .....                                                                  |
|                                              |                                  | <a href="#">1910</a>                                                    | 778                                                                                                    |
|                                              |                                  | $\backslash\mathrm{nxtfun}$ .....                                       | $\backslash\mathrm{primafacie}$ .....                                                                  |
|                                              |                                  | 1910, 1911                                                              | <a href="#">761</a>                                                                                    |
|                                              |                                  |                                                                         | $\backslash\mathrm{prj}$ .....                                                                         |
|                                              |                                  |                                                                         | <a href="#">934</a>                                                                                    |
|                                              |                                  |                                                                         | $\backslash\mathrm{ProcessOptions}$ .....                                                              |
|                                              |                                  |                                                                         | 130                                                                                                    |
|                                              |                                  |                                                                         | $\backslash\mathrm{providecommand}$ .....                                                              |
|                                              |                                  |                                                                         | 1523, 1524, 1705, 1706,                                                                                |
|                                              |                                  |                                                                         | 1729, 1730, 1737, 1738,                                                                                |
|                                              |                                  |                                                                         | 1741, 1742, 1748, 1749                                                                                 |
|                                              |                                  |                                                                         | $\backslash\mathrm{prtset}$ .....                                                                      |
|                                              |                                  |                                                                         | 1222, 1223                                                                                             |
|                                              |                                  |                                                                         | $\backslash\mathrm{PrtSet}, \square\backslash\mathrm{prtFun}$ .....                                    |
|                                              |                                  |                                                                         | <a href="#">1221</a>                                                                                   |
|                                              |                                  |                                                                         | $\backslash\mathrm{prtsym}$ .....                                                                      |
|                                              |                                  |                                                                         | 1221, 1223                                                                                             |
|                                              |                                  |                                                                         | $\backslash\mathrm{psn}$ .....                                                                         |
|                                              |                                  |                                                                         | <a href="#">1908</a>                                                                                   |
|                                              |                                  |                                                                         | $\backslash\mathrm{PSpace}, \square$ ....                                                              |
|                                              |                                  |                                                                         | <a href="#">1085</a>                                                                                   |
|                                              |                                  |                                                                         | $\backslash\mathrm{pthset}$ . 1153, 1154, 1524, 1525                                                   |
|                                              |                                  |                                                                         | $\backslash\mathrm{PthSet}, \square\backslash\mathrm{pthFun}$ ..                                       |
|                                              |                                  |                                                                         | <a href="#">1152</a> , <a href="#">1523</a>                                                            |
|                                              |                                  |                                                                         | $\backslash\mathrm{pthsym}$ . 1152, 1154, 1523, 1525                                                   |
|                                              |                                  |                                                                         | $\backslash\mathrm{PTime}, \square$ ....                                                               |
|                                              |                                  |                                                                         | <a href="#">1084</a>                                                                                   |
|                                              |                                  |                                                                         | $\backslash\mathrm{PTL}, \square\backslash\mathrm{LTL}, \square$ ....                                  |
|                                              |                                  |                                                                         | <a href="#">1562</a>                                                                                   |
|                                              |                                  |                                                                         | $\backslash\mathrm{pto}, \square\backslash\mathrm{pmapsto}$ .....                                      |
|                                              |                                  |                                                                         | <a href="#">944</a>                                                                                    |
|                                              |                                  |                                                                         |                                                                                                        |
|                                              |                                  |                                                                         | <b>Q</b>                                                                                               |
|                                              |                                  |                                                                         | $\backslash\mathrm{QAE}, \square\backslash\mathrm{QEA}$ .....                                          |
|                                              |                                  |                                                                         | <a href="#">1293</a>                                                                                   |

|                  |                            |                  |                              |                         |                         |
|------------------|----------------------------|------------------|------------------------------|-------------------------|-------------------------|
| \QAfMC           | 1552                       | \seqofgrklet     | 194, 451                     | \strset                 |                         |
| \QATL            | 1657                       | \seqofgrklow     |                              | 1169, 1170, 1171, 1173, |                         |
| \QATLP           | 1672                       |                  | 186, 195, 198, 447, 559, 572 | 1742, 1743, 1744, 1746  |                         |
| \QATLS           | 1687                       | \seqofgrkupp     | 190, 195, 200, 449           | \StrSet, \_...          | 1168, 1741              |
| \QCTL            | 1608                       | \seqoflatlet     | 183, 445, 559, 572           | \strsym                 |                         |
| \QCTLP           | 1623                       | \seqoflatlow     | 179, 184, 198, 441           |                         | 1168, 1170, 1172, 1174, |
| \QCTLS           | 1638                       | \seqoflatupp     | 181,                         |                         | 1741, 1743, 1745, 1747  |
| \QLTL            | 1577                       |                  | 184, 200, 443, 520, 533, 546 | \sttset                 |                         |
| \QMC             | 1536                       | \seqoflet        |                              |                         | 1715, 1716, 1717, 1719, |
| \QML             | 1497                       |                  | 201, 457, 585, 604, 617,     |                         | 1943, 1944, 1945, 1947  |
| \qntset          | 1296, 1297                 |                  | 630, 643, 685, 698, 712, 725 | \SttSet, \_...          | 1714, 1942              |
| \qntSet, \_...   | 1295                       | \seqoflow        | 197, 202, 453                | \sttsym                 |                         |
| \qntsym          | 1295, 1297                 | \seqoftag        | 170, 180, 182                |                         | 1714, 1716, 1718, 1720, |
| \QPSpace, \_...  | 1087                       | \seqofupp        | 199, 202, 455                |                         | 1942, 1944, 1946, 1948  |
| \QPTTime, \_...  | 1086                       | \sequence, \_... | 858                          | \stx                    | 793                     |
| \QPTL            | 1566                       | \sequencel       | 862                          | \sub                    | 1289                    |
|                  |                            | \sequencer       | 866                          | \sucfun                 | 1180, 1181              |
| <b>R</b>         |                            | \sequencex       | 870                          | \svarset                | 1437, 1438              |
| \raisebox        | 947                        | \sequencexl      | 874                          | \SVarSet, \_...         | 1436                    |
| \rangle          |                            | \sequencexr      | 878                          | \svarsym                | 1436, 1438              |
|                  | 884, 885, 892, 893, 896,   | \set, \_...      | 907                          | \symset                 | 1950, 1951              |
|                  | 897, 904, 905, 1508, 1695  | \SetB            | 962                          | \SymSet, \_...          | 1949                    |
| \rbrace          | 910, 918                   | \SetC, \_...     | 994                          | \symsym                 | 1949, 1951              |
| \rceil           | 1025                       | \SetCI           | 996                          |                         |                         |
| \rchfun          | 1192, 1193                 | \SetF            | 964                          | <b>T</b>                |                         |
| \relax           | 130                        | \SetInd          | 2026                         | \tab@false              | 115, 117                |
| \relset          | 1355, 1356                 | \SetKw           | 2028,                        | \tab@true               | 116                     |
| \relsig          | 1352, 1353                 |                  | 2033, 2034, 2035, 2036,      | \tau                    | 1727                    |
| \RelSig, \_...   | 1352                       |                  | 2037, 2038, 2039, 2040       | \TAutSet                | 1971                    |
| \relstr          | 1366, 1367                 | \SetKwFor        | 2029, 2030, 2031, 2032       | \tautset                | 1971, 1972              |
| \RelStr, \_...   | 1366                       | \SetKwIF         | 2041                         | \terset                 | 1349, 1350              |
| \relsym          | 1354, 1356                 | \setl            | 911                          | \tersig                 | 1346, 1347              |
| \RequirePackage  | 3, 5,                      | \setlength       | 2027                         | \TerSig, \_...          | 1346                    |
|                  | 6, 7, 211, 212, 213, 219,  | \SetN, \_...     | 966                          | \terstr                 | 1364, 1365              |
|                  | 224, 229, 234, 249, 264,   | \SetNI           | 968                          | \TerStr, \_...          | 1364                    |
|                  | 270, 272, 1995, 2009, 2024 | \SetQ, \_...     | 978                          | \tersym                 | 1348, 1350              |
| \resp            | 794                        | \SetQI           | 980                          | \text                   | 294, 314, 809           |
| \rfloor          | 1021                       | \SetQNI          | 984                          | \textstyle              | 672, 673                |
| \rho             | 1156, 1729                 | \SetQPI          | 982                          | \textup                 | 809                     |
| \right           | 355, 379, 837,             | \setr            | 915                          | \thestring              | 598, 599, 600, 601      |
|                  | 860, 864, 868, 872, 876,   | \SetR, \_...     | 986                          | \Theta                  | 958                     |
|                  | 880, 884, 888, 892, 896,   | \SetRI           | 988                          | \theta                  | 957                     |
|                  | 900, 904, 908, 912, 916,   | \SetRNI          | 992                          | \thmtls@false           | 25                      |
|                  | 920, 1011, 1015, 1019,     | \SetRPI          | 990                          | \thmtls@true            | 24                      |
|                  | 1023, 1042, 1510, 1697     | \SetZ, \_...     | 970                          | \tikzstyle              | 1997,                   |
| \Rightarrow      | 815, 817                   | \SetZI           | 972                          |                         | 1999, 2001, 2003, 2005  |
| \rightarrow      | 1277                       | \SetZNI          | 976                          | \Time, \_...            | 1080                    |
| \rightharpoonup  | 945, 948                   | \SetZPI          | 974                          | \TL, \_PL, \_...        | 1441                    |
| \rmfamily        | 327, 501                   | \sffamily        | 489                          | \top                    | 1265                    |
| \Role            | 787                        | \Sigma           | 1096, 1097, 1393, 1950       | \treeset                | 1978, 1979              |
| \role            | 785                        | \sigma           | 1168, 1741, 1949             | \TreeSet, \_...         | 1977                    |
| \rrbracket       | 839                        | \Signature       | 2028                         | \treesym                | 1977, 1979              |
| \rst             | 936                        | \sim             | 1271                         | \triangleq              | 810                     |
| \rVert           | 1017                       | \skm             | 1358                         | \trn                    | 847                     |
| \rvert           | 922, 1013, 1044            | \SL, \_...       | 1752                         | \trnFun                 | 1952                    |
|                  |                            | \SO              | 1407, 1413, 1419             | \trnsym                 | 1952, 1953              |
| <b>S</b>         |                            | \SOL, \_...      | 1399                         | \True, \_False          | 2033                    |
| \S               | 1592                       | \solFun          | 1196                         | \Tt, \_Ff               | 1265                    |
| \SATG, \_...     | 1107                       | \solfun          | 1196, 1197                   | \ttsym                  | 1265, 1266              |
| \SaveDoubleAcute | 1591                       | \Space, \_...    | 1081                         | \tuple, \_...           | 882                     |
| \SavePilcrow     | 1590                       | \stackrel        | 809                          | \tuplel                 | 886                     |



|               |                                     |                 |                              |                  |                              |
|---------------|-------------------------------------|-----------------|------------------------------|------------------|------------------------------|
| \tuplexr      | 902                                 | \UMC            | 1540                         |                  | <b>V</b>                     |
| \txt          | <u>316</u>                          | \UML            | 1501                         | \valset          | 1310, 1311                   |
| \txt@false    | 56, 66, 68                          | \UNGSL          | 1876                         | \ValSet,□...     | <u>1309</u>                  |
| \txt@true     | 67                                  | \UOGSL          | 1774                         | \valsym          | 1309, 1311                   |
| \txtabr,□...  | <u>475</u>                          | \upharpoonright | 937                          | \varcmd          | <u>161</u> ,                 |
| \txtarg       | <u>318</u>                          | \upshape        | 327                          |                  | 856, 857, 860, 861, 864,     |
| \txtcom,□...  | <u>500</u>                          | \UPTL           | 1570                         |                  | 865, 868, 869, 872, 873,     |
| \txtdef,□...  | <u>463</u>                          | \usetikzlibrary | 1996                         |                  | 876, 877, 880, 881, 884,     |
| \txtgen@false | 53, 56                              | \USL            | 1757                         |                  | 885, 888, 889, 892, 893,     |
| \txtgen@true  |                                     | \usrmth         | 433, 441, 443,               |                  | 896, 897, 900, 901, 904, 905 |
| ...           | 54, 67, 78, 84, 89, 94              |                 | 445, 447, 449, 451, 453,     | \varepsilon      | 1040                         |
| \txtname      | 1257,                               |                 | 455, 457, 522, 524, 526,     | \varnothing      | 927, 942                     |
|               | 1322, 1324, 1405, 1407,             |                 | 528, 530, 535, 537, 539,     | \varset          | 1329, 1330                   |
|               | 1411, 1413, 1417, 1419,             |                 | 541, 543, 548, 550, 552,     | \varsig          | 1326, 1327                   |
|               | 1423, 1425, 1429, 1431,             |                 | 554, 556, 561, 563, 565,     | \VarSig,□...     | <u>1326</u>                  |
|               | 1446, 1450, 1454, 1458,             |                 | 567, 569, 574, 576, 578,     | \varsym          | 1328, 1330                   |
|               | 1462, 1469, 1473, 1477,             |                 | 580, 582, 587, 589, 591,     | \vec             | <u>849</u>                   |
|               | 1481, 1485, 1494, 1498,             |                 | 593, 595, 606, 608, 610,     | \vert            | 910, 914                     |
|               | 1533, 1537, 1545, 1549,             |                 | 612, 614, 619, 621, 623,     | \Viceversa       | <u>779</u>                   |
|               | 1553, 1567, 1578, 1605,             |                 | 625, 627, 632, 634, 636,     | \viceversa       | <u>762</u>                   |
|               | 1609, 1620, 1624, 1635,             |                 | 638, 640, 645, 647, 649,     | \viz             | <u>764</u>                   |
|               | 1639, 1654, 1658, 1669,             |                 | 651, 653, 675, 677, 681,     | \vs              | <u>763</u>                   |
|               | 1673, 1684, 1688, 1761,             |                 | 687, 689, 691, 693, 695,     |                  |                              |
|               | 1778, 1795, 1812, 1829,             |                 | 700, 702, 704, 706, 708,     | <b>W</b>         |                              |
|               | 1846, 1863, 1880, 1897              |                 | 714, 716, 718, 720, 722,     | \WATL            | 1653                         |
| \txtname,□... | <u>488</u>                          |                 | 727, 729, 731, 733, 735,     | \WATLP           | 1668                         |
| \txtoarg      | <u>320</u>                          |                 | 929, 930, 931, 932, 950,     | \WATLS           | 1683                         |
| \txtoargcom   | 1054, 1070                          |                 | 951, 952, 953, 955, 956,     | \WAutSet         | <u>1940</u>                  |
| \txtopar      | <u>324</u>                          |                 | 957, 958, 959, 960, 1027,    | \wautset         | 1940, 1941                   |
| \txtoparcom   | 1072                                |                 | 1028, 1029, 1030, 1031,      | \WCTL            | 1604                         |
| \txtpar       | <u>322</u>                          |                 | 1032, 1033, 1034, 1035,      | \WCTLP           | 1619                         |
| \txtsty       |                                     |                 | 1036, 1037, 1045, 1046,      | \WCTLS           | 1634                         |
|               | 317, 319, 321, 323, 325, <u>326</u> |                 | 1266, 1268, 1270, 1272,      | \wghset          | 1241, 1242                   |
| \txtstyabr    | 476                                 |                 | 1274, 1276, 1278, 1280,      | \WghSet,□\wghFun | <u>1240</u>                  |
| \txtstycom    | 501                                 |                 | 1282, 1284, 1288, 1289,      | \wghsym          | 1240, 1242                   |
| \txtstydef    | 464                                 |                 | 1290, 1291, 1292, 1293,      | \WH              | <u>1092</u>                  |
| \txtstyname   | 489                                 |                 | 1294, 1298, 1299, 1300,      | \widehat         | 846                          |
| \txtsubsup    | 294, <u>313</u>                     |                 | 1301, 1331, 1332, 1338,      | \widetilde       | 848                          |
|               |                                     |                 | 1344, 1345, 1351, 1357,      | \WinSet          | <u>1146</u>                  |
|               |                                     |                 | 1358, 1394, 1396, 1504,      | \winset          | 1146, 1147                   |
|               |                                     |                 | 1505, 1506, 1584, 1585,      | \Wlogx           | <u>799</u>                   |
|               |                                     |                 | 1586, 1587, 1588, 1589,      | \wlogx           | <u>796</u>                   |
|               |                                     |                 | 1590, 1591, 1592, 1593,      | \WMPL            | 1480                         |
|               |                                     |                 | 1645, 1646, 1907, 1908       | \WMSO            | 1424                         |
| <b>U</b>      |                                     | \usrmthgrklet   | <u>450</u>                   | \WMSOL           | 1422                         |
| \UAFMC        | 1556                                | \usrmthgrklow   | <u>446</u>                   | \WMTL            | 1457                         |
| \UAGSL        | 1825                                | \usrmthgrkupp   | <u>448</u>                   | \wotFun          | <u>1980</u>                  |
| \UATL         | 1661                                | \usrmthlatlet   | <u>444</u>                   | \wotfun          | 1980, 1981                   |
| \UATLP        | 1676                                | \usrmthlatlow   | <u>440</u>                   | \wp              | 1295                         |
| \UATLS        | 1691                                | \usrmthlatupp   | <u>442</u> ,                 | \WPL             | 1468                         |
| \UBF          | 1260                                |                 | 1130, 1145, 1264, 1308,      | \wordset         | 1958, 1959                   |
| \UBGSL        | 1859                                |                 | 1327, 1334, 1340, 1347,      | \WrdSet,□...     | <u>1957</u>                  |
| \UCGSL        | 1791                                |                 | 1353, 1361, 1363, 1365,      | \wrdsym          | 1957, 1959                   |
| \UCTL         | 1612                                |                 | 1367, 1513, 1701, 1937       | \wrlset          | 1515, 1516                   |
| \UCTLP        | 1627                                | \usrmthlet      | 456, 598, 600                | \WrlSet,□...     | <u>1514</u>                  |
| \UCTLS        | 1642                                | \usrmthlow      | <u>452</u>                   | \wrlsym          | 1514, 1516, 1517             |
| \UDGSL        | 1808                                | \usrmthupp      | <u>454</u>                   | \wrpfig@false    | 111                          |
| \UEGSL        | 1842                                |                 | 342, 466, 468, 470, 472,     | \wrpfig@true     | 110                          |
| \UFAGSL       | 1833                                |                 | 474, 478, 480, 482, 484,     | \wrt             | <u>795</u>                   |
| \UFBGSL       | 1867                                |                 | 486, 491, 493, 495, 497,     | \WSO             | 1406                         |
| \UFCGSL       | 1799                                |                 | 499, 503, 505, 507, 509, 511 | \WSOL            | 1404                         |
| \UFDGSL       | 1816                                |                 |                              | \WTL             | 1445                         |
| \UFEGL        | 1850                                |                 |                              |                  |                              |
| \UFNGSL       | 1884                                |                 |                              |                  |                              |
| \UFGSL        | 1782                                |                 |                              |                  |                              |
| \UFSL         | 1765                                |                 |                              |                  |                              |
| \UFXGSL       | 1901                                |                 |                              |                  |                              |
| \ULH,□\UBH    | <u>1098</u>                         |                 |                              |                  |                              |
| \ULTL         | 1581                                | \UXGSL          | 1893                         |                  |                              |

|                        |                      |                        |                          |                       |
|------------------------|----------------------|------------------------|--------------------------|-----------------------|
| <b>X</b>               | <b>\xGSL</b> . . . . | 1795, 1812, 1829,      | <b>\xspace</b> . . . . . | 294                   |
| <b>\X,□</b> . . . . .  |                      | 1846, 1863, 1880, 1897 |                          |                       |
|                        |                      |                        | <b>Y</b>                 |                       |
| <b>\XGSL</b> . . . . . | 1888, 1892, 1894     | <b>\xi</b> . . . . .   | 1175, 1309, 1748         | <b>\Y,□</b> . . . . . |
|                        |                      |                        |                          | <u>1589</u>           |