

fmocdmac — FM's OCD L^AT_EX Macro*

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Abstract

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

1 Implementation & Usage

1 `\package`

Required external packages:

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

Package options:

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

*This document describes version v0.22 of the fmocdmac package, last revised 2023/09/14.

```

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@ \firm@false
100 \DeclareOption{firm}{\firm@true}
101 \DeclareOption{nofirm}{\firm@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{⟨A⟩}{⟨B⟩}` 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 \iflinnum@
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!

- `\newtxt[\rmfamily]{Name}[sub][sup][Ext] = "NamesubExt"`
- `\newtxt[\sffamily]{Name}[sub][sup][Ext] = "NamesubExt"`
- `\newtxt[\ttfamily]{Name}[sub][sup][Ext] = "NamesubExt"`
- `\newtxt*[\rmfamily]{Name}[sub][sup][Ext] = "NamesubExt"`
- `\newtxt*[\sffamily]{Name}[sub][sup][Ext] = "NamesubExt"`
- `\newtxt*[\ttfamily]{Name}[sub][sup][Ext] = "NamesubExt"`

```

293 \newcommand{\newtxt}
294 {\@ifstar{\@snewtxt}{\@newtxt}}
295 \newcommandx{\@newtxt}[5][1=, 3=, 4=, 5=]
296 {\text{#1#2\txsubsup{#1}{#3}{#4}{#5}\xspace}}
297 \newcommandx{\@snewtxt}[5][1=, 3=, 4=, 5=]
298 {#1#2\txsubsup{#1}{#3}{#4}{#5}\normalfont\xspace}}

```

`\newtxtsty` ... to do!

- `\newtxtsty{\rmfamily}{Name}[sub][sup][Ext] = "NamesubExt"`
- `\newtxtsty{\rmfamily}[\sffamily]{Name}[sub][sup][Ext] = "NamesubExt"`
- `\newtxtsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext] = "NamesubExt"`
- `\newtxtsty*{\rmfamily}{Name}[sub][sup][Ext] = "NamesubExt"`
- `\newtxtsty*{\rmfamily}[\sffamily]{Name}[sub][sup][Ext] = "NamesubExt"`
- `\newtxtsty*{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext] = "NamesubExt"`

```

299 \newcommand{\newtxtsty}
300   {\@ifstar{\@snewtxtsty}{\@newtxtsty}}
301 \newcommandx{\@newtxtsty}[2][2=]
302   {\newtxt[\defval{#2}{#1}]}
303 \newcommandx{\@snewtxtsty}[2][2=]
304   {\newtxt*[\defval{#2}{#1}]}

```

\newtxtarg ... to do!

- \newtxtarg[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”
- \newtxtarg[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”
- \newtxtarg[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”
- \newtxtarg*[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”
- \newtxtarg*[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”
- \newtxtarg*[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”

```

305 \newcommand{\newtxtarg}
306   {\@ifstar{\@snewtxtarg}{\@newtxtarg}}
307 \newcommandx{\@newtxtarg}[7][1=, 3=, 4=, 5=, 7=]
308   {\newtxt[#1]{#2}[#3][#4][\argmid{#5}{#6}{#7}]}
309 \newcommandx{\@snewtxtarg}[7][1=, 3=, 4=, 5=, 7=]
310   {\newtxt*[#1]{#2}[#3][#4][\argmid{#5}{#6}{#7}]}

```

\newtxtargsty ... to do!

- \newtxtargsty[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”
- \newtxtargsty[\rmfamily][\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”
- \newtxtargsty[\rmfamily][\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”
- \newtxtargsty*[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”
- \newtxtargsty*[\rmfamily][\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”
- \newtxtargsty*[\rmfamily][\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”

```

311 \newcommand{\newtxtargsty}
312   {\@ifstar{\@snewtxtargsty}{\@newtxtargsty}}
313 \newcommandx{\@newtxtargsty}[2][2=]
314   {\newtxtarg[\defval{#2}{#1}]}
315 \newcommandx{\@snewtxtargsty}[2][2=]
316   {\newtxtarg*[\defval{#2}{#1}]}

```

\newtxtoarg ... to do!

- \newtxtoarg[\rmfamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”
- \newtxtoarg[\sffamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”
- \newtxtoarg[\ttfamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”
- \newtxtoarg*[\rmfamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”
- \newtxtoarg*[\sffamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”
- \newtxtoarg*[\ttfamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”

```

317 \newcommand{\newtxtoarg}
318   {\@ifstar{\@snewtxtoarg}{\@newtxtoarg}}
319 \newcommandx{\@newtxtoarg}[5][1=, 3=, 4=, 5=]
320   {\newxtarg[#1]{#2}[#3][#4][\#5]}
321 \newcommandx{\@snewtxtoarg}[5][1=, 3=, 4=, 5=]
322   {\newxtarg*[#1]{#2}[#3][#4][\#5]}

```

\newtxtoargsty ... to do!

- \newtxtoargsty[\rmfamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”
- \newtxtoargsty[\rmfamily][\sffamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”
- \newtxtoargsty[\rmfamily][\ttfamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”
- \newtxtoargsty*[\rmfamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”
- \newtxtoargsty*[\rmfamily][\sffamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”

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

```

323 \newcommand{\newtxtoargsty}
324   {\@ifstar{\@snewtxtoargsty}{\@newtxtoargsty}}
325 \newcommandx{\@newtxtoargsty}[2][2=]
326   {\newtxtoarg[\defval{#2}{#1}]}
327 \newcommandx{\@snewtxtoargsty}[2][2=]
328   {\newtxtoarg*[\defval{#2}{#1}]}

```

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

- $\backslash\text{newtxtpar}[\backslash\text{rmfamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$
- $\backslash\text{newtxtpar}[\backslash\text{sffamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$
- $\backslash\text{newtxtpar}[\backslash\text{ttfamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$
- $\backslash\text{newtxtpar}*\{\backslash\text{rmfamily}\}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$
- $\backslash\text{newtxtpar}*\{\backslash\text{sffamily}\}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$
- $\backslash\text{newtxtpar}*\{\backslash\text{ttfamily}\}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$

```

329 \newcommand{\newtxtpar}
330   {\@ifstar{\@snewtxtpar}{\@newtxtpar}}
331 \newcommandx{\@newtxtpar}[7][1=, 3=, 4=, 5=, 7=]
332   {\newtxt[#1]{#2}[#3][#4][\argmid{#5[]}{#6[]}{#7[]}] }
333 \newcommandx{\@snewtxtpar}[7][1=, 3=, 4=, 5=, 7=]
334   {\newtxt*[#1]{#2}[#3][#4][\argmid{#5[]}{#6[]}{#7[]}] }

```

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

- $\backslash\text{newtxtparsty}[\backslash\text{rmfamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$
- $\backslash\text{newtxtparsty}[\backslash\text{rmfamily}][\backslash\text{sffamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$
- $\backslash\text{newtxtparsty}[\backslash\text{rmfamily}][\backslash\text{ttfamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$
- $\backslash\text{newtxtparsty}*\{\backslash\text{rmfamily}\}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$
- $\backslash\text{newtxtparsty}*\{\backslash\text{rmfamily}\}[\backslash\text{sffamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$
- $\backslash\text{newtxtparsty}*\{\backslash\text{rmfamily}\}[\backslash\text{ttfamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{“Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}”$

```

335 \newcommand{\newtxtparsty}
336   {\@ifstar{\@snewtxtparsty}{\@newtxtparsty}}
337 \newcommandx{\@newtxtparsty}[2][2=]
338   {\newtxtpar[\defval{#2}{#1}]}
339 \newcommandx{\@snewtxtparsty}[2][2=]
340   {\newtxtpar*[\defval{#2}{#1}]}

```

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

- $\backslash\text{newtxtopar}[\backslash\text{rmfamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}] = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{Par}]”$
- $\backslash\text{newtxtopar}[\backslash\text{sffamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}] = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{Par}]”$
- $\backslash\text{newtxtopar}[\backslash\text{ttfamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}] = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{Par}]”$
- $\backslash\text{newtxtopar}*\{\backslash\text{rmfamily}\}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}] = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{Par}]”$
- $\backslash\text{newtxtopar}*\{\backslash\text{sffamily}\}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}] = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{Par}]”$
- $\backslash\text{newtxtopar}*\{\backslash\text{ttfamily}\}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}] = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{Par}]”$

```

341 \newcommand{\newtxtopar}
342   {\@ifstar{\@snewtxtopar}{\@newtxtopar}}
343 \newcommandx{\@newtxtopar}[5][1=, 3=, 4=, 5=]
344   {\newtxtpar[#1]{#2}[#3][#4][\{#5[]}] }
345 \newcommandx{\@snewtxtopar}[5][1=, 3=, 4=, 5=]
346   {\newtxtpar*[#1]{#2}[#3][#4][\{#5[]}] }

```

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

- $\backslash\text{newtxtoparsty}[\backslash\text{rmfamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}] = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{Par}]”$
- $\backslash\text{newtxtoparsty}[\backslash\text{rmfamily}][\backslash\text{sffamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}] = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{Par}]”$
- $\backslash\text{newtxtoparsty}[\backslash\text{rmfamily}][\backslash\text{ttfamily}]\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}] = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{Par}]”$
- $\backslash\text{newtxtoparsty}*\{\backslash\text{rmfamily}\}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}] = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{Par}]”$

- $\newtxtoparsty*\{\rmfamily\}[\sfamily]\{Name\}_{sub}^{sup}[Par] = \text{“Name}_{sub}^{sup}[Par]”$
- $\newtxtoparsty*\{\rmfamily\}[\ttfamily]\{Name\}_{sub}^{sup}[Par] = \text{“Name}_{sub}^{sup}[Par]”$

```

347 \newcommand{\newtxtoparsty}
348   {\@ifstar{\@snewtxtoparsty}{\@newtxtoparsty}}
349 \newcommandx{\@newtxtoparsty}[2][2=]
350   {\newtxtopar[\defval{#2}{#1}]}
351 \newcommandx{\@snewtxtoparsty}[2][2=]
352   {\newtxtopar*[\defval{#2}{#1}]}

```

$\texttt{\textbackslash txtsubsup}$... to do!

- $\texttt{\textbackslash txtsubsup}\{sub\}\{\} = \text{“}_{sub}”$; $\texttt{\textbackslash txtsubsup}\{\}\{sup\} = \text{“}^{sup}”$; $\texttt{\textbackslash txtsubsup}\{sub\}\{sup\} = \text{“}_{sub}^{sup}”$
- $\texttt{\textbackslash txtsubsup}[\sfamily]\{Aa\}\{Bb\} = \text{“}_{Aa}^{Bb}”$
- $\texttt{\textbackslash txtsubsup}[\ttfamily]\{Aa\}\{Bb\} = \text{“}_{Aa}^{Bb}”$

```

353 \newcommand{\txtsubsup}[3][ ]
354   {\ensuremath{\empchk{#2}\_{\text{#1#2}}}\empchk{#3}\^{ \text{#1#3}}}}
355 %*****%

```

$\texttt{\textbackslash txt}$... to do!

- $\texttt{\textbackslash txt}\{Name\}_{sub}^{sup}[Ext] = \text{“Name}_{sub}^{sup}Ext”$
- $\texttt{\textbackslash txt}[\scshape]\{Name\}_{sub}^{sup}[Ext] = \text{“NAME}_{SUB}^{SUP}EXT”$
- $\texttt{\textbackslash txt}[\bfseries]\{Name\}_{sub}^{sup}[Ext] = \text{“Name}_{sub}^{sup}Ext”$
- $\texttt{\textbackslash txt*}\{Name\}_{sub}^{sup}[Ext] = \text{“Name}_{sub}^{sup}Ext”$
- $\texttt{\textbackslash txt*}[\scshape]\{Name\}_{sub}^{sup}[Ext] = \text{“NAME}_{SUB}^{SUP}EXT”$
- $\texttt{\textbackslash txt*}[\bfseries]\{Name\}_{sub}^{sup}[Ext] = \text{“Name}_{sub}^{sup}Ext”$

```

356 \newcommand{\txt}
357   {\@ifstar{\newtxtsty}{\txtsty}}

```

$\texttt{\textbackslash txtarg}$... to do!

- $\texttt{\textbackslash txtarg}\{Name\}_{sub}^{sup}[Ext1]\{Arg\}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2”$
- $\texttt{\textbackslash txtarg}[\scshape]\{Name\}_{sub}^{sup}[Ext1]\{Arg\}[Ext2] = \text{“NAME}_{SUB}^{SUP}EXT1(ARG)EXT2”$
- $\texttt{\textbackslash txtarg}[\bfseries]\{Name\}_{sub}^{sup}[Ext1]\{Arg\}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2”$
- $\texttt{\textbackslash txtarg*}\{Name\}_{sub}^{sup}[Ext1]\{Arg\}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2”$
- $\texttt{\textbackslash txtarg*}[\scshape]\{Name\}_{sub}^{sup}[Ext1]\{Arg\}[Ext2] = \text{“NAME}_{SUB}^{SUP}EXT1(ARG)EXT2”$
- $\texttt{\textbackslash txtarg*}[\bfseries]\{Name\}_{sub}^{sup}[Ext1]\{Arg\}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2”$

```

358 \newcommand{\txtarg}
359   {\@ifstar{\newtxtargsty}{\txtsty}}

```

$\texttt{\textbackslash txttoarg}$... to do!

- $\texttt{\textbackslash txttoarg}\{Name\}_{sub}^{sup}[Arg] = \text{“Name}_{sub}^{sup}(Arg)”$
- $\texttt{\textbackslash txttoarg}[\scshape]\{Name\}_{sub}^{sup}[Arg] = \text{“NAME}_{SUB}^{SUP}(ARG)”$
- $\texttt{\textbackslash txttoarg}[\bfseries]\{Name\}_{sub}^{sup}[Arg] = \text{“Name}_{sub}^{sup}(Arg)”$
- $\texttt{\textbackslash txttoarg*}\{Name\}_{sub}^{sup}[Arg] = \text{“Name}_{sub}^{sup}(Arg)”$
- $\texttt{\textbackslash txttoarg*}[\scshape]\{Name\}_{sub}^{sup}[Arg] = \text{“NAME}_{SUB}^{SUP}(ARG)”$
- $\texttt{\textbackslash txttoarg*}[\bfseries]\{Name\}_{sub}^{sup}[Arg] = \text{“Name}_{sub}^{sup}(Arg)”$

```

360 \newcommand{\txttoarg}
361   {\@ifstar{\newtxttoargsty}{\txtsty}}

```

$\texttt{\textbackslash txtpar}$... to do!

- $\texttt{\textbackslash txtpar}\{Name\}_{sub}^{sup}[Ext1]\{Par\}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par]Ext2”$
- $\texttt{\textbackslash txtpar}[\scshape]\{Name\}_{sub}^{sup}[Ext1]\{Par\}[Ext2] = \text{“NAME}_{SUB}^{SUP}EXT1[PAR]EXT2”$
- $\texttt{\textbackslash txtpar}[\bfseries]\{Name\}_{sub}^{sup}[Ext1]\{Par\}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par]Ext2”$
- $\texttt{\textbackslash txtpar*}\{Name\}_{sub}^{sup}[Ext1]\{Par\}[Ext2] = \text{“Name}_{sub}^{sup}Ext1[Par]Ext2”$
- $\texttt{\textbackslash txtpar*}[\scshape]\{Name\}_{sub}^{sup}[Ext1]\{Par\}[Ext2] = \text{“NAME}_{SUB}^{SUP}EXT1[PAR]EXT2”$

```

    • \txtpar*[\bfseries]{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesupsubExt1[Par]Ext2"
362 \newcommand{\txtpar}
363   {\@ifstar{\newtxtparsty*{\txtsty}}{\newtxtparsty{\txtsty}}}

\txtopar ... to do!
    • \txtopar{Name}[sub][sup][Par] = "Namesupsub[Par]"
    • \txtopar[\scshape]{Name}[sub][sup][Par] = "NAMEsupSUB[PAR]"
    • \txtopar[\bfseries]{Name}[sub][sup][Par] = "Namesupsub[Par]"
    • \txtopar*{Name}[sub][sup][Par] = "Namesupsub[Par]"
    • \txtopar*[\scshape]{Name}[sub][sup][Par] = "NAMEsupSUB[PAR]"
    • \txtopar*[\bfseries]{Name}[sub][sup][Par] = "Namesupsub[Par]"
364 \newcommand{\txtopar}
365   {\@ifstar{\newtxtoparsty*{\txtsty}}{\newtxtoparsty{\txtsty}}}

\txtsty ... to do!
366 \newcommand{\txtsty}
367   {\mdseries\upshape\rmfamily}

368 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\cmdtxt ... to do!
    • \cmdtxt{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
    \txtNewCmd{Name}[sub][sup][Ext] = NAMEsupSUBEXT
    \txtNewCmd*{Name}[sub][sup][Ext] = NAMEsupSUBEXT
369 \newcommand{\cmdtxt}[1]
370   {\csdef{txt#1}%
371     {\@ifstar%
372       {\newtxtsty*\csname txtsty#1\endcsname}}%
373     {\newtxtsty{\csname txtsty#1\endcsname}}}}

\cmdtxtarg ... to do!
    • \cmdtxtarg{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
    \txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMEsupSUBEXT1(ARG)EXT2
    \txtargNewCmd*{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMEsupSUBEXT1(ARG)EXT2
374 \newcommand{\cmdtxtarg}[1]
375   {\csdef{txtarg#1}%
376     {\@ifstar%
377       {\newtxtargsty*\csname txtsty#1\endcsname}}%
378     {\newtxtargsty{\csname txtsty#1\endcsname}}}}

\cmdtxttoarg ... to do!
    • \cmdtxttoarg{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
    \txtoargNewCmd{Name}[sub][sup][Arg] = NAMEsupSUB(ARG)
    \txtoargNewCmd*{Name}[sub][sup][Arg] = NAMEsupSUB(ARG)
379 \newcommand{\cmdtxttoarg}[1]
380   {\csdef{txtoarg#1}%
381     {\@ifstar%
382       {\newtxtoargsty*\csname txtsty#1\endcsname}}%
383     {\newtxtoargsty{\csname txtsty#1\endcsname}}}}

\cmdtxtpar ... to do!
    • \cmdtxtpar{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
    \txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMEsupSUBEXT1[PAR]EXT2
    \txtparNewCmd*{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMEsupSUBEXT1[PAR]EXT2
384 \newcommand{\cmdtxtpar}[1]
385   {\csdef{txtpar#1}%
386     {\@ifstar%
387       {\newtxtparsty*\csname txtsty#1\endcsname}}%
388     {\newtxtparsty{\csname txtsty#1\endcsname}}}}

```

```

\cmdtxtopar ... to do!
    • \cmdtxtopar{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
      \txtoparNewCmd{Name}[sub][sup][Par] = NAMESUB[PAR]
      \txtoparNewCmd*{Name}[sub][sup][Par] = NAMESUB[PAR]

389 \newcommand{\cmdtxtopar}[1]
390   {\csdef{txtopar#1}%
391    {\@ifstar%
392     {\newtxtoparsty*{\csname txtsty#1\endcsname}}%
393     {\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]

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

396 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\usrtxt ... to do!
    • \usrtxt{cmdName}{Suf}{};
      \cmdNameSuf = cmdName
      \cmdNameSuf* = cmdName
      \usrtxt{cmdName}{Suf}{arg};
      \cmdNameSuf{Arg} = cmdName(Arg)
      \cmdNameSuf*{Arg} = cmdName(Arg)
      \usrtxt{cmdName}{Suf}{par};
      \cmdNameSuf{Par} = cmdName[Par]
      \cmdNameSuf*{Par} = cmdName[Par]

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

397 \newcommandx{\usrtxt}[4][4=]
398   {\csdef{#1#2}{%
399    \@ifstar%
400     {\csname txt#3\endcsname*\defval{#4}{#1}}%
401     {\csname txt#3\endcsname\defval{#4}{#1}}}}

402 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
403 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
404 %** Math Meta Commands %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
405 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\newmth ... to do!
    • \newmth[mathrm]{Name}[sub][sup][Ext] = "NamesupsubExt"
    • \newmth[mathsf]{Name}[sub][sup][Ext] = "NamesupsubExt"
    • \newmth[mathtt]{Name}[sub][sup][Ext] = "NamesupsubExt"
    • \newmth*[mathrm]{Name}[sub][sup][Ext] = "NamesupsubExt"
    • \newmth*[mathsf]{Name}[sub][sup][Ext] = "NamesupsubExt"
    • \newmth*[mathtt]{Name}[sub][sup][Ext] = "NamesupsubExt"

```

```

406 \newcommand{\newmth}
407   {\@ifstar{\@snewmth}{\@newmth}}
408 \newcommandx{\@newmth}[5][1=, 3=, 4=, 5=]
409   {\ensuremath{\csname#1\endcsname{#2}\mthsubsup{#3}{#4}{#5}}}
410 \newcommandx{\@snewmth}[5][1=, 3=, 4=, 5=]
411   {\ensuremath{\csname#1\endcsname #2\mthsubsup{#3}{#4}{#5}}}

```

\newmthsty ... to do!

- \newmthsty{\mathrm}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”
- \newmthsty{\mathsf}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”
- \newmthsty{\mathtt}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”
- \newmthsty*{\mathrm}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”
- \newmthsty*{\mathsf}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”
- \newmthsty*{\mathtt}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”

```

412 \newcommand{\newmthsty}
413   {\@ifstar{\@snewmthsty}{\@newmthsty}}
414 \newcommandx{\@newmthsty}[2][2=]
415   {\newmth[\defval{#2}{#1}]}
416 \newcommandx{\@snewmthsty}[2][2=]
417   {\newmth*[\defval{#2}{#1}]}

```

\newmtharg ... to do!

- \newmtharg{\mathrm}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = “Name^{sup}_{sub}Ext1(Arg^{Ex^{Ex}})Ext2”
- \newmtharg{\mathsf}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = “Name^{sup}_{sub}Ext1(Arg^{Ex^{Ex}})Ext2”
- \newmtharg{\mathtt}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = “Name^{sup}_{sub}Ext1(Arg^{Ex^{Ex}})Ext2”
- \newmtharg*{\mathrm}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = “Name^{sup}_{sub}Ext1(Arg^{Ex^{Ex}})Ext2”
- \newmtharg*{\mathsf}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = “Name^{sup}_{sub}Ext1(Arg^{Ex^{Ex}})Ext2”
- \newmtharg*{\mathtt}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = “Name^{sup}_{sub}Ext1(Arg^{Ex^{Ex}})Ext2”

```

418 \newcommand{\newmtharg}
419   {\@ifstar{\@snewmtharg}{\@newmtharg}}
420 \newcommandx{\@newmtharg}[7][1=, 3=, 4=, 5=, 7=]
421   {\newmth{#1}{#2}{#3}{#4}[\argmid{#5}{\left}{\right}\arglef{!}{#7}]}
422 \newcommandx{\@snewmtharg}[7][1=, 3=, 4=, 5=, 7=]
423   {\newmth{#1}{#2}{#3}{#4}[\argmid{#5}{#6}{#7}]}

```

\newmthargsty ... to do!

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

```

424 \newcommand{\newmthargsty}
425   {\@ifstar{\@snewmthargsty}{\@newmthargsty}}
426 \newcommandx{\@newmthargsty}[2][2=]
427   {\newmtharg[\defval{#2}{#1}]}
428 \newcommandx{\@snewmthargsty}[2][2=]
429   {\newmtharg*[\defval{#2}{#1}]}

```

\newmthoarg ... to do!

- \newmthoarg{\mathrm}{Name}[sub][sup][Arg^{Ex^{Ex}}] = “Name^{sup}_{sub}(Arg^{Ex^{Ex}})”

- ```

430 \newcommand{\newmthoarg}
431 {\@ifstar{\@snewmthoarg}{\@newmthoarg}}
432 \newcommandx{\@newmthoarg}[5][1=, 3=, 4=, 5=]
433 {\newmtharg{#1}{#2}{#3}{#4}[] {#5}[] }
434 \newcommandx{\@snewmthoarg}[5][1=, 3=, 4=, 5=]
435 {\newmtharg*{#1}{#2}{#3}{#4}[] {#5}[] }

```

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

- `\newmthpar[\mathrm]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = `"NamesupsubExt1[ParExEx]Ext2"`
- `\newmthpar[\mathsf]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = `"NamesupsubExt1[ParExEx]Ext2"`
- `\newmthpar[\mathtt]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = `"NamesupsubExt1[ParExEx]Ext2"`
- `\newmthpar*[\mathrm]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = `"NamesupsubExt1[ParExEx]Ext2"`
- `\newmthpar*[\mathsf]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = `"NamesupsubExt1[ParExEx]Ext2"`
- `\newmthpar*[\mathtt]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]` = `"NamesupsubExt1[ParExEx]Ext2"`

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

```

448 \newcommand{\newmthparsty}
449 {\@ifstar{\@snewmthparsty}{\@newmthparsty}}
450 \newcommandx{\@newmthparsty}[2][2=]
451 {\newmthpar[\defval{#2}{#1}]}
452 \newcommandx{\@snewmthparsty}[2][2=]
453 {\newmthpar*[\defval{#2}{#1}]}

```

\newmthpar ... to do!

- $\newmthpar{\mathrm}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$
- $\newmthpar{\mathrm{sf}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$
- $\newmthpar{\mathrm{ttt}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$
- $\newmthpar*{\mathrm{rm}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$
- $\newmthpar*{\mathrm{sf}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$
- $\newmthpar*{\mathrm{ttt}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$

```

454 \newcommand{\newmthopar}
455 {\@ifstar{\@snewmthopar}{\@newmthopar}}
456 \newcommandx{\@newmthopar}[5][1=, 3=, 4=, 5=]
457 {\newmthpar{#1}{#2}{#3}{#4}[] {#5} []}
458 \newcommandx{\@snewmthopar}[5][1=, 3=, 4=, 5=]
459 {\newmthpar*{#1}{#2}{#3}{#4}[] {#5} []}

```

\newmthoparsty ... to do!

- $\newmthoparsty{\mathrm}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$
- $\newmthoparsty{\mathrm{rm}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$
- $\newmthoparsty{\mathrm{ttt}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$
- $\newmthoparsty*{\mathrm{rm}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$
- $\newmthoparsty*{\mathrm{sf}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$
- $\newmthoparsty*{\mathrm{ttt}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}}{\mathrm{Ex}}]"}$

```

460 \newcommand{\newmthoparsty}
461 {\@ifstar{\@snewmthoparsty}{\@newmthoparsty}}
462 \newcommandx{\@newmthoparsty}[2][2=]
463 {\newmthopar[\defval{#2}{#1}]}
464 \newcommandx{\@snewmthoparsty}[2][2=]
465 {\newmthopar*[\defval{#2}{#1}]}

```

\mthsubsup ... to do!

```

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

468 %%%

```

\mth ... to do!

- $\mth{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext} = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}"}$
- $\mth{\mathrm{bf}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext} = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}"}$
- $\mth{\mathrm{ttt}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext} = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}"}$
- $\mth*{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext} = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}"}$
- $\mth*{\mathrm{bf}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext} = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}"}$
- $\mth*{\mathrm{ttt}}{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext} = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}"}$

```

469 \newcommand{\mth}
470 {\@ifstar{\newmthsty*{\mthsty}}{\newmthsty{\mthsty}}}

```

\mtharg ... to do!





- `\cmdmth{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};`  

$$\text{\mthNewCmd{Name}[sub][sup][Ext]} = \text{Name}_{sub}^{sup} Ext$$

$$\text{\mthNewCmd*{Name}[sub][sup][Ext]} = \text{Name}_{sub}^{sup} Ext$$

```

482 \newcommand{\cmdmth}[1]
483 {\csdef{mth#1}%
484 {\@ifstar{\newmthsty*{mthsty#1}}{\newmthsty{mthsty#1}}}}

\cmdmtharg ... to do!

- \cmdmtharg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};

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

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


```

485 \newcommand{\cmdmtharg}[1]
486   {\csdef{mtharg#1}%
487     {\@ifstar{\newmthargsty*{mthsty#1}}{\newmthargsty{mthsty#1}}}}

\cmdmthoarg ... to do!



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


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


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



```

488 \newcommand{\cmdmthoarg}[1]
489 {\csdef{mthoarg#1}%
490 {\@ifstar{\newmthoargsty*{mthsty#1}}{\newmthoargsty{mthsty#1}}}}

\cmdmthpar ... to do!

- \cmdmthpar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};

$$\text{\mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]} = \text{Name}_{sub}^{sup} Ext1 \left[Par^{Ex^{Ex}} \right] Ext2$$

$$\text{\mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]} = \text{Name}_{sub}^{sup} Ext1 [Par^{Ex^{Ex}}] Ext2$$


```

491 \newcommand{\cmdmthpar}[1]
492   {\csdef{mthpar#1}%
493     {\@ifstar{\newmthparsty*{mthsty#1}}{\newmthparsty{mthsty#1}}}}

\cmdmthopar ... to do!



- \cmdmthopar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};  


$$\text{\mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}]} = \text{Name}_{sub}^{sup} \left[ Par^{Ex^{Ex}} \right]$$


$$\text{\mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}]} = \text{Name}_{sub}^{sup} [Par^{Ex^{Ex}}]$$



```

494 \newcommand{\cmdmthopar}[1]
495 {\csdef{mthopar#1}%
496 {\@ifstar{\newmthoparsty*{mthsty#1}}{\newmthoparsty{mthsty#1}}}}

\cmdmthall ... to do!

- \cmdmthall{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};

$$\text{\mthNewCmd{Name}[sub][sup][Ext]} = \text{Name}_{sub}^{sup} Ext$$

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

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

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

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

$$\text{\mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]} = \text{Name}_{sub}^{sup} Ext1 \left[Par^{Ex^{Ex}} \right] Ext2$$

$$\text{\mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2]} = \text{Name}_{sub}^{sup} Ext1 [Par^{Ex^{Ex}}] Ext2$$

$$\text{\mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}]} = \text{Name}_{sub}^{sup} \left[Par^{Ex^{Ex}} \right]$$

$$\text{\mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}]} = \text{Name}_{sub}^{sup} [Par^{Ex^{Ex}}]$$


```

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

499 %%*****%
```


```


```


```


```


```

```

\usrmth ... to do!
 • \usrmth{cmdName}{Suf}{};
 \cmdNameSuf = cmdName
 \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
 \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}}]
500 \newcommandx{\usrmth}[4][4=]
501 {\csdef{#1#2}{%
502 \@ifstar%
503 {\csname mth#3\endcsname*{\defval{#4}{#1}}}%
504 {\csname mth#3\endcsname{\defval{#4}{#1}}}%
505 }%*****%

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

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

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

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

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

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

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

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

```

```

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

524 %*****
525 %*****
526 %** Text Macro Generators *****
527 %*****
528 \iftxtgen@

\txtdef, to do!
 • \txtdef{Name}[sub][sup][Ext] = $Name_{sub}^{sup}Ext$
 • \txtargdef{Name}[sub][sup][Ext1]{Arg}[Ext2] = $Name_{sub}^{sup}Ext1(Arg)Ext2$
 • \txtpardef{Name}[sub][sup][Ext1]{Par}[Ext2] = $Name_{sub}^{sup}Ext1[Par]Ext2$
529 %% Style for Definitions
530 \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] = $newName_{sub}^{sub}ext$
531 \newcommandx{\cmdtxtdef}[2][2=]
532 {\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] = $newName_{sub}^{sub}ext1(arg)ext2$
533 \newcommandx{\cmdtxtargdef}[2][2=]
534 {\usrtxt{#1}{-}{argdef}[#2]}

\cmdtxtoargdef ... to do!
 • \cmdtxtoargdef{cmdName};
 \cmdName[sub][sub][arg] = $cmdName_{sub}^{sub}(arg)$
 • \cmdtxtoargdef{cmdName}[newName];
 \cmdName[sub][sub][arg] = $newName_{sub}^{sub}(arg)$
535 \newcommandx{\cmdtxtoargdef}[2][2=]
536 {\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] = $newName_{sub}^{sub}ext1[par]ext2$
537 \newcommandx{\cmdtxtpardef}[2][2=]
538 {\usrtxt{#1}{-}{pardef}[#2]}

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

\txtabr, to do!

```

- $\text{\texttt{txtabr}}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext}] = \text{Name}_{\text{sub}}^{\text{sup}} \text{Ext}$
- $\text{\texttt{xtargabr}}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Arg}\}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}} \text{Ext1}(\text{Arg})\text{Ext2}$
- $\text{\texttt{xtparabr}}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}} \text{Ext1}[\text{Par}]\text{Ext2}$

541 %% Style for Abbreviations

542  $\text{\texttt{cmdtxtall}}\{\text{abr}\}\text{\texttt{newcommand}}\{\text{\texttt{txtstyabr}}\}\{\text{\texttt{em}}\}$

$\text{\texttt{cmdtxtabr}}$  ... to do!

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

543  $\text{\texttt{newcommandx}}\{\text{\texttt{cmdtxtabr}}\}[2][2=]$

544  $\{\text{\texttt{usrtxt}}\{\#1\}\}\{\text{\texttt{abr}}\}[\#2]\}$

$\text{\texttt{cmdtxtargabr}}$  ... to do!

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

545  $\text{\texttt{newcommandx}}\{\text{\texttt{cmdtxtargabr}}\}[2][2=]$

546  $\{\text{\texttt{usrtxt}}\{\#1\}\}\{\text{\texttt{argabr}}\}[\#2]\}$

$\text{\texttt{cmdtxtoargabr}}$  ... to do!

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

547  $\text{\texttt{newcommandx}}\{\text{\texttt{cmdtxtoargabr}}\}[2][2=]$

548  $\{\text{\texttt{usrtxt}}\{\#1\}\}\{\text{\texttt{oargabr}}\}[\#2]\}$

$\text{\texttt{cmdtxtparabr}}$  ... to do!

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

549  $\text{\texttt{newcommandx}}\{\text{\texttt{cmdtxtparabr}}\}[2][2=]$

550  $\{\text{\texttt{usrtxt}}\{\#1\}\}\{\text{\texttt{parabr}}\}[\#2]\}$

$\text{\texttt{cmdtxtoparabr}}$  ... to do!

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

551  $\text{\texttt{newcommandx}}\{\text{\texttt{cmdtxtoparabr}}\}[2][2=]$

552  $\{\text{\texttt{usrtxt}}\{\#1\}\}\{\text{\texttt{oparabr}}\}[\#2]\}$

553 %\*\*\*\*\*%

$\text{\texttt{txtname}}, \dots$  ... to do!

- $\text{\texttt{txtname}}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext}] = \text{NAME}_{\text{SUB}}^{\text{SUP}} \text{EXT}$
- $\text{\texttt{xtargname}}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Arg}\}[\text{Ext2}] = \text{NAME}_{\text{SUB}}^{\text{SUP}} \text{EXT1}(\text{ARG})\text{EXT2}$
- $\text{\texttt{xtparname}}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{NAME}_{\text{SUB}}^{\text{SUP}} \text{EXT1}[\text{PAR}]\text{EXT2}$

554 %% Style for Names

555  $\text{\texttt{cmdtxtall}}\{\text{name}\}\text{\texttt{newcommand}}\{\text{\texttt{txtstyname}}\}\{\text{\texttt{normalfont}}\text{\texttt{mdseries}}\text{\texttt{scshape}}\text{\texttt{sffamily}}\}$

$\text{\texttt{cmdtxtname}}$  ... to do!

- `\cmdtxtname{cmdName};`  
`\cmdName[sub][sub][ext] = CMDNAMESUBSUBEXT`
- `\cmdtxtname{cmdName}[newName];`  
`\cmdName[sub][sub][ext] = NEWNAMESUBSUBEXT`

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

`\cmdtxtargname` ... to do!

- `\cmdtxtargname{cmdName};`  
`\cmdName[sub][sub][ext1]{arg}[ext2] = CMDNAMESUBSUBEXT1(ARG)EXT2`
- `\cmdtxtargname{cmdName}[newName];`  
`\cmdName[sub][sub][ext1]{arg}[ext2] = NEWNAMESUBSUBEXT1(ARG)EXT2`

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

`\cmdtxtoargname` ... to do!

- `\cmdtxtoargname{cmdName};`  
`\cmdName[sub][sub][arg] = CMDNAMESUBSUB(ARG)`
- `\cmdtxtoargname{cmdName}[newName];`  
`\cmdName[sub][sub][arg] = NEWNAMESUBSUB(ARG)`

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

`\cmdtxtparname` ... to do!

- `\cmdtxtparname{cmdName};`  
`\cmdName[sub][sub][ext1]{par}[ext2] = CMDNAMESUBSUBEXT1[PAR]EXT2`
- `\cmdtxtparname{cmdName}[newName];`  
`\cmdName[sub][sub][ext1]{par}[ext2] = NEWNAMESUBSUBEXT1[PAR]EXT2`

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

`\cmdtxtoparname` ... to do!

- `\cmdtxtoparname{cmdName};`  
`\cmdName[sub][sub][par] = CMDNAMESUBSUB[PAR]`
- `\cmdtxtoparname{cmdName}[newName];`  
`\cmdName[sub][sub][par] = NEWNAMESUBSUB[PAR]`

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

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

- `\txtcom{Name}[sub][sup][Ext] = NAMESUPSUBEXT`
- `\txtargcom{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUPSUBEXT1(ARG)EXT2`
- `\txtparcom{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUPSUBEXT1[PAR]EXT2`

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

`\cmdtxtcom` ... to do!

- `\cmdtxtcom{cmdName};`  
`\cmdName[sub][sub][ext] = CMDNAMESUBSUBEXT`
- `\cmdtxtcom{cmdName}[newName];`  
`\cmdName[sub][sub][ext] = NEWNAMESUBSUBEXT`

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

`\cmdtxtargcom` ... to do!

- `\cmdtxtargcom{cmdName};`  
`\cmdName[sub][sub][ext1]{arg}[ext2] = CMDNAMESUBSUBEXT1(ARG)EXT2`

```

 • \cmdtxtargcom{cmdName}[newName];
 \cmdName[sub][sub][ext1]{arg}[ext2] = NEWNAMESUBSUBEXT1(ARG)EXT2
570 \newcommandx{\cmdtxtargcom}[2][2=]
571 {\usrtxt{#1}{-}{argcom}[#2]}

\cmdtxtoargcom ... to do!
 • \cmdtxtoargcom{cmdName};
 \cmdName[sub][sub][arg] = CMDNAMESUBSUB(ARG)
 • \cmdtxtoargcom{cmdName}[newName];
 \cmdName[sub][sub][arg] = NEWNAMESUBSUB(ARG)
572 \newcommandx{\cmdtxtoargcom}[2][2=]
573 {\usrtxt{#1}{-}{oargcom}[#2]}

\cmdtxtparcom ... to do!
 • \cmdtxtparcom{cmdName};
 \cmdName[sub][sub][ext1]{par}[ext2] = CMDNAMESUBSUBEXT1[PAR]EXT2
 • \cmdtxtparcom{cmdName}[newName];
 \cmdName[sub][sub][ext1]{par}[ext2] = NEWNAMESUBSUBEXT1[PAR]EXT2
574 \newcommandx{\cmdtxtparcom}[2][2=]
575 {\usrtxt{#1}{-}{parcom}[#2]}

\cmdtxtoparcom ... to do!
 • \cmdtxtoparcom{cmdName};
 \cmdName[sub][sub][par] = CMDNAMESUBSUB[PAR]
 • \cmdtxtoparcom{cmdName}[newName];
 \cmdName[sub][sub][par] = NEWNAMESUBSUB[PAR]
576 \newcommandx{\cmdtxtoparcom}[2][2=]
577 {\usrtxt{#1}{-}{oparcom}[#2]}

578 \fi
579 %*****%
580 %*****%
581 %** Math Macro Generators *****%
582 %*****%
583 \ifmthgen@

\mthname, to do!
 • \mthname{NAME}[sub][sup][Ext] = $\mathcal{NAME}_{sub}^{sup}Ext$
 • \mthargname{NAME}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargname*(NAME)[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthparname{NAME}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparname*(NAME)[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
584 % Style for Names
585 \cmdmthall{name}\newcommand{\mthstynome}{\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
586 \seqoflatupp{Name}{mthname}

\cmdmthname ... to do!
 • \cmdmthname{CMDNAME};
 \CMDNAMEName[sub][sub][ext] = $CMDNAME_{sub}^{sub}ext$
 • \cmdmthname{cmdName}[NEWNAME];
 \cmdNameName[sub][sub][ext] = $NEWNAME_{sub}^{sub}ext$
587 \newcommandx{\cmdmthname}[2][2=]
588 {\usrmth{#1}{Name}{name}[#2]}

```

```

\cmdmthargname ... to do!
 • \cmdmthargname{CMDNAME};
 \CMDNAMEName[sub][sub][ext1]{arg}[ext2] = $CMDNAME\mathcal{E}_{sub}^{sub}ext1(arg)ext2$
 • \cmdmthargname{cmdName}[NEWNAME];
 \cmdNameName[sub][sub][ext1]{arg}[ext2] = $\mathcal{NEWNAME}\mathcal{E}_{sub}^{sub}ext1(arg)ext2$
589 \newcommandx{\cmdmthargname}[2][2=]
590 {\usrmth{#1}{Name}{argname}[#2]}

\cmdmthoargname ... to do!
 • \cmdmthoargname{CMDNAME};
 \CMDNAMEName[sub][sub][arg] = $CMDNAME\mathcal{E}_{sub}^{sub}(arg)$
 • \cmdmthoargname{cmdName}[NEWNAME];
 \cmdNameName[sub][sub][arg] = $\mathcal{NEWNAME}\mathcal{E}_{sub}^{sub}(arg)$
591 \newcommandx{\cmdmthoargname}[2][2=]
592 {\usrmth{#1}{Name}{oargname}[#2]}

\cmdmthparname ... to do!
 • \cmdmthparname{CMDNAME};
 \CMDNAMEName[sub][sub][ext1]{par}[ext2] = $CMDNAME\mathcal{E}_{sub}^{sub}ext1[par]ext2$
 • \cmdmthparname{cmdName}[NEWNAME];
 \cmdNameName[sub][sub][ext1]{par}[ext2] = $\mathcal{NEWNAME}\mathcal{E}_{sub}^{sub}ext1[par]ext2$
593 \newcommandx{\cmdmthparname}[2][2=]
594 {\usrmth{#1}{Name}{parname}[#2]}

\cmdmthoparname ... to do!
 • \cmdmthoparname{CMDNAME};
 \CMDNAMEName[sub][sub][par] = $CMDNAME\mathcal{E}_{sub}^{sub}[par]$
 • \cmdmthoparname{cmdName}[NEWNAME];
 \cmdNameName[sub][sub][par] = $\mathcal{NEWNAME}\mathcal{E}_{sub}^{sub}[par]$
595 \newcommandx{\cmdmthoparname}[2][2=]
596 {\usrmth{#1}{Name}{oparname}[#2]}

\mthfam, to do!
 • \mthfam{NAME}[sub][sup][Ext] = $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext$
 • \mthargfam{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargfam*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthparfam{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparfam*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
597 %% Style for Families
598 \cmdmthall{fam}\newcommand{\mthstyfam}{\mathscr}

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

\cmdmthfam ... to do!
 • \cmdmthfam{CMDNAME};
 \CMDNAMEFam[sub][sub][ext] = $\mathcal{CMDNAME}\mathcal{E}_{sub}^{sub}ext$
 • \cmdmthfam{cmdName}[NEWNAME];
 \cmdNameFam[sub][sub][ext] = $\mathcal{NEWNAME}\mathcal{E}_{sub}^{sub}ext$
600 \newcommandx{\cmdmthfam}[2][2=]
601 {\usrmth{#1}{Fam}{fam}[#2]}

\cmdmthargfam ... to do!

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- $\backslash\text{cmdmthargfam}\{\text{CMDNAME}\};$   
 $\backslash\text{CMDNAMEFam}[\text{sub}][\text{sub}][\text{ext1}]\{\text{arg}\}[\text{ext2}] = \mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext1}(\text{arg})\text{ext2}$
- $\backslash\text{cmdmthargfam}\{\text{cmdName}\}[\text{NEWNAME}];$   
 $\backslash\text{cmdNameFam}[\text{sub}][\text{sub}][\text{ext1}]\{\text{arg}\}[\text{ext2}] = \mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext1}(\text{arg})\text{ext2}$

602  $\backslash\text{newcommandx}\{\text{cmdmthargfam}\}[2][2=]$   
603  $\{\backslash\text{usrmth}\{\#1\}\{\text{Fam}\}\{\text{argfam}\}[\#2]\}$

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

- $\backslash\text{cmdmthoargfam}\{\text{CMDNAME}\};$   
 $\backslash\text{CMDNAMEFam}[\text{sub}][\text{sub}][\text{arg}] = \mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}(\text{arg})$
- $\backslash\text{cmdmthoargfam}\{\text{cmdFam}\}[\text{NEWNAME}];$   
 $\backslash\text{cmdFamFam}[\text{sub}][\text{sub}][\text{arg}] = \mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}(\text{arg})$

604  $\backslash\text{newcommandx}\{\text{cmdmthoargfam}\}[2][2=]$   
605  $\{\backslash\text{usrmth}\{\#1\}\{\text{Fam}\}\{\text{oargfam}\}[\#2]\}$

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

- $\backslash\text{cmdmthparfam}\{\text{CMDNAME}\};$   
 $\backslash\text{CMDNAMEFam}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext1}[\text{par}]\text{ext2}$
- $\backslash\text{cmdmthparfam}\{\text{cmdName}\}[\text{NEWNAME}];$   
 $\backslash\text{cmdNameFam}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext1}[\text{par}]\text{ext2}$

606  $\backslash\text{newcommandx}\{\text{cmdmthparfam}\}[2][2=]$   
607  $\{\backslash\text{usrmth}\{\#1\}\{\text{Fam}\}\{\text{parfam}\}[\#2]\}$

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

- $\backslash\text{cmdmthoparfam}\{\text{CMDNAME}\};$   
 $\backslash\text{CMDNAMEFam}[\text{sub}][\text{sub}][\text{par}] = \mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}[\text{par}]$
- $\backslash\text{cmdmthoparfam}\{\text{cmdFam}\}[\text{NEWNAME}];$   
 $\backslash\text{cmdFamFam}[\text{sub}][\text{sub}][\text{par}] = \mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}[\text{par}]$

608  $\backslash\text{newcommandx}\{\text{cmdmthoparfam}\}[2][2=]$   
609  $\{\backslash\text{usrmth}\{\#1\}\{\text{Fam}\}\{\text{oparfam}\}[\#2]\}$

$\backslash\text{mthcls}, \dots$  ... to do!

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

610 %% Style for Classes  
611  $\backslash\text{cmdmthall}\{\text{cls}\}\backslash\text{newcommand}\{\text{mthstcls}\}\{\backslash\text{matheus}\}$

$\backslash\text{ACls}, \dots$  ... to do!

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

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

- $\backslash\text{cmdmthcls}\{\text{CMDNAME}\};$   
 $\backslash\text{CMDNAMECls}[\text{sub}][\text{sub}][\text{ext}] = \mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext}$
- $\backslash\text{cmdmthcls}\{\text{cmdName}\}[\text{NEWNAME}];$   
 $\backslash\text{cmdNameCls}[\text{sub}][\text{sub}][\text{ext}] = \mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext}$

613  $\backslash\text{newcommandx}\{\text{cmdmthcls}\}[2][2=]$   
614  $\{\backslash\text{usrmth}\{\#1\}\{\text{Cls}\}\{\text{cls}\}[\#2]\}$

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

- $\backslash\text{cmdmthargcls}\{\text{CMDNAME}\};$   
 $\backslash\text{CMDNAMECls}[\text{sub}][\text{sub}][\text{ext1}]\{\text{arg}\}[\text{ext2}] = \mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext1}(\text{arg})\text{ext2}$



```

 • \cmdmthargcls{cmdName}[NEWNAME];
 \cmdNameCls[sub][sub][ext1]{arg}[ext2] = $\mathcal{NEWNAME}_{sub}^{sub}ext1(arg)ext2$
615 \newcommandx{\cmdmthargcls}[2][2=]
616 {\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] = $\mathcal{NEWNAME}_{sub}^{sub}(arg)$
617 \newcommandx{\cmdmthoargcls}[2][2=]
618 {\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] = $\mathcal{NEWNAME}_{sub}^{sub}ext1[par]ext2$
619 \newcommandx{\cmdmthparcls}[2][2=]
620 {\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] = $\mathcal{NEWNAME}_{sub}^{sub}[par]$
621 \newcommandx{\cmdmthoparcls}[2][2=]
622 {\usrmth{#1}{Cls}{oparcls}[#2]}

\mthsig, to do!
 • \mthsig{Name}[sub][sup][Ext] = $\mathcal{ame}_{sub}^{sup}Ext$
 • \mthargsig{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{ame}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargsig*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{ame}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
 • \mthparsig{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{ame}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparsig*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{ame}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$
623 %% Style for Signatures
624 \cmdmthall{sig}\newcommand{\mthstysig}{\mathpzc}

\asig, to do!
a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
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
625 \seqoflatlet{Sig}{mthsig}\seqofgrklow{Sig}{mthsig}

\cmdmthsig ... to do!
 • \cmdmthsig{cmdName};
 \cmdNameSig[sub][sub][ext] = $cmd\mathcal{ame}_{sub}^{sub}ext$
 • \cmdmthsig{cmdName}[NewName];
 \cmdNameSig[sub][sub][ext] = $\mathcal{ew}\mathcal{ame}_{sub}^{sub}ext$
626 \newcommandx{\cmdmthsig}[2][2=]
627 {\usrmth{#1}{Sig}{sig}[#2]}

\cmdmthargsig ... to do!
 • \cmdmthargsig{cmdName};
 \cmdNameSig[sub][sub][ext1]{arg}[ext2] = $cmd\mathcal{ame}_{sub}^{sub}ext1(arg)ext2$

```

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 • \cmdmthargsig{cmdName}[NewName];
 \cmdNameSig[sub][sub][ext1]{arg}[ext2] = $\mathcal{New}\mathcal{Ame}_{sub}^{sub}ext1(arg)ext2$
628 \newcommandx{\cmdmthargsig}[2][2=]
629 {\usrmth{#1}{Sig}{argsig}[#2]}

\cmdmthoargsig ... to do!
 • \cmdmthoargsig{cmdName};
 \cmdNameSig[sub][sub][arg] = $cmd\mathcal{Ame}_{sub}^{sub}(arg)$
 • \cmdmthoargsig{cmdSig}[NewName];
 \cmdSigSig[sub][sub][arg] = $\mathcal{New}\mathcal{Ame}_{sub}^{sub}(arg)$
630 \newcommandx{\cmdmthoargsig}[2][2=]
631 {\usrmth{#1}{Sig}{oargsig}[#2]}

\cmdmthparsig ... to do!
 • \cmdmthparsig{cmdName};
 \cmdNameSig[sub][sub][ext1]{par}[ext2] = $cmd\mathcal{Ame}_{sub}^{sub}ext1[par]ext2$
 • \cmdmthparsig{cmdName}[NewName];
 \cmdNameSig[sub][sub][ext1]{par}[ext2] = $\mathcal{New}\mathcal{Ame}_{sub}^{sub}ext1[par]ext2$
632 \newcommandx{\cmdmthparsig}[2][2=]
633 {\usrmth{#1}{Sig}{parsig}[#2]}

\cmdmthoparsig ... to do!
 • \cmdmthoparsig{cmdName};
 \cmdNameSig[sub][sub][par] = $cmd\mathcal{Ame}_{sub}^{sub}[par]$
 • \cmdmthoparsig{cmdSig}[NewName];
 \cmdSigSig[sub][sub][par] = $\mathcal{New}\mathcal{Ame}_{sub}^{sub}[par]$
634 \newcommandx{\cmdmthoparsig}[2][2=]
635 {\usrmth{#1}{Sig}{oparsig}[#2]}

\mthstr, to do!
 • \mthstr{Name}[sub][sup][Ext] = $\mathcal{Name}_{sub}^{sup}Ext$
 • \mthargstr{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargstr*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthparstr{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparstr*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
636 %% Style for Structures
637 \cmdmthall{str}\newcommand{\mthstyststr}{\mathfrak{str}}

\astr, 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
638 \seqoflatlet{Str}{mthstr}\seqofgrklow{Str}{mthstr}

\cmdmthstr ... to do!
 • \cmdmthstr{cmdName};
 \cmdNameStr[sub][sub][ext] = $cmd\mathcal{Name}_{sub}^{sub}ext$
 • \cmdmthstr{cmdName}[NewName];
 \cmdNameStr[sub][sub][ext] = $\mathcal{New}\mathcal{Name}_{sub}^{sub}ext$
639 \newcommandx{\cmdmthstr}[2][2=]
640 {\usrmth{#1}{Str}{str}[#2]}

\cmdmthargstr ... to do!
 • \cmdmthargstr{cmdName};
 \cmdNameStr[sub][sub][ext1]{arg}[ext2] = $cmd\mathcal{Name}_{sub}^{sub}ext1(arg)ext2$

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 • \cmdmthargstr{cmdName}[NewName];
 \cmdNameStr[sub][sub][ext1]{arg}[ext2] = \newNamesubext1(arg)ext2
641 \newcommandx{\cmdmthargstr}[2][2=]
642 {\usrmth{#1}{Str}{argstr}[#2]}

\cmdmthoargstr ... to do!
 • \cmdmthoargstr{cmdName};
 \cmdNameStr[sub][sub][arg] = cmdNamesubext1(arg)
 • \cmdmthoargstr{cmdStr}[NewName];
 \cmdStrStr[sub][sub][arg] = \newNamesubext1(arg)
643 \newcommandx{\cmdmthoargstr}[2][2=]
644 {\usrmth{#1}{Str}{oargstr}[#2]}

\cmdmthparstr ... to do!
 • \cmdmthparstr{cmdName};
 \cmdNameStr[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2
 • \cmdmthparstr{cmdName}[NewName];
 \cmdNameStr[sub][sub][ext1]{par}[ext2] = \newNamesubext1[par]ext2
645 \newcommandx{\cmdmthparstr}[2][2=]
646 {\usrmth{#1}{Str}{parstr}[#2]}

\cmdmthoparstr ... to do!
 • \cmdmthoparstr{cmdName};
 \cmdNameStr[sub][sub][par] = cmdNamesubext1[par]
 • \cmdmthoparstr{cmdStr}[NewName];
 \cmdStrStr[sub][sub][par] = \newNamesubext1[par]
647 \newcommandx{\cmdmthoparstr}[2][2=]
648 {\usrmth{#1}{Str}{oparstr}[#2]}

\mthset, to do!
 • \mthset{Name}[sub][sup][Ext] = NamesupsubExt
 • \mthargset{Name}[sub][sup][Ext1]{ArgEx{ExEx}}[Ext2] = NamesupsubExt1(ArgExExt1{ExEx})Ext2
 • \mthargset*{Name}[sub][sup][Ext1]{ArgEx{ExEx}}[Ext2] = NamesupsubExt1(ArgExExt1{ExEx})Ext2
 • \mthparset{Name}[sub][sup][Ext1]{ParEx{ExEx}}[Ext2] = NamesupsubExt1[ParExExt1{ExEx}]Ext2
 • \mthparset*{Name}[sub][sup][Ext1]{ParEx{ExEx}}[Ext2] = NamesupsubExt1[ParExExt1{ExEx}]Ext2
649 %% Style for Sets
650 \cmdmthall{set}\newcommand{\mthstyset}{\mathrm}

\set, 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
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
651 \seqoflet{Set}{mthset}

\cmdmthset ... to do!
 • \cmdmthset{cmdName};
 \cmdNameSet[sub][sub][ext] = cmdNamesubext
 • \cmdmthset{cmdName}[NewName];
 \cmdNameSet[sub][sub][ext] = NewNamesubext
652 \newcommandx{\cmdmthset}[2][2=]
653 {\usrmth{#1}{Set}{set}[#2]}

\cmdmthargset ... to do!
 • \cmdmthargset{cmdName};
 \cmdNameSet[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2

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 • \cmdmthargset{cmdName}[NewName];
 \cmdNameSet[sub][sub][ext1]{arg}[ext2] = $\text{NewName}_{sub}^{ext1}(arg)ext2$
654 \newcommandx{\cmdmthargset}[2][2=]
655 {\usrmth{#1}{Set}{argset}[#2]}

\cmdmthoargset ... to do!
 • \cmdmthoargset{cmdName};
 \cmdNameSet[sub][sub][arg] = $\text{cmdName}_{sub}^{sub}(arg)$
 • \cmdmthoargset{cmdSet}[NewName];
 \cmdSetSet[sub][sub][arg] = $\text{NewName}_{sub}^{sub}(arg)$
656 \newcommandx{\cmdmthoargset}[2][2=]
657 {\usrmth{#1}{Set}{oargset}[#2]}

\cmdmthparset ... to do!
 • \cmdmthparset{cmdName};
 \cmdNameSet[sub][sub][ext1]{par}[ext2] = $\text{cmdName}_{sub}^{sub}ext1[par]ext2$
 • \cmdmthparset{cmdName}[NewName];
 \cmdNameSet[sub][sub][ext1]{par}[ext2] = $\text{NewName}_{sub}^{sub}ext1[par]ext2$
658 \newcommandx{\cmdmthparset}[2][2=]
659 {\usrmth{#1}{Set}{parset}[#2]}

\cmdmthoparset ... to do!
 • \cmdmthoparset{cmdName};
 \cmdNameSet[sub][sub][par] = $\text{cmdName}_{sub}^{sub}[par]$
 • \cmdmthoparset{cmdSet}[NewName];
 \cmdSetSet[sub][sub][par] = $\text{NewName}_{sub}^{sub}[par]$
660 \newcommandx{\cmdmthoparset}[2][2=]
661 {\usrmth{#1}{Set}{oparset}[#2]}

\cmdmthsetext ... to do!
662 \newcommandx{\cmdmthsetext}[3][2=, 3=]
663 {\cmdmthset{#1}[#2]\caselower[q]{#1}%
664 \usrmthlet{\thestring}{Sym}{sym}
665 [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}}%
666 \usrmthlet{\thestring}{Elm}{elm}
667 [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}]}

\mthrel, to do!
 • \mthrel{Name}[sub][sup][Ext] = $\text{Name}_{sub}^{sup}Ext$
 • \mthargrel{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\text{Name}_{sub}^{sup}Ext1\left(\text{Arg}^{Ex^{Ex}}\right)Ext2$
 • \mthargrel*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\text{Name}_{sub}^{sup}Ext1\left(\text{Arg}^{Ex^{Ex}}\right)Ext2$
 • \mthparrel{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\text{Name}_{sub}^{sup}Ext1\left[\text{Par}^{Ex^{Ex}}\right]Ext2$
 • \mthparrel*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\text{Name}_{sub}^{sup}Ext1\left[\text{Par}^{Ex^{Ex}}\right]Ext2$
668 %% Style for Relations
669 \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
 $\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$
A, B, $\Gamma, \Delta, E, E, Z, H, \Theta, \Theta, I, K, K, A, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, \Upsilon, \Phi, \Phi, X, \Psi, \Omega$
670 \seqoflet{Rel}{mthrel}

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

```

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

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

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

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

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

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

- $\backslash\text{cmdmthoargrel}\{\text{cmdName}\}$ ;  
 $\backslash\text{cmdNameRel}[\text{sub}][\text{sub}][\text{arg}] = \text{cmdName}_{\text{sub}}^{\text{sub}}(\text{arg})$
- $\backslash\text{cmdmthoargrel}\{\text{cmdRel}\}[\text{NewName}]$ ;  
 $\backslash\text{cmdRelRel}[\text{sub}][\text{sub}][\text{arg}] = \text{NewName}_{\text{sub}}^{\text{sub}}(\text{arg})$

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

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

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

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

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

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

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

$\backslash\text{mthfun}, \dots$  ... to do!

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

```
681 %% Style for Functions
682 \cmdmthall{\fun}\newcommand{\mthstyfun}\{\mathsf}
```

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

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

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

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

```

 • \cmdmthfun{cmdName}[NewName];
 \cmdNameFun[sub][sub][ext] = NewNamesubext
684 \newcommandx{\cmdmthfun}[2][2=]
685 {\usrmth{#1}{Fun}{fun}[#2]}

\cmdmthargfun ... to do!
 • \cmdmthargfun{cmdName};
 \cmdNameFun[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2
 • \cmdmthargfun{cmdName}[NewName];
 \cmdNameFun[sub][sub][ext1]{arg}[ext2] = NewNamesubext1(arg)ext2
686 \newcommandx{\cmdmthargfun}[2][2=]
687 {\usrmth{#1}{Fun}{argfun}[#2]}

\cmdmthoargfun ... to do!
 • \cmdmthoargfun{cmdName};
 \cmdNameFun[sub][sub][arg] = cmdNamesub(arg)
 • \cmdmthoargfun{cmdFun}[NewName];
 \cmdFunFun[sub][sub][arg] = NewNamesub(arg)
688 \newcommandx{\cmdmthoargfun}[2][2=]
689 {\usrmth{#1}{Fun}{oargfun}[#2]}

\cmdmthparfun ... to do!
 • \cmdmthparfun{cmdName};
 \cmdNameFun[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2
 • \cmdmthparfun{cmdName}[NewName];
 \cmdNameFun[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2
690 \newcommandx{\cmdmthparfun}[2][2=]
691 {\usrmth{#1}{Fun}{parfun}[#2]}

\cmdmthoparfun ... to do!
 • \cmdmthoparfun{cmdName};
 \cmdNameFun[sub][sub][par] = cmdNamesub[par]
 • \cmdmthoparfun{cmdFun}[NewName];
 \cmdFunFun[sub][sub][par] = NewNamesub[par]
692 \newcommandx{\cmdmthoparfun}[2][2=]
693 {\usrmth{#1}{Fun}{oparfun}[#2]}

\mthsym, to do!
 • \mthsym{Name}[sub][sup][Ext] = NamesupsubExt
 • \mthargsym{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExExt2)Ext2
 • \mthargsym*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExExt2)Ext2
 • \mthparsym{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExExt2]Ext2
 • \mthparsym*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExExt2]Ext2
694 %% Style for Symbols
695 \cmdmthall{sym}\newcommand{\mthstysym}{\mathhtt}

\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, 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, Θ, Ι, Κ, Κ, Λ, Μ, Ν, Ξ, Ο, Π, Π, Ρ, Ρ, Σ, Σ, Τ, Τ, Φ, Φ, Χ, Ψ, Ω
696 \seqoflet{Sym}{mthsym}

\cmdmthsym ... to do!
 • \cmdmthsym{cmdName};
 \cmdNameSym[sub][sub][ext] = cmdNamesubext

```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```
707 %% Style for Elements
708 \cmdmthall{elm}\newcommand{\mthstyelm}\{\mathnormal}
```

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

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

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

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

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

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

```

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

```

\cmdmthargelm ... to do!

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

```

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

```

\cmdmthoargelm ... to do!

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

```

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

```

\cmdmthparelm ... to do!

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

```

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

```

\cmdmthoparelm ... to do!

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

```

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

```

```

720 %%%

```

\cmdmthsymelm ... to do!

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

```

721 \newcommandx{\cmdmthsymelm}[2][2=]
722 {\cmdmthsym{#1}[#2]}
723 \cmdmthelm{#1}[#2]}

```

\cmdmthargsymelm ... to do!

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



```

724 \newcommandx{\cmdmthargsymelm}[2][2=]
725 {\cmdmthargsym{#1}[#2]}
726 \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];  
 $\text{cmdNameSym}[\text{sub}][\text{sub}][\text{arg}] = \text{NewName}_{\text{sub}}^{\text{sub}}(\text{arg})$   
 $\text{cmdNameElm}[\text{sub}][\text{sub}][\text{arg}] = \text{NewName}_{\text{sub}}^{\text{sub}}(\text{arg})$

```

727 \newcommandx{\cmdmthoargsymelm}[2][2=]
728 {\cmdmthoargsym{#1}[#2]}
729 \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];  
 $\text{cmdNameSym}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \text{NewName}_{\text{sub}}^{\text{sub}}\text{ext1}[\text{par}]\text{ext2}$   
 $\text{cmdNameElm}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \text{NewName}_{\text{sub}}^{\text{sub}}\text{ext1}[\text{par}]\text{ext2}$

```

730 \newcommandx{\cmdmthparsymelm}[2][2=]
731 {\cmdmthparsym{#1}[#2]}
732 \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];  
 $\text{cmdNameSym}[\text{sub}][\text{sub}][\text{par}] = \text{NewName}_{\text{sub}}^{\text{sub}}[\text{par}]$   
 $\text{cmdNameElm}[\text{sub}][\text{sub}][\text{par}] = \text{NewName}_{\text{sub}}^{\text{sub}}[\text{par}]$

```

733 \newcommandx{\cmdmthoparsymelm}[2][2=]
734 {\cmdmthoparsym{#1}[#2]}
735 \cmdmthoparelm{#1}[#2]}

```

```

736 %%*****%

```

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

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

```

737 %% Style for \LaTeX Operators

```

```

738 \cmdmth{luop}\newcommand{\mthstyluop}[1]{\textstyle\mathop{#1}}
739 \cmdmth{lbop}\newcommand{\mthstylbop}[1]{\textstyle\mathbin{#1}}

```

\cmdmthluop, ... ... to do!

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

```

740 \newcommandx{\cmdmthluop}[2][2=]
741 {\usrmth{#1}\{UOp\}\{luop\}[#2]}
742 \newcommandx{\cmdmthlbop}[2][2=]
743 {\usrmth{#1}\{BOp\}\{lbop\}[#2]}

```

```

\mthlrel ... to do!
 • \mthlrel{\preceq}[sub][sup][Ext] = $\preceq_{sub}^{sup} Ext$
744 %% Style for LaTeX Relations
745 \cmdmth{lrel}\newcommand{\mthstylrel}{\mathrel}

\cmdmthlrel ... to do!
 • \cmdmthlrel{cmdName};
 \cmdNameRel[sub][sub][ext] = $cmdName_{sub}^{sub} ext$
 • \cmdmthlrel{cmdName}[\preceq];
 \cmdNameRel[sub][sub][ext] = $\preceq_{sub}^{sub} ext$
746 \newcommandx{\cmdmthlrel}[2][2=]
747 {\usrmth{#1}{Rel}{lrel}{#2}}

748 %%%

\mthsnt, ... to do!
 • \mthsnt{Name}[sub][sup][Ext] = $Name_{sub}^{sup} Ext$
 • \mthargsnt{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup} Ext1 (Arg^{Ex^{Ex}}) Ext2$
 • \mthargsnt*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup} Ext1 (Arg^{Ex^{Ex}}) Ext2$
 • \mthparsnt{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup} Ext1 [Par^{Ex^{Ex}}] Ext2$
 • \mthparsnt*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup} Ext1 [Par^{Ex^{Ex}}] Ext2$
749 %% Style for Sentences
750 \cmdmthall{snt}\newcommand{\mthstysnt}{\mathsf}

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

\cmdmthsnt ... to do!
 • \cmdmthsnt{cmdName};
 \cmdNameSnt[sub][sub][ext] = $cmdName_{sub}^{sub} ext$
 • \cmdmthsnt{cmdName}[NewName];
 \cmdNameSnt[sub][sub][ext] = $NewName_{sub}^{sub} ext$
752 \newcommandx{\cmdmthsnt}[2][2=]
753 {\usrmth{#1}{Snt}{snt}{#2}}

\cmdmthargsnt ... to do!
 • \cmdmthargsnt{cmdName};
 \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = $cmdName_{sub}^{sub} ext1 (arg) ext2$
 • \cmdmthargsnt{cmdName}[NewName];
 \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = $NewName_{sub}^{sub} ext1 (arg) ext2$
754 \newcommandx{\cmdmthargsnt}[2][2=]
755 {\usrmth{#1}{Snt}{argsnt}{#2}}

\cmdmthoargsnt ... to do!
 • \cmdmthoargsnt{cmdName};
 \cmdNameSnt[sub][sub][arg] = $cmdName_{sub}^{sub} (arg)$
 • \cmdmthoargsnt{cmdName}[NewName];
 \cmdNameSnt[sub][sub][arg] = $NewName_{sub}^{sub} (arg)$
756 \newcommandx{\cmdmthoargsnt}[2][2=]
757 {\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`

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

`\cmdmthoparsnt` ... to do!

- `\cmdmthoparsnt{cmdName};`  
`\cmdNameSnt[sub][sub][par] = cmdNamesubsub[par]`
- `\cmdmthoparsnt{cmdName}[NewName];`  
`\cmdNameSnt[sub][sub][par] = NewNamesubsub[par]`

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

`\mthfrm`, ... to do!

- `\mthfrm{Name}[sub][sup][Ext] = NamesupsubExt`
- `\mthargfrm{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2`
- `\mthargfrm*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2`
- `\mthparfrm{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2`
- `\mthparfrm*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2`

762 `%% Style for Formulae`  
763 `\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, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω*

764 `\seqoflet{Frm}{mthfrm}`

`\cmdmthfrm` ... to do!

- `\cmdmthfrm{cmdName};`  
`\cmdNameFrm[sub][sub][ext] = cmdNamesubsubext`
- `\cmdmthfrm{cmdName}[NewName];`  
`\cmdNameFrm[sub][sub][ext] = NewNamesubsubext`

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

`\cmdmthargfrm` ... to do!

- `\cmdmthargfrm{cmdName};`  
`\cmdNameFrm[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2`
- `\cmdmthargfrm{cmdName}[NewName];`  
`\cmdNameFrm[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2`

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

`\cmdmthoargfrm` ... to do!

- `\cmdmthoargfrm{cmdName};`  
`\cmdNameFrm[sub][sub][arg] = cmdNamesubsub(arg)`
- `\cmdmthoargfrm{cmdName}[NewName];`  
`\cmdNameFrm[sub][sub][arg] = NewNamesubsub(arg)`

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

`\cmdmthparfrm` ... to do!

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

```

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

\cmdmthoparfrm ... to do!

 • \cmdmthoparfrm{cmdName};
 \cmdNameFrm[sub][sub][par] = \cmdName_{sub}^{sub}[par]

 • \cmdmthoparfrm{cmdName}[NewName];
 \cmdNameFrm[sub][sub][par] = \cmdName_{sub}^{sub}[par]

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

775 %*****%
```

```

\mthmat, to do!

 • \mthmat{Name}[sub][sup][Ext] = \Name_{sub}^{sup} Ext

 • \mthargmat{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \Name_{sub}^{sup} Ext1(Arg^{Ex^{Ex}})Ext2

 • \mthargmat*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \Name_{sub}^{sup} Ext1(Arg^{Ex^{Ex}})Ext2

 • \mthparmat{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \Name_{sub}^{sup} Ext1[Par^{Ex^{Ex}}]Ext2

 • \mthparmat*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \Name_{sub}^{sup} Ext1[Par^{Ex^{Ex}}]Ext2

776 % Style for Matrices
777 \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
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, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, T, Φ, Φ, X, Ψ, Ω

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

```

\cmdmthmat ... to do!

 • \cmdmthmat{cmdName};
 \cmdNameMat[sub][sub][ext] = \cmdName_{sub}^{sub} ext

 • \cmdmthmat{cmdName}[NewName];
 \cmdNameMat[sub][sub][ext] = \cmdName_{sub}^{sub} ext

779 \newcommandx{\cmdmthmat}[2][2=]
780 {\usrmth{\#1}\Mat}\mat{\#2}}
```

```

\cmdmthargmat ... to do!

 • \cmdmthargmat{cmdName};
 \cmdNameMat[sub][sub][ext1]{arg}[ext2] = \cmdName_{sub}^{sub} ext1(arg)ext2

 • \cmdmthargmat{cmdName}[NewName];
 \cmdNameMat[sub][sub][ext1]{arg}[ext2] = \cmdName_{sub}^{sub} ext1(arg)ext2

781 \newcommandx{\cmdmthargmat}[2][2=]
782 {\usrmth{\#1}\Mat}\argmat{\#2}}
```

```

\cmdmthoargmat ... to do!

 • \cmdmthoargmat{cmdName};
 \cmdNameMat[sub][sub][arg] = \cmdName_{sub}^{sub}(arg)

 • \cmdmthoargmat{cmdName}[NewName];
 \cmdNameMat[sub][sub][arg] = \cmdName_{sub}^{sub}(arg)

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

```

\cmdmthparmat ... to do!
 • \cmdmthparmat{cmdName};
 \cmdNameMat[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2
 • \cmdmthparmat{cmdName}[NewName];
 \cmdNameMat[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2
785 \newcommandx{\cmdmthparmat}[2][2=]
786 {\usrmth{#1}{Mat}{parmat}{#2}}

\cmdmthoparmat ... to do!
 • \cmdmthoparmat{cmdName};
 \cmdNameMat[sub][sub][par] = cmdNamesubsub[par]
 • \cmdmthoparmat{cmdName}[NewName];
 \cmdNameMat[sub][sub][par] = NewNamesubsub[par]
787 \newcommandx{\cmdmthoparmat}[2][2=]
788 {\usrmth{#1}{Mat}{oparmat}{#2}}

\mthvec, to do!
 • \mthvec{Name}[sub][sup][Ext] = NamesubsupExt
 • \mthargvec{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsupExt1(ArgExEx)Ext2
 • \mthargvec*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsupExt1(ArgExEx)Ext2
 • \mthparvec{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsupExt1[ParExEx]Ext2
 • \mthparvec*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsupExt1[ParExEx]Ext2
789 %% Style for Vectors
790 \cmdmthall{vec}\newcommand{\mthstyvec}[1]{\boldsymbol{\mathit{#1}}}

\Vec, 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, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω
791 \seqoflet{Vec}{mthvec}

\cmdmthvec ... to do!
 • \cmdmthvec{cmdName};
 \cmdNameVec[sub][sub][ext] = cmdNamesubsubext
 • \cmdmthvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][ext] = NewNamesubsubext
792 \newcommandx{\cmdmthvec}[2][2=]
793 {\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
794 \newcommandx{\cmdmthargvec}[2][2=]
795 {\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)
796 \newcommandx{\cmdmthoargvec}[2][2=]
797 {\usrmth{#1}{Vec}{oargvec}{#2}}

```

```

\cmdmthparvec ... to do!
 • \cmdmthparvec{cmdName};
 \cmdNameVec[sub][sub][ext1]{par}[ext2] = $\text{cmdName}_{sub}^{sub}ext1[par]ext2$
 • \cmdmthparvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][ext1]{par}[ext2] = $\text{NewName}_{sub}^{sub}ext1[par]ext2$
798 \newcommandx{\cmdmthparvec}[2][2=]
799 {\usrmth{#1}{Vec}{parvec}{#2}}

\cmdmthoparvec ... to do!
 • \cmdmthoparvec{cmdName};
 \cmdNameVec[sub][sub][par] = $\text{cmdName}_{sub}^{sub}[par]$
 • \cmdmthoparvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][par] = $\text{NewName}_{sub}^{sub}[par]$
800 \newcommandx{\cmdmthoparvec}[2][2=]
801 {\usrmth{#1}{Vec}{oparvec}{#2}}

802 \fi
803 %*****
804 %*****
805 %** Elementary Macros for Text *****
806 %*****
807 \iftxt@
808 %** Latin Abbreviations *****

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

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

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

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

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

\dedicto • \dedicto = de dicto
814 \cmdtxtabr{dedicto}[de dicto]

\defacto • \defacto = de facto
815 \cmdtxtabr{defacto}[de facto]

\dere • \dere = de re
816 \cmdtxtabr{dere}[de re]

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

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

\ergo • \ergo = ergo
819 \cmdtxtabr{ergo}

\errata • \errata = errata
820 \cmdtxtabr{errata}

```

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

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

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

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

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

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

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

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

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

`\viz`      • `\viz = viz.`  
830 `\cmdtxtabr{viz}[viz.]`  
831 `%%*****%`

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

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

`\Aposteriori`      • `\Aposteriori = A posteriori`  
834 `\cmdtxtabr{Aposteriori}[A posteriori]`

`\Dedicto`      • `\Dedicto = De dicto`  
835 `\cmdtxtabr{Dedicto}[De dicto]`

`\Defacto`      • `\Defacto = De facto`  
836 `\cmdtxtabr{Defacto}[De facto]`

`\Dere`      • `\Dere = De re`  
837 `\cmdtxtabr{Dere}[De re]`

`\Divideetimpera`      • `\Divideetimpera = Divide et impera`  
838 `\cmdtxtabr{Divideetimpera}[Divide et impera]`

`\Eg`      • `\Eg = E.g.`  
839 `\cmdtxtabr{Eg}[E.g.]`

`\Errata`      • `\Errata = Errata`  
840 `\cmdtxtabr{Errata}`

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

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

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

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

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

846 %\*\* Italian Abbreviations \*\*\*\*\*%  
...  
847 %\*\*\*\*\*%  
...  
848 %\*\* French Abbreviations \*\*\*\*\*%

$\backslash$ ala      •  $\backslash$ ala = *à la*  
849  $\backslash$ cmdtxtabr{ala}[\`a la]

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

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

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

853 %\*\*\*\*\*%

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

855 %\*\* English Abbreviations \*\*\*\*\*%

$\backslash$ aka      •  $\backslash$ aka = *a.k.a.*  
856  $\backslash$ cmdtxtabr{aka}[a.k.a.]

$\backslash$ contd      •  $\backslash$ contd = *contd.*  
857  $\backslash$ cmdtxtabr{contd}[contd.]

$\backslash$ iff      •  $\backslash$ iff = *iff*  
858  $\backslash$ cmdtxtabr{iff}

$\backslash$ iht      •  $\backslash$ iht = *i.h.t.*  
859  $\backslash$ cmdtxtabr{iht}[i.h.t.]

$\backslash$ stx      •  $\backslash$ stx = *s.t.*  
860  $\backslash$ cmdtxtabr{stx}[s.t.]

$\backslash$ resp      •  $\backslash$ resp = *resp.*  
861  $\backslash$ cmdtxtabr{resp}[resp.]



```

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

\wlogx • \wlogx = w.l.o.g.
863 \cmdtxtabr{wlogx}[w.l.o.g.]

864 %*****

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

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

867 \fi
868 %*****

869 %*****
870 %** Elementary Macros for Math *****
871 %*****
872 \ifmth@
873 %** General Notation *****

\defeq, \seteq ...
874 \DeclareRobustCommand{\defeq}
875 {\@ifstar%
876 {\mthlbop{\stackrel{\text{\textup{def}}}{=}}}%
877 {\mthlbop{\triangleq}}}
878 \DeclareRobustCommand{\seteq}
879 {\@ifstar{\mthlbop{\Coloneqq}}{\mthlbop{\coloneqq}}}

880 %*****

\limp,
881 \DeclareRobustCommand{\limp}
882 {\mthlbop{\rightarrow}}

\lcoimp,
883 \DeclareRobustCommand{\lcoimp}
884 {\mthlbop{\leftrightharrow}}

885 %*****

\implies,
886 \DeclareRobustCommand{\implies}
887 {\mthlrel{\rightarrow}}
888 \DeclareRobustCommand{\notimplies}
889 {\mthlrel{\not\rightarrow}}

\implied,
890 \DeclareRobustCommand{\implied}
891 {\mthlrel{\Leftarrow}}
892 \DeclareRobustCommand{\notimplied}
893 {\mthlrel{\not\Leftarrow}}

\coimplies,
894 \DeclareRobustCommand{\coimplies}
895 {\mthlrel{\Leftrightarrow}}
896 \DeclareRobustCommand{\notcoimplies}
897 {\mthlrel{\not\Leftrightarrow}}

898 %*****

```

```

\cmodels,
899 \DeclareRobustCommand{\cmodels}
900 {\mthlrel{\models}}
901 \DeclareRobustCommand{\notcmodels}
902 {\mthlrel{\not\models}}

\cequiv,
903 \DeclareRobustCommand{\cequiv}
904 {\mthlrel{\equiv}}
905 \DeclareRobustCommand{\notcequiv}
906 {\mthlrel{\not\equiv}}

907 %%*****

\denot ...
908 \DeclareRobustCommand{\denot}
909 {\@ifstar{\@sdenot}{\@denot}}
910 \DeclareRobustCommand{\@denot}[1]
911 {\mth{\argmid{\left\llbracket}{\#1}{\right\rrbracket}}}
912 \DeclareRobustCommand{\@sdenot}[1]
913 {\mth*{\argmid{\llbracket}{\#1}{\rrbracket}}}

914 %%*****

\dual, \adj,
915 \DeclareRobustCommand{\dual}[1]
916 {\mth{\overline{\#1}}}
917 \DeclareRobustCommand{\adj}[1]
918 {\mth{\mathring{\#1}}}
919 \DeclareRobustCommand{\der}[1]
920 {\mth{\widehat{\#1}}}
921 \DeclareRobustCommand{\trn}[1]
922 {\mth{\widetilde{\#1}}}

\vec ...
923 \DeclareRobustCommand{\vec}
924 {\@ifstar{\@svec}{\@vec}}
925 \DeclareRobustCommand{\@vec}[1]
926 {\mth{\mathaccent"017E{\#1}}}
927 \DeclareRobustCommand{\@svec}[1]
928 {\mth{\overline{\#1}}}

929 %%*****

\enumeration,
930 \varcmd{enumeration}{\mth*}{\{,\}{}}
931 \varcmd{enumerationx}{\mth*}{\{;\}{}}

\sequence,
932 \DeclareRobustCommand{\sequence}
933 {\@ifstar{\@ssequence}{\@sequence}}
934 \varcmd{@sequence}{\mth}{\left[\{,\}{\right]}}
935 \varcmd{@ssequence}{\mth*}{[\{,\}]}
936 \DeclareRobustCommand{\sequencel}
937 {\@ifstar{\@ssequencel}{\@sequencel}}
938 \varcmd{@sequencel}{\mth}{\left[\{,\}{\right.}]}}
939 \varcmd{@ssequencel}{\mth*}{[\{,\}]}
940 \DeclareRobustCommand{\sequencer}
941 {\@ifstar{\@ssequencer}{\@sequencer}}
942 \varcmd{@sequencer}{\mth}{\left.\{,\}{\right]}}
943 \varcmd{@ssequencer}{\mth*}{\{,\}]}
944 \DeclareRobustCommand{\sequencex}
945 {\@ifstar{\@ssequencex}{\@sequencex}}

```

```

946 \varcmd{@sequencex}{\mth}{\left[;}{\right]}{}
947 \varcmd{@ssequencex}{\mth*}{[]}{;}{}
948 \DeclareRobustCommand{\sequencexl}
949 {\@ifstar{\@ssequencexl}{\@sequencexl}}
950 \varcmd{@sequencexl}{\mth}{\left[;}{\right.]}{}
951 \varcmd{@ssequencexl}{\mth*}{[]}{;}{}
952 \DeclareRobustCommand{\sequencexr}
953 {\@ifstar{\@ssequencexr}{\@sequencexr}}
954 \varcmd{@sequencexr}{\mth}{\left.}{\right]}{}
955 \varcmd{@ssequencexr}{\mth*}{[]}{;}{}

```

\tuple, ... ..

```

956 \DeclareRobustCommand{\tuple}
957 {\@ifstar{\@stuple}{\@tuple}}
958 \varcmd{@tuple}{\mth}{\left\angle}{,}{\right\angle]}{}
959 \varcmd{@stuple}{\mth*}{\angle}{,}{\rangle]}{}
960 \DeclareRobustCommand{\tuplel}
961 {\@ifstar{\@stupl}{\@tuplel}}
962 \varcmd{@tuplel}{\mth}{\left\angle}{,}{\right.]}{}
963 \varcmd{@stupl}{\mth*}{\angle}{,}{\rangle]}{}
964 \DeclareRobustCommand{\tupler}
965 {\@ifstar{\@stupler}{\@tupler}}
966 \varcmd{@tupler}{\mth}{\left.}{,}{\right\angle]}{}
967 \varcmd{@stupler}{\mth*}{\rangle]}{}
968 \DeclareRobustCommand{\tuplex}
969 {\@ifstar{\@stuplex}{\@tuplex}}
970 \varcmd{@tuplex}{\mth}{\left\angle}{;}{\right\angle]}{}
971 \varcmd{@stuplex}{\mth*}{\angle}{;}{\rangle]}{}
972 \DeclareRobustCommand{\tuplexl}
973 {\@ifstar{\@stuplexl}{\@tuplexl}}
974 \varcmd{@tuplexl}{\mth}{\left\angle}{;}{\right.]}{}
975 \varcmd{@stuplexl}{\mth*}{\angle}{;}{\rangle]}{}
976 \DeclareRobustCommand{\tuplexr}
977 {\@ifstar{\@stuplexr}{\@tuplexr}}
978 \varcmd{@tuplexr}{\mth}{\left.}{;}{\right\angle]}{}
979 \varcmd{@stuplexr}{\mth*}{\rangle]}{}

980 %** Sets *****%

```

\set, ... ..

```

981 \DeclareRobustCommand{\set}
982 {\@ifstar{\@sset{\vert}}{\@set{\vert}}}
983 \DeclareRobustCommand{\setx}
984 {\@ifstar{\@sset{:}}{\@set{.!\:}}}
985 \DeclareRobustCommand{@set}[3]
986 {\mth{\argmid{\left\lbrace}{\argsep{#2}{\,\middle#1\,}{#3}}{\right\rbrace}}}
987 \DeclareRobustCommand{@sset}[3]
988 {\mth*{\argmid{\lbrace}{\argsep{#2}{\,\#1\,}{#3}}{\rbrace}}}
989 \DeclareRobustCommand{\setl}
990 {\@ifstar{\@ssetl{\vert}}{\@setl{\vert}}}
991 \DeclareRobustCommand{\setlx}
992 {\@ifstar{\@ssetl{:}}{\@setl{.!\:!\:}}}
993 \DeclareRobustCommand{\setl}[2]
994 {\mth{\argmid{\left\lbrace}{#2}{\,\right#1!}}}
995 \DeclareRobustCommand{@ssetl}[2]
996 {\mth*{\argmid{\lbrace}{#2}{\,\#1!}}}
997 \DeclareRobustCommand{\setr}
998 {\@ifstar{\@ssetr}{\@setr}}
999 \DeclareRobustCommand{\setrx}
1000 {\@ifstar{\@ssetr}{\@setr}}
1001 \DeclareRobustCommand{@setr}[1]
1002 {\mth{\argmid{\left.}{#1}{\right\rbrace}}}
1003 \DeclareRobustCommand{@ssetr}[1]
1004 {\mth*{\argmid{}{#1}{\rbrace}}}

```

```

\card ...
1005 \DeclareRobustCommand{\card}
1006 {\@ifstar{\@scard}{\@card}}
1007 \DeclareRobustCommand{\@card}[1]
1008 {\mth{\argmid{\left\lvert}\{#1\}{\right\rvert}}}
1009 \DeclareRobustCommand{\@scard}[1]
1010 {\mth*{\argmid{\lvert}\{#1\}{\rvert}}}

\pow ...
1011 \DeclareRobustCommand{\pow}[1]
1012 {\mth{2^{\defval{#1}{\cdot}}}}

1013 %%** Relations *****%%

\emptyrel ...
1014 \DeclareRobustCommand{\emptyrel}
1015 {\mth{\varnothing}}

1016 %%*****%%

\dom, \cod,
1017 \usrmth{\dom}{\}{argfun}
1018 \usrmth{\cod}{\}{argfun}
1019 \usrmth{\rng}{\}{argfun}
1020 \usrmth{\img}{\}{argfun}

1021 %%*****%%

\prj ...
1022 \DeclareRobustCommand{\prj}
1023 {\mthlbop{\downarrow}}

\rst ...
1024 \DeclareRobustCommand{\rst}
1025 {\mthlbop{\upharpoonright}}

\cmp ...
1026 \DeclareRobustCommand{\cmp}
1027 {\mthlbop{\circ}}

1028 %%** Functions *****%%

\emptyfun ...
1029 \DeclareRobustCommand{\emptyfun}
1030 {\mth{\varnothing}}

1031 %%*****%%

\pto, \pmapsto ...
1032 \DeclareMathOperator{\pto}
1033 {\ensuremath{\rightharpoonup}}
1034 \DeclareMathOperator{\pmapsto}
1035 {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize\llcorner}}}%
1036 \kern-1.5ex\rightharpoonup}}

1037 %%*****%%

\fix, \ifp,
1038 \usrmth{\fix}{\}{fun}
1039 \usrmth{\ifp}{\}{fun}
1040 \usrmth{\lfp}{\}{fun}
1041 \usrmth{\gfp}{\}{fun}

1042 %%*****%%

```

```

\Aomega, \AOmega ...
1043 \usrmth{Aomega}{-}{argset}[\omega]
1044 \usrmth{AOmega}{-}{argset}[\Omega]

\Atheta, \ATheta ...
1045 \usrmth{Atheta}{-}{argset}[\theta]
1046 \usrmth{ATheta}{-}{argset}[\Theta]

\Aomicron,
1047 \usrmth{Aomicron}{-}{argset}[\omicron]
1048 \usrmth{AOmicron}{-}{argset}[\Omicron]

1049 %** Numbers *****%

\SetB ...
1050 \DeclareRobustCommand{\SetB}
1051 {\mthset[mathbb]{B}}

\SetF ...
1052 \DeclareRobustCommand{\SetF}
1053 {\mthset[mathbb]{F}}

\SetN,
1054 \DeclareRobustCommand{\SetN}
1055 {\mthset[mathbb]{N}}
1056 \DeclareRobustCommand{\SetNI}[1] []
1057 {\SetN[\infty #1]}

\SetZ,
1058 \DeclareRobustCommand{\SetZ}
1059 {\mthset[mathbb]{Z}}
1060 \DeclareRobustCommand{\SetZI}[1] []
1061 {\SetZ[\pm\infty #1]}
1062 \DeclareRobustCommand{\SetZPI}[1] []
1063 {\SetZ[+\infty #1]}
1064 \DeclareRobustCommand{\SetZNI}[1] []
1065 {\SetZ[-\infty #1]}

\SetQ,
1066 \DeclareRobustCommand{\SetQ}
1067 {\mthset[mathbb]{Q}}
1068 \DeclareRobustCommand{\SetQI}[1] []
1069 {\SetQ[\pm\infty #1]}
1070 \DeclareRobustCommand{\SetQPI}[1] []
1071 {\SetQ[+\infty #1]}
1072 \DeclareRobustCommand{\SetQNI}[1] []
1073 {\SetQ[-\infty #1]}

\SetR,
1074 \DeclareRobustCommand{\SetR}
1075 {\mthset[mathbb]{R}}
1076 \DeclareRobustCommand{\SetRI}[1] []
1077 {\SetR[\pm\infty #1]}
1078 \DeclareRobustCommand{\SetRPI}[1] []
1079 {\SetR[+\infty #1]}
1080 \DeclareRobustCommand{\SetRNI}[1] []
1081 {\SetR[-\infty #1]}

\SetC,
1082 \DeclareRobustCommand{\SetC}
1083 {\mthset[mathbb]{C}}
1084 \DeclareRobustCommand{\SetCI}[1] []
1085 {\SetC[\infty #1]}

```

1086 %%\*\*\*\*\*%

\num, ... ..

```
1087 \DeclareRobustCommand{\num}[1]
1088 {\mth{[#1]}}
1089 \DeclareRobustCommand{\numcc}[2]
1090 {\mth{[\argsep{#1}{,}{#2}]}}
1091 \DeclareRobustCommand{\numco}[2]
1092 {\mth{[\argsep{#1}{,}{#2})]}}
1093 \DeclareRobustCommand{\numoc}[2]
1094 {\mth{(\argsep{#1}{,}{#2})]}}
1095 \DeclareRobustCommand{\numoo}[2]
1096 {\mth{(\argsep{#1}{,}{#2})}}}
```

1097 %%\*\*\*\*\*%

\abs, \norm ...

```
1098 \DeclareRobustCommand{\abs}
1099 {\@ifstar{\@sabs}{\@abs}}
1100 \DeclareRobustCommand{\@abs}[1]
1101 {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
1102 \DeclareRobustCommand{\@sabs}[1]
1103 {\mth*{\argmid{\lvert}{#1}{\rvert}}}
1104 \DeclareRobustCommand{\norm}
1105 {\@ifstar{\@snorm}{\@norm}}
1106 \DeclareRobustCommand{\@norm}[1]
1107 {\mth{\argmid{\left\lVert}{#1}{\right\rVert}}}
1108 \DeclareRobustCommand{\@snorm}[1]
1109 {\mth*{\argmid{\lVert}{#1}{\rVert}}}
```

\floor, \ceil ...

```
1110 \DeclareRobustCommand{\floor}
1111 {\@ifstar{\@sfloor}{\@ffloor}}
1112 \DeclareRobustCommand{\@ffloor}[1]
1113 {\mth{\argmid{\left\lfloor}{#1}{\right\rfloor}}}
1114 \DeclareRobustCommand{\@sfloor}[1]
1115 {\mth*{\argmid{\lfloor}{#1}{\rfloor}}}
1116 \DeclareRobustCommand{\ceil}
1117 {\@ifstar{\@sceil}{\@ceiling}}
1118 \DeclareRobustCommand{\@ceiling}[1]
1119 {\mth{\argmid{\left\lceil}{#1}{\right\rceil}}}
1120 \DeclareRobustCommand{\@sceil}[1]
1121 {\mth*{\argmid{\lceil}{#1}{\rceil}}}
```

1122 %%\*\*\*\*\*%

\arg ...

```
1123 \usrmth{arg}{\fun}
```

\evn, \odd ...

```
1124 \usrmth{evn}{\fun}
1125 \usrmth{odd}{\fun}
```

\bst, ... ..

```
1126 \usrmth{bst}{\fun}
1127 \usrmth{argbst}{\fun}[arg\,bst]
```

\min, \max, ... ..

```
1128 \usrmth{min}{\fun}
1129 \usrmth{max}{\fun}
1130 \usrmth{argmin}{\fun}[arg\,min]
1131 \usrmth{argmax}{\fun}[arg\,max]
```

```

\inf, \sup ...
1132 \usrmth{inf}{-}{fun}
1133 \usrmth{sup}{-}{fun}

1134 %** Sequences *****%

\emptyseq ...
1135 \DeclareRobustCommand{\emptyseq}
1136 {\mth{\varepsilon}}

\len ...
1137 \DeclareRobustCommand{\len}
1138 {\@ifstar{\@slen}{\@len}}
1139 \DeclareRobustCommandx{\@len}[3][1=, 2=]
1140 {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}
1141 \DeclareRobustCommand{\@len}[1]
1142 {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
1143 \DeclareRobustCommand{\@slen}[1]
1144 {\mth*{\argmid{\lvert}{#1}{\rvert}}}

\fst, \lst ...
1145 \usrmth{fst}{-}{argfun}
1146 \usrmth{lst}{-}{argfun}

1147 \fi
1148 %*****%
1149 %*****%
1150 %** Macros for Computational-Complexity Classes *****%
1151 %*****%
1152 \ifcom@

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

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

• \defcomcls{CompClass}[NewClass];

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

1153 \newcommandx{\defcomcls}[2][2=]
1154 {\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] = NCOMPCLASSSUPSUB(ARG)
\CoNCompClass[sub][sup][arg] = CONCOMPCLASSSUPSUB(ARG)
\NCompClassE[sub][sup][arg] = NCOMPCLASS-EASYSUPSUB(ARG)
\CoNCompClassE[sub][sup][arg] = CONCOMPCLASS-EASYSUPSUB(ARG)
\NCompClassH[sub][sup][arg] = NCOMPCLASS-HARDSUPSUB(ARG)
\CoNCompClassH[sub][sup][arg] = CONCOMPCLASS-HARDSUPSUB(ARG)
\NCompClassC[sub][sup][arg] = NCOMPCLASS-COMPLETESUPSUB(ARG)
\CoNCompClassC[sub][sup][arg] = CONCOMPCLASS-COMPLETESUPSUB(ARG)

\UCompClass[sub][sup][arg] = UCOMPCLASSSUPSUB(ARG)
\CoUCompClass[sub][sup][arg] = COUCOMPCLASSSUPSUB(ARG)
\UCompClassE[sub][sup][arg] = UCOMPCLASS-EASYSUPSUB(ARG)
\CoUCompClassE[sub][sup][arg] = COUCOMPCLASS-EASYSUPSUB(ARG)
\UCompClassH[sub][sup][arg] = UCOMPCLASS-HARDSUPSUB(ARG)
\CoUCompClassH[sub][sup][arg] = COUCOMPCLASS-HARDSUPSUB(ARG)
\UCompClassC[sub][sup][arg] = UCOMPCLASS-COMPLETESUPSUB(ARG)
\CoUCompClassC[sub][sup][arg] = COUCOMPCLASS-COMPLETESUPSUB(ARG)

\ACompClass[sub][sup][arg] = ACOMPCLASSSUPSUB(ARG)
\CoACompClass[sub][sup][arg] = COACOMPCLASSSUPSUB(ARG)
\ACompClassE[sub][sup][arg] = ACOMPCLASS-EASYSUPSUB(ARG)
\CoACompClassE[sub][sup][arg] = COACOMPCLASS-EASYSUPSUB(ARG)
\ACompClassH[sub][sup][arg] = ACOMPCLASS-HARDSUPSUB(ARG)
\CoACompClassH[sub][sup][arg] = COACOMPCLASS-HARDSUPSUB(ARG)
\ACompClassC[sub][sup][arg] = ACOMPCLASS-COMPLETESUPSUB(ARG)
\CoACompClassC[sub][sup][arg] = COACOMPCLASS-COMPLETESUPSUB(ARG)

• \defcomclsggrp{CompClass}[NewClass];

\CompClass[sub][sup][arg] = NEWCLASSSUPSUB(ARG)
\CoCompClass[sub][sup][arg] = CONEWCLASSSUPSUB(ARG)
\CompClassE[sub][sup][arg] = NEWCLASS-EASYSUPSUB(ARG)
\CoCompClassE[sub][sup][arg] = CONEWCLASS-EASYSUPSUB(ARG)
\CompClassH[sub][sup][arg] = NEWCLASS-HARDSUPSUB(ARG)
\CoCompClassH[sub][sup][arg] = CONEWCLASS-HARDSUPSUB(ARG)
\CompClassC[sub][sup][arg] = NEWCLASS-COMPLETESUPSUB(ARG)
\CoCompClassC[sub][sup][arg] = CONEWCLASS-COMPLETESUPSUB(ARG)

\DCompClass[sub][sup][arg] = DNEWCLASSSUPSUB(ARG)
\CoDCompClass[sub][sup][arg] = CODNEWCLASSSUPSUB(ARG)
\DCompClassE[sub][sup][arg] = DNEWCLASS-EASYSUPSUB(ARG)
\CoDCompClassE[sub][sup][arg] = CODNEWCLASS-EASYSUPSUB(ARG)
\DCompClassH[sub][sup][arg] = DNEWCLASS-HARDSUPSUB(ARG)
\CoDCompClassH[sub][sup][arg] = CODNEWCLASS-HARDSUPSUB(ARG)
\DCompClassC[sub][sup][arg] = DNEWCLASS-COMPLETESUPSUB(ARG)
\CoDCompClassC[sub][sup][arg] = CODNEWCLASS-COMPLETESUPSUB(ARG)

\NCompClass[sub][sup][arg] = NNEWCLASSSUPSUB(ARG)
\CoNCompClass[sub][sup][arg] = CONNEWCLASSSUPSUB(ARG)
\NCompClassE[sub][sup][arg] = NNEWCLASS-EASYSUPSUB(ARG)
\CoNCompClassE[sub][sup][arg] = CONNEWCLASS-EASYSUPSUB(ARG)
\NCompClassH[sub][sup][arg] = NNEWCLASS-HARDSUPSUB(ARG)
\CoNCompClassH[sub][sup][arg] = CONNEWCLASS-HARDSUPSUB(ARG)
\NCompClassC[sub][sup][arg] = NNEWCLASS-COMPLETESUPSUB(ARG)
\CoNCompClassC[sub][sup][arg] = CONNEWCLASS-COMPLETESUPSUB(ARG)

\UCompClass[sub][sup][arg] = UNEWCLASSSUPSUB(ARG)
\CoUCompClass[sub][sup][arg] = COUNEWCLASSSUPSUB(ARG)
\UCompClassE[sub][sup][arg] = UNEWCLASS-EASYSUPSUB(ARG)
\CoUCompClassE[sub][sup][arg] = COUNEWCLASS-EASYSUPSUB(ARG)
\UCompClassH[sub][sup][arg] = UNEWCLASS-HARDSUPSUB(ARG)
\CoUCompClassH[sub][sup][arg] = COUNEWCLASS-HARDSUPSUB(ARG)
\UCompClassC[sub][sup][arg] = UNEWCLASS-COMPLETESUPSUB(ARG)
\CoUCompClassC[sub][sup][arg] = COUNEWCLASS-COMPLETESUPSUB(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)

1155 \newcommandx{\defcomclsggrp}[2][2=]
1156 {\defcomclsggrpsem{#1}{\defval{#2}{#1}}}%
1157 \defcomclsggrpsem{#1}{\defval{#2}{#1}}[Co]}
1158 \newcommandx{\defcomclsgrpsem}[3][3=]
1159 {\defcomclsgrpred{#3#1}{#2}{#3}%
1160 \defcomclsgrpred{#3D#1}{#2}{#3D}%
1161 \defcomclsgrpred{#3N#1}{#2}{#3N}%
1162 \defcomclsgrpred{#3U#1}{#2}{#3U}%
1163 \defcomclsgrpred{#3A#1}{#2}{#3A}}
1164 \newcommandx{\defcomclsgrpred}[3][3=]
1165 {\defcomclsgrpcmd{#1}{#2}{#3}%
1166 \defcomclsgrpcmd{#1E}{#2}{#3}[-easy]%
1167 \defcomclsgrpcmd{#1H}{#2}{#3}[-hard]%
1168 \defcomclsgrpcmd{#1C}{#2}{#3}[-complete]}%
1169 \newcommandx{\defcomclsgrpcmd}[4][3=, 4=]
1170 {\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]

1171 \newcommandx{\defcomhrc}[2][2=]
1172 {\csdef{#1}{\txttoparcom{\defval{#2}{#1}}}}

1173 %%%

\Easy, \Hard, ...

1174 \cmdtxtcom{Easy}
1175 \cmdtxtcom{Hard}
1176 \cmdtxtcom{Complete}

1177 %%%

\FPT, ...
 • \FPT[sub][sup][arg] = FPTSUB(ARG)
 • \FPLin[sub][sup][arg] = FPLSUB(ARG)
 • \FPQdr[sub][sup][arg] = FPQSUB(ARG)
 • \FPCub[sub][sup][arg] = FPCSUB(ARG)

1178 \defcomcls{FPT}
1179 \defcomcls{FPLin}[FPL]
1180 \defcomcls{FPQdr}[FPQ]
1181 \defcomcls{FPCub}[FPC]

1182 %%%

\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)

```



\LogSpace, ...

- \LogSpace[sub][sup][arg] = LOGSPACE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \LogSpaceE[sub][sup][arg] = LOGSPACE-EASY<sup>SUB</sup><sub>SUB</sub>(ARG)
- \LogSpaceH[sub][sup][arg] = LOGSPACE-HARD<sup>SUB</sup><sub>SUB</sub>(ARG)
- \LogSpaceC[sub][sup][arg] = LOGSPACE-COMPLETE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \DLogSpace[sub][sup][arg] = DLOGSPACE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \DLogSpaceE[sub][sup][arg] = DLOGSPACE-EASY<sup>SUB</sup><sub>SUB</sub>(ARG)
- \DLogSpaceH[sub][sup][arg] = DLOGSPACE-HARD<sup>SUB</sup><sub>SUB</sub>(ARG)
- \DLogSpaceC[sub][sup][arg] = DLOGSPACE-COMPLETE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \NLogSpace[sub][sup][arg] = NLOGSPACE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \NLogSpaceE[sub][sup][arg] = NLOGSPACE-EASY<sup>SUB</sup><sub>SUB</sub>(ARG)
- \NLogSpaceH[sub][sup][arg] = NLOGSPACE-HARD<sup>SUB</sup><sub>SUB</sub>(ARG)
- \NLogSpaceC[sub][sup][arg] = NLOGSPACE-COMPLETE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \ULogSpace[sub][sup][arg] = ULOGSPACE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \ULogSpaceE[sub][sup][arg] = ULOGSPACE-EASY<sup>SUB</sup><sub>SUB</sub>(ARG)
- \ULogSpaceH[sub][sup][arg] = ULOGSPACE-HARD<sup>SUB</sup><sub>SUB</sub>(ARG)
- \ULogSpaceC[sub][sup][arg] = ULOGSPACE-COMPLETE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \ALogSpace[sub][sup][arg] = ALOGSPACE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \ALogSpaceE[sub][sup][arg] = ALOGSPACE-EASY<sup>SUB</sup><sub>SUB</sub>(ARG)
- \ALogSpaceH[sub][sup][arg] = ALOGSPACE-HARD<sup>SUB</sup><sub>SUB</sub>(ARG)
- \ALogSpaceC[sub][sup][arg] = ALOGSPACE-COMPLETE<sup>SUB</sup><sub>SUB</sub>(ARG)

1186 \defcomclsgrp{LogSpace}

\PTime, ...

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

1187 \defcomclsgrp{PTime}

\PSpace, ...

- \PSpace[sub][sup][arg] = PSPACE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \PSpaceE[sub][sup][arg] = PSPACE-EASY<sup>SUB</sup><sub>SUB</sub>(ARG)
- \PSpaceH[sub][sup][arg] = PSPACE-HARD<sup>SUB</sup><sub>SUB</sub>(ARG)
- \PSpaceC[sub][sup][arg] = PSPACE-COMPLETE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \DPSpace[sub][sup][arg] = DPSpace<sup>SUB</sup><sub>SUB</sub>(ARG)
- \DPSpaceE[sub][sup][arg] = DPSpace-EASY<sup>SUB</sup><sub>SUB</sub>(ARG)
- \DPSpaceH[sub][sup][arg] = DPSpace-HARD<sup>SUB</sup><sub>SUB</sub>(ARG)
- \DPSpaceC[sub][sup][arg] = DPSpace-COMPLETE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \NPSPACE[sub][sup][arg] = NPSPACE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \NPSPACEE[sub][sup][arg] = NPSPACE-EASY<sup>SUB</sup><sub>SUB</sub>(ARG)
- \NPSPACEH[sub][sup][arg] = NPSPACE-HARD<sup>SUB</sup><sub>SUB</sub>(ARG)
- \NPSPACEC[sub][sup][arg] = NPSPACE-COMPLETE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \UPSPACE[sub][sup][arg] = UPSPACE<sup>SUB</sup><sub>SUB</sub>(ARG)
- \UPSPACEE[sub][sup][arg] = UPSPACE-EASY<sup>SUB</sup><sub>SUB</sub>(ARG)
- \UPSPACEH[sub][sup][arg] = UPSPACE-HARD<sup>SUB</sup><sub>SUB</sub>(ARG)
- \UPSPACEC[sub][sup][arg] = UPSPACE-COMPLETE<sup>SUB</sup><sub>SUB</sub>(ARG)





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

```
1201 \defcomhrc{ULH}{\mth{\Pi}}
1202 \defcomhrc{UBH}{\mth[mathbf]{\Pi}}
```

```
1203 \fi
1204 %%%
1205 %%%
1206 %** Macros for Games %%%
1207 %%%
1208 \ifgam@
1209 %** Logic Games %%%
```

\SATG, ... ..

```
1210 %% Satisfiability Games
1211 \cmdtxttoparname{SATG}{Sat}
1212
1213 %% Validity Games
1214 \cmdtxttoparname{VALG}{Val}
1215
1216 %% Evaluation Games
1217 \cmdtxttoparname{EVLG}{Evl}
1218
1219 %% Synthesis Games
1220 \cmdtxttoparname{SYNG}{Syn}
1221
1222 %% Model-Checking Games
1223 \cmdtxttoparname{MCG}{MC}
1224
1225 %% Ehrenfeucht-Fraisse Games
1226 \cmdtxttoparname{EFG}{EF}

1227 %** Syntax %%%
```

\PlrSym, \OppSym ...

```
1228 \newcommand{\plrsym}{E}
1229 \cmdmthsym{Plr}{\plrsym}
1230 \newcommand{\oppsym}{A}
1231 \cmdmthsym{Opp}{\oppsym}
```

\ArenaName, ... ..

```
1232 \newcommand{\arenaname}{A}
1233 \usrmthlatupp{Arena}{Name}{name}{\arenaname}
```

\PosSet, ... ..

```
1234 \newcommand{\possym}{v}
1235 \newcommand{\posset}{Ps}
1236 \cmdmthsetext{Pos}{\posset}{\possym}
1237 \cmdmthsymelm{ipos}{\possym_{I}}
1238 \cmdmthsymelm{fpos}{\possym_{F}}
1239 \cmdmthset{PPos}{\posset_{\PlrSym}}
1240 \cmdmthsymelm{ppos}{\possym_{\PlrSym}}
1241 \cmdmthset{OPos}{\posset_{\OppSym}}
1242 \cmdmthsymelm{opos}{\possym_{\OppSym}}
```

\PlrFun ...

```
1243 \newcommand{\plrfun}{pl}
1244 \cmdmthfun{plr}{\plrfun}
```

\MovRel ...

```
1245 \newcommand{\movrel}{Mv}
1246 \cmdmthrel{Mov}{\movrel}
```

```

\GameName,
1247 \newcommand{\gamename}{\Game}
1248 \usrmthlatupp{Game}{Name}{name}[\gamename]

\WinSet ...
1249 \newcommand{\winset}{\Wn}
1250 \cmdmthset{Win}[\winset]

\ObsSet, \obsFun ...
1251 \newcommand{\obsset}{\Ob}
1252 \cmdmthset{Obs}[\obsset]
1253 \cmdmthfun{obs}

1254 %** Semantics *****%%

\PthSet, \pthFun ...
1255 \newcommand{\pthsym}{\pi}
1256 \newcommand{\pthset}{Pth}
1257 \cmdmthsetext{Pth}[\pthset][\pthsym]
1258 \usrmth{path}{-}{argfun}

\HstSet,
1259 \newcommand{\hstsym}{\varpi}
1260 \newcommand{\hstset}{Hst}
1261 \cmdmthsetext{Hst}[\hstset][\hstsym]
1262 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1263 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1264 \cmdmthset{OHst}[\hstset_{\OppSym}]
1265 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1266 \usrmth{play}{-}{argfun}

\PlaySet, \playFun ...
1267 \newcommand{\playsym}{\pi}
1268 \newcommand{\playset}{Play}
1269 \cmdmthsetext{Play}[\playset][\playsym]
1270 \usrmth{hst}{-}{argfun}

\StrSet,
1271 \newcommand{\strsym}{\sigma}
1272 \newcommand{\strset}{Str}
1273 \cmdmthsetext{Str}[\strset][\strsym]
1274 \cmdmthset{PStr}[\strset_{\PlrSym}]
1275 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1276 \cmdmthset{OStr}[\strset_{\OppSym}]
1277 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1278 \newcommand{\prfsym}{\xi}
1279 \newcommand{\prfset}{Prf}
1280 \cmdmthsetext{Prf}[\prfset][\prfsym]

\pre, \suc ...
1281 \usrmth{pre}{-}{oargfun}
1282 \usrmth{suc}{-}{oargfun}

\ent, \esc ...
1283 \usrmth{ent}{-}{oargfun}
1284 \usrmth{esc}{-}{oargfun}

\int, \out ...
1285 \usrmth{int}{-}{oargfun}
1286 \usrmth{out}{-}{oargfun}

```

```

\atr, \rch ...
1287 \usrmth{atr}{-}{oargfun}
1288 \usrmth{rch}{-}{oargfun}

\lift ...
1289 \usrmth{lift}{-}{oargfun}

\sol ...
1290 \usrmth{sol}{-}{oargfun}

1291 %** Qualitative Games on Graph *****%

\BG,
1292 %% Buchi Games
1293 \cmdtxttoparname{BG}
1294
1295 %% Co-Buchi Games
1296 \cmdtxttoparname{CG}
1297
1298 %% Parity Games
1299 \cmdtxttoparname{PG}
1300
1301 %% Rabin Games
1302 \cmdtxttoparname{RG}
1303
1304 %% Streett Games
1305 \cmdtxttoparname{SG}
1306
1307 %% Muller Games
1308 \cmdtxttoparname{MG}

1309 %** Syntax *****%

\EvnSym, \OddSym ...
1310 \newcommand{\evnsym}{0}
1311 \cmdmthsym{Evnsym}[\evnsym]
1312 \newcommand{\oddsym}{1}
1313 \cmdmthsym{Oddsym}[\oddsym]

\PrtSet, \prtFun ...
1314 \newcommand{\prtsym}{p}
1315 \newcommand{\prtset}{Pr}
1316 \cmdmthsetext{Prt}[\prtset][\prtsym]
1317 \cmdmthfun{prt}[pr]

1318 %** Semantics *****%

...

1319 %** Quantitative Games on Graph *****%

\EG,
1320 %% Energy Games
1321 \cmdtxttoparname{EG}
1322
1323 %% Mean-Payoff Games
1324 \cmdtxttoparname{MPG}
1325
1326 %% Discounted-Payoff Games
1327 \cmdtxttoparname{DPG}

1328 %** Syntax *****%

```



```

\MaxSym, \MinSym ...
1329 \newcommand{\maxsym}{\oplus}
1330 \cmdmthsym{Max}[\maxsym]
1331 \newcommand{\minsym}{\boxminus}
1332 \cmdmthsym{Min}[\minsym]

\WghSet, \wghFun ...
1333 \newcommand{\wghsym}{w}
1334 \newcommand{\wghset}{Wg}
1335 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1336 \cmdmthfun{wgh}[wg]

1337 %** Semantics *****%%
...
1338 \fi
1339 %*****%%
1340 %*****%%
1341 %** Macros for Logics *****%%
1342 %*****%%
1343 \iflog@
1344 %** Propositional Logics *****%%

\BF, \QBF,
1345 % Boolean Formulae
1346 \cmdtxttoparname{BF}
1347
1348 % Quantified Boolean Formulae
1349 \DeclareRobustCommand{\QBF}
1350 {\txtname{Q}\BF}
1351 \DeclareRobustCommand{\EBF}
1352 {\ensuremath{\exists}\BF}
1353 \DeclareRobustCommand{\UBF}
1354 {\ensuremath{\forall}\BF}

1355 %** Syntax *****%%

\LogSig,
1356 \newcommand{\logsig}{L}
1357 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

\Tt, \Ff ...
1358 \newcommand{\ttsym}{\top}
1359 \usrmth{Tt}{\}{sym}[\ttsym]
1360 \newcommand{\ffsym}{\bot}
1361 \usrmth{Ff}{\}{sym}[\ffsym]

\LNeg, \LNot ...
1362 \newcommand{\lnegsym}{\neg}
1363 \usrmth{LNeg}{\}{luop}[\lnegsym]
1364 \newcommand{\lnotsym}{\sim}
1365 \usrmth{LNot}{\}{luop}[\lnotsym]

\LCon, \LDis ...
1366 \newcommand{\lconsym}{\land}
1367 \usrmth{LCon}{\}{lbop}[\lconsym]
1368 \newcommand{\ldissym}{\lor}
1369 \usrmth{LDis}{\}{lbop}[\ldissym]

\LImp, \LCoi ...
1370 \newcommand{\limpsym}{\rightarrow}
1371 \usrmth{LImp}{\}{lbop}[\limpsym]
1372 \newcommand{\lcoisym}{\leftrightarrow}
1373 \usrmth{LCoi}{\}{lbop}[\lcoisym]

```

```

\LExs, \LAll ...
1374 \newcommand{\lexssym}{\exists}
1375 \usrmth{LExs}{-}{\luop}[\lexssym]
1376 \newcommand{\lallsym}{\forall}
1377 \usrmth{LAll}{-}{\luop}[\lallsym]

\APSet,
1378 \newcommand{\apsym}{p}
1379 \newcommand{\apset}{AP}
1380 \cmdmthsetext{AP}[\apset] [\apsym]
1381 \usrmth{ap}{-}{argfun}

\sub ...
1382 \usrmth{sub}{-}{argfun}

\Cnt, \Qnt, \Sym ...
1383 \usrmth{Cnt}{-}{sym}[C]
1384 \usrmth{Qnt}{-}{sym}[Q]
1385 \usrmth{Sym}{-}{sym}[\odot]

\QAE, \QEA ...
1386 \usrmth{QAE}{-}{sym}[\forall\exists]
1387 \usrmth{QEA}{-}{sym}[\exists\forall]

\QntSet,
1388 \newcommand{\qntsym}{\wp}
1389 \newcommand{\qntset}{Qn}
1390 \cmdmthsetext{Qnt}[\qntset] [\qntsym]

\free, \bound ...
1391 \usrmth{free}{-}{argfun}
1392 \usrmth{bound}{-}{argfun}

\dep, \alt ...
1393 \usrmth{dep}{-}{argfun}
1394 \usrmth{alt}{-}{argfun}

\cnf, \dnf,
1395 \cmdtxtabr{cnf}
1396 \cmdtxtabr{dnf}
1397 \cmdtxtabr{pnf}
1398 \cmdtxtabr{nnf}

1399 %** Semantics *****%

\LogStr,
1400 \newcommand{\logstr}{L}
1401 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet,
1402 \newcommand{\valsym}{\xi}
1403 \newcommand{\valset}{Val}
1404 \cmdmthsetext{Val}[\valset] [\valsym]

\AsgSet,
1405 \newcommand{\asgsym}{\chi}
1406 \newcommand{\asgset}{Asg}
1407 \cmdmthsetext{Asg}[\asgset] [\asgsym]

1408 %** First-Order Logics I *****%

```

```

\FOL,
1409 % First-Order Logic
1410 \cmdtxttoparname{FOL}[Fol]
1411 \cmdtxttoparname{FO}[FO]
1412
1413 % Monadic First-Order Logic
1414 \DeclareRobustCommand{\MFOL}
1415 {\{\txtname{M}\}\FOL}
1416 \DeclareRobustCommand{\MFO}
1417 {\{\txtname{M}\}\FO}

1418 %** Syntax *****%

\VarSig,
1419 \newcommand{\varsig}{V}
1420 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1421 \newcommand{\varsym}{x}
1422 \newcommand{\varset}{Vr}
1423 \cmdmthsetext{Var}[\varset][\varsym]
1424 \usrmth{var}{\}{argfun}[vr]
1425 \usrmth{dim}{\}{argfun}[dm]

\ConSig,
1426 \newcommand{\consig}{C}
1427 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1428 \newcommand{\consym}{c}
1429 \newcommand{\conset}{Cn}
1430 \cmdmthsetext{Con}[\conset][\consym]
1431 \usrmth{con}{\}{argfun}[cn]

\FunSig,
1432 \newcommand{\funsig}{F}
1433 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1434 \newcommand{\funsym}{f}
1435 \newcommand{\funset}{Fn}
1436 \cmdmthsetext{Fun}[\funset][\funsym]
1437 \usrmth{fun}{\}{argfun}[fn]
1438 \usrmth{art}{\}{argfun}[ar]

\TerSig,
1439 \newcommand{\tersig}{T}
1440 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1441 \newcommand{\tersym}{t}
1442 \newcommand{\terset}{Tr}
1443 \cmdmthsetext{Ter}[\terset][\tersym]
1444 \usrmth{ter}{\}{argfun}

\RelSig,
1445 \newcommand{\relsig}{R}
1446 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1447 \newcommand{\relsym}{r}
1448 \newcommand{\relset}{Rl}
1449 \cmdmthsetext{Rel}[\relset][\relsym]
1450 \usrmth{rel}{\}{argfun}[rl]

\skm ...
1451 \usrmth{skm}{\}{argfun}

1452 %** Semantics *****%

\ConStr,
1453 \newcommand{\constr}{C}
1454 \usrmthlatupp{Con}{Str}{str}[\constr]

```

```

\FunStr,
1455 \newcommand{\funstr}{F}
1456 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr,
1457 \newcommand{\terstr}{T}
1458 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr,
1459 \newcommand{\relstr}{R}
1460 \usrmthlatupp{Rel}{Str}{str}[\relstr]

1461 %** First-Order Logics II *****%%

\DF, \IF,
1462 % Dependence-Friendly Logic
1463 \cmdtxtoparname{DF}
1464
1465 % Independence-Friendly Logic
1466 \cmdtxtoparname{IF}
1467
1468 % Dependence/Independence-Friendly Logic
1469 \cmdtxtoparname{DIF}
1470
1471 % Dependence Logic
1472 \cmdtxtoparname{DL}
1473
1474 % Team Logic
1475 \cmdtxtoparname{TL}
1476
1477 % Alternating Dependence-Friendly Logic
1478 \cmdtxtoparname{ADF}
1479
1480 % Alternating Independence-Friendly Logic
1481 \cmdtxtoparname{AIF}
1482
1483 % Alternating Dependence/Independence-Friendly Logic
1484 \cmdtxtoparname{ADIF}

...

1485 %** Syntax *****%%

\LEExs, \LAA11 ...
1486 \newcommand{\leexssym}{\Sigma}
1487 \usrmth{LEExs}{\luop}[\leexssym]
1488 \newcommand{\laallsym}{\Pi}
1489 \usrmth{LAA11}{\luop}[\laallsym]

1490 %** Semantics *****%%

...

1491 %** Second-Order Logics I *****%%

\SOL,
1492 % Second-Order Logic
1493 \cmdtxtoparname{SOL}[Sol]
1494 \cmdtxtoparname{SO}
1495
1496 % Weak Second-Order Logic
1497 \DeclareRobustCommand{\WSOL}
1498 {\{\txname{W}\}\SOL}
1499 \DeclareRobustCommand{\WSO}
1500 {\{\txname{W}\}\SO}

```

```

1501
1502 % coWeak Second-Order Logic
1503 \DeclareRobustCommand{\coWSOL}
1504 {\txtname{coW}}\SOL}
1505 \DeclareRobustCommand{\coWSO}
1506 {\txtname{coW}}\SO}
1507
1508 % Monadic Second-Order Logic
1509 \DeclareRobustCommand{\MSOL}
1510 {\txtname{M}}\SOL}
1511 \DeclareRobustCommand{\MSO}
1512 {\txtname{M}}\SO}
1513
1514 % Weak Monadic Second-Order Logic
1515 \DeclareRobustCommand{\WMSOL}
1516 {\txtname{W}}\MSOL}
1517 \DeclareRobustCommand{\WMSO}
1518 {\txtname{W}}\MSO}
1519
1520 % coWeak Monadic Second-Order Logic
1521 \DeclareRobustCommand{\coWMSOL}
1522 {\txtname{coW}}\MSOL}
1523 \DeclareRobustCommand{\coWMSO}
1524 {\txtname{coW}}\MSO}
1525 %** Syntax *****%

\FVarSet,
1526 \newcommand{\fvarsym}{x}
1527 \newcommand{\fvarset}{FVr}
1528 \cmdmthsetext{FVar}[\fvarset][\fvarsym]

\SVarSet,
1529 \newcommand{\svarsym}{X}
1530 \newcommand{\svarset}{SVr}
1531 \cmdmthsetext{SVar}[\svarset][\svarsym]

1532 %** Semantics *****%
...
1533 %** Second-Order Logics II *****%

\TL, \PL,
1534 % Tree Logic
1535 \cmdtxttoparname{TL}
1536
1537 % Weak Tree Logic
1538 \DeclareRobustCommand{\WTL}
1539 {\txtname{W}}\TL}
1540
1541 % coWeak Tree Logic
1542 \DeclareRobustCommand{\coWTL}
1543 {\txtname{coW}}\TL}
1544
1545 % Monadic Tree Logic
1546 \DeclareRobustCommand{\MTL}
1547 {\txtname{M}}\TL}
1548
1549 % Weak Monadic Tree Logic
1550 \DeclareRobustCommand{\WMTL}
1551 {\txtname{W}}\MTL}
1552
1553 % coWeak Monadic Tree Logic
1554 \DeclareRobustCommand{\coWMTL}

```

```

1555 {{\txtname{coW}}\MTL}
1556
1557 % Path Logic
1558 \cmdtxttoparname{PL}
1559
1560 % Weak Path Logic
1561 \DeclareRobustCommand{\WPL}
1562 {{\txtname{W}}\PL}
1563
1564 % coWeak Path Logic
1565 \DeclareRobustCommand{\coWPL}
1566 {{\txtname{coW}}\PL}
1567
1568 % Monadic Path Logic
1569 \DeclareRobustCommand{\MPL}
1570 {{\txtname{M}}\PL}
1571
1572 % Weak Monadic Path Logic
1573 \DeclareRobustCommand{\WMPL}
1574 {{\txtname{W}}\MPL}
1575
1576 % coWeak Monadic Path Logic
1577 \DeclareRobustCommand{\coWMPL}
1578 {{\txtname{coW}}\MPL}
1579 %** Syntax *****%
...
1580 %** Semantics *****%
...
1581 %** Modal Logics I *****%

\ML, \GML,
1582 % Modal Logic
1583 \cmdtxttoparname{ML}
1584
1585 % Graded Modal Logic
1586 \DeclareRobustCommand{\GML}
1587 {{\txtname{G}}\ML}
1588
1589 % Quantified Modal Logic
1590 \DeclareRobustCommand{\QML}
1591 {{\txtname{Q}}\ML}
1592 \DeclareRobustCommand{\EML}
1593 {\ensuremath{\exists}\ML}
1594 \DeclareRobustCommand{\UML}
1595 {\ensuremath{\forall}\ML}
1596 %** Syntax *****%

\Opr ...
1597 \usrmth{Opr}{\sym}[Op]

\DMod, \BMod ...
1598 \usrmth{DMod}{\sym}[\Diamond]
1599 \usrmth{BMod}{\sym}[\Box]

\Exs, \All ...
1600 \DeclareRobustCommand{\Exs}
1601 {\@ifstar{\@sexs}{\@exs}}
1602 \DeclareRobustCommand{\@sexs}[1]
1603 {\mth{DMod}[#1]}
1604 \DeclareRobustCommand{\@exs}[1]

```

```

1605 {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1606 \DeclareRobustCommand{\All}
1607 {\@ifstar{\@sall}{\@all}}
1608 \DeclareRobustCommand{\@sall}[1]
1609 {\mth{\BMod}[#1]}
1610 \DeclareRobustCommand{\@all}[1]
1611 {\mth{\defval{\argmid{\left[]{\#1}{\right]}}{\BMod}}}}

1612 %** Semantics *****%

```

\KrpStr, ... ..

```

1613 \newcommand{\krpstr}{K}
1614 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

```

\WrlSet, ... ..

```

1615 \newcommand{\wrlsym}{w}
1616 \newcommand{\wrlset}{W}
1617 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
1618 \cmdmthsymelm{iwrl}[\wrlsym_{I}]

```

\AccRel, \TrnRel ... ..

```

1619 \newcommand{\accsym}{R}
1620 \cmdmthrel{Acc}[\accsym]
1621 \cmdmthrel{Trn}[\accsym]

```

\labFun ... ..

```

1622 \newcommand{\labsym}{\lambda}
1623 \cmdmthfun{lab}[\labsym]

```

\PthSet, ... ..

```

1624 \providecommand{\pthsym}{\pi}
1625 \providecommand{\pthset}{Pth}
1626 \cmdmthsetext{Pth}[\pthset][\pthsym]
1627 \usrmth{path}{\argfun}

```

```

1628 %** Modal Logics II *****%

```

\MC, \GMC, ... ..

```

1629 % Mu Calculus
1630 \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]
1631
1632 % Graded Mu Calculus
1633 \DeclareRobustCommand{\GMC}
1634 {\{\txtname{G}\}\MC}
1635
1636 % Quantified Mu Calculus
1637 \DeclareRobustCommand{\QMC}
1638 {\{\txtname{Q}\}\MC}
1639 \DeclareRobustCommand{\EMC}
1640 {\ensuremath{\exists}\MC}
1641 \DeclareRobustCommand{\UMC}
1642 {\ensuremath{\forall}\MC}
1643
1644 % Alternation-Free Mu Calculus
1645 \DeclareRobustCommand{\AFMC}
1646 {\{\txtname{AF}\}\MC}
1647
1648 % Alternation-Free Graded Mu Calculus
1649 \DeclareRobustCommand{\AFGMC}
1650 {\{\txtname{AF}\}\GMC}
1651
1652 % Quantified Alternation-Free Mu Calculus
1653 \DeclareRobustCommand{\QAFMC}

```

```

1654 {\txtname{Q}}\AFMC}
1655 \DeclareRobustCommand{\EAFMC}
1656 {\ensuremath{\exists}\AFMC}
1657 \DeclareRobustCommand{\UAFMC}
1658 {\ensuremath{\forall}\AFMC}
1659
1660 %%** Syntax *****%%
...
1661 %%** Semantics *****%%
...
1662 %%** Temporal Logics I *****%%

```

\PTL, \LTL, ... ..

```

1663 % Propositional Temporal Logic
1664 \cmdtxttoparname{PTL}
1665
1666 % Quantified Propositional Temporal Logic
1667 \DeclareRobustCommand{\QPTL}
1668 {\txtname{Q}}\PTL}
1669 \DeclareRobustCommand{\EPTL}
1670 {\ensuremath{\exists}\PTL}
1671 \DeclareRobustCommand{\UPTL}
1672 {\ensuremath{\forall}\PTL}
1673
1674 % Linear Temporal Logic
1675 \cmdtxttoparname{LTL}
1676
1677 % Quantified Linear Temporal Logic
1678 \DeclareRobustCommand{\QLTL}
1679 {\txtname{Q}}\LTL}
1680 \DeclareRobustCommand{\ELTL}
1681 {\ensuremath{\exists}\LTL}
1682 \DeclareRobustCommand{\ULTL}
1683 {\ensuremath{\forall}\LTL}
1684 %%** Syntax *****%%

```

\X, ... ..

```

1685 \usrmth{X}{-}{sym}[X\,]
1686 \usrmth{F}{-}{sym}[F\,]
1687 \usrmth{G}{-}{sym}[G\,]
1688 \usrmth{U}{-}{sym}[\,U\,]
1689 \usrmth{R}{-}{sym}[\,R\,]

```

\Y, ... ..

```

1690 \usrmth{Y}{-}{sym}[G\,]
1691 \usrmth{P}{-}{sym}[P\,]\let\SavePilcrow\P
1692 \usrmth{H}{-}{sym}[H\,]\let\SaveDoubleAcute\H
1693 \usrmth{S}{-}{sym}[\,S\,]\let\SaveSectionSymbol\S
1694 \usrmth{B}{-}{sym}[\,B\,]

```

```

1695 %%** Semantics *****%%
...
1696 %%** Temporal Logics II *****%%

```

\PDL, \CTL, ... ..

```

1697
1698 % Propositional Dynamic Logic
1699 \cmdtxttoparname{PDL}
1700

```



```

1701 % Computation Tree Logic
1702 \cmdtxttoparname{CTL}
1703
1704 % Weak Computation Tree Logic
1705 \DeclareRobustCommand{\WCTL}
1706 {\{\txtname{W}\}\CTL}
1707
1708 % Quantified Computation Tree Logic
1709 \DeclareRobustCommand{\QCTL}
1710 {\{\txtname{Q}\}\CTL}
1711 \DeclareRobustCommand{\ECTL}
1712 {\ensuremath{\exists}\CTL}
1713 \DeclareRobustCommand{\UCTL}
1714 {\ensuremath{\forall}\CTL}
1715
1716 % Improved Computation Tree Logic
1717 \cmdtxttoparname{CTLP}[CTL$^{+}$]
1718
1719 % Weak Improved Computation Tree Logic
1720 \DeclareRobustCommand{\WCTLP}
1721 {\{\txtname{W}\}\CTLP}
1722
1723 % Quantified Improved Computation Tree Logic
1724 \DeclareRobustCommand{\QCTLP}
1725 {\{\txtname{Q}\}\CTLP}
1726 \DeclareRobustCommand{\ECTLP}
1727 {\ensuremath{\exists}\CTLP}
1728 \DeclareRobustCommand{\UCTLP}
1729 {\ensuremath{\forall}\CTLP}
1730
1731 % Full Computation Tree Logic
1732 \cmdtxttoparname{CTLS}[CTL*]
1733
1734 % Weak Full Computation Tree Logic
1735 \DeclareRobustCommand{\WCTLS}
1736 {\{\txtname{W}\}\CTLS}
1737
1738 % Quantified Full Computation Tree Logic
1739 \DeclareRobustCommand{\QCTLS}
1740 {\{\txtname{Q}\}\CTLS}
1741 \DeclareRobustCommand{\ECTLS}
1742 {\ensuremath{\exists}\CTLS}
1743 \DeclareRobustCommand{\UCTLS}
1744 {\ensuremath{\forall}\CTLS}

```

1745 %\*\* Syntax \*\*\*\*\*%

\E, \A ...

```

1746 \usrmth{E}{-}{sym}
1747 \usrmth{A}{-}{sym}

```

1748 %\*\* Semantics \*\*\*\*\*%

...

1749 %\*\* Game Logics I \*\*\*\*\*%

\ATL, ...

```

1750 % Alternating Temporal Logic
1751 \cmdtxttoparname{ATL}
1752
1753 % Weak Alternating Tree Logic
1754 \DeclareRobustCommand{\WATL}
1755 {\{\txtname{W}\}\ATL}
1756

```

```

1757 % Quantified Alternating Temporal Logic
1758 \DeclareRobustCommand{\QATL}
1759 {\textrm{Q}}\ATL}
1760 \DeclareRobustCommand{\EATL}
1761 {\ensuremath{\exists}\ATL}
1762 \DeclareRobustCommand{\UATL}
1763 {\ensuremath{\forall}\ATL}
1764
1765 % Improved Alternating Temporal Logic
1766 \cmdtxtopname{ATLP}[ATL$^{+}$]
1767
1768 % Weak Improved Alternating Tree Logic
1769 \DeclareRobustCommand{\WATLP}
1770 {\textrm{W}}\ATLP}
1771
1772 % Quantified Improved Alternating Temporal Logic
1773 \DeclareRobustCommand{\QATLP}
1774 {\textrm{Q}}\ATLP}
1775 \DeclareRobustCommand{\EATLP}
1776 {\ensuremath{\exists}\ATLP}
1777 \DeclareRobustCommand{\UATLP}
1778 {\ensuremath{\forall}\ATLP}
1779
1780 % Full Alternating Temporal Logic
1781 \cmdtxtopname{ATLS}[ATL*]
1782
1783 % Weak Full Alternating Tree Logic
1784 \DeclareRobustCommand{\WATLS}
1785 {\textrm{W}}\ATLS}
1786
1787 % Quantified Full Alternating Temporal Logic
1788 \DeclareRobustCommand{\QATLS}
1789 {\textrm{Q}}\ATLS}
1790 \DeclareRobustCommand{\EATLS}
1791 {\ensuremath{\exists}\ATLS}
1792 \DeclareRobustCommand{\UATLS}
1793 {\ensuremath{\forall}\ATLS}
1794
1794 %** Syntax *****%%
\EExs, \AA11 ...
1795 \DeclareRobustCommand{\EExs}[1]
1796 {\mth{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1797 \DeclareRobustCommand{\AA11}[1]
1798 {\mth{\argmid{\left[\left[\defval{#1}{\emptyset}]{\right]\right}}}}
1799
1799 %** Semantics *****%%
\CGS ...
1800 \cmdtxtname{CGS}
\CGSstr,
1801 \newcommand{\cgsstr}{G}
1802 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]
\AgnSet,
1803 \newcommand{\agnsym}{a}
1804 \newcommand{\agnset}{Ag}
1805 \cmdmthsetext{Agn}[\agnset][\agnsym]
\ActSet,
1806 \newcommand{\actsym}{c}
1807 \newcommand{\actset}{Ac}
1808 \cmdmthsetext{Act}[\actset][\actsym]

```

```

\PosSet,
1809 \providecommand{\possym}{v}
1810 \providecommand{\posset}{Ps}
1811 \cmdmthsettext{Pos}[\posset][\possym]
1812 \cmdmthsymelm{ipos}[\possym_{I}]
1813 \cmdmthsymelm{fpos}[\possym_{F}]
1814 \cmdmthset{PPos}[\posset_{\PlrSym}]
1815 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1816 \cmdmthset{OPos}[\posset_{\OppSym}]
1817 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet,
1818 \newcommand{\sttsym}{s}
1819 \newcommand{\sttset}{St}
1820 \cmdmthsettext{Stt}[\sttset][\sttsym]
1821 \cmdmthset{IStt}[\sttset_{I}]
1822 \cmdmthsymelm{istt}[\sttsym_{I}]
1823 \cmdmthset{FStt}[\sttset_{F}]
1824 \cmdmthsymelm{fstt}[\sttsym_{F}]

\DecSet,
1825 \newcommand{\decsym}{d}
1826 \newcommand{\decset}{Dc}
1827 \cmdmthsettext{Dec}[\decset][\decsym]

\movFun, \movRel ...
1828 \newcommand{\movsym}{\tau}
1829 \cmdmthfun{mov}[\movsym]
1830 \cmdmthrel{mov}[\movsym]

\trnFun, \trnRel ...
1831 \newcommand{\trnsym}{\delta}
1832 \cmdmthfun{trn}[\trnsym]
1833 \cmdmthrel{trn}[\trnsym]

\PrfSet ...
1834 \providecommand{\prfsym}{\xi}
1835 \providecommand{\prfset}{Prf}
1836 \cmdmthsettext{Prf}[\prfset][\prfsym]

\HstSet,
1837 \providecommand{\hstsym}{\varpi}
1838 \providecommand{\hstset}{Hst}
1839 \cmdmthsettext{Hst}[\hstset][\hstsym]
1840 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1841 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1842 \cmdmthset{OHst}[\hstset_{\OppSym}]
1843 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1844 \usrmth{hst}{\argfun}

\PlaySet,
1845 \providecommand{\playsym}{\pi}
1846 \providecommand{\playset}{Play}
1847 \cmdmthsettext{Play}[\playset][\playsym]
1848 \usrmth{play}{\argfun}

\PlnSet,
1849 \providecommand{\plnsym}{\rho}
1850 \providecommand{\plnset}{Pln}
1851 \cmdmthsettext{Pln}[\plnset][\plnsym]
1852 \cmdmthset{PPln}[\plnset_{\PlrSym}]
1853 \cmdmthsymelm{pPln}[\plnsym_{\PlrSym}]
1854 \cmdmthset{OPln}[\plnset_{\OppSym}]
1855 \cmdmthsymelm{oPln}[\plnsym_{\OppSym}]

```

```

\StrSet,
1856 \providecommand{\strsym}{\sigma}
1857 \providecommand{\strset}{Str}
1858 \cmdmthsettext{Str}[\strset][\strsym]
1859 \cmdmthset{PStr}[\strset_{\PlrSym}]
1860 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1861 \cmdmthset{OStr}[\strset_{\OppSym}]
1862 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

1863 %%** Game Logics II *****%%

\PL,
1864 % Plan Logic
1865 \cmdtxttoparname{PL}
1866
1867 \DeclareRobustCommand{\EPL}
1868 {\ensuremath{\exists}PL}
1869 \DeclareRobustCommand{\UPL}
1870 {\ensuremath{\forall}PL}
1871
1872 \DeclareRobustCommand{\FPL}
1873 {\{\textname{F}\}PL}
1874
1875 \DeclareRobustCommand{\EFPL}
1876 {\ensuremath{\exists}FPL}
1877 \DeclareRobustCommand{\UFPL}
1878 {\ensuremath{\forall}FPL}
1879
1880 % One-Goal Plan Logic
1881 \DeclareRobustCommandx{\OGPL}[3][1=, 2=, 3=]
1882 {\PL[#1][#2][1g\arglef{,}{#3}]}
1883
1884 \DeclareRobustCommand{\EOGPL}
1885 {\ensuremath{\exists}\OGPL}
1886 \DeclareRobustCommand{\UOGPL}
1887 {\ensuremath{\forall}\OGPL}
1888
1889 \DeclareRobustCommand{\FOGPL}
1890 {\{\textname{F}\}\OGPL}
1891
1892 \DeclareRobustCommand{\EFOGPL}
1893 {\ensuremath{\exists}\FOGPL}
1894 \DeclareRobustCommand{\UFOGPL}
1895 {\ensuremath{\forall}\FOGPL}
1896
1897 % Conjunctive-Goal Plan Logic
1898 \DeclareRobustCommandx{\CGPL}[3][1=, 2=, 3=]
1899 {\PL[#1][#2][cg\arglef{,}{#3}]}
1900
1901 \DeclareRobustCommand{\ECGPL}
1902 {\ensuremath{\exists}\CGPL}
1903 \DeclareRobustCommand{\UCGPL}
1904 {\ensuremath{\forall}\CGPL}
1905
1906 \DeclareRobustCommand{\FCGPL}
1907 {\{\textname{F}\}\CGPL}
1908
1909 \DeclareRobustCommand{\EFCGPL}
1910 {\ensuremath{\exists}\FCGPL}
1911 \DeclareRobustCommand{\UFCGPL}
1912 {\ensuremath{\forall}\FCGPL}
1913
1914 % Disjunctive-Goal Plan Logic
1915 \DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]

```

```

1916 {\PL[#1][#2][dg\arglef{,}{#3}]}
1917
1918 \DeclareRobustCommand{\EDGPL}
1919 {\ensuremath{\exists}\DGPL}
1920 \DeclareRobustCommand{\UDGPL}
1921 {\ensuremath{\forall}\DGPL}
1922
1923 \DeclareRobustCommand{\FDGPL}
1924 {\{\textrm{F}\}\DGPL}
1925
1926 \DeclareRobustCommand{\EFDGPL}
1927 {\ensuremath{\exists}\FDGPL}
1928 \DeclareRobustCommand{\UFDGPL}
1929 {\ensuremath{\forall}\FDGPL}
1930
1931 % Alternating-Goal Plan Logic
1932 \DeclareRobustCommandx{\AGPL}[3][1=, 2=, 3=]
1933 {\PL[#1][#2][ag\arglef{,}{#3}]}
1934
1935 \DeclareRobustCommand{\EAGPL}
1936 {\ensuremath{\exists}\AGPL}
1937 \DeclareRobustCommand{\UAGPL}
1938 {\ensuremath{\forall}\AGPL}
1939
1940 \DeclareRobustCommand{\FAGPL}
1941 {\{\textrm{F}\}\AGPL}
1942
1943 \DeclareRobustCommand{\EFAGPL}
1944 {\ensuremath{\exists}\FAGPL}
1945 \DeclareRobustCommand{\UFAGPL}
1946 {\ensuremath{\forall}\FAGPL}
1947
1948 % Extended-Goal Plan Logic
1949 \DeclareRobustCommandx{\EGPL}[3][1=, 2=, 3=]
1950 {\PL[#1][#2][eg\arglef{,}{#3}]}
1951
1952 \DeclareRobustCommand{\EEGPL}
1953 {\ensuremath{\exists}\EGPL}
1954 \DeclareRobustCommand{\UEGPL}
1955 {\ensuremath{\forall}\EGPL}
1956
1957 \DeclareRobustCommand{\FEGPL}
1958 {\{\textrm{F}\}\EGPL}
1959
1960 \DeclareRobustCommand{\EFEGPL}
1961 {\ensuremath{\exists}\FEGPL}
1962 \DeclareRobustCommand{\UFEGPL}
1963 {\ensuremath{\forall}\FEGPL}
1964
1965 % Boolean-Goal Plan Logic
1966 \DeclareRobustCommandx{\BGPL}[3][1=, 2=, 3=]
1967 {\PL[#1][#2][bg\arglef{,}{#3}]}
1968
1969 \DeclareRobustCommand{\EBGPL}
1970 {\ensuremath{\exists}\BGPL}
1971 \DeclareRobustCommand{\UBGPL}
1972 {\ensuremath{\forall}\BGPL}
1973
1974 \DeclareRobustCommand{\FBGPL}
1975 {\{\textrm{F}\}\BGPL}
1976
1977 \DeclareRobustCommand{\EFBGPL}
1978 {\ensuremath{\exists}\FBGPL}

```

```

1979 \DeclareRobustCommand{\UFBGPL}
1980 {\ensuremath{\forall}\text{FBGPL}}
1981
1982 % Undefined-Goal Plan Logic
1983 \DeclareRobustCommandx{\XGPL}[3][1=, 2=, 3=]
1984 {\PL[#1][#2][xg\argleft{,}{#3}]}
1985
1986 \DeclareRobustCommand{\EXGPL}
1987 {\ensuremath{\exists}\text{XGPL}}
1988 \DeclareRobustCommand{\UXGPL}
1989 {\ensuremath{\forall}\text{XGPL}}
1990
1991 \DeclareRobustCommand{\FXGPL}
1992 {\{\textname{F}\}\text{XGPL}}
1993
1994 \DeclareRobustCommand{\EFXGPL}
1995 {\ensuremath{\exists}\text{FXGPL}}
1996 \DeclareRobustCommand{\UFXGPL}
1997 {\ensuremath{\forall}\text{FXGPL}}

```

\SL, ... ..

```

1998 % Strategy Logic
1999 \cmdtxttoparname{SL}
2000
2001 \DeclareRobustCommand{\ESL}
2002 {\ensuremath{\exists}\text{SL}}
2003 \DeclareRobustCommand{\USL}
2004 {\ensuremath{\forall}\text{SL}}
2005
2006 \DeclareRobustCommand{\FSL}
2007 {\{\textname{F}\}\text{SL}}
2008
2009 \DeclareRobustCommand{\EFSL}
2010 {\ensuremath{\exists}\text{FSL}}
2011 \DeclareRobustCommand{\UFSL}
2012 {\ensuremath{\forall}\text{FSL}}
2013
2014 % One-Goal Strategy Logic
2015 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
2016 {\SL[#1][#2][lg\argleft{,}{#3}]}
2017
2018 \DeclareRobustCommand{\EOGSL}
2019 {\ensuremath{\exists}\text{OGSL}}
2020 \DeclareRobustCommand{\UOGSL}
2021 {\ensuremath{\forall}\text{OGSL}}
2022
2023 \DeclareRobustCommand{\FOGSL}
2024 {\{\textname{F}\}\text{OGSL}}
2025
2026 \DeclareRobustCommand{\EFOGSL}
2027 {\ensuremath{\exists}\text{FOGSL}}
2028 \DeclareRobustCommand{\UFOGSL}
2029 {\ensuremath{\forall}\text{FOGSL}}
2030
2031 % Conjunctive-Goal Strategy Logic
2032 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
2033 {\SL[#1][#2][cg\argleft{,}{#3}]}
2034
2035 \DeclareRobustCommand{\ECGSL}
2036 {\ensuremath{\exists}\text{CGSL}}
2037 \DeclareRobustCommand{\UCGSL}
2038 {\ensuremath{\forall}\text{CGSL}}
2039
2040 \DeclareRobustCommand{\FCGSL}

```

```

2041 {{\txtname{F}}\CGSL}
2042
2043 \DeclareRobustCommand{\EFCGSL}
2044 {\ensuremath{\exists}\FCGSL}
2045 \DeclareRobustCommand{\UFCGSL}
2046 {\ensuremath{\forall}\FCGSL}
2047
2048 % Disjunctive-Goal Strategy Logic
2049 \DeclareRobustCommandx{\DGSL}[3][1=, 2=, 3=]
2050 {\SL[#1][#2][dg\arglef{,}{#3}]}
2051
2052 \DeclareRobustCommand{\EDGSL}
2053 {\ensuremath{\exists}\DGSL}
2054 \DeclareRobustCommand{\UDGSL}
2055 {\ensuremath{\forall}\DGSL}
2056
2057 \DeclareRobustCommand{\FDGSL}
2058 {{\txtname{F}}\DGSL}
2059
2060 \DeclareRobustCommand{\EFDGSL}
2061 {\ensuremath{\exists}\FDGSL}
2062 \DeclareRobustCommand{\UFDGSL}
2063 {\ensuremath{\forall}\FDGSL}
2064
2065 % Alternating-Goal Strategy Logic
2066 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
2067 {\SL[#1][#2][ag\arglef{,}{#3}]}
2068
2069 \DeclareRobustCommand{\EAGSL}
2070 {\ensuremath{\exists}\AGSL}
2071 \DeclareRobustCommand{\UAGSL}
2072 {\ensuremath{\forall}\AGSL}
2073
2074 \DeclareRobustCommand{\FAGSL}
2075 {{\txtname{F}}\AGSL}
2076
2077 \DeclareRobustCommand{\EFAGSL}
2078 {\ensuremath{\exists}\FAGSL}
2079 \DeclareRobustCommand{\UFAGSL}
2080 {\ensuremath{\forall}\FAGSL}
2081
2082 % Extended-Goal Strategy Logic
2083 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
2084 {\SL[#1][#2][eg\arglef{,}{#3}]}
2085
2086 \DeclareRobustCommand{\EEGSL}
2087 {\ensuremath{\exists}\EGSL}
2088 \DeclareRobustCommand{\UEGSL}
2089 {\ensuremath{\forall}\EGSL}
2090
2091 \DeclareRobustCommand{\FEGSL}
2092 {{\txtname{F}}\EGSL}
2093
2094 \DeclareRobustCommand{\EFEGSL}
2095 {\ensuremath{\exists}\FEGSL}
2096 \DeclareRobustCommand{\UFEGSL}
2097 {\ensuremath{\forall}\FEGSL}
2098
2099 % Boolean-Goal Strategy Logic
2100 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
2101 {\SL[#1][#2][bg\arglef{,}{#3}]}
2102
2103 \DeclareRobustCommand{\EBGSL}

```

```

2104 {\ensuremath{\exists}\BGS}
2105 \DeclareRobustCommand{\UBGS}
2106 {\ensuremath{\forall}\BGS}
2107
2108 \DeclareRobustCommand{\FBGS}
2109 {\{\textname{F}\}\BGS}
2110
2111 \DeclareRobustCommand{\EFBGS}
2112 {\ensuremath{\exists}\FBGS}
2113 \DeclareRobustCommand{\UFBGS}
2114 {\ensuremath{\forall}\FBGS}
2115
2116 % Nested-Goal Strategy Logic
2117 \DeclareRobustCommandx{\NGS}[3][1=, 2=, 3=]
2118 {\SL[#1][#2][ng\arglef{,}{#3}]}
2119
2120 \DeclareRobustCommand{\ENGSL}
2121 {\ensuremath{\exists}\NGSL}
2122 \DeclareRobustCommand{\UNGSL}
2123 {\ensuremath{\forall}\NGSL}
2124
2125 \DeclareRobustCommand{\FNGSL}
2126 {\{\textname{F}\}\NGSL}
2127
2128 \DeclareRobustCommand{\EFNGSL}
2129 {\ensuremath{\exists}\FNGSL}
2130 \DeclareRobustCommand{\UFNGSL}
2131 {\ensuremath{\forall}\FNGSL}
2132
2133 % Undefined-Goal Strategy Logic
2134 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
2135 {\SL[#1][#2][xg\arglef{,}{#3}]}
2136
2137 \DeclareRobustCommand{\EXGSL}
2138 {\ensuremath{\exists}\XGSL}
2139 \DeclareRobustCommand{\UXGSL}
2140 {\ensuremath{\forall}\XGSL}
2141
2142 \DeclareRobustCommand{\FXGSL}
2143 {\{\textname{F}\}\XGSL}
2144
2145 \DeclareRobustCommand{\EFXGSL}
2146 {\ensuremath{\exists}\FXGSL}
2147 \DeclareRobustCommand{\UFXGSL}
2148 {\ensuremath{\forall}\FXGSL}
2149 %** Syntax *****%

\BndSet,
2150 \newcommand{\bndsym}{\flat}
2151 \newcommand{\bndset}{\Bn}
2152 \cmdmthsetext{\Bnd}[\bndset][\bndsym]
2153 \usrmth{\bnd}{\}{argfun}

\psn ...
2154 \usrmth{\psn}{\}{argfun}

2155 %** Semantics *****%

\nxt ...
2156 \usrmth{\nxt}{\}{argfun}

2157 \fi
2158 %*****%

```



```

2159 %*****%
2160 %** Macros for Automata *****%
2161 %*****%
2162 \ifaut@
2163 %** Finite Word Automata *****%

```

\DFA, ... ..

```

2164 \cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}
2165
2166 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
2167
2168 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
2169 \cmdtxtoparname{DWW}\cmdtxtoparname{NWW}\cmdtxtoparname{UWW}\cmdtxtoparname{AWW}
2170 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
2171 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
2172 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
2173 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
2174 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
2175 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

```

\GFG, ... ..

```

2176 \cmdtxtoparname{GFG}
2177
2178 \cmdtxtoparname{PD}
2179 \cmdtxtoparname{PN}
2180
2181 \cmdtxtoparname{LD}
2182 \cmdtxtoparname{LN}

2183 %** Syntax *****%

```

\AutName, ... ..

```

2184 \newcommand{\autname}{A}
2185 \usrmthlatupp{Aut}{Name}{name}[\autname]
2186 \newcommand{\autset}{Aut}
2187 \cmdmthset{Aut}[\autset]

```

\WAutSet ... ..

```

2188 \newcommand{\wautset}{WAut}
2189 \cmdmthset{WAut}[\wautset]

```

\SymSet, ... ..

```

2190 \newcommand{\symsym}{\sigma}
2191 \newcommand{\symset}{\Sigma}
2192 \cmdmthsetext{Sym}[\symset][\symsym]

```

\SttSet, ... ..

```

2193 \def\sttsym{q}
2194 \def\sttset{Q}
2195 \cmdmthsetext{Stt}[\sttset][\sttsym]
2196 \cmdmthset{IStt}[\sttset_{I}]
2197 \cmdmthsymelm{istt}[\sttsym_{I}]
2198 \cmdmthset{FStt}[\sttset_{F}]
2199 \cmdmthsymelm{fstt}[\sttsym_{F}]

```

\trnFun, \trnRel ... ..

```

2200 \def\trnsym{\delta}
2201 \cmdmthfun{trn}[\trnsym]
2202 \cmdmthrel{trn}[\trnsym]

2203 %** Semantics *****%

```

```

\WrdSet,
2204 \newcommand{\wrdsym}{w}
2205 \newcommand{\wrdsym}{w}
2206 \cmdmthsettext{Wrd}[\wrdsym][\wrdsym]

\Lang ...
2207 \usrmth{Lang}{-}{argfun}[L]

2208 %** Finite Tree Automata *****%

\DTA,
2209 \cmdtxtopname{DTA}\cmdtxtopname{NTA}\cmdtxtopname{UTA}\cmdtxtopname{ATA}
2210
2211 \cmdtxtopname{DFT}\cmdtxtopname{NFT}\cmdtxtopname{UFT}\cmdtxtopname{AFT}
2212 \cmdtxtopname{DWT}\cmdtxtopname{NWT}\cmdtxtopname{UWT}\cmdtxtopname{AWT}
2213 \cmdtxtopname{DBT}\cmdtxtopname{NBT}\cmdtxtopname{UBT}\cmdtxtopname{ABT}
2214 \cmdtxtopname{DCT}\cmdtxtopname{NCT}\cmdtxtopname{UCT}\cmdtxtopname{ACT}
2215 \cmdtxtopname{DPT}\cmdtxtopname{NPT}\cmdtxtopname{UPT}\cmdtxtopname{APT}
2216 \cmdtxtopname{DRT}\cmdtxtopname{NRT}\cmdtxtopname{URT}\cmdtxtopname{ART}
2217 \cmdtxtopname{DST}\cmdtxtopname{NST}\cmdtxtopname{UST}\cmdtxtopname{AST}
2218 \cmdtxtopname{DMT}\cmdtxtopname{NMT}\cmdtxtopname{UMT}\cmdtxtopname{AMT}

2219 %** Syntax *****%

\TAutSet ...
2220 \newcommand{\tautset}{TAut}
2221 \cmdmthset{TAut}[\tautset]

\DirSet,
2222 \newcommand{\dirsym}{d}
2223 \newcommand{\dirset}{\Lambda}
2224 \cmdmthsettext{Dir}[\dirset][\dirsym]

2225 %** Semantics *****%

\TreeSet,
2226 \newcommand{\treesym}{T}
2227 \newcommand{\treeset}{Tr}
2228 \cmdmthsettext{Tree}[\treeset][\treesym]

\wot ...
2229 \usrmth{wot}{-}{argfun}

2230 \fi
2231 %*****%
2232 %*****%
2233 %** Format Tricks *****%
2234 %*****%
2235 \iffirm@

... ...
2236 %...

2237 \fi
2238 %*****%
2239 %*****%
2240 %** Figure Tricks *****%
2241 %*****%
2242 \iffig@

2243 \RequirePackage{tikz}
2244 \usetikzlibrary{arrows,shapes,patterns,graphs,matrix}

```

```

2245 \tikzstyle{every node} =
2246 [draw = none, fill = none, black, thin]
2247 \tikzstyle{every edge} +=
2248 [black, thick]

2249 \tikzstyle{noall} =
2250 [draw = none, fill = none]
2251 \tikzstyle{nodraw} =
2252 [draw = none, fill = white]
2253 \tikzstyle{nofill} =
2254 [draw = black, fill = none]

2255 \ifwrpfig@
2256 % Wrapfig Package
2257 \RequirePackage{wrapfig}
2258 \fi

2259 \fi
2260 %%*****%

2261 %%*****%
2262 %%** Table Tricks *****%
2263 %%*****%
2264 \iftab@

... ..

2265 %%...

2266 \fi
2267 %%*****%

2268 %%*****%
2269 %%** Algorithm Tricks *****%
2270 %%*****%
2271 \ifalg@

2272 \RequirePackage[ruled,vlined]{algorithm2e}
2273 \DontPrintSemicolon
2274 \SetInd{0.25em}{0.5em}
2275 \setlength{\algomargin}{1.25em}

\Signature ...
2276 \SetKw{Signature}{signature}

\Macro,
2277 \SetKwFor{Macro}{macro}{}{}
2278 \SetKwFor{Function}{function}{}{}
2279 \SetKwFor{Procedure}{procedure}{}{}

\Let ...
2280 \SetKwFor{Let}{let}{in}{}

\True, \False ...
2281 \SetKw{True}{true}
2282 \SetKw{False}{false}

\From,
2283 \SetKw{From}{from}
2284 \SetKw{To}{to}
2285 \SetKw{DownTo}{downto}

\GoTo,
2286 \SetKw{GoTo}{goto}
2287 \SetKw{Break}{break}
2288 \SetKw{Continue}{continue}

```

```

\MIf,
2289 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
2290 \DeclareRobustCommand{\nlr}[1]
2291 {\addtocounter{AlgoLine}{1}%
2292 \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

2293 \fi
2294 %%*****%
2295 \endinput
2296 \</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 | v0.20 | General: New binary operators . . . . .                        | 1 |
| v0.10 | General: Small refinements . . . . .                   | 1 | v0.21 | General: Refactoring of function macros . . . . .              | 1 |
| v0.11 | General: Few additions and corrections . . . . .       | 1 | v0.22 | General: Few additions . . . . .                               | 1 |
| v0.12 | General: New starred variants . . . . .                | 1 | v0.3  | General: Few problems solved . . . . .                         | 1 |
| v0.13 | General: Further starred variants . . . . .            | 1 | v0.4  | General: Refactoring, corrections, and<br>extensions . . . . . | 1 |
| v0.14 | General: Few additions and corrections . . . . .       | 1 | v0.5  | General: Figure tricks . . . . .                               | 1 |
| v0.15 | General: Refactoring of dtx sources . . . . .          | 1 | v0.6  | General: Small refinements . . . . .                           | 1 |
| v0.16 | General: Small refinements and few additions . . . . . | 1 | v0.7  | General: Refinements, corrections, and<br>extensions . . . . . | 1 |
| v0.17 | General: Few additions . . . . .                       | 1 | v0.8  | General: Few refinements and corrections . . . . .             | 1 |
| v0.18 | General: Few new starred variants . . . . .            | 1 | v0.9  | General: Small addition to ‘Algorithm tricks’ . . . . .        | 1 |
| v0.19 | General: Additional starred variants . . . . .         | 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.

|                                       |                                           |                                            |
|---------------------------------------|-------------------------------------------|--------------------------------------------|
| <b>Symbols</b>                        | <b>945, 949, 953, 957, 961,</b>           | <b>\@sall . . . . . 1607, 1608</b>         |
| <b>\! . . . . . 421, 445, 897,</b>    | <b>965, 969, 973, 977, 982,</b>           | <b>\@scard . . . . . 1006, 1009</b>        |
| <b>984, 992, 994, 996, 1796</b>       | <b>984, 990, 992, 998, 1000,</b>          | <b>\@sceil . . . . . 1117, 1120</b>        |
| <b>\ " . . . . . 850, 851</b>         | <b>1006, 1099, 1105, 1111,</b>            | <b>\@sdenot . . . . . 909, 912</b>         |
| <b>\# . . . . . 2289</b>              | <b>1117, 1138, 1601, 1607</b>             | <b>\@sequence . . . . . 933</b>            |
| <b>\, . 986, 988, 994, 996, 1127,</b> | <b>\@len . . . . . 1138, 1139, 1141</b>   | <b>\@sequence1 . . . . . 937</b>           |
| <b>1130, 1131, 1685, 1686,</b>        | <b>\@newmth . . . . . 407, 408</b>        | <b>\@sequencer . . . . . 941</b>           |
| <b>1687, 1688, 1689, 1690,</b>        | <b>\@newmtharg . . . . . 419, 420</b>     | <b>\@sequencex . . . . . 945</b>           |
| <b>1691, 1692, 1693, 1694</b>         | <b>\@newmthargsty . . . . . 425, 426</b>  | <b>\@sequencex1 . . . . . 949</b>          |
| <b>\... . . . . <u>2236, 2265</u></b> | <b>\@newmthoarg . . . . . 431, 432</b>    | <b>\@sequencexr . . . . . 953</b>          |
| <b>\@abs . . . . . 1099, 1100</b>     | <b>\@newmthoargsty . . . . . 437, 438</b> | <b>\@set . . . . . 982, 984, 985</b>       |
| <b>\@all . . . . . 1607, 1610</b>     | <b>\@newmthopar . . . . . 455, 456</b>    | <b>\@set1 . . . . . 990, 992, 993</b>      |
| <b>\@card . . . . . 1006, 1007</b>    | <b>\@newmthoparsty . . . . . 461, 462</b> | <b>\@setr . . . . . 998, 1000, 1001</b>    |
| <b>\@ceil . . . . . 1117, 1118</b>    | <b>\@newmthpar . . . . . 443, 444</b>     | <b>\@sexs . . . . . 1601, 1602</b>         |
| <b>\@denot . . . . . 909, 910</b>     | <b>\@newmthparsty . . . . . 449, 450</b>  | <b>\@sfloor . . . . . 1111, 1114</b>       |
| <b>\@exs . . . . . 1601, 1604</b>     | <b>\@newmthsty . . . . . 413, 414</b>     | <b>\@slen . . . . . 1138, 1143</b>         |
| <b>\@floor . . . . . 1111, 1112</b>   | <b>\@newtxt . . . . . 294, 295</b>        | <b>\@snewmth . . . . . 407, 410</b>        |
| <b>\@for . . . . . 171, 175</b>       | <b>\@newtxtarg . . . . . 306, 307</b>     | <b>\@snewmtharg . . . . . 419, 422</b>     |
| <b>\@ifstar 294, 300, 306, 312,</b>   | <b>\@newtxtargsty . . . . . 312, 313</b>  | <b>\@snewmthargsty . . . . . 425, 428</b>  |
| <b>318, 324, 330, 336, 342,</b>       | <b>\@newtxtoarg . . . . . 318, 319</b>    | <b>\@snewmthoarg . . . . . 431, 434</b>    |
| <b>348, 357, 359, 361, 363,</b>       | <b>\@newtxtoargsty . . . . . 324, 325</b> | <b>\@snewmthoargsty . . . . . 437, 440</b> |
| <b>365, 371, 376, 381, 386,</b>       | <b>\@newtxtopar . . . . . 342, 343</b>    | <b>\@snewmthopar . . . . . 455, 458</b>    |
| <b>391, 399, 407, 413, 419,</b>       | <b>\@newtxtoparsty . . . . . 348, 349</b> | <b>\@snewmthoparsty . . . . . 461, 464</b> |
| <b>425, 431, 437, 443, 449,</b>       | <b>\@newtxtpar . . . . . 330, 331</b>     | <b>\@snewmthpar . . . . . 443, 446</b>     |
| <b>455, 461, 470, 472, 474,</b>       | <b>\@newtxtparsty . . . . . 336, 337</b>  | <b>\@snewmthparsty . . . . . 449, 452</b>  |
| <b>476, 478, 484, 487, 490,</b>       | <b>\@newtxtsty . . . . . 300, 301</b>     | <b>\@snewmthsty . . . . . 413, 416</b>     |
| <b>493, 496, 502, 875, 879,</b>       | <b>\@norm . . . . . 1105, 1106</b>        | <b>\@snewtxt . . . . . 294, 297</b>        |
| <b>909, 924, 933, 937, 941,</b>       | <b>\@sabs . . . . . 1099, 1102</b>        | <b>\@snewtxtarg . . . . . 306, 309</b>     |

|                                 |                                        |                                 |                                             |                               |                                              |
|---------------------------------|----------------------------------------|---------------------------------|---------------------------------------------|-------------------------------|----------------------------------------------|
| <code>\@snewtxtargsty</code>    | <a href="#">312, 315</a>               | <code>\Alpha, \u</code>         | <a href="#">139</a>                         | <code>\bgroup</code>          | <a href="#">166</a>                          |
| <code>\@snewtxttoarg</code>     | <a href="#">318, 321</a>               | <code>\aMat, \u</code>          | <a href="#">778</a>                         | <code>\BGSL</code>            | <a href="#">2100, 2104, 2106, 2109</a>       |
| <code>\@snewtxttoargsty</code>  | <a href="#">324, 327</a>               | <code>\amsdef@false</code>      | <a href="#">17</a>                          | <code>\BMod</code>            | <a href="#">1609, 1611</a>                   |
| <code>\@snewtxtopar</code>      | <a href="#">342, 345</a>               | <code>\amsdef@true</code>       | <a href="#">16</a>                          | <code>\bndset</code>          | <a href="#">2151, 2152</a>                   |
| <code>\@snewtxtoparsty</code>   | <a href="#">348, 351</a>               | <code>\amsthm@false</code>      | <a href="#">21</a>                          | <code>\BndSet, \u</code>      | <a href="#">2150</a>                         |
| <code>\@snewtxtpar</code>       | <a href="#">330, 333</a>               | <code>\amsthm@true</code>       | <a href="#">20</a>                          | <code>\bndsym</code>          | <a href="#">2150, 2152</a>                   |
| <code>\@snewtxtparsty</code>    | <a href="#">336, 339</a>               | <code>\AName, \u</code>         | <a href="#">586</a>                         | <code>\boldsymbol</code>      | <a href="#">777, 790</a>                     |
| <code>\@snewtxtsty</code>       | <a href="#">300, 303</a>               | <code>\Aomega, \u\Aomega</code> | <a href="#">1043</a>                        | <code>\bot</code>             | <a href="#">1360</a>                         |
| <code>\@snorm</code>            | <a href="#">1105, 1108</a>             | <code>\Aomicron, \u</code>      | <a href="#">1047</a>                        | <code>\Box</code>             | <a href="#">1599</a>                         |
| <code>\@ssequence</code>        | <a href="#">933</a>                    | <code>\Aposteriori</code>       | <a href="#">834</a>                         | <code>\boxminus</code>        | <a href="#">1331</a>                         |
| <code>\@ssequencel</code>       | <a href="#">937</a>                    | <code>\aposteriori</code>       | <a href="#">812</a>                         | <code>\bst, \u</code>         | <a href="#">1126</a>                         |
| <code>\@ssequencer</code>       | <a href="#">941</a>                    | <code>\Apriori</code>           | <a href="#">833</a>                         |                               |                                              |
| <code>\@ssequencex</code>       | <a href="#">945</a>                    | <code>\apriori</code>           | <a href="#">811</a>                         |                               |                                              |
| <code>\@ssequencexl</code>      | <a href="#">949</a>                    | <code>\apset</code>             | <a href="#">1379, 1380</a>                  | <b>C</b>                      |                                              |
| <code>\@ssequencexr</code>      | <a href="#">953</a>                    | <code>\APSet, \u</code>         | <a href="#">1378</a>                        | <code>\card</code>            | <a href="#">1005</a>                         |
| <code>\@sset</code>             | <a href="#">982, 984, 987</a>          | <code>\apsym</code>             | <a href="#">1378, 1380</a>                  | <code>\caselower</code>       | <a href="#">663</a>                          |
| <code>\@ssetl</code>            | <a href="#">990, 992, 995</a>          | <code>\arabic</code>            | <a href="#">2292</a>                        | <code>\cdot</code>            | <a href="#">1012</a>                         |
| <code>\@ssetr</code>            | <a href="#">998, 1000, 1003</a>        | <code>\aRel, \u</code>          | <a href="#">670</a>                         | <code>\cequiv, \u</code>      | <a href="#">903</a>                          |
| <code>\@stuple</code>           | <a href="#">957</a>                    | <code>\arenaname</code>         | <a href="#">1232, 1233</a>                  | <code>\cf</code>              | <a href="#">813</a>                          |
| <code>\@stuplel</code>          | <a href="#">961</a>                    | <code>\ArenaName, \u</code>     | <a href="#">1232</a>                        | <code>\CGPL</code>            | <a href="#">1898, 1902, 1904, 1907</a>       |
| <code>\@stupler</code>          | <a href="#">965</a>                    | <code>\arg</code>               | <a href="#">1123</a>                        | <code>\CGS</code>             | <a href="#">1800</a>                         |
| <code>\@stuplex</code>          | <a href="#">969</a>                    | <code>\arglef</code>            | <a href="#">152, 159, 421,</a>              | <code>\CGSL</code>            | <a href="#">2032, 2036, 2038, 2041</a>       |
| <code>\@stuplexl</code>         | <a href="#">973</a>                    |                                 | <a href="#">445, 1882, 1899, 1916,</a>      | <code>\cgsstr</code>          | <a href="#">1801, 1802</a>                   |
| <code>\@stuplexr</code>         | <a href="#">977</a>                    |                                 | <a href="#">1933, 1950, 1967, 1984,</a>     | <code>\CGSStr, \u</code>      | <a href="#">1801</a>                         |
| <code>\@svec</code>             | <a href="#">924, 927</a>               |                                 | <a href="#">2016, 2033, 2050, 2067,</a>     | <code>\chgbar@false</code>    | <a href="#">44</a>                           |
| <code>\@tuple</code>            | <a href="#">957</a>                    |                                 | <a href="#">2084, 2101, 2118, 2135</a>      | <code>\chgbar@true</code>     | <a href="#">45</a>                           |
| <code>\@tuplel</code>           | <a href="#">961</a>                    | <code>\argmid</code>            | <a href="#">156, 308, 310, 332,</a>         | <code>\chi</code>             | <a href="#">1405</a>                         |
| <code>\@tupler</code>           | <a href="#">965</a>                    |                                 | <a href="#">334, 421, 423, 445, 447,</a>    | <code>\circ</code>            | <a href="#">1027</a>                         |
| <code>\@tuplex</code>           | <a href="#">969</a>                    |                                 | <a href="#">911, 913, 986, 988, 994,</a>    | <code>\cmdmth</code>          | <a href="#">482, 498, 738, 739, 745</a>      |
| <code>\@tuplexl</code>          | <a href="#">973</a>                    |                                 | <a href="#">996, 1002, 1004, 1008,</a>      | <code>\cmdmthall</code>       | <a href="#">497, 585, 598, 611,</a>          |
| <code>\@tuplexr</code>          | <a href="#">977</a>                    |                                 | <a href="#">1010, 1101, 1103, 1107,</a>     |                               | <a href="#">624, 637, 650, 669, 682,</a>     |
| <code>\@vec</code>              | <a href="#">924, 925</a>               |                                 | <a href="#">1109, 1113, 1115, 1119,</a>     |                               | <a href="#">695, 708, 750, 763, 777, 790</a> |
| <code>\^</code>                 | <a href="#">852, 854</a>               |                                 | <a href="#">1121, 1140, 1142, 1144,</a>     | <code>\cmdmtharg</code>       | <a href="#">485, 498</a>                     |
| <code>\'</code>                 | <a href="#">849</a>                    |                                 | <a href="#">1605, 1611, 1796, 1798</a>      | <code>\cmdmthargcls</code>    | <a href="#">615</a>                          |
|                                 |                                        | <code>\arggrig</code>           | <a href="#">154</a>                         | <code>\cmdmthargelm</code>    | <a href="#">712, 726</a>                     |
|                                 |                                        | <code>\argsep</code>            | <a href="#">158, 163, 986,</a>              | <code>\cmdmthargfam</code>    | <a href="#">602</a>                          |
|                                 |                                        |                                 | <a href="#">988, 1090, 1092, 1094, 1096</a> | <code>\cmdmthargfrm</code>    | <a href="#">767</a>                          |
| <b>A</b>                        |                                        | <code>\aSet, \u</code>          | <a href="#">651</a>                         | <code>\cmdmthargfun</code>    | <a href="#">686</a>                          |
| <code>\abs, \u\norm</code>      | <a href="#">1098</a>                   | <code>\asgset</code>            | <a href="#">1406, 1407</a>                  | <code>\cmdmthargmat</code>    | <a href="#">781</a>                          |
| <code>\AccRel, \u\TrnRel</code> | <a href="#">1619</a>                   | <code>\AsgSet, \u</code>        | <a href="#">1405</a>                        | <code>\cmdmthargname</code>   | <a href="#">589</a>                          |
| <code>\accsym</code>            | <a href="#">1619, 1620, 1621</a>       | <code>\asgsym</code>            | <a href="#">1405, 1407</a>                  | <code>\cmdmthargrel</code>    | <a href="#">673</a>                          |
| <code>\ACls, \u</code>          | <a href="#">612</a>                    | <code>\aSig, \u</code>          | <a href="#">625</a>                         | <code>\cmdmthargset</code>    | <a href="#">654</a>                          |
| <code>\actset</code>            | <a href="#">1807, 1808</a>             | <code>\aSnt, \u</code>          | <a href="#">751</a>                         | <code>\cmdmthargsig</code>    | <a href="#">628</a>                          |
| <code>\ActSet, \u</code>        | <a href="#">1806</a>                   | <code>\aStr, \u</code>          | <a href="#">638</a>                         | <code>\cmdmthargsnt</code>    | <a href="#">754</a>                          |
| <code>\actsym</code>            | <a href="#">1806, 1808</a>             | <code>\aSym, \u</code>          | <a href="#">696</a>                         | <code>\cmdmthargstr</code>    | <a href="#">641</a>                          |
| <code>\addtocounter</code>      | <a href="#">2291, 2292</a>             | <code>\Atheta, \u\Atheta</code> | <a href="#">1045</a>                        | <code>\cmdmthargsym</code>    | <a href="#">699, 725</a>                     |
| <code>\adhoc</code>             | <a href="#">809</a>                    | <code>\ATL, \u</code>           | <a href="#">1750</a>                        | <code>\cmdmthargsymelm</code> | <a href="#">724</a>                          |
| <code>\aElm, \u</code>          | <a href="#">709</a>                    | <code>\ATLP</code>              | <a href="#">1770, 1774, 1776, 1778</a>      | <code>\cmdmthargvec</code>    | <a href="#">794</a>                          |
| <code>\AFam, \u</code>          | <a href="#">599</a>                    | <code>\ATLS</code>              | <a href="#">1785, 1789, 1791, 1793</a>      | <code>\cmdmthcls</code>       | <a href="#">613</a>                          |
| <code>\AFGMC</code>             | <a href="#">1649</a>                   | <code>\atr, \u\rch</code>       | <a href="#">1287</a>                        | <code>\cmdmthelm</code>       | <a href="#">710, 723</a>                     |
| <code>\AFMC</code>              | <a href="#">1645, 1654, 1656, 1658</a> | <code>\aut@false</code>         | <a href="#">56, 62, 93, 95</a>              | <code>\cmdmthfam</code>       | <a href="#">600</a>                          |
| <code>\afortiori</code>         | <a href="#">832</a>                    | <code>\aut@true</code>          | <a href="#">94</a>                          | <code>\cmdmthfrm</code>       | <a href="#">765</a>                          |
| <code>\afortiori</code>         | <a href="#">810</a>                    | <code>\autname</code>           | <a href="#">2184, 2185</a>                  | <code>\cmdmthfun</code>       | <a href="#">684,</a>                         |
| <code>\aFrm, \u</code>          | <a href="#">764</a>                    | <code>\AutName, \u</code>       | <a href="#">2184</a>                        |                               | <a href="#">1244, 1253, 1317, 1336,</a>      |
| <code>\aFun, \u</code>          | <a href="#">683</a>                    | <code>\autset</code>            | <a href="#">2186, 2187</a>                  |                               | <a href="#">1623, 1829, 1832, 2201</a>       |
| <code>\agnset</code>            | <a href="#">1804, 1805</a>             | <code>\aux@false</code>         | <a href="#">11, 13</a>                      | <code>\cmdmthlbop</code>      | <a href="#">742</a>                          |
| <code>\AgnSet, \u</code>        | <a href="#">1803</a>                   | <code>\aux@true</code>          | <a href="#">12</a>                          | <code>\cmdmthlrel</code>      | <a href="#">746</a>                          |
| <code>\agnsym</code>            | <a href="#">1803, 1805</a>             | <code>\aVec, \u</code>          | <a href="#">791</a>                         | <code>\cmdmthluop, \u</code>  | <a href="#">740</a>                          |
| <code>\AGPL</code>              | <a href="#">1932, 1936, 1938, 1941</a> |                                 |                                             | <code>\cmdmthnat</code>       | <a href="#">779</a>                          |
| <code>\AGSL</code>              | <a href="#">2066, 2070, 2072, 2075</a> |                                 |                                             | <code>\cmdmthname</code>      | <a href="#">587</a>                          |
| <code>\AH</code>                | <a href="#">1196</a>                   |                                 |                                             | <code>\cmdmthoarg</code>      | <a href="#">488, 498</a>                     |
| <code>\aka</code>               | <a href="#">856</a>                    | <b>B</b>                        |                                             | <code>\cmdmthoargcls</code>   | <a href="#">617</a>                          |
| <code>\ala</code>               | <a href="#">849</a>                    | <code>\BF, \u\QBF, \u</code>    | <a href="#">1345</a>                        | <code>\cmdmthoargelm</code>   | <a href="#">714, 729</a>                     |
| <code>\alg@false</code>         | <a href="#">121, 123</a>               | <code>\bfseries</code>          | <a href="#">530</a>                         | <code>\cmdmthoargfam</code>   | <a href="#">604</a>                          |
| <code>\alg@true</code>          | <a href="#">122</a>                    | <code>\BG, \u</code>            | <a href="#">1292</a>                        | <code>\cmdmthoargfrm</code>   | <a href="#">769</a>                          |
| <code>\algomargin</code>        | <a href="#">2275</a>                   | <code>\BGPL</code>              | <a href="#">1966, 1970, 1972, 1975</a>      |                               |                                              |

|                                                              |                          |                                                                 |                                             |                                                                 |                            |
|--------------------------------------------------------------|--------------------------|-----------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------|----------------------------|
| <code>\cmdmthoargfun</code> . . . . .                        | <a href="#">688</a>      | <code>\cmdmthsnt</code> . . . . .                               | <a href="#">752</a>                         | <code>\cmdtxtparabr</code> . . . . .                            | <a href="#">549</a>        |
| <code>\cmdmthoargmat</code> . . . . .                        | <a href="#">783</a>      | <code>\cmdmthstr</code> . . . . .                               | <a href="#">639</a>                         | <code>\cmdtxtparcom</code> . . . . .                            | <a href="#">574</a>        |
| <code>\cmdmthoargname</code> . . . . .                       | <a href="#">591</a>      | <code>\cmdmthsym</code> . . . . .                               | <a href="#">697, 722, 1229, 1231,</a>       | <code>\cmdtxtpardef</code> . . . . .                            | <a href="#">537</a>        |
| <code>\cmdmthoargrel</code> . . . . .                        | <a href="#">675</a>      |                                                                 | <a href="#">1311, 1313, 1330, 1332</a>      | <code>\cmdtxtparname</code> . . . . .                           | <a href="#">562</a>        |
| <code>\cmdmthoargset</code> . . . . .                        | <a href="#">656</a>      | <code>\cmdmthsymelm</code> . . . . .                            |                                             | <code>\cmodels,□...</code> . . . . .                            | <a href="#">899</a>        |
| <code>\cmdmthoargsig</code> . . . . .                        | <a href="#">630</a>      |                                                                 | <a href="#">721, 1237, 1238, 1240,</a>      | <code>\cmp</code> . . . . .                                     | <a href="#">1026</a>       |
| <code>\cmdmthoargsnt</code> . . . . .                        | <a href="#">756</a>      |                                                                 | <a href="#">1242, 1263, 1265, 1275,</a>     | <code>\cnf,□\dnf,□...</code> . . . . .                          | <a href="#">1395</a>       |
| <code>\cmdmthoargstr</code> . . . . .                        | <a href="#">643</a>      |                                                                 | <a href="#">1277, 1618, 1812, 1813,</a>     | <code>\Cnt,□\Qnt,□\Sym</code> . . . . .                         | <a href="#">1383</a>       |
| <code>\cmdmthoargsym</code> . . . . .                        | <a href="#">701, 728</a> |                                                                 | <a href="#">1815, 1817, 1822, 1824,</a>     | <code>\coimplies,□...</code> . . . . .                          | <a href="#">894</a>        |
| <code>\cmdmthoargsymelm</code> . . . . .                     | <a href="#">727</a>      |                                                                 | <a href="#">1841, 1843, 1853, 1855,</a>     | <code>\Coloneqq</code> . . . . .                                | <a href="#">879</a>        |
| <code>\cmdmthoargvec</code> . . . . .                        | <a href="#">796</a>      |                                                                 | <a href="#">1860, 1862, 2197, 2199</a>      | <code>\coloneqq</code> . . . . .                                | <a href="#">879</a>        |
| <code>\cmdmthopar</code> . . . . .                           | <a href="#">494, 498</a> | <code>\cmdmthvec</code> . . . . .                               | <a href="#">792</a>                         | <code>\com@false</code> . . . . .                               | <a href="#">56, 77, 79</a> |
| <code>\cmdmthoparcls</code> . . . . .                        | <a href="#">621</a>      | <code>\cmdtxt</code> . . . . .                                  | <a href="#">369, 395</a>                    | <code>\com@true</code> . . . . .                                | <a href="#">78</a>         |
| <code>\cmdmthoparelm</code> . . . . .                        | <a href="#">718, 735</a> | <code>\cmdtxtabr</code> . . . . .                               | <a href="#">543,</a>                        | <code>\conset</code> . . . . .                                  | <a href="#">1429, 1430</a> |
| <code>\cmdmthoparfam</code> . . . . .                        | <a href="#">608</a>      |                                                                 | <a href="#">809, 810, 811, 812, 813,</a>    | <code>\consig</code> . . . . .                                  | <a href="#">1426, 1427</a> |
| <code>\cmdmthoparfrm</code> . . . . .                        | <a href="#">773</a>      |                                                                 | <a href="#">814, 815, 816, 817, 818,</a>    | <code>\ConSig,□...</code> . . . . .                             | <a href="#">1426</a>       |
| <code>\cmdmthoparfun</code> . . . . .                        | <a href="#">692</a>      |                                                                 | <a href="#">819, 820, 821, 822, 823,</a>    | <code>\constr</code> . . . . .                                  | <a href="#">1453, 1454</a> |
| <code>\cmdmthoparmat</code> . . . . .                        | <a href="#">787</a>      |                                                                 | <a href="#">824, 825, 826, 827, 828,</a>    | <code>\ConStr,□...</code> . . . . .                             | <a href="#">1453</a>       |
| <code>\cmdmthoparname</code> . . . . .                       | <a href="#">595</a>      |                                                                 | <a href="#">829, 830, 832, 833, 834,</a>    | <code>\consym</code> . . . . .                                  | <a href="#">1428, 1430</a> |
| <code>\cmdmthoparrel</code> . . . . .                        | <a href="#">679</a>      |                                                                 | <a href="#">835, 836, 837, 838, 839,</a>    | <code>\Contd</code> . . . . .                                   | <a href="#">865</a>        |
| <code>\cmdmthoparset</code> . . . . .                        | <a href="#">660</a>      |                                                                 | <a href="#">840, 841, 842, 843, 844,</a>    | <code>\contd</code> . . . . .                                   | <a href="#">857</a>        |
| <code>\cmdmthoparsig</code> . . . . .                        | <a href="#">634</a>      |                                                                 | <a href="#">845, 849, 850, 851, 852,</a>    | <code>\coW MPL</code> . . . . .                                 | <a href="#">1577</a>       |
| <code>\cmdmthoparsnt</code> . . . . .                        | <a href="#">760</a>      |                                                                 | <a href="#">854, 856, 857, 858, 859,</a>    | <code>\coWMSO</code> . . . . .                                  | <a href="#">1523</a>       |
| <code>\cmdmthoparstr</code> . . . . .                        | <a href="#">647</a>      |                                                                 | <a href="#">860, 861, 862, 863, 865,</a>    | <code>\coWMSOL</code> . . . . .                                 | <a href="#">1521</a>       |
| <code>\cmdmthoparsym</code> . . . . .                        | <a href="#">705, 734</a> |                                                                 | <a href="#">866, 1395, 1396, 1397, 1398</a> | <code>\coWMTL</code> . . . . .                                  | <a href="#">1554</a>       |
| <code>\cmdmthoparsymelm</code> . . . . .                     | <a href="#">733</a>      | <code>\cmdtxtall</code> <a href="#">394, 530, 542, 555, 567</a> |                                             | <code>\coWPL</code> . . . . .                                   | <a href="#">1565</a>       |
| <code>\cmdmthoparvec</code> . . . . .                        | <a href="#">800</a>      | <code>\cmdtxtarg</code> . . . . .                               | <a href="#">374, 395</a>                    | <code>\coWSO</code> . . . . .                                   | <a href="#">1505</a>       |
| <code>\cmdmthpar</code> . . . . .                            | <a href="#">491, 498</a> | <code>\cmdtxtargabr</code> . . . . .                            | <a href="#">545</a>                         | <code>\coWSOL</code> . . . . .                                  | <a href="#">1503</a>       |
| <code>\cmdmthparcls</code> . . . . .                         | <a href="#">619</a>      | <code>\cmdtxtargcom</code> . . . . .                            | <a href="#">570</a>                         | <code>\coWTL</code> . . . . .                                   | <a href="#">1542</a>       |
| <code>\cmdmthparelm</code> . . . . .                         | <a href="#">716, 732</a> | <code>\cmdtxtargdef</code> . . . . .                            | <a href="#">533</a>                         | <code>\crv@false</code> . . . . .                               | <a href="#">40</a>         |
| <code>\cmdmthparfam</code> . . . . .                         | <a href="#">606</a>      | <code>\cmdtxtargname</code> . . . . .                           | <a href="#">558</a>                         | <code>\crv@true</code> . . . . .                                | <a href="#">41</a>         |
| <code>\cmdmthparfrm</code> . . . . .                         | <a href="#">771</a>      | <code>\cmdtxtcom</code> <a href="#">568, 1174, 1175, 1176</a>   |                                             | <code>\csdef</code> <a href="#">138, 139, 140, 141, 142,</a>    |                            |
| <code>\cmdmthparfun</code> . . . . .                         | <a href="#">690</a>      | <code>\cmdtxtdef</code> . . . . .                               | <a href="#">531</a>                         | <a href="#">370, 375, 380, 385, 390,</a>                        |                            |
| <code>\cmdmthparmat</code> . . . . .                         | <a href="#">785</a>      | <code>\cmdtxtname</code> . . . . .                              | <a href="#">556, 1800</a>                   | <a href="#">398, 483, 486, 489, 492,</a>                        |                            |
| <code>\cmdmthparname</code> . . . . .                        | <a href="#">593</a>      | <code>\cmdtxtoarg</code> . . . . .                              | <a href="#">379, 395</a>                    | <a href="#">495, 501, 1154, 1170, 1172</a>                      |                            |
| <code>\cmdmthparrel</code> . . . . .                         | <a href="#">677</a>      | <code>\cmdtxtoargabr</code> . . . . .                           | <a href="#">547</a>                         | <code>\csedef</code> . . . . .                                  | <a href="#">172, 176</a>   |
| <code>\cmdmthparset</code> . . . . .                         | <a href="#">658</a>      | <code>\cmdtxtoargcom</code> . . . . .                           | <a href="#">572</a>                         | <code>\csname</code> . <a href="#">162, 163, 164, 165,</a>      |                            |
| <code>\cmdmthparsig</code> . . . . .                         | <a href="#">632</a>      | <code>\cmdtxtoargdef</code> . . . . .                           | <a href="#">535</a>                         | <a href="#">166, 167, 168, 173, 177,</a>                        |                            |
| <code>\cmdmthparsnt</code> . . . . .                         | <a href="#">758</a>      | <code>\cmdtxtoargname</code> . . . . .                          | <a href="#">560</a>                         | <a href="#">372, 373, 377, 378, 382,</a>                        |                            |
| <code>\cmdmthparstr</code> . . . . .                         | <a href="#">645</a>      | <code>\cmdtxtopar</code> . . . . .                              | <a href="#">389, 395</a>                    | <a href="#">383, 387, 388, 392, 393,</a>                        |                            |
| <code>\cmdmthparsym</code> . . . . .                         | <a href="#">703, 731</a> | <code>\cmdtxtoparabr</code> . . . . .                           | <a href="#">551</a>                         | <a href="#">400, 401, 409, 411, 503, 504</a>                    |                            |
| <code>\cmdmthparsymelm</code> . . . . .                      | <a href="#">730</a>      | <code>\cmdtxtoparcom</code> . . . . .                           | <a href="#">576</a>                         | <code>\CTLP</code> . . . <a href="#">1721, 1725, 1727, 1729</a> |                            |
| <code>\cmdmthparvec</code> . . . . .                         | <a href="#">798</a>      | <code>\cmdtxtopardef</code> . . . . .                           | <a href="#">539</a>                         | <code>\CTLS</code> . . . <a href="#">1736, 1740, 1742, 1744</a> |                            |
| <code>\cmdmththrel</code> . <a href="#">671, 1246, 1620,</a> |                          | <code>\cmdtxtoparname</code> . . . . .                          |                                             | <code>\CurrentOption</code> . . . . .                           | <a href="#">126</a>        |
| <a href="#">1621, 1830, 1833, 2202</a>                       |                          |                                                                 |                                             |                                                                 |                            |
| <code>\cmdmthset</code> . . . . .                            | <a href="#">652,</a>     | <a href="#">564, 1211, 1214, 1217,</a>                          |                                             | <b>D</b>                                                        |                            |
| <a href="#">663, 1239, 1241, 1250,</a>                       |                          | <a href="#">1220, 1223, 1226, 1293,</a>                         |                                             | <code>\DeclareMathAlphabet</code> . . . .                       |                            |
| <a href="#">1252, 1262, 1264, 1274,</a>                      |                          | <a href="#">1296, 1299, 1302, 1305,</a>                         |                                             | <a href="#">285, 286, 287, 288</a>                              |                            |
| <a href="#">1276, 1814, 1816, 1821,</a>                      |                          | <a href="#">1308, 1321, 1324, 1327,</a>                         |                                             | <code>\DeclareMathOperator</code> <a href="#">1032, 1034</a>    |                            |
| <a href="#">1823, 1840, 1842, 1852,</a>                      |                          | <a href="#">1346, 1410, 1411, 1463,</a>                         |                                             | <code>\DeclareOption</code> . . . . <a href="#">12, 13,</a>     |                            |
| <a href="#">1854, 1859, 1861, 2187,</a>                      |                          | <a href="#">1466, 1469, 1472, 1475,</a>                         |                                             | <a href="#">17, 21, 25, 29, 33, 37,</a>                         |                            |
| <a href="#">2189, 2196, 2198, 2221</a>                       |                          | <a href="#">1478, 1481, 1484, 1493,</a>                         |                                             | <a href="#">41, 45, 49, 54, 55, 60,</a>                         |                            |
| <code>\cmdmthsetext</code> . . <a href="#">662, 1236,</a>    |                          | <a href="#">1494, 1535, 1558, 1583,</a>                         |                                             | <a href="#">61, 67, 68, 72, 73, 78,</a>                         |                            |
| <a href="#">1257, 1261, 1269, 1273,</a>                      |                          | <a href="#">1630, 1664, 1675, 1699,</a>                         |                                             | <a href="#">79, 84, 85, 89, 90, 94,</a>                         |                            |
| <a href="#">1280, 1316, 1335, 1380,</a>                      |                          | <a href="#">1702, 1717, 1732, 1751,</a>                         |                                             | <a href="#">95, 100, 101, 106, 107,</a>                         |                            |
| <a href="#">1390, 1404, 1407, 1423,</a>                      |                          | <a href="#">1766, 1781, 1865, 1999,</a>                         |                                             | <a href="#">111, 116, 117, 122, 123, 126</a>                    |                            |
| <a href="#">1430, 1436, 1443, 1449,</a>                      |                          | <a href="#">2164, 2166, 2168, 2169,</a>                         |                                             | <code>\DeclareRobustCommand</code> <a href="#">874,</a>         |                            |
| <a href="#">1528, 1531, 1617, 1626,</a>                      |                          | <a href="#">2170, 2171, 2172, 2173,</a>                         |                                             | <a href="#">878, 881, 883, 886, 888,</a>                        |                            |
| <a href="#">1805, 1808, 1811, 1820,</a>                      |                          | <a href="#">2174, 2175, 2176, 2178,</a>                         |                                             | <a href="#">890, 892, 894, 896, 899,</a>                        |                            |
| <a href="#">1827, 1836, 1839, 1847,</a>                      |                          | <a href="#">2179, 2181, 2182, 2209,</a>                         |                                             | <a href="#">901, 903, 905, 908, 910,</a>                        |                            |
| <a href="#">1851, 1858, 2152, 2192,</a>                      |                          | <a href="#">2211, 2212, 2213, 2214,</a>                         |                                             | <a href="#">912, 915, 917, 919, 921,</a>                        |                            |
| <a href="#">2195, 2206, 2224, 2228</a>                       |                          | <a href="#">2215, 2216, 2217, 2218</a>                          |                                             | <a href="#">923, 925, 927, 932, 936,</a>                        |                            |
| <code>\cmdmthsig</code> . . . . .                            | <a href="#">626</a>      | <code>\cmdtxtpar</code> . . . . .                               | <a href="#">384, 395</a>                    | <a href="#">940, 944, 948, 952, 956,</a>                        |                            |
|                                                              |                          |                                                                 |                                             | <a href="#">960, 964, 968, 972, 976,</a>                        |                            |







| L                                        |                                                                                                                                           | M                             |                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>\laallsym</code>                   | 1488, 1489                                                                                                                                | <code>\Macro,□...</code>      | 2277                                                                                                                                                                                                                                                                                                                                                                                                                      | <code>\mthgen@true</code>     | 60, 72, 84, 89, 94                                                                                                                                                                                                                                                                                                                                  |
| <code>\labFun</code>                     | 1622                                                                                                                                      | <code>\mathaccent</code>      | 926                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mthlbop</code>         | 876, 877, 879, 882, 884, 1023, 1025, 1027                                                                                                                                                                                                                                                                                                           |
| <code>\labsym</code>                     | 1622, 1623                                                                                                                                | <code>\mathbbo</code>         | 285                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mthlrel</code>         | 744, 887, 889, 891, 893, 895, 897, 900, 902, 904, 906                                                                                                                                                                                                                                                                                               |
| <code>\lallsym</code>                    | 1376, 1377                                                                                                                                | <code>\mathbin</code>         | 739                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mthluop,□...</code>    | 737                                                                                                                                                                                                                                                                                                                                                 |
| <code>\Lambda</code>                     | 2223                                                                                                                                      | <code>\mathcal</code>         | 585                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mthmat,□...</code>     | 776                                                                                                                                                                                                                                                                                                                                                 |
| <code>\lambda</code>                     | 1622                                                                                                                                      | <code>\matheus</code>         | 286, 611                                                                                                                                                                                                                                                                                                                                                                                                                  | <code>\mthname,□...</code>    | 584                                                                                                                                                                                                                                                                                                                                                 |
| <code>\land</code>                       | 1366                                                                                                                                      | <code>\mathfrak</code>        | 637                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mthoarg</code>         | 473                                                                                                                                                                                                                                                                                                                                                 |
| <code>\Lang</code>                       | 2207                                                                                                                                      | <code>\mathit</code>          | 669, 763, 790                                                                                                                                                                                                                                                                                                                                                                                                             | <code>\mthopar</code>         | 477                                                                                                                                                                                                                                                                                                                                                 |
| <code>\langle</code>                     | 958, 959, 962, 963, 970, 971, 974, 975, 1605, 1796                                                                                        | <code>\mathnormal</code>      | 708                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mthpar</code>          | 475                                                                                                                                                                                                                                                                                                                                                 |
| <code>\LaTeX</code>                      | 737, 744                                                                                                                                  | <code>\mathop</code>          | 738                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mthrel,□...</code>     | 668                                                                                                                                                                                                                                                                                                                                                 |
| <code>\lbrace</code>                     | 986, 988, 994, 996                                                                                                                        | <code>\mathpzc</code>         | 287, 624                                                                                                                                                                                                                                                                                                                                                                                                                  | <code>\mthset</code>          | 1051, 1053, 1055, 1059, 1067, 1075, 1083                                                                                                                                                                                                                                                                                                            |
| <code>\lceil</code>                      | 1119, 1121                                                                                                                                | <code>\mathrel</code>         | 745, 1035                                                                                                                                                                                                                                                                                                                                                                                                                 | <code>\mthset,□...</code>     | 649                                                                                                                                                                                                                                                                                                                                                 |
| <code>\lcoimp,□...</code>                | 883                                                                                                                                       | <code>\mathring</code>        | 918                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mthsig,□...</code>     | 623                                                                                                                                                                                                                                                                                                                                                 |
| <code>\lcoisym</code>                    | 1372, 1373                                                                                                                                | <code>\mathrm</code>          | 650                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mthslt,□...</code>     | 749                                                                                                                                                                                                                                                                                                                                                 |
| <code>\LCon,□\LDis</code>                | 1366                                                                                                                                      | <code>\mathscr</code>         | 288, 598                                                                                                                                                                                                                                                                                                                                                                                                                  | <code>\mthstr,□...</code>     | 636                                                                                                                                                                                                                                                                                                                                                 |
| <code>\lconsym</code>                    | 1366, 1367                                                                                                                                | <code>\mathsf</code>          | 682, 750, 777                                                                                                                                                                                                                                                                                                                                                                                                             | <code>\mthsty</code>          | 470, 472, 474, 476, 478, 479                                                                                                                                                                                                                                                                                                                        |
| <code>\ldisym</code>                     | 1368, 1369                                                                                                                                | <code>\mathtt</code>          | 695                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mthstycls</code>       | 611                                                                                                                                                                                                                                                                                                                                                 |
| <code>\LEExs,□\LAA11</code>              | 1486                                                                                                                                      | <code>\maxsym</code>          | 1329, 1330                                                                                                                                                                                                                                                                                                                                                                                                                | <code>\mthstyelm</code>       | 708                                                                                                                                                                                                                                                                                                                                                 |
| <code>\leexssym</code>                   | 1486, 1487                                                                                                                                | <code>\MaxSym,□\MinSym</code> | 1329                                                                                                                                                                                                                                                                                                                                                                                                                      | <code>\mthstyfam</code>       | 598                                                                                                                                                                                                                                                                                                                                                 |
| <code>\left</code>                       | 421, 445, 911, 934, 938, 942, 946, 950, 954, 958, 962, 966, 970, 974, 978, 986, 994, 1002, 1008, 1101, 1107, 1113, 1119, 1142, 1611, 1798 | <code>\MC,□\GMC,□...</code>   | 1629                                                                                                                                                                                                                                                                                                                                                                                                                      | <code>\mthstyfrm</code>       | 763                                                                                                                                                                                                                                                                                                                                                 |
| <code>\Leftarrow</code>                  | 891, 893                                                                                                                                  | <code>\mdseries</code>        | 367, 555, 567                                                                                                                                                                                                                                                                                                                                                                                                             | <code>\mthstyfun</code>       | 682                                                                                                                                                                                                                                                                                                                                                 |
| <code>\Leftrightarrow</code>             | 895, 897                                                                                                                                  | <code>\MFO</code>             | 1416                                                                                                                                                                                                                                                                                                                                                                                                                      | <code>\mthstylbop</code>      | 739                                                                                                                                                                                                                                                                                                                                                 |
| <code>\leftrightharpoonrightarrow</code> | 884, 1372                                                                                                                                 | <code>\MFOL</code>            | 1414                                                                                                                                                                                                                                                                                                                                                                                                                      | <code>\mthstylrel</code>      | 745                                                                                                                                                                                                                                                                                                                                                 |
| <code>\len</code>                        | 1137                                                                                                                                      | <code>\middle</code>          | 986                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mthstyluop</code>      | 738                                                                                                                                                                                                                                                                                                                                                 |
| <code>\Let</code>                        | 2280                                                                                                                                      | <code>\Mif,□...</code>        | 2289                                                                                                                                                                                                                                                                                                                                                                                                                      | <code>\mthstymat</code>       | 777                                                                                                                                                                                                                                                                                                                                                 |
| <code>\let</code>                        | 1691, 1692, 1693                                                                                                                          | <code>\min,□\max,□...</code>  | 1128                                                                                                                                                                                                                                                                                                                                                                                                                      | <code>\mthstyname</code>      | 585                                                                                                                                                                                                                                                                                                                                                 |
| <code>\LExs,□\LA11</code>                | 1374                                                                                                                                      | <code>\minsym</code>          | 1331, 1332                                                                                                                                                                                                                                                                                                                                                                                                                | <code>\mthstyrel</code>       | 669                                                                                                                                                                                                                                                                                                                                                 |
| <code>\lexssym</code>                    | 1374, 1375                                                                                                                                | <code>\ML,□\GML,□...</code>   | 1582                                                                                                                                                                                                                                                                                                                                                                                                                      | <code>\mthstyset</code>       | 650                                                                                                                                                                                                                                                                                                                                                 |
| <code>\lfloor</code>                     | 1113, 1115                                                                                                                                | <code>\models</code>          | 900, 902                                                                                                                                                                                                                                                                                                                                                                                                                  | <code>\mthstysig</code>       | 624                                                                                                                                                                                                                                                                                                                                                 |
| <code>\lift</code>                       | 1289                                                                                                                                      | <code>\movFun,□\movRel</code> | 1828                                                                                                                                                                                                                                                                                                                                                                                                                      | <code>\mthstysnt</code>       | 750                                                                                                                                                                                                                                                                                                                                                 |
| <code>\limp,□...</code>                  | 881                                                                                                                                       | <code>\MovRel</code>          | 1245                                                                                                                                                                                                                                                                                                                                                                                                                      | <code>\mthstystr</code>       | 637                                                                                                                                                                                                                                                                                                                                                 |
| <code>\LImp,□\LCoi</code>                | 1370                                                                                                                                      | <code>\movrel</code>          | 1245, 1246                                                                                                                                                                                                                                                                                                                                                                                                                | <code>\mthstysym</code>       | 695                                                                                                                                                                                                                                                                                                                                                 |
| <code>\limpsym</code>                    | 1370, 1371                                                                                                                                | <code>\movsym</code>          | 1828, 1829, 1830                                                                                                                                                                                                                                                                                                                                                                                                          | <code>\mthstyvec</code>       | 790                                                                                                                                                                                                                                                                                                                                                 |
| <code>\linenumbers</code>                | 270, 272                                                                                                                                  | <code>\MPL</code>             | 1569, 1574, 1578                                                                                                                                                                                                                                                                                                                                                                                                          | <code>\mthssubsup</code>      | 409, 411, 466                                                                                                                                                                                                                                                                                                                                       |
| <code>\linnum@false</code>               | 48                                                                                                                                        | <code>\MSO</code>             | 1511, 1518, 1524                                                                                                                                                                                                                                                                                                                                                                                                          | <code>\mthsym,□...</code>     | 694                                                                                                                                                                                                                                                                                                                                                 |
| <code>\linnum@true</code>                | 49                                                                                                                                        | <code>\MSOL</code>            | 1509, 1516, 1522                                                                                                                                                                                                                                                                                                                                                                                                          | <code>\mthvec,□...</code>     | 789                                                                                                                                                                                                                                                                                                                                                 |
| <code>\llbracket</code>                  | 911, 913                                                                                                                                  | <code>\mth</code>             | 469, 911, 913, 916, 918, 920, 922, 926, 928, 930, 931, 934, 935, 938, 939, 942, 943, 946, 947, 950, 951, 954, 955, 958, 959, 962, 963, 966, 967, 970, 971, 974, 975, 978, 979, 986, 988, 994, 996, 1002, 1004, 1008, 1010, 1012, 1015, 1030, 1088, 1090, 1092, 1094, 1096, 1101, 1103, 1107, 1109, 1113, 1115, 1119, 1121, 1136, 1140, 1142, 1144, 1197, 1198, 1199, 1200, 1201, 1202, 1603, 1605, 1609, 1611, 1796, 1798 | <code>\MTL</code>             | 1546, 1551, 1555                                                                                                                                                                                                                                                                                                                                    |
| <code>\llcorner</code>                   | 1035                                                                                                                                      | <code>\mth@false</code>       | 62, 71, 73                                                                                                                                                                                                                                                                                                                                                                                                                | <code>\mu</code>              | 1630                                                                                                                                                                                                                                                                                                                                                |
| <code>\LNeg,□\LNot</code>                | 1362                                                                                                                                      | <code>\mth@true</code>        | 72                                                                                                                                                                                                                                                                                                                                                                                                                        | <code>\Mutatismutandis</code> | 842                                                                                                                                                                                                                                                                                                                                                 |
| <code>\lnegsym</code>                    | 1362, 1363                                                                                                                                | <code>\mtharg</code>          | 471                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\mutatismutandis</code> | 825                                                                                                                                                                                                                                                                                                                                                 |
| <code>\lnotsym</code>                    | 1364, 1365                                                                                                                                | <code>\mthcls,□...</code>     | 610                                                                                                                                                                                                                                                                                                                                                                                                                       |                               |                                                                                                                                                                                                                                                                                                                                                     |
| <code>\log@false</code>                  | 56, 62, 88, 90                                                                                                                            | <code>\mthclm,□...</code>     | 707                                                                                                                                                                                                                                                                                                                                                                                                                       | N                             |                                                                                                                                                                                                                                                                                                                                                     |
| <code>\log@true</code>                   | 89                                                                                                                                        | <code>\mthfam,□...</code>     | 597                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\naif</code>            | 850                                                                                                                                                                                                                                                                                                                                                 |
| <code>\logsig</code>                     | 1356, 1357                                                                                                                                | <code>\mthfrm,□...</code>     | 762                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\naive</code>           | 851                                                                                                                                                                                                                                                                                                                                                 |
| <code>\LogSig,□...</code>                | 1356                                                                                                                                      | <code>\mthfun,□...</code>     | 681                                                                                                                                                                                                                                                                                                                                                                                                                       | <code>\neg</code>             | 1362                                                                                                                                                                                                                                                                                                                                                |
| <code>\LogSpace,□...</code>              | 1186                                                                                                                                      | <code>\mthgen@false</code>    | 59, 62                                                                                                                                                                                                                                                                                                                                                                                                                    | <code>\newcommandx</code>     | 295, 297, 301, 303, 307, 309, 313, 315, 319, 321, 325, 327, 331, 333, 337, 339, 343, 345, 349, 351, 397, 408, 410, 414, 416, 420, 422, 426, 428, 432, 434, 438, 440, 444, 446, 450, 452, 456, 458, 462, 464, 500, 506, 508, 510, 512, 514, 516, 518, 520, 522, 531, 533, 535, 537, 539, 543, 545, 547, 549, 551, 556, 558, 560, 562, 564, 568, 570, |
| <code>\logstr</code>                     | 1400, 1401                                                                                                                                |                               |                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                                                                                                                                                                                                                                                                                                                                                     |
| <code>\LogStr,□...</code>                | 1400                                                                                                                                      |                               |                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                                                                                                                                                                                                                                                                                                                                                     |
| <code>\LogTime,□...</code>               | 1185                                                                                                                                      |                               |                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                                                                                                                                                                                                                                                                                                                                                     |
| <code>\lor</code>                        | 1368                                                                                                                                      |                               |                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                                                                                                                                                                                                                                                                                                                                                     |
| <code>\lowercase</code>                  | 665, 667                                                                                                                                  |                               |                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                                                                                                                                                                                                                                                                                                                                                     |
| <code>\lVert</code>                      | 1107, 1109                                                                                                                                |                               |                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                                                                                                                                                                                                                                                                                                                                                     |
| <code>\lvert</code>                      | 1008, 1010, 1101, 1103, 1140, 1142, 1144                                                                                                  |                               |                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                                                                                                                                                                                                                                                                                                                                                     |



|                                           |                                                            |                                      |                                                   |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------|------------------------------------------------------------|--------------------------------------|---------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>\rmfamily</code> . . . . .          | 367, 567                                                   | <code>\SetZ,□</code> . . . . .       | 1058                                              | <code>\treeset</code> . . . . .      | 2227, 2228                                                                                                                                                                                                                                                                                                                                                                                                                |
| <code>\Role</code> . . . . .              | 854                                                        | <code>\SetZI</code> . . . . .        | 1060                                              | <code>\TreeSet,□</code> . . . . .    | 2226                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <code>\role</code> . . . . .              | 852                                                        | <code>\SetZNI</code> . . . . .       | 1064                                              | <code>\treesym</code> . . . . .      | 2226, 2228                                                                                                                                                                                                                                                                                                                                                                                                                |
| <code>\rrbracket</code> . . . . .         | 911, 913                                                   | <code>\SetZPI</code> . . . . .       | 1062                                              | <code>\triangleq</code> . . . . .    | 877                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\rst</code> . . . . .               | 1024                                                       | <code>\sffamily</code> . . . . .     | 555                                               | <code>\trn</code> . . . . .          | 921                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\rVert</code> . . . . .             | 1107, 1109                                                 | <code>\Sigma</code> . . . . .        | 1199, 1200, 1486, 2191                            | <code>\trnFun,□\trnRel</code> . .    | 1831, 2200                                                                                                                                                                                                                                                                                                                                                                                                                |
| <code>\rvert</code> . . . . .             | 1008, 1010, 1101,<br>1103, 1140, 1142, 1144                | <code>\sigma</code> . . . . .        | 1271, 1856, 2190                                  | <code>\trnsym</code> . . . . .       | 1831, 1832,<br>1833, 2200, 2201, 2202                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>S</b>                                  |                                                            |                                      |                                                   |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\S</code> . . . . .                 | 1693                                                       | <code>\Signature</code> . . . . .    | 2276                                              | <code>\True,□\False</code> . . . . . | 2281                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <code>\SATG,□</code> . . . . .            | 1210                                                       | <code>\sim</code> . . . . .          | 1364                                              | <code>\Tt,□\Ff</code> . . . . .      | 1358                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <code>\SaveDoubleAcute</code> . . . . .   | 1692                                                       | <code>\skm</code> . . . . .          | 1451                                              | <code>\ttsym</code> . . . . .        | 1358, 1359                                                                                                                                                                                                                                                                                                                                                                                                                |
| <code>\SavePilcrow</code> . . . . .       | 1691                                                       | <code>\SL,□</code> . . . . .         | 1998                                              | <code>\tuple,□</code> . . . . .      | 956                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\SaveSectionSymbol</code> . . . . . | 1693                                                       | <code>\SO</code> . . . . .           | 1500, 1506, 1512                                  | <code>\tuplel</code> . . . . .       | 960                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\scshape</code> . . . . .           | 555, 567                                                   | <code>\sol</code> . . . . .          | 1290                                              | <code>\tupler</code> . . . . .       | 964                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\seqofcmd</code> . . . . .          | 174, 187, 191                                              | <code>\SOL,□</code> . . . . .        | 1492                                              | <code>\tuplex</code> . . . . .       | 968                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\seqofgrklet</code> . . . . .       | 194, 517                                                   | <code>\Space,□</code> . . . . .      | 1184                                              | <code>\tuplexl</code> . . . . .      | 972                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\seqofgrklow</code> . . . . .       |                                                            | <code>\stackrel</code> . . . . .     | 876                                               | <code>\tuplexr</code> . . . . .      | 976                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                           | 186, 195, 198, 513, 625, 638                               | <code>\strset</code> . . . . .       | 1272, 1273, 1274, 1276,<br>1857, 1858, 1859, 1861 | <code>\txt</code> . . . . .          | 356                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\seqofgrkupp</code> . . . . .       | 190, 195, 200, 515                                         | <code>\StrSet,□</code> . . . . .     | 1271, 1856                                        | <code>\txt@false</code> . . . . .    | 56, 66, 68                                                                                                                                                                                                                                                                                                                                                                                                                |
| <code>\seqoflatlet</code> . . . . .       | 183, 511, 625, 638                                         | <code>\strsym</code> . . . . .       | 1271, 1273, 1275, 1277,<br>1856, 1858, 1860, 1862 | <code>\txt@true</code> . . . . .     | 67                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <code>\seqoflatlow</code> . . . . .       | 179, 184, 198, 507                                         | <code>\sttset</code> . . . . .       | 1819, 1820, 1821, 1823,<br>2194, 2195, 2196, 2198 | <code>\txtabr,□</code> . . . . .     | 541                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\seqoflatupp</code> . . . . .       | 181,<br>184, 200, 509, 586, 599, 612                       | <code>\SttSet,□</code> . . . . .     | 1818, 2193                                        | <code>\txtarg</code> . . . . .       | 358                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\seqoflet</code> . . . . .          | 201, 523, 651, 670, 683,<br>696, 709, 751, 764, 778, 791   | <code>\sttsym</code> . . . . .       | 1818, 1820, 1822, 1824,<br>2193, 2195, 2197, 2199 | <code>\txtcom,□</code> . . . . .     | 566                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\seqoflow</code> . . . . .          | 197, 202, 519                                              | <code>\stx</code> . . . . .          | 860                                               | <code>\txtdef,□</code> . . . . .     | 529                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\seqoftag</code> . . . . .          | 170, 180, 182                                              | <code>\sub</code> . . . . .          | 1382                                              | <code>\txtgen@false</code> . . . . . | 53, 56                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <code>\seqofupp</code> . . . . .          | 199, 202, 521                                              | <code>\svarset</code> . . . . .      | 1530, 1531                                        | <code>\txtgen@true</code> . . . . .  | 54, 67, 78, 84, 89, 94                                                                                                                                                                                                                                                                                                                                                                                                    |
| <code>\sequence,□</code> . . . . .        | 932                                                        | <code>\SVarSet,□</code> . . . . .    | 1529                                              | <code>\txtname</code> . . . . .      | 1350,<br>1415, 1417, 1498, 1500,<br>1504, 1506, 1510, 1512,<br>1516, 1518, 1522, 1524,<br>1539, 1543, 1547, 1551,<br>1555, 1562, 1566, 1570,<br>1574, 1578, 1587, 1591,<br>1634, 1638, 1646, 1650,<br>1654, 1668, 1679, 1706,<br>1710, 1721, 1725, 1736,<br>1740, 1755, 1759, 1770,<br>1774, 1785, 1789, 1873,<br>1890, 1907, 1924, 1941,<br>1958, 1975, 1992, 2007,<br>2024, 2041, 2058, 2075,<br>2092, 2109, 2126, 2143 |
| <code>\sequencecl</code> . . . . .        | 936                                                        | <code>\svarsym</code> . . . . .      | 1529, 1531                                        | <code>\txtname,□</code> . . . . .    | 554                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\sequencer</code> . . . . .         | 940                                                        | <code>\symset</code> . . . . .       | 2191, 2192                                        | <code>\txtoarg</code> . . . . .      | 360                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\sequencecx</code> . . . . .        | 944                                                        | <code>\SymSet,□</code> . . . . .     | 2190                                              | <code>\txtoargcom</code> . . . . .   | 1154, 1170                                                                                                                                                                                                                                                                                                                                                                                                                |
| <code>\sequencecxl</code> . . . . .       | 948                                                        | <code>\symsym</code> . . . . .       | 2190, 2192                                        | <code>\txtopar</code> . . . . .      | 364                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\sequencecxl</code> . . . . .       | 952                                                        | <b>T</b>                             |                                                   | <code>\txtoparcom</code> . . . . .   | 1172                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <code>\set,□</code> . . . . .             | 981                                                        | <code>\tab@false</code> . . . . .    | 115, 117                                          | <code>\txtpar</code> . . . . .       | 362                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\SetB</code> . . . . .              | 1050                                                       | <code>\tab@true</code> . . . . .     | 116                                               | <code>\txtsty</code> . . . . .       | 357, 359, 361, 363, 365, 366                                                                                                                                                                                                                                                                                                                                                                                              |
| <code>\SetC,□</code> . . . . .            | 1082                                                       | <code>\tau</code> . . . . .          | 1828                                              | <code>\txtstyabr</code> . . . . .    | 542                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\SetCI</code> . . . . .             | 1084                                                       | <code>\TAutSet</code> . . . . .      | 2220                                              | <code>\txtstycom</code> . . . . .    | 567                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\SetF</code> . . . . .              | 1052                                                       | <code>\tautset</code> . . . . .      | 2220, 2221                                        | <code>\txtstydef</code> . . . . .    | 530                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\SetInd</code> . . . . .            | 2274                                                       | <code>\terset</code> . . . . .       | 1442, 1443                                        | <code>\txtstyname</code> . . . . .   | 555                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\SetKw</code> . . . . .             | 2276,<br>2281, 2282, 2283, 2284,<br>2285, 2286, 2287, 2288 | <code>\tersig</code> . . . . .       | 1439, 1440                                        | <code>\txtsubsup</code> . . . . .    | 296, 298, 353                                                                                                                                                                                                                                                                                                                                                                                                             |
| <code>\SetKwFor</code> . . . . .          | 2277, 2278, 2279, 2280                                     | <code>\TerSig,□</code> . . . . .     | 1439                                              | <b>U</b>                             |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\SetKwIF</code> . . . . .           | 2289                                                       | <code>\terstr</code> . . . . .       | 1457, 1458                                        | <code>\UAFMC</code> . . . . .        | 1657                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <code>\setl</code> . . . . .              | 989                                                        | <code>\TerStr,□</code> . . . . .     | 1457                                              | <code>\UAGPL</code> . . . . .        | 1937                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <code>\setlength</code> . . . . .         | 2275                                                       | <code>\tersym</code> . . . . .       | 1441, 1443                                        | <code>\UAGSL</code> . . . . .        | 2071                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <code>\setlxl</code> . . . . .            | 991                                                        | <code>\text</code> . . . . .         | 296, 354, 876                                     | <code>\UATL</code> . . . . .         | 1762                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <code>\SetN,□</code> . . . . .            | 1054                                                       | <code>\textstyle</code> . . . . .    | 738, 739                                          | <code>\UATLP</code> . . . . .        | 1777                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <code>\SetNI</code> . . . . .             | 1056                                                       | <code>\textup</code> . . . . .       | 876                                               | <code>\UATLS</code> . . . . .        | 1792                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <code>\SetQ,□</code> . . . . .            | 1066                                                       | <code>\thestring</code> . . . . .    | 664, 665, 666, 667                                |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\SetQI</code> . . . . .             | 1068                                                       | <code>\Theta</code> . . . . .        | 1046                                              |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\SetQNI</code> . . . . .            | 1072                                                       | <code>\theta</code> . . . . .        | 1045                                              |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\SetQPI</code> . . . . .            | 1070                                                       | <code>\thmtls@false</code> . . . . . | 25                                                |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\setr</code> . . . . .              | 997                                                        | <code>\thmtls@true</code> . . . . .  | 24                                                |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\SetR,□</code> . . . . .            | 1074                                                       | <code>\tikzstyle</code> . . . . .    | 2245,<br>2247, 2249, 2251, 2253                   |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\SetRI</code> . . . . .             | 1076                                                       | <code>\Time,□</code> . . . . .       | 1183                                              |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\SetRNI</code> . . . . .            | 1080                                                       | <code>\TL,□\PL,□</code> . . . . .    | 1534                                              |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\SetRPI</code> . . . . .            | 1078                                                       | <code>\top</code> . . . . .          | 1358                                              |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\setrx</code> . . . . .             | 999                                                        |                                      |                                                   |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>\setx</code> . . . . .              | 983                                                        |                                      |                                                   |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |

