

fmocdmac — FM's OCD L^AT_EX Macro*

Fabio Mogavero
fm@fabiomogavero.com

Released 2024/04/20

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 v0.30 of the fmocdmac package, last revised 2024/04/20.

```

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 graphs
83 \newif\ifgrp@ \grp@false
84 \DeclareOption{grp}{\grp@true\txtgen@true\mthgen@true}
85 \DeclareOption{nogrp}{\grp@false}
86
87 %% Macros for games
88 \newif\ifgam@ \gam@false
89 \DeclareOption{gam}{\gam@true\txtgen@true\mthgen@true}
90 \DeclareOption{nogam}{\gam@false}
91
92 %% Macros for logics
93 \newif\iflog@ \log@false
94 \DeclareOption{log}{\log@true\txtgen@true\mthgen@true}
95 \DeclareOption{nolog}{\log@false}
96
97 %% Macros for automata

```

```

98 \newif\ifaut@ \aut@false
99 \DeclareOption{aut}{\aut@true\txtgen@true\mthgen@true}
100 \DeclareOption{noaut}{\aut@false}
101
102
103 %% Format-related tricks
104 \newif\iffrm@ \frm@false
105 \DeclareOption{frm}{\frm@true}
106 \DeclareOption{nofrm}{\frm@false}
107
108
109 %% Figure-related tricks
110 \newif\iffig@ \fig@false
111 \DeclareOption{fig}{\fig@true}
112 \DeclareOption{nofig}{\fig@false}
113
114 %% Wrapfig package
115 \newif\ifwrpfig@ \wrpfig@true
116 \DeclareOption{nowrpfig}{\wrpfig@false}
117
118
119 %% Table-related tricks
120 \newif\iftab@ \tab@false
121 \DeclareOption{tab}{\tab@true}
122 \DeclareOption{notab}{\tab@false}
123
124
125 %% Algorithm-related tricks
126 \newif\ifalg@ \alg@false
127 \DeclareOption{alg}{\alg@true}
128 \DeclareOption{noalg}{\alg@false}
129

```

Option-processing code:

```

130
131 \DeclareOption*{\PackageWarning{fmocdmac}{Unknown~'\CurrentOption'}}%
132
133 \ExecuteOptions{aux,txtgen,mthgen,txt,mth,com,grp,gam,log,aut}%
134
135 \ProcessOptions\relax%
136
137 \ifcsdef{if@twocolumn}{\newif\if@twocolumn}
138

```

Package main body:

```

139
140 %%*****
141 %%** Auxiliary Alphabet Letters *****
142 %%*****

```

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

```

143 \csdef{omicron}{o}

```

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

```

... 144 \csdef{Alpha}{A} \csdef{Beta}{B} \csdef{Epsilon}{E} \csdef{varEpsilon}{E}
145 \csdef{Zeta}{Z} \csdef{Eta}{H} \csdef{Iota}{I} \csdef{Kappa}{K}
146 \csdef{varKappa}{K} \csdef{Mu}{M} \csdef{Nu}{N} \csdef{Omicron}{O}
147 \csdef{Rho}{P} \csdef{varRho}{P} \csdef{Tau}{T} \csdef{Chi}{X}
148 %%*****
149 %%*****
150 %%** Tools *****
151 %%*****

```

\empchk Emptiness check: `\empchk{<A>}{}` 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”

```
152 \newrobustcmd{\empchk}[2]
153   {\if&#1&\else#2\fi}
```

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

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

```
154 \newrobustcmd{\defval}[2]
155   {\if&#1&#2\else#1\fi}
```

```
156 %%*****%
```

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

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

```
157 \newrobustcmd{\arglef}[2]
158   {\empchk{#2}{#1#2}}
```

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

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

```
159 \newrobustcmd{\argrig}[2]
160   {\empchk{#1}{#1#2}}
```

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

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

```
161 \newrobustcmd{\argmid}[3]
162   {\empchk{#2}{#1#2#3}}
```

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

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

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

```
165 %%*****%
```

\ifstarvar Command star variants: `\ifstarvar{<A>}{}` ... to do!

```
166 \newrobustcmd{\ifstarvar}
167   {\@ifstar}
```

\ifexclavar Command exclamation variants: `\ifexclavar{<A>}{}` ... to do!

```
168 \newrobustcmd{\ifexclavar}[1]
169   {\@ifnextchar!\@firstoftwo{#1}}}
```

```

\ifquestvar Command questionmark variants: \ifquestvar{<A>}{<B>} ... to do!
170 \newrobustcmd{\ifquestvar}[1]
171   {\@ifnextchar?{\@firstoftwo{#1}}}%

172 %%*****%

\varcmd Variadic commands: \varcmd{<A>}{<B>}{<C>}{<D>}{<E>}{<F>} ... to do!
173 \newrobustcmd{\varcmd}[6]
174   {\expandafter\newcommand\csname gobble#1arg\endcsname[2]
175     {\csname check#1arg\endcsname{\argsep{##1}{#4}{\empchk{##2}{##2}}}}}%
176   \expandafter\newcommand\csname check#1arg\endcsname[1]
177     {\csname @ifnextchar\endcsname%
178       \bgroup\csname gobble#1arg\endcsname{##1}{#2{##1#5}#6}}}%
179   \expandafter\newcommand\csname#1\endcsname[1]
180     {\csname check#1arg\endcsname{#3##1}}}%

181 %%*****%

\seqoftag Sequence of tags: \seqoftag{<A>}{<B>}{<C>} ... to do!
182 \newrobustcmd{\seqoftag}[3]
183   {\@for\itr:={#1}\do%
184     {\expandafter\csedef{\itr#2}%
185       {\noexpand\csname #3\endcsname{\itr}}}}

\seqofcmd Sequence of commands: \seqofcmd{<A>}{<B>}{<C>} ... to do!
186 \newrobustcmd{\seqofcmd}[3]
187   {\@for\itr:={#1}\do%
188     {\expandafter\csedef{\itr#2}%
189       {\noexpand\csname #3\endcsname{\csname \itr\endcsname}}}}

190 %%*****%

\seqoflatlow Sequence of Latin lowercase letters: \seqoflatlow{<A>}{<B>} ... to do!
191 \newrobustcmd{\seqoflatlow}
192   {\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!
193 \newrobustcmd{\seqoflatupp}
194   {\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!
195 \newrobustcmd{\seqoflatlet}[2]
196   {\seqoflatlow{#1}{#2}\seqoflatupp{#1}{#2}}

197 %%*****%

\seqofgrklow Sequence of Greek lowercase letters: \seqofgrklow{<A>}{<B>} ... to do!
198 \newrobustcmd{\seqofgrklow}
199   {\seqofcmd{alpha,beta,gamma,delta,epsilon,varepsilon,zeta,eta,theta,vartheta,%
200     iota,kappa,varkappa,lambda,mu,nu,xi,omicron,pi,varpi,rho,varrho,sigma,%
201     varsigma,tau,upsilon,phi,varphi,chi,psi,omega}}

\seqofgrkupp Sequence of Greek uppercase letters: \seqofgrkupp{<A>}{<B>} ... to do!
202 \newrobustcmd{\seqofgrkupp}
203   {\seqofcmd{Alpha,Beta,Gamma,Delta,Epsilon,varEpsilon,Zeta,Eta,Theta,varTheta,%
204     Iota,Kappa,varKappa,Lambda,Mu,Nu,Xi,Omicron,Pi,varPi,Rho,varRho,Sigma,%
205     varSigma,Tau,Upsilon,Phi,varPhi,Chi,Psi,Omega}}

\seqofgrklet Sequence of Greek letters: \seqofgrklet{<A>}{<B>} ... to do!
206 \newrobustcmd{\seqofgrklet}[2]
207   {\seqofgrklow{#1}{#2}\seqofgrkupp{#1}{#2}}

208 %%*****%

```

```

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

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

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

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

```

```

266 % Camera-Ready Version
267
268 %%...
269
270 \else
271 % Draft Version
272
273 %%...
274
275 \ifchgbar@
276 % Change Bars
277 \RequirePackage{changebar}
278 \fi
279
280 \iflinnum@
281 % Line Numbers
282 \if@twocolumn
283 \RequirePackage[switch, columnwise, mathlines]{lineno}\linenumbers
284 \else
285 \RequirePackage[columnwise, mathlines]{lineno}\linenumbers
286 \fi
287 \fi
288
289 %%...
290
291 \fi
292
293 \fi
294 %%*****%
295 %%*****%
296 %%** Auxiliary Font Declarations *****%
297 %%*****%

```

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

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

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

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

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

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

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

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

```

302 %%*****%
303 %%*****%
304 %%** Text Meta Commands *****%
305 %%*****%

```

`\newtxt` ... to do!

- `\newtxt[\rmfamily]{Name}[sub][sup][Ext] = “NamesubsupExt”`
- `\newtxt[\sffamily]{Name}[sub][sup][Ext] = “NamesubsupExt”`
- `\newtxt[\ttfamily]{Name}[sub][sup][Ext] = “NamesubsupExt”`
- `\newtxt![\rmfamily]{Name}[sub][sup][Ext] = “NamesubsupExt”`
- `\newtxt![\sffamily]{Name}[sub][sup][Ext] = “NamesubsupExt”`
- `\newtxt![\ttfamily]{Name}[sub][sup][Ext] = “NamesubsupExt”`

```

306 \DeclareRobustCommand{\newtxt}
307   {\ifexclavar{\@snewtxt}{\@newtxt}}
308 \DeclareRobustCommandx{\@newtxt}[5][1=, 3=, 4=, 5=]
309   {\text{#1#2\txsubsup{#1}{#3}{#4}{#5}\xspace}}
310 \DeclareRobustCommandx{\@snewtxt}[5][1=, 3=, 4=, 5=]
311   {#1#2\txsubsup{#1}{#3}{#4}{#5}\normalfont\xspace}

```

\newtxtsty ... to do!

- \newtxtsty{\rmfamily}{Name}[sub][sup][Ext] = “Name^{sub}Ext”
- \newtxtsty{\rmfamily}[\sffamily]{Name}[sub][sup][Ext] = “Name^{sub}Ext”
- \newtxtsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext] = “Name^{sub}Ext”
- \newtxtsty!\rmfamily}{Name}[sub][sup][Ext] = “Name^{sub}Ext”
- \newtxtsty!\rmfamily}[\sffamily]{Name}[sub][sup][Ext] = “Name^{sub}Ext”
- \newtxtsty!\rmfamily}[\ttfamily]{Name}[sub][sup][Ext] = “Name^{sub}Ext”

```

312 \DeclareRobustCommand{\newtxtsty}
313   {\ifexclavar{\@snewtxtsty}{\@newtxtsty}}
314 \DeclareRobustCommandx{\@newtxtsty}[2][2=]
315   {\newtxt[\defval{#2}{#1}]}
316 \DeclareRobustCommandx{\@snewtxtsty}[2][2=]
317   {\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!\rmfamily}[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”
- \newtxtarg!\rmfamily}[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “Name^{sub}Ext1(Arg)Ext2”

```

318 \DeclareRobustCommand{\newtxtarg}
319   {\ifexclavar{\@snewtxtarg}{\@newtxtarg}}
320 \DeclareRobustCommandx{\@newtxtarg}[7][1=, 3=, 4=, 5=, 7=]
321   {\newtxt{#1}{#2}{#3}{#4}[\argmid{#5}{#6}{#7}]}
322 \DeclareRobustCommandx{\@snewtxtarg}[7][1=, 3=, 4=, 5=, 7=]
323   {\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”

```

324 \DeclareRobustCommand{\newtxtargsty}
325   {\ifexclavar{\@snewtxtargsty}{\@newtxtargsty}}
326 \DeclareRobustCommandx{\@newtxtargsty}[2][2=]
327   {\newtxtarg[\defval{#2}{#1}]}
328 \DeclareRobustCommandx{\@snewtxtargsty}[2][2=]
329   {\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!\rmfamily}[\sffamily]{Name}[sub][sup][Arg] = “Name^{sub}(Arg)”

- $\backslash\text{newtxtoarg}!\{\text{ttfamily}\}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$

```

330 \DeclareRobustCommand{\newtxtoarg}
331   {\ifexclavar{\@snewtxtoarg}\@newtxtoarg}}
332 \DeclareRobustCommand{\@newtxtoarg}[5][1=, 3=, 4=, 5=]
333   {\newtxtarg[#1]{#2}[#3][#4][#5]}
334 \DeclareRobustCommand{\@snewtxtoarg}[5][1=, 3=, 4=, 5=]
335   {\newtxtarg![#1]{#2}[#3][#4][#5]}

```

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

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

```

336 \DeclareRobustCommand{\newtxtoargsty}
337   {\ifexclavar{\@snewtxtoargsty}\@newtxtoargsty}}
338 \DeclareRobustCommand{\@newtxtoargsty}[2][2=]
339   {\newtxtoarg[\defval{#2}]{#1}}
340 \DeclareRobustCommand{\@snewtxtoargsty}[2][2=]
341   {\newtxtoarg![\defval{#2}]{#1}}

```

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

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

```

342 \DeclareRobustCommand{\newtxtpar}
343   {\ifexclavar{\@snewtxtpar}\@newtxtpar}}
344 \DeclareRobustCommand{\@newtxtpar}[7][1=, 3=, 4=, 5=, 7=]
345   {\newtxt[#1]{#2}[#3][#4][\argmid{#5}]{#6}[#7]}
346 \DeclareRobustCommand{\@snewtxtpar}[7][1=, 3=, 4=, 5=, 7=]
347   {\newtxt![#1]{#2}[#3][#4][\argmid{#5}]{#6}[#7]}

```

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

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

```

348 \DeclareRobustCommand{\newtxtparsty}
349   {\ifexclavar{\@snewtxtparsty}\@newtxtparsty}}
350 \DeclareRobustCommand{\@newtxtparsty}[2][2=]
351   {\newtxtpar[\defval{#2}]{#1}}
352 \DeclareRobustCommand{\@snewtxtparsty}[2][2=]
353   {\newtxtpar![\defval{#2}]{#1}}

```

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

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


```

373 \DeclareRobustCommand{\txtoarg}
374   {\ifexclavar{\newtxtoargsty!\txtsty}}{\newtxtoargsty{\txtsty}}}

```

- \ttxtpar{Name}[sub][sup]{Ext1}{Par}{Ext2} = “Name^{SUB}Ext1[PAR]EXT2”
- \txtpar[\scshape]{Name}[sub][sup]{Ext1}{Par}{Ext2} = “NAME^{SUB}EXT1[PAR]EXT2”
- \ttxtpar[\bfseries]{Name}[sub][sup]{Ext1}{Par}{Ext2} = “Name^{SUB}Ext1[PAR]EXT2”
- \ttxtpar!{Name}[sub][sup]{Ext1}{Par}{Ext2} = “Name^{SUB}Ext1[PAR]EXT2”
- \ttxtpar![\scshape]{Name}[sub][sup]{Ext1}{Par}{Ext2} = “NAME^{SUB}EXT1[PAR]EXT2”
- \ttxtpar![\bfseries]{Name}[sub][sup]{Ext1}{Par}{Ext2} = “Name^{SUB}Ext1[PAR]EXT2”

- \txtpar{Name}[sub][sup]{Par} = “Name^{sup}_{sub}[Par]”
- \txtpar[\scshape]{Name}[sub][sup]{Par} = “NAME^{SUP}_{SUB}[PAR]”
- \txtpar[\bfseries]{Name}[sub][sup]{Par} = “**Name^{sup}_{sub}[Par]**”
- \txtpar!{Name}[sub][sup]{Par} = “Name^{sup}_{sub}[Par]”
- \txtpar![\scshape]{Name}[sub][sup]{Par} = “NAME^{SUP}_{SUB}[PAR]”
- \txtpar![\bfseries]{Name}[sub][sup]{Par} = “**Name^{sup}_{sub}[Par]**”

- `\cmdtxt{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};`
`\txtNewCmd{Name}[sub][sup][Ext] = NAMESUBSUPEXT`
`\txtNewCmd!{Name}[sub][sup][Ext] = NAMESUBSUPEXT`

- `\cmdtxtarg{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};`

$$\text{txtargNewCmd}\{Name\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{Arg}[\text{Ext2}] = \text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}(Arg)\text{EXT2}$$

$$\text{txtargNewCmd}!\{Name\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{Arg}[\text{Ext2}] = \text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}(Arg)\text{EXT2}$$

- `\cmdttxtoarg{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};`
`\txtoargNewCmd{Name}[sub][sup][Arg] = NAMESUBSUP(ARG)`
`\txtoargNewCmd!{Name}[sub][sup][Arg] = NAMESUBSUP!(ARG)`

```

392 \DeclareRobustCommand{\cmdtxtoarg}[1]
393   {\csdef{txtoarg#1}%
394     {\protect\ifexclavar%
395       {\newtxtoargsty!\csname txtsty#1\endcsname}}%
396     {\newtxtoargsty{\csname txtsty#1\endcsname}}}}

```

\cmdtxtpar ... to do!

- \cmdtxtpar{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
\txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NAME^{SUB}EXT1[PAR]EXT2
\txtparNewCmd!{Name}[sub][sup][Ext1]{Par}[Ext2] = NAME^{SUB}EXT1[PAR]EXT2

```

397 \DeclareRobustCommand{\cmdtxtpar}[1]
398   {\csdef{txtpar#1}%
399     {\protect\ifexclavar%
400       {\newtxtparsty!\csname txtsty#1\endcsname}}%
401     {\newtxtparsty{\csname txtsty#1\endcsname}}}}

```

\cmdtxtopar ... to do!

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

```

402 \DeclareRobustCommand{\cmdtxtopar}[1]
403   {\csdef{txtopar#1}%
404     {\protect\ifexclavar%
405       {\newtxtoparsty!\csname txtsty#1\endcsname}}%
406     {\newtxtoparsty{\csname txtsty#1\endcsname}}}}

```

\cmdtxtall ... to do!

- \cmdtxtall{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
\txtxtNewCmd{Name}[sub][sup][Ext] = NAME^{SUB}EXT
\txxtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAME^{SUB}EXT1(ARG)EXT2
\txtoargNewCmd{Name}[sub][sup][Arg] = NAME^{SUB}(ARG)
\txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NAME^{SUB}EXT1[PAR]EXT2
\txtoparNewCmd{Name}[sub][sup][Par] = NAME^{SUB}[PAR]

```

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

```

```

409 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

\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]

```

410 \DeclareRobustCommand{\usrtxt}[4][4=]
411   {\csdef{#1#2}%
412     {\protect\ifexclavar%
413       {\csname txt#3\endcsname!\defval{#4}{#1}}}%
414     {\csname txt#3\endcsname{\defval{#4}{#1}}}}}

```

```

415 %*****%
416 %*****%
417 %** Math Meta Commands *****%
418 %*****%

```

`\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"`

```

419 \DeclareRobustCommand{\newmth}
420 {\ifexclavar{\@snewmth}{\@newmth}}
421 \DeclareRobustCommandx{\@newmth}[5][1=, 3=, 4=, 5=]
422 {\ensuremath{\csname#1\endcsname{#2}\mthsubsup{#3}{#4}{#5}}}
423 \DeclareRobustCommandx{\@snewmth}[5][1=, 3=, 4=, 5=]
424 {\ensuremath{\csname#1\endcsname #2\mthsubsup{#3}{#4}{#5}}}

```

`\newmthsty ... to do!`

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

```

425 \DeclareRobustCommand{\newmthsty}
426 {\ifexclavar{\@snewmthsty}{\@newmthsty}}
427 \DeclareRobustCommandx{\@newmthsty}[2][2=]
428 {\newmth[\defval{#2}{#1}]}
429 \DeclareRobustCommandx{\@snewmthsty}[2][2=]
430 {\newmth![\defval{#2}{#1}]}

```

`\newmtharg ... to do!`

- `\newmtharg{mathrm}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "NamesupsubExt1(ArgExEx)Ext2"`
- `\newmtharg[mathsf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "NamesupsubExt1(ArgExEx)Ext2"`
- `\newmtharg[mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "NamesupsubExt1(ArgExEx)Ext2"`
- `\newmtharg![mathrm]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "NamesupsubExt1(ArgExEx)Ext2"`
- `\newmtharg![mathsf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "NamesupsubExt1(ArgExEx)Ext2"`
- `\newmtharg![mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "NamesupsubExt1(ArgExEx)Ext2"`

```

431 \DeclareRobustCommand{\newmtharg}
432 {\ifexclavar{\@snewmtharg}{\@newmtharg}}
433 \DeclareRobustCommandx{\@newmtharg}[7][1=, 3=, 4=, 5=, 7=]
434 {\newmth{#1}{#2}{#3}{#4}[\argmid{#5}{\left}{\right)}\arglef{!}{#7}]}
435 \DeclareRobustCommandx{\@snewmtharg}[7][1=, 3=, 4=, 5=, 7=]
436 {\newmth{#1}{#2}{#3}{#4}[\argmid{#5}{#6}{#7}]}

```

`\newmthargsty ... to do!`

- `\newmthargsty{mathrm}{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "NamesupsubExt1(ArgExEx)Ext2"`
- `\newmthargsty{mathrm}[mathsf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "NamesupsubExt1(ArgExEx)Ext2"`
- `\newmthargsty{mathrm}[mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "NamesupsubExt1(ArgExEx)Ext2"`

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

```

437 \DeclareRobustCommand{\newmthargsty}
438   {\ifexclavar{\@snewmthargsty}{\@newmthargsty}}
439 \DeclareRobustCommandx{\@newmthargsty}[2][2=]
440   {\newmtharg[\defval{#2}{#1}]}
441 \DeclareRobustCommandx{\@snewmthargsty}[2][2=]
442   {\newmtharg![\defval{#2}{#1}]}

```

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

- $\backslash\mathrm{newmthoarg}[\mathrm{mathrm}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$
- $\backslash\mathrm{newmthoarg}[\mathrm{mathsf}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$
- $\backslash\mathrm{newmthoarg}[\mathrm{mathtt}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$
- $\backslash\mathrm{newmthoarg}!\{\mathrm{mathrm}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$
- $\backslash\mathrm{newmthoarg}!\{\mathrm{mathsf}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$
- $\backslash\mathrm{newmthoarg}!\{\mathrm{mathtt}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$

```

443 \DeclareRobustCommand{\newmthoarg}
444   {\ifexclavar{\@snewmthoarg}{\@newmthoarg}}
445 \DeclareRobustCommandx{\@newmthoarg}[5][1=, 3=, 4=, 5=]
446   {\newmtharg[#1]{#2}[#3][#4][\{#5\}]}
447 \DeclareRobustCommandx{\@snewmthoarg}[5][1=, 3=, 4=, 5=]
448   {\newmtharg![#1]{#2}[#3][#4][\{#5\}]}

```

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

- $\backslash\mathrm{newmthoargsty}\{\mathrm{mathrm}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$
- $\backslash\mathrm{newmthoargsty}\{\mathrm{mathrm}\}[\mathrm{mathsf}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$
- $\backslash\mathrm{newmthoargsty}\{\mathrm{mathrm}\}[\mathrm{mathtt}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$
- $\backslash\mathrm{newmthoargsty}!\{\mathrm{mathrm}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$
- $\backslash\mathrm{newmthoargsty}!\{\mathrm{mathrm}\}[\mathrm{mathsf}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$
- $\backslash\mathrm{newmthoargsty}!\{\mathrm{mathrm}\}[\mathrm{mathtt}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}] = \text{“Name}_{sub}^{sup}(Arg^{Ex^{Ex}})\text{”}$

```

449 \DeclareRobustCommand{\newmthoargsty}
450   {\ifexclavar{\@snewmthoargsty}{\@newmthoargsty}}
451 \DeclareRobustCommandx{\@newmthoargsty}[2][2=]
452   {\newmthoarg[\defval{#2}{#1}]}
453 \DeclareRobustCommandx{\@snewmthoargsty}[2][2=]
454   {\newmthoarg![\defval{#2}{#1}]}

```

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

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

```

455 \DeclareRobustCommand{\newmthpar}
456   {\ifexclavar{\@snewmthpar}{\@newmthpar}}
457 \DeclareRobustCommandx{\@newmthpar}[7][1=, 3=, 4=, 5=, 7=]
458   {\newmth[#1]{#2}{#3}{#4}[\argmid{#5}\!\left[\right]\!\arglef{\!}{\!}{#7}]}
459 \DeclareRobustCommandx{\@snewmthpar}[7][1=, 3=, 4=, 5=, 7=]
460   {\newmth[#1]{#2}{#3}{#4}[\argmid{#5}{\!}{#6}{\!}{#7}]}

```

\newmthparsty ... to do!

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

```

461 \DeclareRobustCommand{\newmthparsty}
462   {\ifexclavar{\@snewmthparsty}{\@newmthparsty}}
463 \DeclareRobustCommandx{\@newmthparsty}[2][2=]
464   {\newmthpar[\defval{#2}{#1}]}
465 \DeclareRobustCommandx{\@snewmthparsty}[2][2=]
466   {\newmthpar![\defval{#2}{#1}]}

```

\newmthopar ... to do!

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

```

467 \DeclareRobustCommand{\newmthopar}
468   {\ifexclavar{\@snewmthopar}{\@newmthopar}}
469 \DeclareRobustCommandx{\@newmthopar}[5][1=, 3=, 4=, 5=]
470   {\newmthpar[#1]{#2}{#3}{#4}[\!]{#5}[\!]}
471 \DeclareRobustCommandx{\@snewmthopar}[5][1=, 3=, 4=, 5=]
472   {\newmthpar![#1]{#2}{#3}{#4}[\!]{#5}[\!]}

```

\newmthoparsty ... to do!

- $\newmthoparsty{\mathrm}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] = \text{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\left[Par^{Ex^{Ex}}\right]\text{”}$
- $\newmthoparsty{\mathrm}{mathsf}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] = \text{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\left[Par^{Ex^{Ex}}\right]\text{”}$
- $\newmthoparsty{\mathrm}{mathtt}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] = \text{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\left[Par^{Ex^{Ex}}\right]\text{”}$
- $\newmthoparsty!\mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] = \text{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\left[Par^{Ex^{Ex}}\right]\text{”}$
- $\newmthoparsty!\mathrm{mathsf}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] = \text{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\left[Par^{Ex^{Ex}}\right]\text{”}$
- $\newmthoparsty!\mathrm{mathtt}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] = \text{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\left[Par^{Ex^{Ex}}\right]\text{”}$

```

473 \DeclareRobustCommand{\newmthoparsty}
474   {\ifexclavar{\@snewmthoparsty}{\@newmthoparsty}}
475 \DeclareRobustCommandx{\@newmthoparsty}[2][2=]
476   {\newmthopar[\defval{#2}{#1}]}
477 \DeclareRobustCommandx{\@snewmthoparsty}[2][2=]
478   {\newmthopar![\defval{#2}{#1}]}

```

`\mthsubsup ... to do!`

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

481 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

`\mth ... to do!`

```
• \mth{Name}[sub][sup][Ext] = "Name_{sub}^{sup}Ext"
• \mth[\mathbf]{Name}[sub][sup][Ext] = "\mathbf{Name}_{sub}^{sup}Ext"
• \mth[\mathtt]{Name}[sub][sup][Ext] = "\mathtt{Name}_{sub}^{sup}Ext"
• \mth!\{Name}[sub][sup][Ext] = "Name_{sub}^{sup}Ext"
• \mth!\[\mathbf]{Name}[sub][sup][Ext] = "\mathbf{Name}_{sub}^{sup}Ext"
• \mth!\[\mathtt]{Name}[sub][sup][Ext] = "\mathtt{Name}_{sub}^{sup}Ext"

482 \DeclareRobustCommand{\mth}
483   {\ifexclavar{\newmthsty}{\mthsty}}{\newmthsty{\mthsty}}}
```

`\mtharg ... to do!`

```
• \mtharg{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2"
• \mtharg[\mathbf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "\mathbf{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2"
• \mtharg[\mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "\mathtt{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2"
• \mtharg!\{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2"
• \mtharg!\[\mathbf]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "\mathbf{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2"
• \mtharg!\[\mathtt]{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = "\mathtt{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2"

484 \DeclareRobustCommand{\mtharg}
485   {\ifexclavar{\newmthargsty}{\mthsty}}{\newmthargsty{\mthsty}}}
```

`\mthoarg ... to do!`

```
• \mthoarg{Name}[sub][sup][Arg^{Ex^{Ex}}] = "Name_{sub}^{sup}(Arg^{Ex^{Ex}})"
• \mthoarg[\mathbf]{Name}[sub][sup][Arg^{Ex^{Ex}}] = "\mathbf{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})"
• \mthoarg[\mathtt]{Name}[sub][sup][Arg^{Ex^{Ex}}] = "\mathtt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})"
• \mthoarg!\{Name}[sub][sup][Arg^{Ex^{Ex}}] = "Name_{sub}^{sup}(Arg^{Ex^{Ex}})"
• \mthoarg!\[\mathbf]{Name}[sub][sup][Arg^{Ex^{Ex}}] = "\mathbf{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})"
• \mthoarg!\[\mathtt]{Name}[sub][sup][Arg^{Ex^{Ex}}] = "\mathtt{Name}_{sub}^{sup}(Arg^{Ex^{Ex}})"

486 \DeclareRobustCommand{\mthoarg}
487   {\ifexclavar{\newmthoargsty}{\mthsty}}{\newmthoargsty{\mthsty}}}
```

`\mthpar ... to do!`

```
• \mthpar{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = "Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2"
• \mthpar[\mathbf]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = "\mathbf{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2"
• \mthpar[\mathtt]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = "\mathtt{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2"
• \mthpar!\{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = "Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2"
• \mthpar!\[\mathbf]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = "\mathbf{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2"
• \mthpar!\[\mathtt]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = "\mathtt{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2"

488 \DeclareRobustCommand{\mthpar}
489   {\ifexclavar{\newmthparsty}{\mthsty}}{\newmthparsty{\mthsty}}}
```

`\mthopar ... to do!`

- $\text{\mthopar}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}^{\text{Ex}\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}^{\text{Ex}\text{Ex}}]$
- $\text{\mthopar}\{\textbf{Name}\}[\text{sub}][\text{sup}][\text{Par}^{\text{Ex}\text{Ex}}] = \textbf{Name}_{\text{sub}}^{\text{sup}}[\text{Par}^{\text{Ex}\text{Ex}}]$
- $\text{\mthopar}\{\text{mathtt Name}\}[\text{sub}][\text{sup}][\text{Par}^{\text{Ex}\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}^{\text{Ex}\text{Ex}}]$
- $\text{\mthopar!}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}^{\text{Ex}\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}^{\text{Ex}\text{Ex}}]$
- $\text{\mthopar!}\{\textbf{Name}\}[\text{sub}][\text{sup}][\text{Par}^{\text{Ex}\text{Ex}}] = \textbf{Name}_{\text{sub}}^{\text{sup}}[\text{Par}^{\text{Ex}\text{Ex}}]$
- $\text{\mthopar!}\{\text{mathtt Name}\}[\text{sub}][\text{sup}][\text{Par}^{\text{Ex}\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}^{\text{Ex}\text{Ex}}]$

490 \DeclareRobustCommand{\mthopar}

491 {\ifexclavar{\newmthoparsty!\mthsty}}{\newmthoparsty{\mthsty}}}

\mthsty ... to do!

492 \def\mthsty

493 {}

494 %*****%

\cmdmth ... to do!

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

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

\mthNewCmd!{Name}[sub][sup][Ext] = Name_{sub}^{sup}Ext

495 \DeclareRobustCommand{\cmdmth}[1]

496 {\csdef{mth#1}%

497 {\protect\ifexclavar{\newmthsty!\mthsty#1}}{\newmthsty{\mthsty#1}}}

\cmdmtharg ... to do!

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

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

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

498 \DeclareRobustCommand{\cmdmtharg}[1]

499 {\csdef{mtharg#1}%

500 {\protect\ifexclavar{\newmthargsty!\mthsty#1}}{\newmthargsty{\mthsty#1}}}

\cmdmthoarg ... to do!

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

\mthoargNewCmd{Name}[sub][sup][Arg^{Ex}Ex}} = Name_{sub}^{sup}(Arg^{Ex}Ex)

\mthoargNewCmd!{Name}[sub][sup][Arg^{Ex}Ex}} = Name_{sub}^{sup}(Arg^{Ex}Ex)

501 \DeclareRobustCommand{\cmdmthoarg}[1]

502 {\csdef{mthoarg#1}%

503 {\protect\ifexclavar{\newmthoargsty!\mthsty#1}}{\newmthoargsty{\mthsty#1}}}

\cmdmthpar ... to do!

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

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

\mthparNewCmd!{Name}[sub][sup][Ext1]{Par^{Ex}Ex}}[Ext2] = Name_{sub}^{sup}Ext1[Par^{Ex}Ex]Ext2

504 \DeclareRobustCommand{\cmdmthpar}[1]

505 {\csdef{mthpar#1}%

506 {\protect\ifexclavar{\newmthparsty!\mthsty#1}}{\newmthparsty{\mthsty#1}}}

\cmdmthopar ... to do!

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

\mthoparNewCmd{Name}[sub][sup][Par^{Ex}Ex}} = Name_{sub}^{sup}[Par^{Ex}Ex]

\mthoparNewCmd!{Name}[sub][sup][Par^{Ex}Ex}} = Name_{sub}^{sup}[Par^{Ex}Ex]

507 \DeclareRobustCommand{\cmdmthopar}[1]

508 {\csdef{mthopar#1}%

509 {\protect\ifexclavar{\newmthoparsty!\mthsty#1}}{\newmthoparsty{\mthsty#1}}}

\cmdmthall ... to do!

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

```

510 \DeclareRobustCommand{\cmdmthall}[1]
511   {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#1}}

512 %%*****

```

\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}}]

```

513 \DeclareRobustCommandx{\usrmth}[4][4=]
514   {\csdef{#1#2}%
515     {\protect\ifexclavar%
516       {\csname mth#3\endcsname!\defval{#4}{#1}}}%
517     {\csname mth#3\endcsname{\defval{#4}{#1}}}}

518 %%*****

```

\usrmthlatlow ... to do!

```

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

```

\usrmthlatupp ... to do!

```

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

```

\usrmthlatlet ... to do!

```

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

```

```

\usrmthgrklow ... to do!
525 \DeclareRobustCommandx{\usrmthgrklow}[4][4=]
526   {\usrmth{#1}{#2}{#3}[#4]\seqofgrklow{#1#2}{mth#3}}

\usrmthgrkupp ... to do!
527 \DeclareRobustCommandx{\usrmthgrkupp}[4][4=]
528   {\usrmth{#1}{#2}{#3}[#4]\seqofgrkupp{#1#2}{mth#3}}

\usrmthgrklet ... to do!
529 \DeclareRobustCommandx{\usrmthgrklet}[4][4=]
530   {\usrmth{#1}{#2}{#3}[#4]\seqofgrklet{#1#2}{mth#3}}

\usrmthlow ... to do!
531 \DeclareRobustCommandx{\usrmthlow}[4][4=]
532   {\usrmth{#1}{#2}{#3}[#4]\seqoflow{#1#2}{mth#3}}

\usrmthupp ... to do!
533 \DeclareRobustCommandx{\usrmthupp}[4][4=]
534   {\usrmth{#1}{#2}{#3}[#4]\seqofupp{#1#2}{mth#3}}

\usrmthlet ... to do!
535 \DeclareRobustCommandx{\usrmthlet}[4][4=]
536   {\usrmth{#1}{#2}{#3}[#4]\seqoflet{#1#2}{mth#3}}

537 %%*****%
538 %%*****%
539 %%** Text Macro Generators *****%
540 %%*****%
541 \iftxtgen@

\txtdef ... to do!
\txtargetdef • \txtdef{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
\txtpardef • \txtargetdef{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
• \txtpardef{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 

542 %% Style for Definitions
543 \cmdtxtall{def}
544 \DeclareRobustCommand{\txtstydef}{\normalfont\bfseries\em}

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

545 \DeclareRobustCommandx{\cmdtxtdef}[2][2=]
546   {\usrtxt{#1}{def}[#2]}

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

547 \DeclareRobustCommandx{\cmdtxttargetdef}[2][2=]
548   {\usrtxt{#1}{argdef}[#2]}

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

```

```

549 \DeclareRobustCommandx{\cmdtxttoargdef}[2][2=]
550   {\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] =  $newName_{sub}^{sub}ext1[par]ext2$ 
551 \DeclareRobustCommandx{\cmdtxtpardef}[2][2=]
552   {\usrtxt{#1}{\pardef}[#2]}

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

\txtabr ... to do!
\txtgabr
\txtparabr
  • \txtabr{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
  • \txtgabr{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
  • \txtparabr{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
555 %% Style for Abbreviations
556 \cmdtxtall{abr}
557 \DeclareRobustCommand{\txtstyabr}{\em}

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

\cmdtxtgabr ... to do!
  • \cmdtxtgabr{cmdName};
    \cmdName[sub][sub][ext1]{arg}[ext2] =  $cmdName_{sub}^{sub}ext1(arg)ext2$ 
  • \cmdtxtgabr{cmdName}[newName];
    \cmdName[sub][sub][ext1]{arg}[ext2] =  $newName_{sub}^{sub}ext1(arg)ext2$ 
560 \DeclareRobustCommandx{\cmdtxtgabr}[2][2=]
561   {\usrtxt{#1}{\argabr}[#2]}

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

\cmdtxtparabr ... to do!
  • \cmdtxtparabr{cmdName};
    \cmdName[sub][sub][ext1]{par}[ext2] =  $cmdName_{sub}^{sub}ext1[par]ext2$ 
  • \cmdtxtparabr{cmdName}[newName];
    \cmdName[sub][sub][ext1]{par}[ext2] =  $newName_{sub}^{sub}ext1[par]ext2$ 

```

```

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

\cmdtxtoparabr ... to do!
  • \cmdtxtoparabr{cmdName};
    \cmdName[sub][sub][par] =  $\text{cmdName}_{\text{sub}}^{\text{sub}}[\text{par}]$ 
  • \cmdtxtoparabr{cmdName}[newName];
    \cmdName[sub][sub][par] =  $\text{newName}_{\text{sub}}^{\text{sub}}[\text{par}]$ 
566 \DeclareRobustCommandx{\cmdtxtoparabr}[2][2=]
567   {\usrtxt{#1}{\oparabr}[#2]}

568 %%*****%

\txtname ... to do!
\txxtargname  • \txtname{Name}[sub][sup][Ext] =  $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$ 
\txxtparname  • \txxtargname{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}(\text{ARG})\text{EXT2}$ 
               • \txxtparname{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}[\text{PAR}]\text{EXT2}$ 
569 %% Style for Names
570 \cmdtxtall{name}
571 \DeclareRobustCommand{\txtstynome}{\normalfont\mdseries\scshape\sffamily}

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

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

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

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

\cmdtxtoparname ... to do!
  • \cmdtxtoparname{cmdName};
    \cmdName[sub][sub][par] =  $\text{CMDNAME}_{\text{SUB}}^{\text{SUB}}[\text{PAR}]$ 
  • \cmdtxtoparname{cmdName}[newName];
    \cmdName[sub][sub][par] =  $\text{NEWNAME}_{\text{SUB}}^{\text{SUB}}[\text{PAR}]$ 

```

```

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

\txtcom ... to do!
\txtargetcom
\txtparcom
    • \txtcom{Name}[sub][sup][Ext] = NAMESUBEXT
    • \txtargetcom{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBEXT1(ARG)EXT2
    • \txtparcom{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUBEXT1[PAR]EXT2

582 %% Style for Complexities
583 \cmdtxtall{com}
584 \DeclareRobustCommand{\txtstycom}{\normalfont\mdseries\scshape\rmfamily}

\cmdtxtcom ... to do!
    • \cmdtxtcom{cmdName};
      \cmdName[sub][sub][ext] = CMDNAMESUBEXT
    • \cmdtxtcom{cmdName}[newName];
      \cmdName[sub][sub][ext] = NEWNAMESUBEXT
585 \DeclareRobustCommandx{\cmdtxtcom}[2][2=]
586   {\usrtxt{#1}{\{com}[#2]}

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

\cmdtxtoargcom ... to do!
    • \cmdtxtoargcom{cmdName};
      \cmdName[sub][sub][arg] = CMDNAMESUB(ARG)
    • \cmdtxtoargcom{cmdName}[newName];
      \cmdName[sub][sub][arg] = NEWNAMESUB(ARG)
589 \DeclareRobustCommandx{\cmdtxtoargcom}[2][2=]
590   {\usrtxt{#1}{\{oargcom}[#2]}

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

\cmdtxttoparcom ... to do!
    • \cmdtxttoparcom{cmdName};
      \cmdName[sub][sub][par] = CMDNAMESUB[PAR]
    • \cmdtxttoparcom{cmdName}[newName];
      \cmdName[sub][sub][par] = NEWNAMESUB[PAR]
593 \DeclareRobustCommandx{\cmdtxttoparcom}[2][2=]
594   {\usrtxt{#1}{\{oparcom}[#2]}

595 \fi
596 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
597 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
598 %** Math Macro Generators %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
599 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
600 \ifmthgen@

```

```

\mthname ... to do!
\mthargname • \mthname{NAME}[sub][sup][Ext] =  $\mathcal{NAM}\mathcal{E}_{sub}^{sup}Ext$ 
\mthparname • \mthargname{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAM}\mathcal{E}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
• \mthargname!{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAM}\mathcal{E}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$ 
• \mthparname{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAM}\mathcal{E}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
• \mthparname!{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAM}\mathcal{E}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$ 
601 %% Style for Names
602 \cmdmthall{name}
603 \DeclareRobustCommand{\mthstname}{\mathcal}

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

\cmdmthname ... to do!
• \cmdmthname{CMDNAME};
\CMDNAMEName[sub][sub][ext] =  $\mathcal{CMDN}\mathcal{AM}\mathcal{E}_{sub}^{sub}ext$ 
• \cmdmthname{cmdName}[NEWNAME];
\cmdNameName[sub][sub][ext] =  $\mathcal{NEN}\mathcal{AM}\mathcal{E}_{sub}^{sub}ext$ 
605 \DeclareRobustCommandx{\cmdmthname}[2][2=]
606 {\usrmth{#1}{Name}{name}[#2]}

\cmdmthargname ... to do!
• \cmdmthargname{CMDNAME};
\CMDNAMEName[sub][sub][ext1]{arg}[ext2] =  $\mathcal{CMDN}\mathcal{AM}\mathcal{E}_{sub}^{sub}ext1(arg)ext2$ 
• \cmdmthargname{cmdName}[NEWNAME];
\cmdNameName[sub][sub][ext1]{arg}[ext2] =  $\mathcal{NEN}\mathcal{AM}\mathcal{E}_{sub}^{sub}ext1(arg)ext2$ 
607 \DeclareRobustCommandx{\cmdmthargname}[2][2=]
608 {\usrmth{#1}{Name}{argname}[#2]}

\cmdmthoargname ... to do!
• \cmdmthoargname{CMDNAME};
\CMDNAMEName[sub][sub][arg] =  $\mathcal{CMDN}\mathcal{AM}\mathcal{E}_{sub}^{sub}(arg)$ 
• \cmdmthoargname{cmdName}[NEWNAME];
\cmdNameName[sub][sub][arg] =  $\mathcal{NEN}\mathcal{AM}\mathcal{E}_{sub}^{sub}(arg)$ 
609 \DeclareRobustCommandx{\cmdmthoargname}[2][2=]
610 {\usrmth{#1}{Name}{oargname}[#2]}

\cmdmthparname ... to do!
• \cmdmthparname{CMDNAME};
\CMDNAMEName[sub][sub][ext1]{par}[ext2] =  $\mathcal{CMDN}\mathcal{AM}\mathcal{E}_{sub}^{sub}ext1[par]ext2$ 
• \cmdmthparname{cmdName}[NEWNAME];
\cmdNameName[sub][sub][ext1]{par}[ext2] =  $\mathcal{NEN}\mathcal{AM}\mathcal{E}_{sub}^{sub}ext1[par]ext2$ 
611 \DeclareRobustCommandx{\cmdmthparname}[2][2=]
612 {\usrmth{#1}{Name}{parname}[#2]}

\cmdmthoparname ... to do!
• \cmdmthoparname{CMDNAME};
\CMDNAMEName[sub][sub][par] =  $\mathcal{CMDN}\mathcal{AM}\mathcal{E}_{sub}^{sub}[par]$ 
• \cmdmthoparname{cmdName}[NEWNAME];
\cmdNameName[sub][sub][par] =  $\mathcal{NEN}\mathcal{AM}\mathcal{E}_{sub}^{sub}[par]$ 
613 \DeclareRobustCommandx{\cmdmthoparname}[2][2=]
614 {\usrmth{#1}{Name}{oparname}[#2]}

\mthfam ... to do!
\mthargfam
\mthparfam

```

- $\backslash\mathrm{mthfam}\{\mathrm{NAME}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$
- $\backslash\mathrm{mthargfam}\{\mathrm{NAME}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\left(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\right)\mathrm{Ext2}$
- $\backslash\mathrm{mthargfam!}\{\mathrm{NAME}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}$
- $\backslash\mathrm{mthparfam}\{\mathrm{NAME}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\left[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\right]\mathrm{Ext2}$
- $\backslash\mathrm{mthparfam!}\{\mathrm{NAME}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}]\mathrm{Ext2}$

615 %% Style for Families

616 $\backslash\mathrm{cmdmthall}\{\mathrm{fam}\}$

617 $\backslash\mathrm{DeclareRobustCommand}\{\mathrm{mthstyfam}\}\{\mathrm{mathscr}\}$

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

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

618 $\backslash\mathrm{seqoflatupp}\{\mathrm{Fam}\}\{\mathrm{mthfam}\}$

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

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

619 $\backslash\mathrm{DeclareRobustCommandx}\{\mathrm{cmdmthfam}\}[2][2=]$

620 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Fam}\}\{\mathrm{fam}\}[\#2]\}$

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

- $\backslash\mathrm{cmdmthargfam}\{\mathrm{CMDNAME}\};$
 $\backslash\mathrm{CMDNAMEFam}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathcal{CMDNAME}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}(\mathrm{arg})\mathrm{ext2}$
- $\backslash\mathrm{cmdmthargfam}\{\mathrm{cmdName}\}[\mathrm{NEWNAME}];$
 $\backslash\mathrm{cmdNameFam}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathcal{NEWNAME}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}(\mathrm{arg})\mathrm{ext2}$

621 $\backslash\mathrm{DeclareRobustCommandx}\{\mathrm{cmdmthargfam}\}[2][2=]$

622 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Fam}\}\{\mathrm{argfam}\}[\#2]\}$

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

- $\backslash\mathrm{cmdmthoargfam}\{\mathrm{CMDNAME}\};$
 $\backslash\mathrm{CMDNAMEFam}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathcal{CMDNAME}_{\mathrm{sub}}^{\mathrm{sub}}(\mathrm{arg})$
- $\backslash\mathrm{cmdmthoargfam}\{\mathrm{cmdFam}\}[\mathrm{NEWNAME}];$
 $\backslash\mathrm{cmdFamFam}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathcal{NEWNAME}_{\mathrm{sub}}^{\mathrm{sub}}(\mathrm{arg})$

623 $\backslash\mathrm{DeclareRobustCommandx}\{\mathrm{cmdmthoargfam}\}[2][2=]$

624 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Fam}\}\{\mathrm{oargfam}\}[\#2]\}$

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

- $\backslash\mathrm{cmdmthparfam}\{\mathrm{CMDNAME}\};$
 $\backslash\mathrm{CMDNAMEFam}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{par}\}[\mathrm{ext2}] = \mathcal{CMDNAME}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}[\mathrm{par}]\mathrm{ext2}$
- $\backslash\mathrm{cmdmthparfam}\{\mathrm{cmdName}\}[\mathrm{NEWNAME}];$
 $\backslash\mathrm{cmdNameFam}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{par}\}[\mathrm{ext2}] = \mathcal{NEWNAME}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}[\mathrm{par}]\mathrm{ext2}$

625 $\backslash\mathrm{DeclareRobustCommandx}\{\mathrm{cmdmthparfam}\}[2][2=]$

626 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Fam}\}\{\mathrm{parfam}\}[\#2]\}$

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

- $\backslash\mathrm{cmdmthoparfam}\{\mathrm{CMDNAME}\};$
 $\backslash\mathrm{CMDNAMEFam}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathcal{CMDNAME}_{\mathrm{sub}}^{\mathrm{sub}}[\mathrm{par}]$
- $\backslash\mathrm{cmdmthoparfam}\{\mathrm{cmdFam}\}[\mathrm{NEWNAME}];$
 $\backslash\mathrm{cmdFamFam}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathcal{NEWNAME}_{\mathrm{sub}}^{\mathrm{sub}}[\mathrm{par}]$

627 $\backslash\mathrm{DeclareRobustCommandx}\{\mathrm{cmdmthoparfam}\}[2][2=]$

628 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Fam}\}\{\mathrm{oparfam}\}[\#2]\}$

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

- $\backslash\mathrm{mthargcls}\{\mathrm{NAME}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$
- $\backslash\mathrm{mthparcls}\{\mathrm{NAME}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$

- $\backslash\mathrm{mthargcls}\{\mathrm{NAME}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\left(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\right)\mathrm{Ext2}$
- $\backslash\mathrm{mthargcls}!\{\mathrm{NAME}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}$
- $\backslash\mathrm{mthparcls}\{\mathrm{NAME}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\left[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\right]\mathrm{Ext2}$
- $\backslash\mathrm{mthparcls}!\{\mathrm{NAME}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}]\mathrm{Ext2}$

629 %% Style for Classes

630 $\backslash\mathrm{cmdmthall}\{\mathrm{cls}\}$

631 $\backslash\mathrm{DeclareRobustCommand}\{\backslash\mathrm{mthstyccls}\}\{\backslash\mathrm{matheus}\}$

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

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

632 $\backslash\mathrm{seqoflatupp}\{\mathrm{Cls}\}\{\mathrm{mthcls}\}$

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

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

633 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthcls}\}[2][2=]$

634 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Cls}\}\{\mathrm{cls}\}\{\#2\}\}$

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

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

635 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthargcls}\}[2][2=]$

636 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Cls}\}\{\mathrm{argcls}\}\{\#2\}\}$

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

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

637 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthoargcls}\}[2][2=]$

638 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Cls}\}\{\mathrm{oargcls}\}\{\#2\}\}$

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

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

639 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthparcls}\}[2][2=]$

640 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Cls}\}\{\mathrm{parcls}\}\{\#2\}\}$

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

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

641 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthoparcls}\}[2][2=]$

642 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Cls}\}\{\mathrm{oparcls}\}\{\#2\}\}$

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

$\backslash\mathrm{mthargsig}$ • $\backslash\mathrm{mthsig}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \mathcal{ame}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$

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

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

643 %% Style for Signatures

644 $\backslash\mathrm{cmdmthall}\{\mathrm{sig}\}$

645 $\backslash\mathrm{DeclareRobustCommand}\{\backslash\mathrm{mthstysig}\}\{\backslash\mathrm{mathpzc}\}$

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

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

646 $\backslash\mathrm{seqoflatlet}\{\mathrm{Sig}\}\{\mathrm{mthsig}\}\backslash\mathrm{seqofgrklow}\{\mathrm{Sig}\}\{\mathrm{mthsig}\}$

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

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

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

647 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthsig}\}[2][2=]$

648 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{sig}\}[\#2]\}$

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

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

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

649 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthargsig}\}[2][2=]$

650 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{argsig}\}[\#2]\}$

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

• $\backslash\mathrm{cmdmthoargsig}\{\mathrm{cmdName}\};$
 $\backslash\mathrm{cmdNameSig}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathrm{cmd}\mathcal{N}\mathrm{ame}_{\mathrm{sub}}^{\mathrm{sub}}(\mathrm{arg})$

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

651 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthoargsig}\}[2][2=]$

652 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{oargsig}\}[\#2]\}$

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

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

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

653 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthparsig}\}[2][2=]$

654 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{parsig}\}[\#2]\}$

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

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

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

655 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthoparsig}\}[2][2=]$

656 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{oparsig}\}[\#2]\}$

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

$\backslash\mathrm{mthargstr}$ • $\backslash\mathrm{mthstr}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \mathcal{N}\mathrm{ame}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$

$\backslash\mathrm{mthparstr}$ • $\backslash\mathrm{mthargstr}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{N}\mathrm{ame}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}$

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

671 %% Style for Sets

672 $\backslash\mathrm{cmdmthall}\{\mathrm{set}\}$

673 $\backslash\mathrm{DeclareRobustCommand}\{\backslash\mathrm{mthstyset}\}\{\backslash\mathrm{mathrm}\}$

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

$\backslash\mathrm{mthargset}$ 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

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

$\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$

A, B, Γ , Δ , E, Ξ , 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

674 $\backslash\mathrm{seqoflet}\{\mathrm{Set}\}\{\mathrm{mthset}\}$

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

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

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

675 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthset}\}[2][2=]$

676 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{set}\}\{\#2\}\}$

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

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

677 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthargset}\}[2][2=]$

678 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{argset}\}\{\#2\}\}$

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

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

679 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthoargset}\}[2][2=]$

680 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{oargset}\}\{\#2\}\}$

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

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

681 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthparset}\}[2][2=]$

682 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{parset}\}\{\#2\}\}$

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

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

683 $\backslash\mathrm{DeclareRobustCommandx}\{\backslash\mathrm{cmdmthoparset}\}[2][2=]$

684 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{oparset}\}\{\#2\}\}$

```

\cmdmthsetext ... to do!
685 \DeclareRobustCommandx{\cmdmthsetext}[3][2=, 3=]
686   {\cmdmthset{#1}[#2]\caselower[q]{#1}%
687    \usrmthlet{\thestring}{Sym}{sym}
688    [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}}%
689    \usrmthlet{\thestring}{Elm}{elm}
690    [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}}]

\mthrel ... to do!
\mthargrel
\mthparrel
• \mthrel{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
• \mthargrel{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$ 
• \mthargrel!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$ 
• \mthparrel{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$ 
• \mthparrel!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$ 
691 %% Style for Relations
692 \cmdmthall{rel}
693 \DeclareRobustCommand{\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,  $\Gamma, \Delta, E, Z, H, \Theta, \Theta, I, K, K, A, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, \Upsilon, \Phi, \Phi, X, \Psi, \Omega$ 
694 \seqoflet{Rel}{mthrel}

\cmdmthrel ... to do!
• \cmdmthrel{cmdName};
  \cmdNameRel[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
• \cmdmthrel{cmdName}[NewName];
  \cmdNameRel[sub][sub][ext] =  $NewName_{sub}^{sub}ext$ 
695 \DeclareRobustCommandx{\cmdmthrel}[2][2=]
696   {\usrmth{#1}{Rel}{rel}[#2]}

\cmdmthargrel ... to do!
• \cmdmthargrel{cmdName};
  \cmdNameRel[sub][sub][ext1]{arg}[ext2] =  $cmdName_{sub}^{sub}ext1(arg)ext2$ 
• \cmdmthargrel{cmdName}[NewName];
  \cmdNameRel[sub][sub][ext1]{arg}[ext2] =  $NewName_{sub}^{sub}ext1(arg)ext2$ 
697 \DeclareRobustCommandx{\cmdmthargrel}[2][2=]
698   {\usrmth{#1}{Rel}{argrel}[#2]}

\cmdmthoargrel ... to do!
• \cmdmthoargrel{cmdName};
  \cmdNameRel[sub][sub][arg] =  $cmdName_{sub}^{sub}(arg)$ 
• \cmdmthoargrel{cmdRel}[NewName];
  \cmdRelRel[sub][sub][arg] =  $NewName_{sub}^{sub}(arg)$ 
699 \DeclareRobustCommandx{\cmdmthoargrel}[2][2=]
700   {\usrmth{#1}{Rel}{oargrel}[#2]}

\cmdmthparrel ... to do!
• \cmdmthparrel{cmdName};
  \cmdNameRel[sub][sub][ext1]{par}[ext2] =  $cmdName_{sub}^{sub}ext1[par]ext2$ 
• \cmdmthparrel{cmdName}[NewName];
  \cmdNameRel[sub][sub][ext1]{par}[ext2] =  $NewName_{sub}^{sub}ext1[par]ext2$ 
701 \DeclareRobustCommandx{\cmdmthparrel}[2][2=]
702   {\usrmth{#1}{Rel}{parrel}[#2]}

```

```

\cmdmthoparrel ... to do!
    • \cmdmthoparrel{cmdName};
      \cmdNameRel[sub][sub][par] = cmdNamesub[par]
    • \cmdmthoparrel{cmdRel}[NewName];
      \cmdRelRel[sub][sub][par] = NewNamesub[par]
703 \DeclareRobustCommandx{\cmdmthoparrel}[2][2=]
704   {\usrmth{#1}{Rel}{oparrel}{#2}}

\mthfun ... to do!
\mthargfun
\mthparfun
    • \mthfun{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargfun{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
    • \mthargfun!{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
    • \mthparfun{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
    • \mthparfun!{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
705 %% Style for Functions
706 \cmdmthall{fun}
707 \DeclareRobustCommand{\mthstyfun}{\mathsf}

\afun ... to do!
... a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ε, ζ, η, θ, 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, II, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω
708 \seqoflet{Fun}{mthfun}

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

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

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

\cmdmthparfun ... to do!
    • \cmdmthparfun{cmdName};
      \cmdNameFun[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
    • \cmdmthparfun{cmdName}[NewName];
      \cmdNameFun[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
715 \DeclareRobustCommandx{\cmdmthparfun}[2][2=]
716   {\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]
717 \DeclareRobustCommandx{\cmdmthoparfun}[2][2=]
718   {\usrmth{#1}{Fun}{oparfun}{#2}}

\mthsym ... to do!
\mthargsym    • \mthsym{Name}[sub][sup][Ext] = NamesupsubExt
\mthparsym    • \mthargsym{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
               • \mthargsym!{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
               • \mthparsym{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
               • \mthparsym!{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
719 %% Style for Symbols
720 \cmdmthall{sym}
721 \DeclareRobustCommand{\mthstysym}{\mathtt}

\asym ... to do!
... a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ε, ζ, η, θ, 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, ΙΙ, Ρ, Ρ, Σ, Σ, Τ, Τ, Φ, Φ, Χ, Ψ, Ω
722 \seqoflet{Sym}{mthsym}

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

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

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

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

```

```

\cmdmthoparsym ... to do!
    • \cmdmthoparsym{cmdName};
      \cmdNameSym[sub] [sub] [par] = cmdNamesub[par]
    • \cmdmthoparsym{cmdSym}[NewName];
      \cmdSymSym[sub] [sub] [par] = NewNamesub[par]
731 \DeclareRobustCommandx{\cmdmthoparsym}[2][2=]
732   {\usrmth{#1}{Sym}{oparsym}[#2]}

\mthelm ... to do!
\mthargelm    • \mthelm{Name}[sub] [sup] [Ext] = NamesupExt
\mthparelm    • \mthargelm{Name}[sub] [sup] [Ext1]{ArgEx{Ex}}[Ext2] = NamesupExt1(ArgExExt2)Ext2
               • \mthargelm!{Name}[sub] [sup] [Ext1]{ArgEx{Ex}}[Ext2] = NamesupExt1(ArgExExt2)Ext2
               • \mthparelm{Name}[sub] [sup] [Ext1]{ParEx{Ex}}[Ext2] = NamesupExt1[ParExExt2]Ext2
               • \mthparelm!{Name}[sub] [sup] [Ext1]{ParEx{Ex}}[Ext2] = NamesupExt1[ParExExt2]Ext2
733 %% Style for Elements
734 \cmdmthall{elm}
735 \DeclareRobustCommand{\mthstyelm}{\mathnormal}

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

\cmdmthelm ... to do!
    • \cmdmthelm{cmdName};
      \cmdNameElm[sub] [sub] [ext] = cmdNamesubext
    • \cmdmthelm{cmdName}[NewName];
      \cmdNameElm[sub] [sub] [ext] = NewNamesubext
737 \DeclareRobustCommandx{\cmdmthelm}[2][2=]
738   {\usrmth{#1}{Elm}{elm}[#2]}

\cmdmthargelm ... to do!
    • \cmdmthargelm{cmdName};
      \cmdNameElm[sub] [sub] [ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2
    • \cmdmthargelm{cmdName}[NewName];
      \cmdNameElm[sub] [sub] [ext1]{arg}[ext2] = NewNamesubext1(arg)ext2
739 \DeclareRobustCommandx{\cmdmthargelm}[2][2=]
740   {\usrmth{#1}{Elm}{argelm}[#2]}

\cmdmthoargelm ... to do!
    • \cmdmthoargelm{cmdName};
      \cmdNameElm[sub] [sub] [arg] = cmdNamesub(arg)
    • \cmdmthoargelm{cmdElm}[NewName];
      \cmdElmElm[sub] [sub] [arg] = NewNamesub(arg)
741 \DeclareRobustCommandx{\cmdmthoargelm}[2][2=]
742   {\usrmth{#1}{Elm}{oargelm}[#2]}

\cmdmthparelm ... to do!
    • \cmdmthparelm{cmdName};
      \cmdNameElm[sub] [sub] [ext1]{par}[ext2] = cmdNamesubext1[par]ext2
    • \cmdmthparelm{cmdName}[NewName];
      \cmdNameElm[sub] [sub] [ext1]{par}[ext2] = NewNamesubext1[par]ext2
743 \DeclareRobustCommandx{\cmdmthparelm}[2][2=]
744   {\usrmth{#1}{Elm}{parelm}[#2]}

```



```

\cmdmthoparelm ... to do!

    • \cmdmthoparelm{cmdName};
      \cmdNameElm[sub][sub][par] = cmdNamesubsub[par]

    • \cmdmthoparelm{cmdElm}[NewName];
      \cmdElmElm[sub][sub][par] = NewNamesubsub[par]

745 \DeclareRobustCommandx{\cmdmthoparelm}[2][2=]
746   {\usrmth{#1}{Elm}{oparelm}[#2]}

747 %%*****%

```

```

\cmdmthsymelm ... to do!

    • \cmdmthsymelm{cmdName};
      \cmdNameSym[sub][sub][ext] = cmdNamesubsubext
      \cmdNameElm[sub][sub][ext] = cmdNamesubsubext

    • \cmdmthsymelm{cmdName}[NewName];
      \cmdNameSym[sub][sub][ext] = NewNamesubsubext
      \cmdNameElm[sub][sub][ext] = NewNamesubsubext

748 \DeclareRobustCommandx{\cmdmthsymelm}[2][2=]
749   {\cmdmthsym{#1}[#2]}
750   \cmdmthelm{#1}[#2]}

```

```

\cmdmthargsymelm ... to do!

    • \cmdmthargsymelm{cmdName};
      \cmdNameSym[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
      \cmdNameElm[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2

    • \cmdmthargsymelm{cmdName}[NewName];
      \cmdNameSym[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
      \cmdNameElm[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2

751 \DeclareRobustCommandx{\cmdmthargsymelm}[2][2=]
752   {\cmdmthargsym{#1}[#2]}
753   \cmdmthargelm{#1}[#2]}

```

```

\cmdmthoargsymelm ... to do!

    • \cmdmthoargsymelm{cmdName};
      \cmdNameSym[sub][sub][arg] = cmdNamesubsub(arg)
      \cmdNameElm[sub][sub][arg] = cmdNamesubsub(arg)

    • \cmdmthoargsymelm{cmdName}[NewName];
      \cmdNameSym[sub][sub][arg] = NewNamesubsub(arg)
      \cmdNameElm[sub][sub][arg] = NewNamesubsub(arg)

754 \DeclareRobustCommandx{\cmdmthoargsymelm}[2][2=]
755   {\cmdmthoargsym{#1}[#2]}
756   \cmdmthoargelm{#1}[#2]}

```

```

\cmdmthparsymelm ... to do!

    • \cmdmthparsymelm{cmdName};
      \cmdNameSym[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
      \cmdNameElm[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2

    • \cmdmthparsymelm{cmdName}[NewName];
      \cmdNameSym[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
      \cmdNameElm[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2

757 \DeclareRobustCommandx{\cmdmthparsymelm}[2][2=]
758   {\cmdmthparsym{#1}[#2]}
759   \cmdmthparelm{#1}[#2]}

```

```

\cmdmthoparsymelm ... to do!

    • \cmdmthoparsymelm{cmdName};
      \cmdNameSym[sub][sub][par] = cmdNamesubsub[par]
      \cmdNameElm[sub][sub][par] = cmdNamesubsub[par]

```

```

    • \cmdmthoparsymelm{cmdName}[NewName];
    \cmdNameSym[sub][sub][par] = NewNamesub[par]
    \cmdNameElm[sub][sub][par] = NewNamesub[par]

760 \DeclareRobustCommandx{\cmdmthoparsymelm}[2][2=]
761   {\cmdmthoparsym{#1}[#2]%
762    \cmdmthoparelm{#1}[#2]}

763 %%*****%

\mthluop ... to do!
\mthlbop
    • \mthluop{\oplus}[sub][sup][Ext] =  $\oplus_{sub}^{sup} Ext$ 
    • \mthlbop{\oplus}[sub][sup][Ext] =  $\oplus_{sub}^{sup} Ext$ 

764 %% Style for \LaTeX Operators
765 \cmdmth{luop}
766 \DeclareRobustCommand{\mthstyluop}[1]{\textstyle\mathop{#1}}
767 \cmdmth{lbop}
768 \DeclareRobustCommand{\mthstylbop}[1]{\textstyle\mathbin{#1}}

\cmdmthluop ... to do!
\cmdmthlbop
    • \cmdmthluop{cmdName};
    \cmdNameUOp[sub][sub][ext] =  $cmdName_{sub}^{sub} ext$ 
    • \cmdmthluop{cmdName}[\oplus];
    \cmdNameUOp[sub][sub][ext] =  $\oplus_{sub}^{sub} ext$ 
    • \cmdmthlbop{cmdName};
    \cmdNameBOp[sub][sub][ext] =  $cmdName_{sub}^{sub} ext$ 
    • \cmdmthlbop{cmdName}[\oplus];
    \cmdNameBOp[sub][sub][ext] =  $\oplus_{sub}^{sub} ext$ 

769 \DeclareRobustCommandx{\cmdmthluop}[2][2=]
770   {\usrmth{#1}{UOp}{luop}[#2]}
771 \DeclareRobustCommandx{\cmdmthlbop}[2][2=]
772   {\usrmth{#1}{BOp}{lbop}[#2]}

\mthlrel ... to do!
    • \mthlrel{\preceq}[sub][sup][Ext] =  $\preceq_{sub}^{sup} Ext$ 

773 %% Style for \LaTeX Relations
774 \cmdmth{lrel}
775 \DeclareRobustCommand{\mthstylrel}{\mathrel}

\cmdmthlrel ... to do!
    • \cmdmthlrel{cmdName};
    \cmdNameRel[sub][sub][ext] =  $cmdName_{sub}^{sub} ext$ 
    • \cmdmthlrel{cmdName}[\preceq];
    \cmdNameRel[sub][sub][ext] =  $\preceq_{sub}^{sub} ext$ 

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

778 %%*****%

\mthsnt ... to do!
\mthargsnt
\mthparsnt
    • \mthsnt{Name}[sub][sup][Ext] =  $Name_{sub}^{sup} Ext$ 
    • \mthargsnt{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] =  $Name_{sub}^{sup} Ext1 (Arg^{Ex^{Ex}}) Ext2$ 
    • \mthargsnt!{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] =  $Name_{sub}^{sup} Ext1 (Arg^{Ex^{Ex}}) Ext2$ 
    • \mthparsnt{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] =  $Name_{sub}^{sup} Ext1 [Par^{Ex^{Ex}}] Ext2$ 
    • \mthparsnt!{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] =  $Name_{sub}^{sup} Ext1 [Par^{Ex^{Ex}}] Ext2$ 

779 %% Style for Sentences
780 \cmdmthall{snt}
781 \DeclareRobustCommand{\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,  $\Gamma, \Delta, E, Z, H, \Theta, \varnothing, I, K, \Lambda, M, N, \Xi, O, \Pi, \textit{II}, P, \Sigma, \varSigma, T, \Upsilon, \Phi, \varPhi, X, \Psi, \Omega$ 
782 \seqoflet{Snt}{mthsnt}

\cmdmthsnt ... to do!
...


- \cmdmthsnt{cmdName};
\cmdNameSnt[sub][sub][ext] = cmdNamesubext
- \cmdmthsnt{cmdName}[NewName];
\cmdNameSnt[sub][sub][ext] = NewNamesubext


783 \DeclareRobustCommandx{\cmdmthsnt}[2][2=]
784 {\usrmth{#1}{Snt}{snt}{#2}}

\cmdmthargsnt ... to do!
...


- \cmdmthargsnt{cmdName};
\cmdNameSnt[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2
- \cmdmthargsnt{cmdName}[NewName];
\cmdNameSnt[sub][sub][ext1]{arg}[ext2] = NewNamesubext1(arg)ext2


785 \DeclareRobustCommandx{\cmdmthargsnt}[2][2=]
786 {\usrmth{#1}{Snt}{argsnt}{#2}}

\cmdmthoargsnt ... to do!
...


- \cmdmthoargsnt{cmdName};
\cmdNameSnt[sub][sub][arg] = cmdNamesub(arg)
- \cmdmthoargsnt{cmdName}[NewName];
\cmdNameSnt[sub][sub][arg] = NewNamesub(arg)


787 \DeclareRobustCommandx{\cmdmthoargsnt}[2][2=]
788 {\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


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

\cmdmthoparsnt ... to do!
...


- \cmdmthoparsnt{cmdName};
\cmdNameSnt[sub][sub][par] = cmdNamesub[par]
- \cmdmthoparsnt{cmdName}[NewName];
\cmdNameSnt[sub][sub][par] = NewNamesub[par]


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

\mthfrm ... to do!
\mthargfrm
\mthparfrm
...


- \mthfrm{Name}[sub][sup][Ext] = NamesubsupExt
- \mthargfrm{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsupExt1( $Arg^{Ex^{Ex}}$ )Ext2
- \mthargfrm!{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsupExt1( $Arg^{Ex^{Ex}}$ )Ext2
- \mthparfrm{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsupExt1[ $Par^{Ex^{Ex}}$ ]Ext2
- \mthparfrm!{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsupExt1[ $Par^{Ex^{Ex}}$ ]Ext2


793 %% Style for Formulae
794 \cmdmthall{frm}
795 \DeclareRobustCommand{\mthstyfrm}{\mathit}

```

```

\afm ... 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,  $\Gamma, \Delta, E, \Xi, Z, H, \Theta, \varnothing, I, K, \Lambda, M, N, \Xi, O, \Pi, \mathbb{I}, P, \Sigma, \mathbb{T}, \Upsilon, \Phi, \Psi, \Omega$ 
796 \seqoflet{Frm}{mthfrm}

```

```

\cmdmthfrm ... to do!
• \cmdmthfrm{cmdName};
  \cmdNameFrm[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
• \cmdmthfrm{cmdName}[NewName];
  \cmdNameFrm[sub][sub][ext] =  $NewName_{sub}^{sub}ext$ 
797 \DeclareRobustCommandx{\cmdmthfrm}[2][2=]
798   {\usrmth{#1}{Frm}{frm}[#2]}

```

```

\cmdmthargfrm ... to do!
• \cmdmthargfrm{cmdName};
  \cmdNameFrm[sub][sub][ext1]{arg}[ext2] =  $cmdName_{sub}^{sub}ext1(arg)ext2$ 
• \cmdmthargfrm{cmdName}[NewName];
  \cmdNameFrm[sub][sub][ext1]{arg}[ext2] =  $NewName_{sub}^{sub}ext1(arg)ext2$ 
799 \DeclareRobustCommandx{\cmdmthargfrm}[2][2=]
800   {\usrmth{#1}{Frm}{argfrm}[#2]}

```

```

\cmdmthoargfrm ... to do!
• \cmdmthoargfrm{cmdName};
  \cmdNameFrm[sub][sub][arg] =  $cmdName_{sub}^{sub}(arg)$ 
• \cmdmthoargfrm{cmdName}[NewName];
  \cmdNameFrm[sub][sub][arg] =  $NewName_{sub}^{sub}(arg)$ 
801 \DeclareRobustCommandx{\cmdmthoargfrm}[2][2=]
802   {\usrmth{#1}{Frm}{oargfrm}[#2]}

```

```

\cmdmthparfrm ... to do!
• \cmdmthparfrm{cmdName};
  \cmdNameFrm[sub][sub][ext1]{par}[ext2] =  $cmdName_{sub}^{sub}ext1[par]ext2$ 
• \cmdmthparfrm{cmdName}[NewName];
  \cmdNameFrm[sub][sub][ext1]{par}[ext2] =  $NewName_{sub}^{sub}ext1[par]ext2$ 
803 \DeclareRobustCommandx{\cmdmthparfrm}[2][2=]
804   {\usrmth{#1}{Frm}{parfrm}[#2]}

```

```

\cmdmthoparfrm ... to do!
• \cmdmthoparfrm{cmdName};
  \cmdNameFrm[sub][sub][par] =  $cmdName_{sub}^{sub}[par]$ 
• \cmdmthoparfrm{cmdName}[NewName];
  \cmdNameFrm[sub][sub][par] =  $NewName_{sub}^{sub}[par]$ 
805 \DeclareRobustCommandx{\cmdmthoparfrm}[2][2=]
806   {\usrmth{#1}{Frm}{oparfrm}[#2]}

```

```

807 %%*****

```

```

\mthmat ... to do!
\mthargmat
\mthparmat
• \mthmat{Name}[sub][sup][Ext] =  $\mathbf{Name}_{sub}^{sup}Ext$ 
• \mthargmat{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathbf{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
• \mthargmat!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathbf{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$ 
• \mthparmat{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathbf{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
• \mthparmat!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathbf{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$ 

```

```

808 %% Style for Matrices
809 \cmdmthall{mat}
810 \DeclareRobustCommand{\mthstymat}[1]{\boldsymbol{\mathsf{#1}}}

```

\aMat ... to do!

```

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

```

\cmdmthmat ... to do!

```

• \cmdmthmat{cmdName};
  \cmdNameMat[sub][sub][ext] = cmdNamesubsubext
• \cmdmthmat{cmdName}[NewName];
  \cmdNameMat[sub][sub][ext] = NewNamesubsubext
812 \DeclareRobustCommandx{\cmdmthmat}[2][2=]
813 {\usrmth{#1}{Mat}{mat}{#2}}

```

\cmdmthargmat ... to do!

```

• \cmdmthargmat{cmdName};
  \cmdNameMat[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
• \cmdmthargmat{cmdName}[NewName];
  \cmdNameMat[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
814 \DeclareRobustCommandx{\cmdmthargmat}[2][2=]
815 {\usrmth{#1}{Mat}{argmat}{#2}}

```

\cmdmthoargmat ... to do!

```

• \cmdmthoargmat{cmdName};
  \cmdNameMat[sub][sub][arg] = cmdNamesubsub(arg)
• \cmdmthoargmat{cmdName}[NewName];
  \cmdNameMat[sub][sub][arg] = NewNamesubsub(arg)
816 \DeclareRobustCommandx{\cmdmthoargmat}[2][2=]
817 {\usrmth{#1}{Mat}{oargmat}{#2}}

```

\cmdmthparmat ... to do!

```

• \cmdmthparmat{cmdName};
  \cmdNameMat[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
• \cmdmthparmat{cmdName}[NewName];
  \cmdNameMat[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
818 \DeclareRobustCommandx{\cmdmthparmat}[2][2=]
819 {\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]
820 \DeclareRobustCommandx{\cmdmthoparmat}[2][2=]
821 {\usrmth{#1}{Mat}{oparmat}{#2}}

```

\mthvec ... to do!

```

\mthargvec • \mthvec{Name}[sub][sup][Ext] = NamesubsupExt
\mthparvec • \mthargvec{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsupExt1(Arg^{Ex^{Ex}})Ext2
• \mthargvec!{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsupExt1(Arg^{Ex^{Ex}})Ext2
• \mthparvec{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsupExt1[Par^{Ex^{Ex}}]Ext2

```

```

      • \mthparvec!{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$ 
822 %% Style for Vectors
823 \cmdmthall{vec}
824 \DeclareRobustCommand{\mthstyvec}[1]{\boldsymbol{\mathit{#1}}}

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

\cmdmthvec ... to do!
      • \cmdmthvec{cmdName};
      \cmdNameVec[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
      • \cmdmthvec{cmdName}[NewName];
      \cmdNameVec[sub][sub][ext] =  $NewName_{sub}^{sub}ext$ 
826 \DeclareRobustCommand{\cmdmthvec}[2][2=]
827   {\usrmth{#1}{Vec}{vec}[#2]}

\cmdmthargvec ... to do!
      • \cmdmthargvec{cmdName};
      \cmdNameVec[sub][sub][ext1]{arg}[ext2] =  $cmdName_{sub}^{sub}ext1(arg)ext2$ 
      • \cmdmthargvec{cmdName}[NewName];
      \cmdNameVec[sub][sub][ext1]{arg}[ext2] =  $NewName_{sub}^{sub}ext1(arg)ext2$ 
828 \DeclareRobustCommand{\cmdmthargvec}[2][2=]
829   {\usrmth{#1}{Vec}{argvec}[#2]}

\cmdmthoargvec ... to do!
      • \cmdmthoargvec{cmdName};
      \cmdNameVec[sub][sub][arg] =  $cmdName_{sub}^{sub}(arg)$ 
      • \cmdmthoargvec{cmdName}[NewName];
      \cmdNameVec[sub][sub][arg] =  $NewName_{sub}^{sub}(arg)$ 
830 \DeclareRobustCommand{\cmdmthoargvec}[2][2=]
831   {\usrmth{#1}{Vec}{oargvec}[#2]}

\cmdmthparvec ... to do!
      • \cmdmthparvec{cmdName};
      \cmdNameVec[sub][sub][ext1]{par}[ext2] =  $cmdName_{sub}^{sub}ext1[par]ext2$ 
      • \cmdmthparvec{cmdName}[NewName];
      \cmdNameVec[sub][sub][ext1]{par}[ext2] =  $NewName_{sub}^{sub}ext1[par]ext2$ 
832 \DeclareRobustCommand{\cmdmthparvec}[2][2=]
833   {\usrmth{#1}{Vec}{parvec}[#2]}

\cmdmthoparvec ... to do!
      • \cmdmthoparvec{cmdName};
      \cmdNameVec[sub][sub][par] =  $cmdName_{sub}^{sub}[par]$ 
      • \cmdmthoparvec{cmdName}[NewName];
      \cmdNameVec[sub][sub][par] =  $NewName_{sub}^{sub}[par]$ 
834 \DeclareRobustCommand{\cmdmthoparvec}[2][2=]
835   {\usrmth{#1}{Vec}{oparvec}[#2]}

836 \fi
837 %*****
838 %*****
839 %** Elementary Macros for Text *****
840 %*****
841 \iftxt@

```

```

\dotcheck      • A\dotcheck A\dotcheck.A = A.A. A
842 \newrobustcmd{\dotcheck}
843   {\@ifnextchar.{}{.\@}}

844 %** Latin Abbreviations *****%%

\ad hoc      • \ad hoc = ad hoc
845 \cmdtxtabr{ad hoc}[ad hoc]

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

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

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

\cf          • \cf = cf.
849 \cmdtxtabr{cf}[cf.\@]

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

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

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

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

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

\ergo         • \ergo = ergo
855 \cmdtxtabr{ergo}

\errata       • \errata = errata
856 \cmdtxtabr{errata}

\erratum      • \erratum = erratum
857 \cmdtxtabr{erratum}

\etal         • \etal = et al.
858 \cmdtxtabr{etal}[et al.\@]

\etc          • \etc = etc.
859 \cmdtxtabr{etc}[etc.\@]

\ie           • \ie = i.e.
860 \cmdtxtabr{ie}[i.e.\@]

\mutatismutandis • \mutatismutandis = mutatis mutandis
861 \cmdtxtabr{mutatismutandis}[mutatis mutandis]

\percontra    • \percontra = per contra
862 \cmdtxtabr{percontra}[per contra]

```

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

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

`\vs` • `\vs = vs.`
865 `\cmdtxtabr{vs}[vs.\@]`

`\viz` • `\viz = viz.`
866 `\cmdtxtabr{viz}[viz.\@]`

867 `%%*****`

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

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

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

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

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

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

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

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

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

`\Erratum` • `\Erratum = Erratum`
877 `\cmdtxtabr{Erratum}`

`\Mutatismutandis` • `\Mutatismutandis = Mutatis mutandis`
878 `\cmdtxtabr{Mutatismutandis}[Mutatis mutandis]`

`\Percontra` • `\Percontra = Per contra`
879 `\cmdtxtabr{Percontra}[Per contra]`

`\Primafacie` • `\Primafacie = Prima facie`
880 `\cmdtxtabr{Primafacie}[Prima facie]`

`\Viceversa` • `\Viceversa = Vice versa`
881 `\cmdtxtabr{Viceversa}[Vice versa]`

882 `%%** Italian Abbreviations *****`
...
883 `%%*****`


```

...
884 %** French Abbreviations *****%

\ala      • \ala = à la
885 \cmdtxtabr{ala}[\`a la]

\naif     • \naif = naïf
886 \cmdtxtabr{naif}[na\`{i}f]

\naive    • \naive = naïve
887 \cmdtxtabr{naive}[na\`{i}ve]

\role     • \role = rôle
888 \cmdtxtabr{role}[r\`{o}le]

889 %*****%

\Role     • \Role = Rôle
890 \cmdtxtabr{Role}[R\`{o}le]

891 %** English Abbreviations *****%

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

\contd    • \contd = contd.
893 \cmdtxtabr{contd}[contd.\@]

\iff      • \iff = iff
894 \cmdtxtabr{iff}

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

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

\resp     • \resp = resp.
897 \cmdtxtabr{resp}[resp.\@]

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

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

900 %*****%

\Contd    • \Contd = Contd.
901 \cmdtxtabr{Contd}[Contd.\@]

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

903 \fi
904 %*****%
905 %*****%
906 %** Elementary Macros for Math *****%
907 %*****%
908 \ifmth@

```

```

909 %** General Notation *****/

\defeq ...
\seteq 910 \DeclareRobustCommand{\defeq}
911   {\ifstarvar%
912     {\mthlbop{\stackrel{\text{\textup{def}}}{=}}}%
913     {\mthlbop{\triangleq}}}
914 \DeclareRobustCommand{\seteq}
915   {\ifstarvar{\mthlbop{\Coloneqq}}{\mthlbop{\coloneqq}}}
916 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\limp ...
\lcoimp 917 \DeclareRobustCommand{\limp}
918   {\mthlbop{\rightarrow}}
919 \DeclareRobustCommand{\lcoimp}
920   {\mthlbop{\leftrightharrow}}
921 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\implies ...
\notimplies 922 \DeclareRobustCommand{\implies}
923   {\mthlrel{\rightarrow}}
924 \DeclareRobustCommand{\notimplies}
925   {\mthlrel{\not\rightarrow}}

\implied ...
\notimplied 926 \DeclareRobustCommand{\implied}
927   {\mthlrel{\Leftarrow}}
928 \DeclareRobustCommand{\notimplied}
929   {\mthlrel{\not\Leftarrow}}

\coimplies ...
\notcoimplies 930 \DeclareRobustCommand{\coimplies}
931   {\mthlrel{\Leftrightarrow}}
932 \DeclareRobustCommand{\notcoimplies}
933   {\mthlrel{\not\Leftrightarrow}}
934 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\cmodels ...
\notcmodels 935 \DeclareRobustCommand{\cmodels}
936   {\mthlrel{\models}}
937 \DeclareRobustCommand{\notcmodels}
938   {\mthlrel{\not\models}}

\cequiv ...
\notcequiv 939 \DeclareRobustCommand{\cequiv}
940   {\mthlrel{\equiv}}
941 \DeclareRobustCommand{\notcequiv}
942   {\mthlrel{\not\equiv}}
943 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\denot ...
944 \DeclareRobustCommand{\denot}
945   {\ifexclavar{\@edenot}{\@denot}}
946 \DeclareRobustCommand{\denot}[1]
947   {\mth{\argmid{\left\llbracket}{\#1}{\right\rrbracket}}}
948 \DeclareRobustCommand{\@edenot}[1]
949   {\mth!\{\argmid{\llbracket}{\#1}{\rrbracket}}}
950 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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\dual ...
\adj 951 \DeclareRobustCommand{\dual}[1]
\der 952 {\mth{\overline{#1}}}
\trn 953 \DeclareRobustCommand{\adj}[1]
954 {\mth{\mathring{#1}}}
955 \DeclareRobustCommand{\der}[1]
956 {\mth{\widehat{#1}}}
957 \DeclareRobustCommand{\trn}[1]
958 {\mth{\widetilde{#1}}}

\vec ...
959 \DeclareRobustCommand{\vec}
960 {\ifstarvar{\@svec}{\@vec}}
961 \DeclareRobustCommand{\@vec}[1]
962 {\mth{\mathaccent"017E{#1}}}
963 \DeclareRobustCommand{\@svec}[1]
964 {\mth{\overline{#1}}}

965 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\enumeration ...
966 \DeclareRobustCommand{\enumeration}
967 {\ifstarvar{\@senumeration}{\@enumeration}}
968 \varcmd{\@enumeration}{\mth!}{,}{,}{,}{}{}
969 \varcmd{\@senumeration}{\mth!}{,}{,}{,}{}{}

\sequence ...
\sequence1 970 \DeclareRobustCommand{\sequence}
\sequencer 971 {\ifstarvar{\@ssequence}{\@sequence}}
972 \DeclareRobustCommand{\@sequence}
973 {\ifexclavar{\@e@sequence}{\@@sequence}}
974 \DeclareRobustCommand{\@ssequence}
975 {\ifexclavar{\@e@ssequence}{\@@ssequence}}
976 \varcmd{\@sequence}{\mth}{\left[}{,}{\right]}{}{}
977 \varcmd{\@e@sequence}{\mth!}{[}{,}{]}{}{}
978 \varcmd{\@@sequence}{\mth}{\left[}{,}{\right]}{}{}
979 \varcmd{\@e@ssequence}{\mth!}{[}{,}{]}{}{}
980 \DeclareRobustCommand{\sequence1}
981 {\ifstarvar{\@ssequence1}{\@sequence1}}
982 \DeclareRobustCommand{\@sequence1}
983 {\ifexclavar{\@e@sequence1}{\@@sequence1}}
984 \DeclareRobustCommand{\@ssequence1}
985 {\ifexclavar{\@e@ssequence1}{\@@ssequence1}}
986 \varcmd{\@sequence1}{\mth}{\left[}{,}{\right.]}{}{}
987 \varcmd{\@e@sequence1}{\mth!}{[}{,}{]}{}{}
988 \varcmd{\@@sequence1}{\mth}{\left[}{,}{\right.]}{}{}
989 \varcmd{\@e@ssequence1}{\mth!}{[}{,}{]}{}{}
990 \DeclareRobustCommand{\sequencer}
991 {\ifstarvar{\@ssequencer}{\@sequencer}}
992 \DeclareRobustCommand{\@sequencer}
993 {\ifexclavar{\@e@sequencer}{\@@sequencer}}
994 \DeclareRobustCommand{\@ssequencer}
995 {\ifexclavar{\@e@ssequencer}{\@@ssequencer}}
996 \varcmd{\@sequencer}{\mth}{\left.}{,}{\right]}{}{}
997 \varcmd{\@e@sequencer}{\mth!}{,}{,}{]}{}{}
998 \varcmd{\@@sequencer}{\mth}{\left.}{,}{\right]}{}{}
999 \varcmd{\@e@ssequencer}{\mth!}{,}{,}{]}{}{}

\tuple ...
\tuple1 1000 \DeclareRobustCommand{\tuple}
\tupler 1001 {\ifstarvar{\@stuple}{\@tuple}}
1002 \DeclareRobustCommand{\@tuple}
1003 {\ifexclavar{\@e@tuple}{\@@tuple}}

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1004 \DeclareRobustCommand{\@stuple}
1005   {\ifexclavar{\@e@stuple}{\@@stuple}}
1006 \varcmd{\@stuple}{\mth}{\left\langle}{,}{\right\rangle}{}
1007 \varcmd{\@e@stuple}{\mth!}{\langle}{,}{\rangle}{}
1008 \varcmd{\@stuple}{\mth}{\left\langle}{;}{\right\rangle}{}
1009 \varcmd{\@e@stuple}{\mth!}{\langle}{;}{\rangle}{}
1010 \DeclareRobustCommand{\@tuplel}
1011   {\ifstarvar{\@stuplel}{\@tuplel}}
1012 \DeclareRobustCommand{\@tuplel}
1013   {\ifexclavar{\@e@tuplel}{\@@tuplel}}
1014 \DeclareRobustCommand{\@stuplel}
1015   {\ifexclavar{\@e@stuplel}{\@@stuplel}}
1016 \varcmd{\@tuplel}{\mth}{\left\langle}{,}{\right.}{}
1017 \varcmd{\@e@tuplel}{\mth!}{\langle}{,}{\rangle}{}
1018 \varcmd{\@stuplel}{\mth}{\left\langle}{;}{\right.}{}
1019 \varcmd{\@e@stuplel}{\mth!}{\langle}{;}{\rangle}{}
1020 \DeclareRobustCommand{\@tupler}
1021   {\ifstarvar{\@stupler}{\@tupler}}
1022 \DeclareRobustCommand{\@tupler}
1023   {\ifexclavar{\@e@tupler}{\@@tupler}}
1024 \DeclareRobustCommand{\@stupler}
1025   {\ifexclavar{\@e@stupler}{\@@stupler}}
1026 \varcmd{\@tupler}{\mth}{\left.}{,}{\right\rangle}{}
1027 \varcmd{\@e@tupler}{\mth!}{\rangle}{,}{\rangle}{}
1028 \varcmd{\@stupler}{\mth}{\left.}{;}{\right\rangle}{}
1029 \varcmd{\@e@stupler}{\mth!}{\rangle}{;}{\rangle}{}
1030 %** Sets *****%

\set ...{1^2|1^2}{1^2:1^2}{1^2|1^2}{1^2:1^2}
\setl ...{1^2|1^2}
\setr ...{1^2:1^2}
...{1^2|1^2}
...{1^2:1^2}

1031 \DeclareRobustCommand{\set}
1032   {\ifstarvar{\@sset}{\@set}}
1033 \DeclareRobustCommand{\@set}
1034   {\ifexclavar{\@e@xset{\vert}}{\@@xset{\vert}}}}
1035 \DeclareRobustCommand{\@sset}
1036   {\ifexclavar{\@e@xset{\!:\!}}{\@@xset{\!:\!}}}}
1037 \DeclareRobustCommand{\@@xset}[3]
1038   {\mth{\argmid{\left\lbrace}{\argsep{#2}{\,\middle#1\,}{#3}}{\right\rbrace}}}
1039 \DeclareRobustCommand{\@e@xset}[3]
1040   {\mth!{\argmid{\lbrace}{\argsep{#2}{\,\,#1\,}{#3}}{\rbrace}}}
1041 \DeclareRobustCommand{\setl}
1042   {\ifstarvar{\@ssetl}{\@setl}}
1043 \DeclareRobustCommand{\@setl}
1044   {\ifexclavar{\@e@xsetl{\,\,\vert}}{\@@xsetl{\,\,\vert}}}}
1045 \DeclareRobustCommand{\@ssetl}
1046   {\ifexclavar{\@e@xsetl{\!:\!}}{\@@xsetl{\!:\!}}}}
1047 \DeclareRobustCommand{\@@xsetl}[2]
1048   {\mth{\argmid{\left\lbrace}{#2}{\,\,\right#1}}}}
1049 \DeclareRobustCommand{\@e@xsetl}[2]
1050   {\mth!{\argmid{\lbrace}{#2}{\,\,\,#1}}}}
1051 \DeclareRobustCommand{\setr}
1052   {\ifstarvar{\@setr}{\@setr}}
1053 \DeclareRobustCommand{\@setr}
1054   {\ifexclavar{\@e@setr}{\@@setr}}
1055 \DeclareRobustCommand{\@@setr}[1]
1056   {\mth{\argmid{\left.}{#1}{\right\rbrace}}}
1057 \DeclareRobustCommand{\@e@setr}[1]
1058   {\mth!{\argmid}{#1}{\rbrace}}}

\card ...

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1059 \DeclareRobustCommand{\card}
1060   {\ifexclavar{\@ecard}{\@card}}
1061 \DeclareRobustCommand{\@card}[1]
1062   {\mth{\argmid{\left\lvert}{\right\lvert}}{#1}{\right\lvert}}}
1063 \DeclareRobustCommand{\@ecard}[1]
1064   {\mth!\{\argmid{\left\lvert}{\right\lvert}}{#1}{\right\lvert}}}

\pow ...
1065 \DeclareRobustCommand{\pow}
1066   {\ifstarvar{\@spow}{\@pow}}
1067 \DeclareRobustCommand{\@pow}[1]
1068   {\mth{2^{\defval{#1}{\cdot}}}}
1069 \DeclareRobustCommand{\@spow}
1070   {\ifexclavar{\@e@spow}{\@@spow}}
1071 \DeclareRobustCommand{\@e@spow}[1]
1072   {\mthargfun!\mathscr{P}{\defval{#1}{\cdot}}}
1073 \DeclareRobustCommand{\@@spow}[1]
1074   {\mthargfun\mathscr{P}{\defval{#1}{\cdot}}}

1075 %%** Relations *****%%

\emptyrel ...
1076 \DeclareRobustCommand{\emptyrel}
1077   {\mth{\varnothing}}

1078 %%*****%%

\dom ...
\cod 1079 \usrmth{\dom}{\argfun}
\rng 1080 \usrmth{\cod}{\argfun}
\img 1081 \usrmth{\rng}{\argfun}
1082 \usrmth{\img}{\argfun}

\deg ...
1083 \usrmth{\deg}{\argfun}

1084 %%*****%%

\prj ...
1085 \DeclareRobustCommand{\prj}
1086   {\mth\lbp{\downarrow}}

\rst ...
1087 \DeclareRobustCommand{\rst}
1088   {\mth\lbp{\upharpoonright}}

\cmp ...
1089 \DeclareRobustCommand{\cmp}
1090   {\mth\lbp{\circ}}

1091 %%** Functions *****%%

\emptyfun ...
1092 \DeclareRobustCommand{\emptyfun}
1093   {\mth{\varnothing}}

1094 %%*****%%

\pto ...
\pmapsto 1095 \DeclareMathOperator{\pto}
1096   {\ensuremath{\rightharpoonup}}
1097 \DeclareMathOperator{\pmapsto}
1098   {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize$\llcorner$}}}%
1099     \kern-1.5ex\rightharpoonup}}

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1100 %%*****%

\fix ...
\ifp 1101 \usrmth{fix}{-}{fun}
\lfp 1102 \usrmth{ifp}{-}{fun}
\gfp 1103 \usrmth{lfp}{-}{fun}
1104 \usrmth{gfp}{-}{fun}
1105 %%*****%

\Aomega ...
\AOmega 1106 \usrmth{Aomega}{-}{argset}[\omega]
1107 \usrmth{AOmega}{-}{argset}[\Omega]

\Atheta ...
\Atheta 1108 \usrmth{Atheta}{-}{argset}[\theta]
1109 \usrmth{Atheta}{-}{argset}[\Theta]

\Aomicron ...
\AOmicron 1110 \usrmth{Aomicron}{-}{argset}[\omicron]
1111 \usrmth{AOmicron}{-}{argset}[\Omicron]
1112 %%** Numbers *****%

\SetB ...
1113 \DeclareRobustCommand{\SetB}
1114 {\mthset[mathbb]{B}}

\SetF ...
1115 \DeclareRobustCommand{\SetF}
1116 {\mthset[mathbb]{F}}

\SetN ...
\SetNI 1117 \DeclareRobustCommand{\SetN}
1118 {\mthset[mathbb]{N}}
1119 \DeclareRobustCommand{\SetNI}[1] []
1120 {\SetN[\infty #1]}

\SetZ ...
\SetZI 1121 \DeclareRobustCommand{\SetZ}
\SetZPI 1122 {\mthset[mathbb]{Z}}
\SetZNI 1123 \DeclareRobustCommand{\SetZI}[1] []
1124 {\SetZ[\pm\infty #1]}
1125 \DeclareRobustCommand{\SetZPI}[1] []
1126 {\SetZ[+\infty #1]}
1127 \DeclareRobustCommand{\SetZNI}[1] []
1128 {\SetZ[-\infty #1]}

\SetQ ...
\SetQI 1129 \DeclareRobustCommand{\SetQ}
\SetQPI 1130 {\mthset[mathbb]{Q}}
\SetQNI 1131 \DeclareRobustCommand{\SetQI}[1] []
1132 {\SetQ[\pm\infty #1]}
1133 \DeclareRobustCommand{\SetQPI}[1] []
1134 {\SetQ[+\infty #1]}
1135 \DeclareRobustCommand{\SetQNI}[1] []
1136 {\SetQ[-\infty #1]}

\SetR ...
\SetRI 1137 \DeclareRobustCommand{\SetR}
\SetRPI 1138 {\mthset[mathbb]{R}}
\SetRNI 1139 \DeclareRobustCommand{\SetRI}[1] []
1140 {\SetR[\pm\infty #1]}

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1141 \DeclareRobustCommand{\SetRPI}[1] []
1142   {\SetR[+\infty #1]}
1143 \DeclareRobustCommand{\SetRNI}[1] []
1144   {\SetR[-\infty #1]}

\SetC ...
\SetCI 1145 \DeclareRobustCommand{\SetC}
1146   {\mthset[mathbb]{C}}
1147 \DeclareRobustCommand{\SetCI}[1] []
1148   {\SetC[\infty #1]}

1149 %%*****%

\num ...
\numcc 1150 \DeclareRobustCommand{\num}[1]
\numco 1151   {\mth{[#1]}}
\numoc 1152 \DeclareRobustCommand{\numcc}[2]
\numoo 1153   {\mth{[\argsep{#1}{,}{#2}]}}
1154 \DeclareRobustCommand{\numco}[2]
1155   {\mth{[\argsep{#1}{,}{#2})}}
1156 \DeclareRobustCommand{\numoc}[2]
1157   {\mth{(\argsep{#1}{,}{#2})}}
1158 \DeclareRobustCommand{\numoo}[2]
1159   {\mth{(\argsep{#1}{,}{#2}))}}

1160 %%*****%

\abs ...
\norm 1161 \DeclareRobustCommand{\abs}
1162   {\ifexclavar{\@eabs}{\@abs}}
1163 \DeclareRobustCommand{\@abs}[1]
1164   {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
1165 \DeclareRobustCommand{\@eabs}[1]
1166   {\mth!\{\argmid{\lvert}{#1}{\rvert}}}
1167 \DeclareRobustCommand{\norm}
1168   {\ifexclavar{\@enorm}{\@norm}}
1169 \DeclareRobustCommand{\@norm}[1]
1170   {\mth{\argmid{\left\lVert}{#1}{\right\lVert}}}
1171 \DeclareRobustCommand{\@enorm}[1]
1172   {\mth!\{\argmid{\lVert}{#1}{\rVert}}}

\floor ...
\ceil 1173 \DeclareRobustCommand{\floor}
1174   {\ifexclavar{\@efloor}{\@floor}}
1175 \DeclareRobustCommand{\@efloor}[1]
1176   {\mth{\argmid{\left\lfloor}{#1}{\right\rfloor}}}
1177 \DeclareRobustCommand{\@efloor}[1]
1178   {\mth!\{\argmid{\lfloor}{#1}{\rfloor}}}
1179 \DeclareRobustCommand{\ceil}
1180   {\ifexclavar{\@eceil}{\@ceil}}
1181 \DeclareRobustCommand{\@ceil}[1]
1182   {\mth{\argmid{\left\lceil}{#1}{\right\rceil}}}
1183 \DeclareRobustCommand{\@eceil}[1]
1184   {\mth!\{\argmid{\lceil}{#1}{\rceil}}}

1185 %%*****%

\arg ...
1186 \usrmth{arg}{\}{fun}

\evn ...
\odd 1187 \usrmth{evn}{\}{fun}
1188 \usrmth{odd}{\}{fun}

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\bst ...
\argbst 1189 \usrmth{bst}{-}{fun}
        1190 \usrmth{argbst}{-}{fun}[arg\,bst]

\min ...
\max 1191 \usrmth{min}{-}{fun}
\argmin 1192 \usrmth{max}{-}{fun}
\argmax 1193 \usrmth{argmin}{-}{fun}[arg\,min]
        1194 \usrmth{argmax}{-}{fun}[arg\,max]

\inf ...
\sup 1195 \usrmth{inf}{-}{fun}
        1196 \usrmth{sup}{-}{fun}

\gcd ...
\lcm 1197 \usrmth{gcd}{-}{fun}
        1198 \usrmth{lcm}{-}{fun}
        1199 %** Sequences *****%%

\emptyseq ...
1200 \DeclareRobustCommand{\emptyseq}
1201   {\mth{\varepsilon}}

\len ...
1202 \DeclareRobustCommand{\len}
1203   {\ifexclavar{\@elen}{\@len}}
1204 \DeclareRobustCommand{\@len}[1]
1205   {\mth{\argmid{\left\lvert}{\right\lvert}}{#1}}
1206 \DeclareRobustCommand{\@elen}[1]
1207   {\mth!\{\argmid{\left\lvert}{\right\lvert}}{#1}}

\fst ...
\lst 1208 \usrmth{fst}{-}{argfun}
        1209 \usrmth{lst}{-}{argfun}

1210 \fi
1211 %*****%%
1212 %*****%%
1213 %** Macros for Computational-Complexity Classes *****%%
1214 %*****%%
1215 \ifcom@

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

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

    • \defcomcls{CompClass}[NewClass];

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

1216 \DeclareRobustCommandx{\defcomcls}[2][2=]
1217   {\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)

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\CompClassH[sub][sup][arg] = CoCompClass-HARDSUB(ARG)
\CompClassC[sub][sup][arg] = CompClass-COMPLETESUB(ARG)
\CoCompClassC[sub][sup][arg] = CoCompClass-COMPLETESUB(ARG)

\DCompClass[sub][sup][arg] = DCompClassSUB(ARG)
\CoDCompClass[sub][sup][arg] = CoDCompClassSUB(ARG)
\DCompClassE[sub][sup][arg] = DCompClass-EASYSUB(ARG)
\CoDCompClassE[sub][sup][arg] = CoDCompClass-EASYSUB(ARG)
\DCompClassH[sub][sup][arg] = DCompClass-HARDSUB(ARG)
\CoDCompClassH[sub][sup][arg] = CoDCompClass-HARDSUB(ARG)
\DCompClassC[sub][sup][arg] = DCompClass-COMPLETESUB(ARG)
\CoDCompClassC[sub][sup][arg] = CoDCompClass-COMPLETESUB(ARG)

\NCompClass[sub][sup][arg] = NCompClassSUB(ARG)
\CoNCompClass[sub][sup][arg] = CoNCompClassSUB(ARG)
\NCompClassE[sub][sup][arg] = NCompClass-EASYSUB(ARG)
\CoNCompClassE[sub][sup][arg] = CoNCompClass-EASYSUB(ARG)
\NCompClassH[sub][sup][arg] = NCompClass-HARDSUB(ARG)
\CoNCompClassH[sub][sup][arg] = CoNCompClass-HARDSUB(ARG)
\NCompClassC[sub][sup][arg] = NCompClass-COMPLETESUB(ARG)
\CoNCompClassC[sub][sup][arg] = CoNCompClass-COMPLETESUB(ARG)

\UCompClass[sub][sup][arg] = UCompClassSUB(ARG)
\CoUCompClass[sub][sup][arg] = CoUCompClassSUB(ARG)
\UCompClassE[sub][sup][arg] = UCompClass-EASYSUB(ARG)
\CoUCompClassE[sub][sup][arg] = CoUCompClass-EASYSUB(ARG)
\UCompClassH[sub][sup][arg] = UCompClass-HARDSUB(ARG)
\CoUCompClassH[sub][sup][arg] = CoUCompClass-HARDSUB(ARG)
\UCompClassC[sub][sup][arg] = UCompClass-COMPLETESUB(ARG)
\CoUCompClassC[sub][sup][arg] = CoUCompClass-COMPLETESUB(ARG)

\ACompClass[sub][sup][arg] = ACompClassSUB(ARG)
\CoACompClass[sub][sup][arg] = CoACompClassSUB(ARG)
\ACompClassE[sub][sup][arg] = ACompClass-EASYSUB(ARG)
\CoACompClassE[sub][sup][arg] = CoACompClass-EASYSUB(ARG)
\ACompClassH[sub][sup][arg] = ACompClass-HARDSUB(ARG)
\CoACompClassH[sub][sup][arg] = CoACompClass-HARDSUB(ARG)
\ACompClassC[sub][sup][arg] = ACompClass-COMPLETESUB(ARG)
\CoACompClassC[sub][sup][arg] = CoACompClass-COMPLETESUB(ARG)

• \defcomclsgrp{CompClass}{NewClass};

\CompClass[sub][sup][arg] = NewClassSUB(ARG)
\CoCompClass[sub][sup][arg] = CoNewClassSUB(ARG)
\CompClassE[sub][sup][arg] = NewClass-EASYSUB(ARG)
\CoCompClassE[sub][sup][arg] = CoNewClass-EASYSUB(ARG)
\CompClassH[sub][sup][arg] = NewClass-HARDSUB(ARG)
\CoCompClassH[sub][sup][arg] = CoNewClass-HARDSUB(ARG)
\CompClassC[sub][sup][arg] = NewClass-COMPLETESUB(ARG)
\CoCompClassC[sub][sup][arg] = CoNewClass-COMPLETESUB(ARG)

\DCompClass[sub][sup][arg] = DNewClassSUB(ARG)
\CoDCompClass[sub][sup][arg] = CoDNewClassSUB(ARG)
\DCompClassE[sub][sup][arg] = DNewClass-EASYSUB(ARG)
\CoDCompClassE[sub][sup][arg] = CoDNewClass-EASYSUB(ARG)
\DCompClassH[sub][sup][arg] = DNewClass-HARDSUB(ARG)
\CoDCompClassH[sub][sup][arg] = CoDNewClass-HARDSUB(ARG)
\DCompClassC[sub][sup][arg] = DNewClass-COMPLETESUB(ARG)
\CoDCompClassC[sub][sup][arg] = CoDNewClass-COMPLETESUB(ARG)

\NCompClass[sub][sup][arg] = NNewClassSUB(ARG)
\CoNCompClass[sub][sup][arg] = CoNNewClassSUB(ARG)
\NCompClassE[sub][sup][arg] = NNewClass-EASYSUB(ARG)
\CoNCompClassE[sub][sup][arg] = CoNNewClass-EASYSUB(ARG)
\NCompClassH[sub][sup][arg] = NNewClass-HARDSUB(ARG)

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\CoNCompClassH[sub][sup][arg] = CONNEWCLASS-HARDSUB(ARG)
\NCompClassC[sub][sup][arg] = NNEWCLASS-COMpleteSUB(ARG)
\CoNCompClassC[sub][sup][arg] = CONNEWCLASS-COMpleteSUB(ARG)

\UCompClass[sub][sup][arg] = UNEWCLASSSUB(ARG)
\CoUCompClass[sub][sup][arg] = COUNEWCLASSSUB(ARG)
\UCompClassE[sub][sup][arg] = UNEWCLASS-EASYSUB(ARG)
\CoUCompClassE[sub][sup][arg] = COUNEWCLASS-EASYSUB(ARG)
\UCompClassH[sub][sup][arg] = UNEWCLASS-HARDSUB(ARG)
\CoUCompClassH[sub][sup][arg] = COUNEWCLASS-HARDSUB(ARG)
\UCompClassC[sub][sup][arg] = UNEWCLASS-COMpleteSUB(ARG)
\CoUCompClassC[sub][sup][arg] = COUNEWCLASS-COMpleteSUB(ARG)

\ACompClass[sub][sup][arg] = ANEWCLASSSUB(ARG)
\CoACompClass[sub][sup][arg] = COANEWCLASSSUB(ARG)
\ACompClassE[sub][sup][arg] = ANEWCLASS-EASYSUB(ARG)
\CoACompClassE[sub][sup][arg] = COANEWCLASS-EASYSUB(ARG)
\ACompClassH[sub][sup][arg] = ANEWCLASS-HARDSUB(ARG)
\CoACompClassH[sub][sup][arg] = COANEWCLASS-HARDSUB(ARG)
\ACompClassC[sub][sup][arg] = ANEWCLASS-COMpleteSUB(ARG)
\CoACompClassC[sub][sup][arg] = COANEWCLASS-COMpleteSUB(ARG)

1218 \DeclareRobustCommandx{\defcomclsggrp}[2][2=]
1219   {\defcomclsggrpsem{#1}{\defval{#2}{#1}}}%
1220   \defcomclsggrpsem{#1}{\defval{#2}{#1}}[Co]}
1221 \DeclareRobustCommandx{\defcomclsgrpsem}[3][3=]
1222   {\defcomclsgrpred{#3#1}{#2}[#3]}%
1223   \defcomclsgrpred{#3D#1}{#2}[#3D]}%
1224   \defcomclsgrpred{#3N#1}{#2}[#3N]}%
1225   \defcomclsgrpred{#3U#1}{#2}[#3U]}%
1226   \defcomclsgrpred{#3A#1}{#2}[#3A]}%
1227 \DeclareRobustCommandx{\defcomclsgrpred}[3][3=]
1228   {\defcomclsgrpccmd{#1}{#2}[#3]}%
1229   \defcomclsgrpccmd{#1E}{#2}[#3] [-easy]}%
1230   \defcomclsgrpccmd{#1H}{#2}[#3] [-hard]}%
1231   \defcomclsgrpccmd{#1C}{#2}[#3] [-complete]}%
1232 \DeclareRobustCommandx{\defcomclsgrpccmd}[4][3=, 4=]
1233   {\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]

1234 \DeclareRobustCommandx{\defcomhrc}[2][2=]
1235   {\csdef{#1}{\txttoparcom{\defval{#2}{#1}}}}

1236 %%*****%

\Easy
\Hard 1237 \cmdtxtcom{Easy}
\Complete 1238 \cmdtxtcom{Hard}
1239 \cmdtxtcom{Complete}

1240 %%*****%

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

```

- $\backslash\text{FPCub}[\text{sub}][\text{sup}][\text{arg}] = \text{FPC}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

```

1241 \defcomcls{FPT}
1242 \defcomcls{FPLin}[FPL]
1243 \defcomcls{FPQdr}[FPQ]
1244 \defcomcls{FPCub}[FPC]

1245 %%*****%

\Time(E/H/C)      • \Time[sub][sup][arg] = \Time_{SUB}^{SUP}(ARG)
\DTIME(E/H/C)     • \TimeE[sub][sup][arg] = \TimeE-EASY_{SUB}^{SUP}(ARG)
\NTIME(E/H/C)     • \TimeH[sub][sup][arg] = \TimeH-HARD_{SUB}^{SUP}(ARG)
\UTIME(E/H/C)     • \TimeC[sub][sup][arg] = \TimeC-COMPLETE_{SUB}^{SUP}(ARG)
\ATIME(E/H/C)     • \DTIME[sub][sup][arg] = \DTIME_{SUB}^{SUP}(ARG)
                  • \DTIMEE[sub][sup][arg] = \DTIMEE-EASY_{SUB}^{SUP}(ARG)
                  • \DTIMEH[sub][sup][arg] = \DTIMEH-HARD_{SUB}^{SUP}(ARG)
                  • \DTIMEC[sub][sup][arg] = \DTIMEC-COMPLETE_{SUB}^{SUP}(ARG)
                  • \NTIME[sub][sup][arg] = \NTIME_{SUB}^{SUP}(ARG)
                  • \NTIMEE[sub][sup][arg] = \NTIMEE-EASY_{SUB}^{SUP}(ARG)
                  • \NTIMEH[sub][sup][arg] = \NTIMEH-HARD_{SUB}^{SUP}(ARG)
                  • \NTIMEC[sub][sup][arg] = \NTIMEC-COMPLETE_{SUB}^{SUP}(ARG)
                  • \UTIME[sub][sup][arg] = \UTIME_{SUB}^{SUP}(ARG)
                  • \UTIMEE[sub][sup][arg] = \UTIMEE-EASY_{SUB}^{SUP}(ARG)
                  • \UTIMEH[sub][sup][arg] = \UTIMEH-HARD_{SUB}^{SUP}(ARG)
                  • \UTIMEC[sub][sup][arg] = \UTIMEC-COMPLETE_{SUB}^{SUP}(ARG)
                  • \ATIME[sub][sup][arg] = \ATIME_{SUB}^{SUP}(ARG)
                  • \ATIMEE[sub][sup][arg] = \ATIMEE-EASY_{SUB}^{SUP}(ARG)
                  • \ATIMEH[sub][sup][arg] = \ATIMEH-HARD_{SUB}^{SUP}(ARG)
                  • \ATIMEC[sub][sup][arg] = \ATIMEC-COMPLETE_{SUB}^{SUP}(ARG)

1246 \defcomclsgrp{Time}

\Space(E/H/C)      • \Space[sub][sup][arg] = \Space_{SUB}^{SUP}(ARG)
\DSpace(E/H/C)     • \SpaceE[sub][sup][arg] = \SpaceE-EASY_{SUB}^{SUP}(ARG)
\NSpace(E/H/C)     • \SpaceH[sub][sup][arg] = \SpaceH-HARD_{SUB}^{SUP}(ARG)
\USpace(E/H/C)     • \SpaceC[sub][sup][arg] = \SpaceC-COMPLETE_{SUB}^{SUP}(ARG)
\ASpace(E/H/C)     • \DSpace[sub][sup][arg] = \DSpace_{SUB}^{SUP}(ARG)
                  • \DSpaceE[sub][sup][arg] = \DSpaceE-EASY_{SUB}^{SUP}(ARG)
                  • \DSpaceH[sub][sup][arg] = \DSpaceH-HARD_{SUB}^{SUP}(ARG)
                  • \DSpaceC[sub][sup][arg] = \DSpaceC-COMPLETE_{SUB}^{SUP}(ARG)
                  • \NSpace[sub][sup][arg] = \NSpace_{SUB}^{SUP}(ARG)
                  • \NSpaceE[sub][sup][arg] = \NSpaceE-EASY_{SUB}^{SUP}(ARG)
                  • \NSpaceH[sub][sup][arg] = \NSpaceH-HARD_{SUB}^{SUP}(ARG)
                  • \NSpaceC[sub][sup][arg] = \NSpaceC-COMPLETE_{SUB}^{SUP}(ARG)
                  • \USpace[sub][sup][arg] = \USpace_{SUB}^{SUP}(ARG)
                  • \USpaceE[sub][sup][arg] = \USpaceE-EASY_{SUB}^{SUP}(ARG)
                  • \USpaceH[sub][sup][arg] = \USpaceH-HARD_{SUB}^{SUP}(ARG)
                  • \USpaceC[sub][sup][arg] = \USpaceC-COMPLETE_{SUB}^{SUP}(ARG)
                  • \ASpace[sub][sup][arg] = \ASpace_{SUB}^{SUP}(ARG)
                  • \ASpaceE[sub][sup][arg] = \ASpaceE-EASY_{SUB}^{SUP}(ARG)
                  • \ASpaceH[sub][sup][arg] = \ASpaceH-HARD_{SUB}^{SUP}(ARG)
                  • \ASpaceC[sub][sup][arg] = \ASpaceC-COMPLETE_{SUB}^{SUP}(ARG)

1247 \defcomclsgrp{Space}

\LogTime(E/H/C)    • \LogTime[sub][sup][arg] = \LogTime_{SUB}^{SUP}(ARG)
\DLogTime(E/H/C)  • \LogTimeE[sub][sup][arg] = \LogTimeE-EASY_{SUB}^{SUP}(ARG)
\NLogTime(E/H/C)  • \LogTimeH[sub][sup][arg] = \LogTimeH-HARD_{SUB}^{SUP}(ARG)
\ULogTime(E/H/C)  • \LogTimeC[sub][sup][arg] = \LogTimeC-COMPLETE_{SUB}^{SUP}(ARG)
\ALogTime(E/H/C)  • \DLogTime[sub][sup][arg] = \DLogTime_{SUB}^{SUP}(ARG)
                  • \DLogTimeE[sub][sup][arg] = \DLogTimeE-EASY_{SUB}^{SUP}(ARG)
                  • \DLogTimeH[sub][sup][arg] = \DLogTimeH-HARD_{SUB}^{SUP}(ARG)
                  • \DLogTimeC[sub][sup][arg] = \DLogTimeC-COMPLETE_{SUB}^{SUP}(ARG)

```

- $\backslash \text{NLogTime}[\text{sub}][\text{sup}][\text{arg}] = \text{NLOGTIME}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
 $\backslash \text{NLogTimeE}[\text{sub}][\text{sup}][\text{arg}] = \text{NLOGTIME-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
 $\backslash \text{NLogTimeH}[\text{sub}][\text{sup}][\text{arg}] = \text{NLOGTIME-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
 $\backslash \text{NLogTimeC}[\text{sub}][\text{sup}][\text{arg}] = \text{NLOGTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash \text{ULogTime}[\text{sub}][\text{sup}][\text{arg}] = \text{ULOGTIME}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
 $\backslash \text{ULogTimeE}[\text{sub}][\text{sup}][\text{arg}] = \text{ULOGTIME-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
 $\backslash \text{ULogTimeH}[\text{sub}][\text{sup}][\text{arg}] = \text{ULOGTIME-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
 $\backslash \text{ULogTimeC}[\text{sub}][\text{sup}][\text{arg}] = \text{ULOGTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash \text{ALogTime}[\text{sub}][\text{sup}][\text{arg}] = \text{ALOGTIME}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
 $\backslash \text{ALogTimeE}[\text{sub}][\text{sup}][\text{arg}] = \text{ALOGTIME-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
 $\backslash \text{ALogTimeH}[\text{sub}][\text{sup}][\text{arg}] = \text{ALOGTIME-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
 $\backslash \text{ALogTimeC}[\text{sub}][\text{sup}][\text{arg}] = \text{ALOGTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

```
1248 \defcomclsgrp{LogTime}
```

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

```
1249 \def comclsgrp{LogSpace}
```

$\backslash \text{PTime}(E/H/C)$	<ul style="list-style-type: none"> $\backslash \text{PTime}[\text{sub}][\text{sup}][\text{arg}] = \text{PTIME}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
$\backslash \text{DPTIME}(E/H/C)$	<ul style="list-style-type: none"> $\backslash \text{PTimeE}[\text{sub}][\text{sup}][\text{arg}] = \text{PTIME-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
$\backslash \text{NPTime}(E/H/C)$	<ul style="list-style-type: none"> $\backslash \text{PTimeH}[\text{sub}][\text{sup}][\text{arg}] = \text{PTIME-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
$\backslash \text{UPTime}(E/H/C)$	<ul style="list-style-type: none"> $\backslash \text{PTimeC}[\text{sub}][\text{sup}][\text{arg}] = \text{PTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
$\backslash \text{APTime}(E/H/C)$	<ul style="list-style-type: none"> $\backslash \text{DPTIME}[\text{sub}][\text{sup}][\text{arg}] = \text{DPTIME}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{DPTIMEE}[\text{sub}][\text{sup}][\text{arg}] = \text{DPTIME-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{DPTIMEH}[\text{sub}][\text{sup}][\text{arg}] = \text{DPTIME-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{DPTIMEC}[\text{sub}][\text{sup}][\text{arg}] = \text{DPTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{NPTime}[\text{sub}][\text{sup}][\text{arg}] = \text{NPTime}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{NPTimeE}[\text{sub}][\text{sup}][\text{arg}] = \text{NPTime-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{NPTimeH}[\text{sub}][\text{sup}][\text{arg}] = \text{NPTime-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{NPTimeC}[\text{sub}][\text{sup}][\text{arg}] = \text{NPTime-COMPLETE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{UPTime}[\text{sub}][\text{sup}][\text{arg}] = \text{UPTime}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{UPTimeE}[\text{sub}][\text{sup}][\text{arg}] = \text{UPTime-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{UPTimeH}[\text{sub}][\text{sup}][\text{arg}] = \text{UPTime-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{UPTimeC}[\text{sub}][\text{sup}][\text{arg}] = \text{UPTime-COMPLETE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{APTime}[\text{sub}][\text{sup}][\text{arg}] = \text{APTime}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{APTimeE}[\text{sub}][\text{sup}][\text{arg}] = \text{APTime-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{APTimeH}[\text{sub}][\text{sup}][\text{arg}] = \text{APTime-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$ $\backslash \text{APTimeC}[\text{sub}][\text{sup}][\text{arg}] = \text{APTime-COMPLETE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

```
1250 \defcomclsgrp{PTime}
```



```

\DLH      • \DLH[sub][sup][par] =  $\Delta_{\text{SUB}}^{\text{SUP}}[\text{PAR}]$ 
\DBH      • \DBH[sub][sup][par] =  $\Delta_{\text{SUB}}^{\text{SUP}}[\text{PAR}]$ 

1260 \defcomhrc{DLH}{\mth{\Delta}}
1261 \defcomhrc{DBH}{\mth[\mathbf]{\Delta}}

\ELH      • \ELH[sub][sup][par] =  $\Sigma_{\text{SUB}}^{\text{SUP}}[\text{PAR}]$ 
\EBH      • \EBH[sub][sup][par] =  $\Sigma_{\text{SUB}}^{\text{SUP}}[\text{PAR}]$ 

1262 \defcomhrc{ELH}{\mth{\Sigma}}
1263 \defcomhrc{EBH}{\mth[\mathbf]{\Sigma}}

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

1264 \defcomhrc{ULH}{\mth{\Pi}}
1265 \defcomhrc{UBH}{\mth[\mathbf]{\Pi}}

1266 \fi
1267 %*****%

1268 %*****%
1269 %** Macros for Graphs *****%
1270 %*****%
1271 \ifgrp@

1272 %** Syntax *****%

\GrpName ...
... 1273 \newcommand{\grpname}{G}
1274 \usrmthlatupp{Grp}{Name}{name}[\grpname]

\VerSet ...
... 1275 \newcommand{\versym}{v}
1276 \newcommand{\verset}{V}
1277 \cmdmthsetext{Ver}[\verset][\versym]
1278 \cmdmthsymelm{iver}[\versym_{I}]
1279 \cmdmthsymelm{fver}[\versym_{F}]

\EdgRel ...
1280 \newcommand{\edgrel}{E}
1281 \cmdmthrel{Edg}[\edgrel]

1282 %** Semantics *****%

\PthSet ...
\pthFun 1283 \newcommand{\pthsym}{\pi}
1284 \newcommand{\pthset}{Pth}
1285 \cmdmthsetext{Pth}[\pthset][\pthsym]
1286 \usrmth{path}{-}{argfun}

\pre ...
\suc 1287 \usrmth{pre}{-}{oargfun}
1288 \usrmth{suc}{-}{oargfun}

1289 \fi
1290 %*****%

1291 %*****%
1292 %** Macros for Games *****%
1293 %*****%
1294 \ifgam@

1295 %** Logic Games *****%

```

```

\SATG ...
... 1296 %% Satisfiability Games
1297 \cmdtxttoparname{SATG}[Sat]
1298
1299 %% Validity Games
1300 \cmdtxttoparname{VALG}[Val]
1301
1302 %% Evaluation Games
1303 \cmdtxttoparname{EVLG}[Evl]
1304
1305 %% Synthesis Games
1306 \cmdtxttoparname{SYNG}[Syn]
1307
1308 %% Model-Checking Games
1309 \cmdtxttoparname{MCG}[MC]
1310
1311 %% Ehrenfeucht-Fraisse Games
1312 \cmdtxttoparname{EFG}[EF]
1313 %** Syntax *****%%

\PlrSym ...
\OppSym 1314 \newcommand{\plrsym}{E}
1315 \cmdmthsym{Plr}[\plrsym]
1316 \newcommand{\oppsym}{A}
1317 \cmdmthsym{Opp}[\oppsym]

\ArenaName ...
... 1318 \newcommand{\arenaname}{A}
1319 \usrmthlatupp{Arena}{Name}{name}[\arenaname]

\PosSet ...
... 1320 \newcommand{\possym}{v}
1321 \newcommand{\posset}{Ps}
1322 \cmdmthsetext{Pos}[\posset][\possym]
1323 \cmdmthsymelm{ipos}[\possym_{I}]
1324 \cmdmthsymelm{fpos}[\possym_{F}]
1325 \cmdmthset{PPos}[\posset_{\PlrSym}]
1326 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1327 \cmdmthset{OPos}[\posset_{\OppSym}]
1328 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\PlrFun ...
1329 \newcommand{\plrfun}{pl}
1330 \cmdmthfun{plr}[\plrfun]

\MovRel ...
1331 \newcommand{\movrel}{Mv}
1332 \cmdmthrel{Mov}[\movrel]

\GameName ...
... 1333 \newcommand{\gamename}{\Game}
1334 \usrmthlatupp{Game}{Name}{name}[\gamename]

\WinSet ...
1335 \newcommand{\winset}{Wn}
1336 \cmdmthset{Win}[\winset]

\ObsSet ...
\obsFun 1337 \newcommand{\obsset}{Ob}
1338 \cmdmthset{Obs}[\obsset]
1339 \cmdmthfun{obs}

```



```

1340 %%** Semantics *****%%

\HstSet ...
... 1341 \newcommand{\hstsym}{\varpi}
1342 \newcommand{\hstset}{Hst}
1343 \cmdmthsetext{Hst}[\hstset][\hstsym]
1344 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1345 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1346 \cmdmthset{OHst}[\hstset_{\OppSym}]
1347 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1348 \usrmth{play}{-}{oargfun}

\PlaySet ...
\playFun 1349 \newcommand{\playsym}{\pi}
1350 \newcommand{\playset}{Play}
1351 \cmdmthsetext{Play}[\playset][\playsym]
1352 \usrmth{hst}{-}{oargfun}

\StrSet ...
... 1353 \newcommand{\strsym}{\sigma}
1354 \newcommand{\strset}{Str}
1355 \cmdmthsetext{Str}[\strset][\strsym]
1356 \cmdmthset{PStr}[\strset_{\PlrSym}]
1357 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1358 \cmdmthset{OStr}[\strset_{\OppSym}]
1359 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet ...
\prfFun 1360 \newcommand{\prfsym}{\xi}
1361 \newcommand{\prfset}{Prf}
1362 \cmdmthsetext{Prf}[\prfset][\prfsym]

\ent ...
\esc 1363 \usrmth{ent}{-}{oargfun}
1364 \usrmth{esc}{-}{oargfun}

\int ...
\out 1365 \usrmth{int}{-}{oargfun}
1366 \usrmth{out}{-}{oargfun}

\atr ...
\rch 1367 \usrmth{atr}{-}{oargfun}
1368 \usrmth{rch}{-}{oargfun}

\lift ...
1369 \usrmth{lift}{-}{oargfun}

\sol ...
1370 \usrmth{sol}{-}{oargfun}

1371 %%** Qualitative Games on Graph *****%%

\BG ...
... 1372 %% Buchi Games
1373 \cmdtxttoparname{BG}
1374
1375 %% Co-Buchi Games
1376 \cmdtxttoparname{CG}
1377
1378 %% Parity Games
1379 \cmdtxttoparname{PG}
1380
1381 %% Rabin Games

```

```

1382 \cmdtxttoparname{RG}
1383
1384 %% Streett Games
1385 \cmdtxttoparname{SG}
1386
1387 %% Muller Games
1388 \cmdtxttoparname{MG}
1389 %** Syntax *****%%

\EvnSym ...
\OddSym 1390 \newcommand{\evnsym}{0}
1391 \cmdmthsym{Evns}[\evnsym]
1392 \newcommand{\oddsym}{1}
1393 \cmdmthsym{Odds}[\oddsym]

\PrtSet ...
\prtFun 1394 \newcommand{\prtsym}{p}
1395 \newcommand{\prtset}{Pr}
1396 \cmdmthsetext{Prt}[\prtset][\prtsym]
1397 \cmdmthfun{prt}[pr]
1398 %** Semantics *****%%
...
1399 %** Quantitative Games on Graph *****%%

\EG ...
... 1400 %% Energy Games
1401 \cmdtxttoparname{EG}
1402
1403 %% Mean-Payoff Games
1404 \cmdtxttoparname{MPG}
1405
1406 %% Discounted-Payoff Games
1407 \cmdtxttoparname{DPG}
1408 %** Syntax *****%%

\MaxSym ...
\MinSym 1409 \newcommand{\maxsym}{\oplus}
1410 \cmdmthsym{Max}[\maxsym]
1411 \newcommand{\minsym}{\boxminus}
1412 \cmdmthsym{Min}[\minsym]

\WghSet ...
\wghFun 1413 \newcommand{\wghsym}{w}
1414 \newcommand{\wghset}{Wg}
1415 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1416 \cmdmthfun{wgh}[wg]
1417 %** Semantics *****%%
...
1418 \fi
1419 %*****%%
1420 %*****%%
1421 %** Macros for Logics *****%%
1422 %*****%%
1423 \iflog@
1424 %** Propositional Logics *****%%

```

```

\BF ...
\QBF 1425 % Boolean Formulae
... 1426 \cmdtxttoparname{BF}
1427
1428 % Quantified Boolean Formulae
1429 \DeclareRobustCommand{\QBF}
1430   {\txtname{Q}\BF}
1431 \DeclareRobustCommand{\EBF}
1432   {\ensuremath{\exists}\BF}
1433 \DeclareRobustCommand{\UBF}
1434   {\ensuremath{\forall}\BF}
1435 %** Syntax ****%/

\LogSig ...
... 1436 \newcommand{\logsig}{L}
1437 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

\Tt ...
\Ff 1438 \newcommand{\ttsym}{\top}
1439 \usrmth{Tt}{\}{sym}[\ttsym]
1440 \newcommand{\ffsym}{\bot}
1441 \usrmth{Ff}{\}{sym}[\ffsym]

\LNeg ...
\LNot 1442 \newcommand{\lnegsym}{\neg}
1443 \usrmth{LNeg}{\}{luop}[\lnegsym]
1444 \newcommand{\lnotsym}{\sim}
1445 \usrmth{LNot}{\}{luop}[\lnotsym]

\LCon ...
\LDis 1446 \newcommand{\lconsym}{\land}
1447 \usrmth{LCon}{\}{lbop}[\lconsym]
1448 \newcommand{\ldissym}{\lor}
1449 \usrmth{LDis}{\}{lbop}[\ldissym]

\LImp ...
\LCoI 1450 \newcommand{\limpsym}{\rightarrow}
1451 \usrmth{LImp}{\}{lbop}[\limpsym]
1452 \newcommand{\lcoisym}{\leftrightharrow}
1453 \usrmth{LCoI}{\}{lbop}[\lcoisym]

\LExs ...
\LAll 1454 \newcommand{\lexssym}{\exists}
1455 \usrmth{LExs}{\}{luop}[\lexssym]
1456 \newcommand{\lallsym}{\forall}
1457 \usrmth{LAll}{\}{luop}[\lallsym]

\APSet ...
... 1458 \newcommand{\apsym}{p}
1459 \newcommand{\apset}{AP}
1460 \cmdmthsetext{AP}[\apset] [\apsym]
1461 \usrmth{ap}{\}{argfun}

\sub ...
1462 \usrmth{sub}{\}{argfun}

\Cnt ...
\Qnt 1463 \usrmth{Cnt}{\}{sym}[C]
\Sym 1464 \usrmth{Qnt}{\}{sym}[Q]
1465 \usrmth{Sym}{\}{sym}[\odot]

```

```

\QAE ...
\QEA 1466 \usrmth{QAE}{-}{sym}[\forall\exists]
      1467 \usrmth{QEA}{-}{sym}[\exists\forall]

\QntSet ...
... 1468 \newcommand{\qntsym}{\wp}
      1469 \newcommand{\qntset}{\Qn}
      1470 \cmdmthsetext{Qnt}[\qntset][\qntsym]

\free ...
\bound 1471 \usrmth{free}{-}{argfun}
        1472 \usrmth{bound}{-}{argfun}

\dep ...
\alt 1473 \usrmth{dep}{-}{argfun}
      1474 \usrmth{alt}{-}{argfun}

\cnf ...
\dnf 1475 \cmdtxtabr{cnf}
... 1476 \cmdtxtabr{dnf}
      1477 \cmdtxtabr{pnf}
      1478 \cmdtxtabr{nnf}

      1479 %** Semantics *****%

\LogStr ...
... 1480 \newcommand{\logstr}{L}
      1481 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet ...
... 1482 \newcommand{\valsym}{\xi}
      1483 \newcommand{\valset}{Val}
      1484 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet ...
... 1485 \newcommand{\asgsym}{\chi}
      1486 \newcommand{\asgset}{Asg}
      1487 \cmdmthsetext{Asg}[\asgset][\asgsym]

      1488 %** First-Order Logics I *****%

\FOL ...
... 1489 % First-Order Logic
      1490 \cmdtxtoparname{FOL}[Fol]
      1491 \cmdtxtoparname{FO}[FO]
      1492
      1493 % Monadic First-Order Logic
      1494 \DeclareRobustCommand{\MFOL}
      1495   {\{\txname{M}\}\FOL}
      1496 \DeclareRobustCommand{\MFO}
      1497   {\{\txname{M}\}\FO}

      1498 %** Syntax *****%

\VarSig ...
... 1499 \newcommand{\varsig}{V}
      1500 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
      1501 \newcommand{\varsym}{x}
      1502 \newcommand{\varset}{Vr}
      1503 \cmdmthsetext{Var}[\varset][\varsym]
      1504 \usrmth{var}{-}{argfun}[vr]
      1505 \usrmth{dim}{-}{argfun}[dm]

```

```

\ConSig ...
... 1506 \newcommand{\consig}{C}
1507 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1508 \newcommand{\consym}{c}
1509 \newcommand{\conset}{Cn}
1510 \cmdmthsetext{Con}[\conset][\consym]
1511 \usrmth{con}{-}{argfun}[cn]

\FunSig ...
... 1512 \newcommand{\funsig}{F}
1513 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1514 \newcommand{\funsym}{f}
1515 \newcommand{\funset}{Fn}
1516 \cmdmthsetext{Fun}[\funset][\funsym]
1517 \usrmth{fun}{-}{argfun}[fn]
1518 \usrmth{art}{-}{argfun}[ar]

\TerSig ...
... 1519 \newcommand{\tersig}{T}
1520 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1521 \newcommand{\tersym}{t}
1522 \newcommand{\terset}{Tr}
1523 \cmdmthsetext{Ter}[\terset][\tersym]
1524 \usrmth{ter}{-}{argfun}

\RelSig ...
... 1525 \newcommand{\relsig}{R}
1526 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1527 \newcommand{\relsym}{r}
1528 \newcommand{\relset}{Rl}
1529 \cmdmthsetext{Rel}[\relset][\relsym]
1530 \usrmth{rel}{-}{argfun}[rl]

\skm ...
1531 \usrmth{skm}{-}{argfun}

1532 %%** Semantics *****%%

\ConStr ...
... 1533 \newcommand{\constr}{C}
1534 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr ...
... 1535 \newcommand{\funstr}{F}
1536 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr ...
... 1537 \newcommand{\terstr}{T}
1538 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr ...
... 1539 \newcommand{\relstr}{R}
1540 \usrmthlatupp{Rel}{Str}{str}[\relstr]

1541 %%** First-Order Logics II *****%%

\DF ...
\IF 1542 % Dependence-Friendly Logic
... 1543 \cmdtxtoparname{DF}
1544
1545 % Independence-Friendly Logic
1546 \cmdtxtoparname{IF}
1547

```

```

1548 % Dependence/Independence-Friendly Logic
1549 \cmdtxttoparname{DIF}
1550
1551 % Dependence Logic
1552 \cmdtxttoparname{DL}
1553
1554 % Team Logic
1555 \cmdtxttoparname{TL}
1556
1557 % Alternating Dependence-Friendly Logic
1558 \cmdtxttoparname{ADF}
1559
1560 % Alternating Independence-Friendly Logic
1561 \cmdtxttoparname{AIF}
1562
1563 % Alternating Dependence/Independence-Friendly Logic
1564 \cmdtxttoparname{ADIF}
1565
...
1565 %** Syntax *****%%

\LEExs ...
\LAAll 1566 \newcommand{\leexssym}{\Sigma}
1567 \usrmth{LEExs}{\luop}{\leexssym}
1568 \newcommand{\laallsym}{\Pi}
1569 \usrmth{LAAll}{\luop}{\laallsym}
1570
1570 %** Semantics *****%%
...

1571 %** Second-Order Logics I *****%%

\SOL ...
... 1572 % Second-Order Logic
1573 \cmdtxttoparname{SOL}[Sol]
1574 \cmdtxttoparname{SO}
1575
1576 % Weak Second-Order Logic
1577 \DeclareRobustCommand{\WSOL}
1578   {\{\txtname{W}\}\SOL}
1579 \DeclareRobustCommand{\WSO}
1580   {\{\txtname{W}\}\SO}
1581
1582 % coWeak Second-Order Logic
1583 \DeclareRobustCommand{\coWSOL}
1584   {\{\txtname{coW}\}\SOL}
1585 \DeclareRobustCommand{\coWSO}
1586   {\{\txtname{coW}\}\SO}
1587
1588 % Monadic Second-Order Logic
1589 \DeclareRobustCommand{\MSOL}
1590   {\{\txtname{M}\}\SOL}
1591 \DeclareRobustCommand{\MSO}
1592   {\{\txtname{M}\}\SO}
1593
1594 % Weak Monadic Second-Order Logic
1595 \DeclareRobustCommand{\WMSOL}
1596   {\{\txtname{W}\}\MSOL}
1597 \DeclareRobustCommand{\WMSO}
1598   {\{\txtname{W}\}\MSO}
1599
1600 % coWeak Monadic Second-Order Logic
1601 \DeclareRobustCommand{\coWMSOL}
1602   {\{\txtname{coW}\}\MSOL}

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1603 \DeclareRobustCommand{\coWMSO}
1604   {\txtname{coW}}\MSO}

1605 %** Syntax *****%%

\FVarSet ...
... 1606 \newcommand{\fvarsym}{x}
1607 \newcommand{\fvarset}{FVr}
1608 \cmdmthsettext{FVar}[\fvarset][\fvarsym]

\SVarSet ...
... 1609 \newcommand{\svarsym}{X}
1610 \newcommand{\svarset}{SVr}
1611 \cmdmthsettext{SVar}[\svarset][\svarsym]

1612 %** Semantics *****%%
...

1613 %** Second-Order Logics II *****%%

\TL ...
\CL 1614 % Tree Logic
\PL 1615 \cmdtxttoparname{TL}
... 1616
1617 % Weak Tree Logic
1618 \DeclareRobustCommand{\WTL}
1619   {\txtname{W}}\TL}
1620
1621 % coWeak Tree Logic
1622 \DeclareRobustCommand{\coWTL}
1623   {\txtname{coW}}\TL}
1624
1625 % Monadic Tree Logic
1626 \DeclareRobustCommand{\MTL}
1627   {\txtname{M}}\TL}
1628
1629 % Weak Monadic Tree Logic
1630 \DeclareRobustCommand{\WMTL}
1631   {\txtname{W}}\MTL}
1632
1633 % coWeak Monadic Tree Logic
1634 \DeclareRobustCommand{\coWMTL}
1635   {\txtname{coW}}\MTL}
1636
1637 % Chain Logic
1638 \cmdtxttoparname{CL}
1639
1640 % Weak Chain Logic
1641 \DeclareRobustCommand{\WCL}
1642   {\txtname{W}}\CL}
1643
1644 % coWeak Chain Logic
1645 \DeclareRobustCommand{\coWCL}
1646   {\txtname{coW}}\CL}
1647
1648 % Monadic Chain Logic
1649 \DeclareRobustCommand{\MCL}
1650   {\txtname{M}}\CL}
1651
1652 % Weak Monadic Chain Logic
1653 \DeclareRobustCommand{\WMCL}
1654   {\txtname{W}}\MCL}
1655
1656 % coWeak Monadic Chain Logic

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```

1657 \DeclareRobustCommand{\coWMCL}
1658   {\textname{coW}}\MCL}
1659
1660 % Path Logic
1661 \cmdtxttoparname{PL}
1662
1663 % Weak Path Logic
1664 \DeclareRobustCommand{\WPL}
1665   {\textname{W}}\PL}
1666
1667 % coWeak Path Logic
1668 \DeclareRobustCommand{\coWPL}
1669   {\textname{coW}}\PL}
1670
1671 % Monadic Path Logic
1672 \DeclareRobustCommand{\MPL}
1673   {\textname{M}}\PL}
1674
1675 % Weak Monadic Path Logic
1676 \DeclareRobustCommand{\WMPL}
1677   {\textname{W}}\MPL}
1678
1679 % coWeak Monadic Path Logic
1680 \DeclareRobustCommand{\coWMPL}
1681   {\textname{coW}}\MPL}
1682 %** Syntax *****%
...
1683 %** Semantics *****%
...
1684 %** Modal Logics I *****%

\ML ...
\GML 1685 % Modal Logic
... 1686 \cmdtxttoparname{ML}
1687
1688 % Graded Modal Logic
1689 \DeclareRobustCommand{\GML}
1690   {\textname{G}}\ML}
1691
1692 % Quantified Modal Logic
1693 \DeclareRobustCommand{\QML}
1694   {\textname{Q}}\ML}
1695 \DeclareRobustCommand{\EML}
1696   {\ensuremath{\exists}\ML}
1697 \DeclareRobustCommand{\UML}
1698   {\ensuremath{\forall}\ML}
1699 %** Syntax *****%

\Opr ...
1700 \usrmth{Opr}{\sym}[Op]

\DMod ...
\BMod 1701 \usrmth{DMod}{\sym}[\Diamond]
1702 \usrmth{BMod}{\sym}[\Box]

\Exs ...
\All 1703 \DeclareRobustCommand{\Exs}
1704   {\ifstarvar{\@sexs}{\@exs}}
1705 \DeclareRobustCommand{\@sexs}[1]
1706   {\mth{\DMod}[#1]}

```



```

1707 \DeclareRobustCommand{\@exs}[1]
1708   {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1709 \DeclareRobustCommand{\All}
1710   {\ifstarvar{\@sall}{\@all}}
1711 \DeclareRobustCommand{\@sall}[1]
1712   {\mth{\BMod}[#1]}
1713 \DeclareRobustCommand{\@all}[1]
1714   {\mth{\defval{\argmid{\left[]{\#1}{\right]}}{\BMod}}}
1715 %** Semantics *****%

\KrpStr ...
... 1716 \newcommand{\krpstr}{K}
1717 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

\WrlSet ...
... 1718 \newcommand{\wrlsym}{w}
1719 \newcommand{\wrlset}{W}
1720 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
1721 \cmdmthsymelm{iwrl}[\wrlsym_{I}]

\AccRel ...
\TrnRel 1722 \newcommand{\accsym}{R}
1723 \cmdmthrel{Acc}[\accsym]
1724 \cmdmthrel{Trn}[\accsym]

\labFun ...
1725 \newcommand{\labsym}{\lambda}
1726 \cmdmthfun{lab}[\labsym]

\PthSet ...
... 1727 \providecommand{\pthsym}{\pi}
1728 \providecommand{\pthset}{Pth}
1729 \cmdmthsetext{Pth}[\pthset][\pthsym]
1730 \usrmth{path}{\}{argfun}
1731 %** Modal Logics II *****%

\MC ...
\GMC 1732 % Mu Calculus
... 1733 \cmdtxttoparname{MC}[\ensuremath{\mu}-Calculus]
1734
1735 % Graded Mu Calculus
1736 \DeclareRobustCommand{\GMC}
1737   {\{\txtname{G}\}\MC}
1738
1739 % Quantified Mu Calculus
1740 \DeclareRobustCommand{\QMC}
1741   {\{\txtname{Q}\}\MC}
1742 \DeclareRobustCommand{\EMC}
1743   {\ensuremath{\exists}\MC}
1744 \DeclareRobustCommand{\UMC}
1745   {\ensuremath{\forall}\MC}
1746
1747 % Alternation-Free Mu Calculus
1748 \DeclareRobustCommand{\AFMC}
1749   {\{\txtname{AF}\}\MC}
1750
1751 % Alternation-Free Graded Mu Calculus
1752 \DeclareRobustCommand{\AFGMC}
1753   {\{\txtname{AF}\}\GMC}
1754
1755 % Quantified Alternation-Free Mu Calculus
1756 \DeclareRobustCommand{\QAFMC}

```

```

1757  {\txtrname{Q}}\AFMC}
1758 \DeclareRobustCommand{\EAFMC}
1759  {\ensuremath{\exists}\AFMC}
1760 \DeclareRobustCommand{\UAFMC}
1761  {\ensuremath{\forall}\AFMC}
1762
1763 %%** Syntax *****%%
...
1764 %%** Semantics *****%%
...
1765 %%** Temporal Logics I *****%%

\PTL ...
\LTL 1766 % Propositional Temporal Logic
... 1767 \cmdtxtopname{PTL}
1768
1769 % Quantified Propositional Temporal Logic
1770 \DeclareRobustCommand{\QPTL}
1771  {\txtrname{Q}}\PTL}
1772 \DeclareRobustCommand{\EPTL}
1773  {\ensuremath{\exists}\PTL}
1774 \DeclareRobustCommand{\UPTL}
1775  {\ensuremath{\forall}\PTL}
1776
1777 % Linear Temporal Logic
1778 \cmdtxtopname{LTL}
1779
1780 % Quantified Linear Temporal Logic
1781 \DeclareRobustCommand{\QLTL}
1782  {\txtrname{Q}}\LTL}
1783 \DeclareRobustCommand{\ELTL}
1784  {\ensuremath{\exists}\LTL}
1785 \DeclareRobustCommand{\ULTL}
1786  {\ensuremath{\forall}\LTL}
1787 %%** Syntax *****%%

\X ...
... 1788 \usrmth{X}{-}{sym}[X\,,]
1789 \usrmth{F}{-}{sym}[F\,,]
1790 \usrmth{G}{-}{sym}[G\,,]
1791 \usrmth{U}{-}{sym}[\,,U\,,]
1792 \usrmth{R}{-}{sym}[\,,R\,,]

\Y ...
... 1793 \usrmth{Y}{-}{sym}[G\,,]
1794 \usrmth{P}{-}{sym}[P\,,]\let\SavePildcrow\P
1795 \usrmth{H}{-}{sym}[H\,,]\let\SaveDoubleAcute\H
1796 \usrmth{S}{-}{sym}[\,,S\,,]\let\SaveSectionSymbol\S
1797 \usrmth{B}{-}{sym}[\,,B\,,]
1798 %%** Semantics *****%%
...
1799 %%** Temporal Logics II *****%%

\PDL ...
\CTL 1800 % Propositional Dynamic Logic
... 1801 \cmdtxtopname{PDL}
1802
1803 % Computation Tree Logic
1804 \cmdtxtopname{CTL}

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```

1805
1806 % Weak Computation Tree Logic
1807 \DeclareRobustCommand{\WCTL}
1808   {\txtname{W}}\CTL}
1809
1810 % Quantified Computation Tree Logic
1811 \DeclareRobustCommand{\QCTL}
1812   {\txtname{Q}}\CTL}
1813 \DeclareRobustCommand{\ECTL}
1814   {\ensuremath{\exists}\CTL}
1815 \DeclareRobustCommand{\UCTL}
1816   {\ensuremath{\forall}\CTL}
1817
1818 % Improved Computation Tree Logic
1819 \cmdtxtopname{CTLP}[CTL$^{+}$]
1820
1821 % Weak Improved Computation Tree Logic
1822 \DeclareRobustCommand{\WCTLP}
1823   {\txtname{W}}\CTLP}
1824
1825 % Quantified Improved Computation Tree Logic
1826 \DeclareRobustCommand{\QCTLP}
1827   {\txtname{Q}}\CTLP}
1828 \DeclareRobustCommand{\ECTLP}
1829   {\ensuremath{\exists}\CTLP}
1830 \DeclareRobustCommand{\UCTLP}
1831   {\ensuremath{\forall}\CTLP}
1832
1833 % Full Computation Tree Logic
1834 \cmdtxtopname{CTLS}[CTL*]
1835
1836 % Weak Full Computation Tree Logic
1837 \DeclareRobustCommand{\WCTLS}
1838   {\txtname{W}}\CTLS}
1839
1840 % Quantified Full Computation Tree Logic
1841 \DeclareRobustCommand{\QCTLS}
1842   {\txtname{Q}}\CTLS}
1843 \DeclareRobustCommand{\ECTLS}
1844   {\ensuremath{\exists}\CTLS}
1845 \DeclareRobustCommand{\UCTLS}
1846   {\ensuremath{\forall}\CTLS}
1847 %** Syntax *****%

\E ...
\A 1848 \usrnth{E}{\sym}
    1849 \usrnth{A}{\sym}
1850 %** Semantics *****%
...
1851 %** Game Logics I *****%

\ATL ...
... 1852 % Alternating Temporal Logic
    1853 \cmdtxtopname{ATL}
    1854
    1855 % Weak Alternating Tree Logic
    1856 \DeclareRobustCommand{\WATL}
    1857   {\txtname{W}}\ATL}
    1858
    1859 % Quantified Alternating Temporal Logic
    1860 \DeclareRobustCommand{\QATL}
    1861   {\txtname{Q}}\ATL}

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1862 \DeclareRobustCommand{\EATL}
1863   {\ensuremath{\exists}\ATL}
1864 \DeclareRobustCommand{\UATL}
1865   {\ensuremath{\forall}\ATL}
1866
1867 % Improved Alternating Temporal Logic
1868 \cmdtxtopname{ATLP}[ATL$^{+}$]
1869
1870 % Weak Improved Alternating Tree Logic
1871 \DeclareRobustCommand{\WATLP}
1872   {\txtname{W}\ATLP}
1873
1874 % Quantified Improved Alternating Temporal Logic
1875 \DeclareRobustCommand{\QATLP}
1876   {\txtname{Q}\ATLP}
1877 \DeclareRobustCommand{\EATLP}
1878   {\ensuremath{\exists}\ATLP}
1879 \DeclareRobustCommand{\UATLP}
1880   {\ensuremath{\forall}\ATLP}
1881
1882 % Full Alternating Temporal Logic
1883 \cmdtxtopname{ATLS}[ATL*]
1884
1885 % Weak Full Alternating Tree Logic
1886 \DeclareRobustCommand{\WATLS}
1887   {\txtname{W}\ATLS}
1888
1889 % Quantified Full Alternating Temporal Logic
1890 \DeclareRobustCommand{\QATLS}
1891   {\txtname{Q}\ATLS}
1892 \DeclareRobustCommand{\EATLS}
1893   {\ensuremath{\exists}\ATLS}
1894 \DeclareRobustCommand{\UATLS}
1895   {\ensuremath{\forall}\ATLS}
1896 %** Syntax *****%

```

\EExs ...

```

\AA11 1897 \DeclareRobustCommand{\EExs}[1]
1898   {\mth{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1899 \DeclareRobustCommand{\AA11}[1]
1900   {\mth{\argmid{\left[\left[]{\defval{#1}{\emptyset}}{\right]\right]}}}
1901 %** Semantics *****%

```

\CGS ...

```

1902 \cmdtxtname{CGS}

```

\CGSStr ...

```

... 1903 \newcommand{\cgsstr}{G}
1904 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

```

\AgnSet ...

```

... 1905 \newcommand{\agnsym}{a}
1906 \newcommand{\agnset}{Ag}
1907 \cmdmthsetext{Agn}[\agnset][\agnsym]

```

\ActSet ...

```

... 1908 \newcommand{\actsym}{c}
1909 \newcommand{\actset}{Ac}
1910 \cmdmthsetext{Act}[\actset][\actsym]

```

\PosSet ...

```

... 1911 \providecommand{\possym}{v}

```

```

1912 \providecommand{\posset}{Ps}
1913 \cmdmthsettext{Pos}[\posset][\possym]
1914 \cmdmthsymelm{ipos}[\possym_{I}]
1915 \cmdmthsymelm{fpos}[\possym_{F}]
1916 \cmdmthset{PPos}[\posset_{\PlrSym}]
1917 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1918 \cmdmthset{OPos}[\posset_{\OppSym}]
1919 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet ...
... 1920 \newcommand{\sttsym}{s}
1921 \newcommand{\sttset}{St}
1922 \cmdmthsettext{Stt}[\sttset][\sttsym]
1923 \cmdmthset{IStt}[\sttset_{I}]
1924 \cmdmthsymelm{istt}[\sttsym_{I}]
1925 \cmdmthset{FStt}[\sttset_{F}]
1926 \cmdmthsymelm{fstt}[\sttsym_{F}]

\DecSet ...
... 1927 \newcommand{\decsym}{d}
1928 \newcommand{\decset}{Dc}
1929 \cmdmthsettext{Dec}[\decset][\decsym]

\movFun ...
\movRel 1930 \newcommand{\movsym}{\tau}
1931 \cmdmthfun{mov}[\movsym]
1932 \cmdmthrel{mov}[\movsym]

\trnFun ...
\trnRel 1933 \newcommand{\trnsym}{\delta}
1934 \cmdmthfun{trn}[\trnsym]
1935 \cmdmthrel{trn}[\trnsym]

\PrfSet ...
1936 \providecommand{\prfsym}{\xi}
1937 \providecommand{\prfset}{Prf}
1938 \cmdmthsettext{Prf}[\prfset][\prfsym]

\HstSet ...
... 1939 \providecommand{\hstsym}{\varpi}
1940 \providecommand{\hstset}{Hst}
1941 \cmdmthsettext{Hst}[\hstset][\hstsym]
1942 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1943 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1944 \cmdmthset{OHst}[\hstset_{\OppSym}]
1945 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1946 \usrmth{hst}{\argfun}

\PlaySet ...
... 1947 \providecommand{\playsym}{\pi}
1948 \providecommand{\playset}{Play}
1949 \cmdmthsettext{Play}[\playset][\playsym]
1950 \usrmth{play}{\argfun}

\PlnSet ...
... 1951 \providecommand{\plnsym}{\rho}
1952 \providecommand{\plnset}{Pln}
1953 \cmdmthsettext{Pln}[\plnset][\plnsym]
1954 \cmdmthset{PPln}[\plnset_{\PlrSym}]
1955 \cmdmthsymelm{pPln}[\plnsym_{\PlrSym}]
1956 \cmdmthset{OPln}[\plnset_{\OppSym}]
1957 \cmdmthsymelm{oPln}[\plnsym_{\OppSym}]

```

```

\StrSet ...
... 1958 \providecommand{\strsym}{\sigma}
    1959 \providecommand{\strset}{\Str}
    1960 \cmdmthsetext{\Str}[\strset][\strsym]
    1961 \cmdmthset{PStr}[\strset_{\PlrSym}]
    1962 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
    1963 \cmdmthset{OStr}[\strset_{\OppSym}]
    1964 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

    1965 %** Game Logics II *****%%

\PL ...
... 1966 % Plan Logic
    1967 \cmdtxttoparname{\PL}
    1968
    1969 \DeclareRobustCommand{\EPL}
    1970   {\ensuremath{\exists}\PL}
    1971 \DeclareRobustCommand{\UPL}
    1972   {\ensuremath{\forall}\PL}
    1973
    1974 \DeclareRobustCommand{\FPL}
    1975   {\{\textname{F}\}\PL}
    1976
    1977 \DeclareRobustCommand{\EFPL}
    1978   {\ensuremath{\exists}\FPL}
    1979 \DeclareRobustCommand{\UFPL}
    1980   {\ensuremath{\forall}\FPL}
    1981
    1982 % One-Goal Plan Logic
    1983 \DeclareRobustCommandx{\OGPL}[3][1=, 2=, 3=]
    1984   {\PL[#1][#2][1g\arglef{,}{#3}]}
    1985
    1986 \DeclareRobustCommand{\EOGPL}
    1987   {\ensuremath{\exists}\OGPL}
    1988 \DeclareRobustCommand{\UOGPL}
    1989   {\ensuremath{\forall}\OGPL}
    1990
    1991 \DeclareRobustCommand{\FOGPL}
    1992   {\{\textname{F}\}\OGPL}
    1993
    1994 \DeclareRobustCommand{\EFOGPL}
    1995   {\ensuremath{\exists}\FOGPL}
    1996 \DeclareRobustCommand{\UFOGPL}
    1997   {\ensuremath{\forall}\FOGPL}
    1998
    1999 % Conjunctive-Goal Plan Logic
    2000 \DeclareRobustCommandx{\CGPL}[3][1=, 2=, 3=]
    2001   {\PL[#1][#2][cg\arglef{,}{#3}]}
    2002
    2003 \DeclareRobustCommand{\ECGPL}
    2004   {\ensuremath{\exists}\CGPL}
    2005 \DeclareRobustCommand{\UCGPL}
    2006   {\ensuremath{\forall}\CGPL}
    2007
    2008 \DeclareRobustCommand{\FCGPL}
    2009   {\{\textname{F}\}\CGPL}
    2010
    2011 \DeclareRobustCommand{\EFCGPL}
    2012   {\ensuremath{\exists}\FCGPL}
    2013 \DeclareRobustCommand{\UFCGPL}
    2014   {\ensuremath{\forall}\FCGPL}
    2015
    2016 % Disjunctive-Goal Plan Logic
    2017 \DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]

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2018 {\PL[#1][#2][dg\arglef{,}{#3}]}
2019
2020 \DeclareRobustCommand{\EDGPL}
2021 {\ensuremath{\exists}\DGPL}
2022 \DeclareRobustCommand{\UDGPL}
2023 {\ensuremath{\forall}\DGPL}
2024
2025 \DeclareRobustCommand{\FDGPL}
2026 {\{\textrm{F}\}\DGPL}
2027
2028 \DeclareRobustCommand{\EFDGPL}
2029 {\ensuremath{\exists}\FDGPL}
2030 \DeclareRobustCommand{\UFDGPL}
2031 {\ensuremath{\forall}\FDGPL}
2032
2033 % Alternating-Goal Plan Logic
2034 \DeclareRobustCommandx{\AGPL}[3][1=, 2=, 3=]
2035 {\PL[#1][#2][ag\arglef{,}{#3}]}
2036
2037 \DeclareRobustCommand{\EAGPL}
2038 {\ensuremath{\exists}\AGPL}
2039 \DeclareRobustCommand{\UAGPL}
2040 {\ensuremath{\forall}\AGPL}
2041
2042 \DeclareRobustCommand{\FAGPL}
2043 {\{\textrm{F}\}\AGPL}
2044
2045 \DeclareRobustCommand{\EFAGPL}
2046 {\ensuremath{\exists}\FAGPL}
2047 \DeclareRobustCommand{\UFAGPL}
2048 {\ensuremath{\forall}\FAGPL}
2049
2050 % Extended-Goal Plan Logic
2051 \DeclareRobustCommandx{\EGPL}[3][1=, 2=, 3=]
2052 {\PL[#1][#2][eg\arglef{,}{#3}]}
2053
2054 \DeclareRobustCommand{\EEGPL}
2055 {\ensuremath{\exists}\EGPL}
2056 \DeclareRobustCommand{\UEGPL}
2057 {\ensuremath{\forall}\EGPL}
2058
2059 \DeclareRobustCommand{\FEGPL}
2060 {\{\textrm{F}\}\EGPL}
2061
2062 \DeclareRobustCommand{\EFEGPL}
2063 {\ensuremath{\exists}\FEGPL}
2064 \DeclareRobustCommand{\UFEGPL}
2065 {\ensuremath{\forall}\FEGPL}
2066
2067 % Boolean-Goal Plan Logic
2068 \DeclareRobustCommandx{\BGPL}[3][1=, 2=, 3=]
2069 {\PL[#1][#2][bg\arglef{,}{#3}]}
2070
2071 \DeclareRobustCommand{\EBGPL}
2072 {\ensuremath{\exists}\BGPL}
2073 \DeclareRobustCommand{\UBGPL}
2074 {\ensuremath{\forall}\BGPL}
2075
2076 \DeclareRobustCommand{\FBGPL}
2077 {\{\textrm{F}\}\BGPL}
2078
2079 \DeclareRobustCommand{\EFBGPL}
2080 {\ensuremath{\exists}\FBGPL}

```

```

2081 \DeclareRobustCommand{\UFBGPL}
2082   {\ensuremath{\forall}\text{FBGPL}}
2083
2084 % Undefined-Goal Plan Logic
2085 \DeclareRobustCommandx{\XGPL}[3][1=, 2=, 3=]
2086   {\PL[#1][#2][xg\argleft{,}{#3}]}
2087
2088 \DeclareRobustCommand{\EXGPL}
2089   {\ensuremath{\exists}\text{XGPL}}
2090 \DeclareRobustCommand{\UXGPL}
2091   {\ensuremath{\forall}\text{XGPL}}
2092
2093 \DeclareRobustCommand{\FXGPL}
2094   {\{\textname{F}\}\text{XGPL}}
2095
2096 \DeclareRobustCommand{\EFXGPL}
2097   {\ensuremath{\exists}\text{FXGPL}}
2098 \DeclareRobustCommand{\UFXGPL}
2099   {\ensuremath{\forall}\text{FXGPL}}

```

\SL ...

```

... 2100 % Strategy Logic
2101 \cmdtxttoparname{SL}
2102
2103 \DeclareRobustCommand{\ESL}
2104   {\ensuremath{\exists}\text{SL}}
2105 \DeclareRobustCommand{\USL}
2106   {\ensuremath{\forall}\text{SL}}
2107
2108 \DeclareRobustCommand{\FSL}
2109   {\{\textname{F}\}\text{SL}}
2110
2111 \DeclareRobustCommand{\EFSL}
2112   {\ensuremath{\exists}\text{FSL}}
2113 \DeclareRobustCommand{\UFSL}
2114   {\ensuremath{\forall}\text{FSL}}
2115
2116 % One-Goal Strategy Logic
2117 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
2118   {\SL[#1][#2][lg\argleft{,}{#3}]}
2119
2120 \DeclareRobustCommand{\EOGSL}
2121   {\ensuremath{\exists}\text{OGSL}}
2122 \DeclareRobustCommand{\UOGSL}
2123   {\ensuremath{\forall}\text{OGSL}}
2124
2125 \DeclareRobustCommand{\FOGSL}
2126   {\{\textname{F}\}\text{OGSL}}
2127
2128 \DeclareRobustCommand{\EFOGSL}
2129   {\ensuremath{\exists}\text{FOGSL}}
2130 \DeclareRobustCommand{\UFOGSL}
2131   {\ensuremath{\forall}\text{FOGSL}}
2132
2133 % Conjunctive-Goal Strategy Logic
2134 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
2135   {\SL[#1][#2][cg\argleft{,}{#3}]}
2136
2137 \DeclareRobustCommand{\ECGSL}
2138   {\ensuremath{\exists}\text{CGSL}}
2139 \DeclareRobustCommand{\UCGSL}
2140   {\ensuremath{\forall}\text{CGSL}}
2141
2142 \DeclareRobustCommand{\FCGSL}

```



```

2143   {{\txtname{F}}\CGSL}
2144
2145 \DeclareRobustCommand{\EFCGSL}
2146   {\ensuremath{\exists}\FCGSL}
2147 \DeclareRobustCommand{\UFCGSL}
2148   {\ensuremath{\forall}\FCGSL}
2149
2150 % Disjunctive-Goal Strategy Logic
2151 \DeclareRobustCommandx{\DGSL}[3][1=, 2=, 3=]
2152   {\SL[#1][#2][dg\arglef{,}{#3}]}
2153
2154 \DeclareRobustCommand{\EDGSL}
2155   {\ensuremath{\exists}\DGSL}
2156 \DeclareRobustCommand{\UDGSL}
2157   {\ensuremath{\forall}\DGSL}
2158
2159 \DeclareRobustCommand{\FDGSL}
2160   {{\txtname{F}}\DGSL}
2161
2162 \DeclareRobustCommand{\EFDGSL}
2163   {\ensuremath{\exists}\FDGSL}
2164 \DeclareRobustCommand{\UFDGSL}
2165   {\ensuremath{\forall}\FDGSL}
2166
2167 % Alternating-Goal Strategy Logic
2168 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
2169   {\SL[#1][#2][ag\arglef{,}{#3}]}
2170
2171 \DeclareRobustCommand{\EAGSL}
2172   {\ensuremath{\exists}\AGSL}
2173 \DeclareRobustCommand{\UAGSL}
2174   {\ensuremath{\forall}\AGSL}
2175
2176 \DeclareRobustCommand{\FAGSL}
2177   {{\txtname{F}}\AGSL}
2178
2179 \DeclareRobustCommand{\EFAGSL}
2180   {\ensuremath{\exists}\FAGSL}
2181 \DeclareRobustCommand{\UFAGSL}
2182   {\ensuremath{\forall}\FAGSL}
2183
2184 % Extended-Goal Strategy Logic
2185 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
2186   {\SL[#1][#2][eg\arglef{,}{#3}]}
2187
2188 \DeclareRobustCommand{\EEGSL}
2189   {\ensuremath{\exists}\EGSL}
2190 \DeclareRobustCommand{\UEGSL}
2191   {\ensuremath{\forall}\EGSL}
2192
2193 \DeclareRobustCommand{\FEGSL}
2194   {{\txtname{F}}\EGSL}
2195
2196 \DeclareRobustCommand{\EFEGSL}
2197   {\ensuremath{\exists}\FEGSL}
2198 \DeclareRobustCommand{\UFEGSL}
2199   {\ensuremath{\forall}\FEGSL}
2200
2201 % Boolean-Goal Strategy Logic
2202 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
2203   {\SL[#1][#2][bg\arglef{,}{#3}]}
2204
2205 \DeclareRobustCommand{\EBGSL}

```

```

2206 {\ensuremath{\exists}\BGS}
2207 \DeclareRobustCommand{\UBGS}
2208 {\ensuremath{\forall}\BGS}
2209
2210 \DeclareRobustCommand{\FBGS}
2211 {\{\textname{F}\}\BGS}
2212
2213 \DeclareRobustCommand{\EFBGS}
2214 {\ensuremath{\exists}\FBGS}
2215 \DeclareRobustCommand{\UFBGS}
2216 {\ensuremath{\forall}\FBGS}
2217
2218 % Nested-Goal Strategy Logic
2219 \DeclareRobustCommandx{\NGS}[3][1=, 2=, 3=]
2220 {\SL[#1][#2][ng\arglef{,}{#3}]}
2221
2222 \DeclareRobustCommand{\ENGSL}
2223 {\ensuremath{\exists}\NGSL}
2224 \DeclareRobustCommand{\UNGSL}
2225 {\ensuremath{\forall}\NGSL}
2226
2227 \DeclareRobustCommand{\FNGSL}
2228 {\{\textname{F}\}\NGSL}
2229
2230 \DeclareRobustCommand{\EFNGSL}
2231 {\ensuremath{\exists}\FNGSL}
2232 \DeclareRobustCommand{\UFNGSL}
2233 {\ensuremath{\forall}\FNGSL}
2234
2235 % Undefined-Goal Strategy Logic
2236 \DeclareRobustCommandx{\XGS}[3][1=, 2=, 3=]
2237 {\SL[#1][#2][xg\arglef{,}{#3}]}
2238
2239 \DeclareRobustCommand{\EXGSL}
2240 {\ensuremath{\exists}\XGSL}
2241 \DeclareRobustCommand{\UXGSL}
2242 {\ensuremath{\forall}\XGSL}
2243
2244 \DeclareRobustCommand{\FXGSL}
2245 {\{\textname{F}\}\XGSL}
2246
2247 \DeclareRobustCommand{\EFXGSL}
2248 {\ensuremath{\exists}\FXGSL}
2249 \DeclareRobustCommand{\UFXGSL}
2250 {\ensuremath{\forall}\FXGSL}
2251 %** Syntax *****%

```

\BndSet ...

```

... 2252 \newcommand{\bndsym}{\flat}
2253 \newcommand{\bndset}{\Bn}
2254 \cmdmthsetext{Bnd}[\bndset][\bndsym]
2255 \cmdmthsymelm{idbnd}[\bndsym_{\text{id}}]
2256 \usrmth{bnd}{\}{argfun}

```

\psn ...

```

2257 \usrmth{psn}{\}{argfun}

2258 %** Semantics *****%

```

\nxt ...

```

2259 \usrmth{nxt}{\}{argfun}

2260 \fi
2261 %*****%

```

```

2262 %*****%
2263 %** Macros for Automata *****%
2264 %*****%
2265 \ifaut@

2266 %** Finite Word Automata *****%

\DFA ...
... 2267 \cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}
2268
2269 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
2270
2271 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
2272 \cmdtxtoparname{DWW}\cmdtxtoparname{NWW}\cmdtxtoparname{UWW}\cmdtxtoparname{AWW}
2273 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
2274 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
2275 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
2276 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
2277 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
2278 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

\GFG ...
... 2279 \cmdtxtoparname{GFG}
2280
2281 \cmdtxtoparname{PD}
2282 \cmdtxtoparname{PN}
2283
2284 \cmdtxtoparname{LD}
2285 \cmdtxtoparname{LN}

2286 %** Syntax *****%

\AutName ...
... 2287 \newcommand{\autname}{A}
2288 \usrn\thlatupp{Aut}{Name}{name}[\autname]
2289 \newcommand{\autset}{Aut}
2290 \cmdmthset{Aut}[\autset]

\WAutSet ...
2291 \newcommand{\wautset}{WAut}
2292 \cmdmthset{WAut}[\wautset]

\SymSet ...
... 2293 \newcommand{\symsym}{\sigma}
2294 \newcommand{\symset}{\Sigma}
2295 \cmdmthsetext{Sym}[\symset][\symsym]

\SttSet ...
... 2296 \providecommand{\sttsym}{q}
2297 \providecommand{\sttset}{Q}
2298 \cmdmthsetext{Stt}[\sttset][\sttsym]
2299 \cmdmthset{IStt}[\sttset_I]
2300 \cmdmthsymelm{istt}[\sttsym_I]
2301 \cmdmthset{FStt}[\sttset_F]
2302 \cmdmthsymelm{fstt}[\sttsym_F]

\trnFun ...
\trnRel 2303 \providecommand{\trnsym}{\delta}
2304 \cmdmthfun{trn}[\trnsym]
2305 \cmdmthrel{trn}[\trnsym]

2306 %** Semantics *****%

```

```

\WrdSet ...
... 2307 \newcommand{\wrdsym}{w}
2308 \newcommand{\wrdsym}{w}
2309 \cmdmthsetext{Wrd}{\wrdsym} [\wrdsym]

\Lang ...
2310 \usrmth{Lang}{-}{argfun} [L]

2311 %** Finite Tree Automata *****%

\DTA ...
... 2312 \cmdtxtopname{DTA}\cmdtxtopname{NTA}\cmdtxtopname{UTA}\cmdtxtopname{ATA}
2313
2314 \cmdtxtopname{DFT}\cmdtxtopname{NFT}\cmdtxtopname{UFT}\cmdtxtopname{AFT}
2315 \cmdtxtopname{DWT}\cmdtxtopname{NWT}\cmdtxtopname{UWT}\cmdtxtopname{AWT}
2316 \cmdtxtopname{DBT}\cmdtxtopname{NBT}\cmdtxtopname{UBT}\cmdtxtopname{ABT}
2317 \cmdtxtopname{DCT}\cmdtxtopname{NCT}\cmdtxtopname{UCT}\cmdtxtopname{ACT}
2318 \cmdtxtopname{DPT}\cmdtxtopname{NPT}\cmdtxtopname{UPT}\cmdtxtopname{APT}
2319 \cmdtxtopname{DRT}\cmdtxtopname{NRT}\cmdtxtopname{URT}\cmdtxtopname{ART}
2320 \cmdtxtopname{DST}\cmdtxtopname{NST}\cmdtxtopname{UST}\cmdtxtopname{AST}
2321 \cmdtxtopname{DMT}\cmdtxtopname{NMT}\cmdtxtopname{UMT}\cmdtxtopname{AMT}
2322 %** Syntax *****%

\TAutSet ...
2323 \newcommand{\tautset}{TAut}
2324 \cmdmthset{TAut}{\tautset}

\DirSet ...
... 2325 \newcommand{\dirsym}{d}
2326 \newcommand{\dirset}{\Lambda}
2327 \cmdmthsetext{Dir}{\dirset} [\dirsym]

2328 %** Semantics *****%

\TreeSet ...
... 2329 \newcommand{\treesym}{T}
2330 \newcommand{\treeset}{Tr}
2331 \cmdmthsetext{Tree}{\treeset} [\treesym]

\wot ...
2332 \usrmth{wot}{-}{argfun}

2333 \fi
2334 %*****%

2335 %*****%
2336 %** Format Tricks *****%
2337 %*****%
2338 \iffirm@
2339 \RequirePackage{multicol}

...
2340 %...

2341 \fi
2342 %*****%

2343 %*****%
2344 %** Figure Tricks *****%
2345 %*****%
2346 \iffig@
2347 \RequirePackage{tikz}
2348 \usetikzlibrary{calc,arrows,shapes,patterns,graphs,matrix}

```

```

2349 \tikzstyle{every node} =
2350   [draw = none, fill = none, black, thin]
2351 \tikzstyle{every edge} +=
2352   [black, thick]

2353 \tikzstyle{noall} =
2354   [draw = none, fill = none]
2355 \tikzstyle{nodraw} =
2356   [draw = none, fill = white]
2357 \tikzstyle{nofill} =
2358   [draw = black, fill = none]

2359 \ifwrpfig@
2360   % Wrapfig Package
2361   \RequirePackage{wrapfig}
2362 \fi

2363 \fi
2364 %%*****%

2365 %%*****%
2366 %%** Table Tricks *****%
2367 %%*****%
2368 \iftab@

... ..

2369 %%...

2370 \fi
2371 %%*****%

2372 %%*****%
2373 %%** Algorithm Tricks *****%
2374 %%*****%
2375 \ifalg@

2376 \RequirePackage[ruled,vlined]{algorithm2e}
2377 \DontPrintSemicolon
2378 \SetInd{0.25em}{0.5em}
2379 \setlength{\algomargin}{1.25em}

\Signature ...
2380 \SetKw{Signature}{signature}

\Macro ...
\Function 2381 \SetKwFor{Macro}{macro}{}{}
\Procedure 2382 \SetKwFor{Function}{function}{}{}
2383 \SetKwFor{Procedure}{procedure}{}{}

\Let ...
2384 \SetKwFor{Let}{let}{in}{}

\True ...
\False 2385 \SetKw{True}{true}
2386 \SetKw{False}{false}

\From ...
\To 2387 \SetKw{From}{from}
\DownTo 2388 \SetKw{To}{to}
2389 \SetKw{DownTo}{downto}

\GoTo ...
\Break 2390 \SetKw{GoTo}{goto}
\Continue 2391 \SetKw{Break}{break}
2392 \SetKw{Continue}{continue}

```

```

\Guess ...
\ExsGuess 2393 \SetKw{Guess}{guess}
\AllGuess 2394 \SetKw{ExsGuess}{$\exists$-guess}
          2395 \SetKw{AllGuess}{$\forall$-guess}

\MIf ...
\MElseIf 2396 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}
\MElse
\nlr ...
          2397 \newrobustcmd{\nlr}[1]
          2398   {\addtocounter{AlgoLine}{1}%
          2399   \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

          2400 \fi
          2401 %%*****%
          2402 \endinput
          2403 \</package>

```

2 Change History

v0.0	General: First public release 1	v0.23	General: New ‘Graphs’ section and small improvements 1
v0.1	General: Algorithm tricks 1	v0.24	General: Correction of fragile macros 1
v0.10	General: Small refinements 1	v0.25	General: Few additions and corrections 1
v0.11	General: Few additions and corrections 1	v0.26	General: Few additions 1
v0.12	General: New starred variants 1	v0.27	General: Small addition to ‘Algorithm tricks’ 1
v0.13	General: Further starred variants 1	v0.28	General: Few additions 1
v0.14	General: Few additions and corrections 1	v0.29	General: Correction of fragile macros 1
v0.15	General: Refactoring of dtx sources 1	v0.3	General: Few problems solved 1
v0.16	General: Small refinements and few additions 1	v0.30	General: Improvements and new command variants 1
v0.17	General: Few additions 1	v0.4	General: Refactoring, corrections, and extensions 1
v0.18	General: Few new starred variants 1	v0.5	General: Figure tricks 1
v0.19	General: Additional starred variants 1	v0.6	General: Small refinements 1
v0.2	General: Changes in ‘Auxiliary tricks’ 1	v0.7	General: Refinements, corrections, and extensions 1
v0.20	General: New binary operators 1	v0.8	General: Few refinements and corrections 1
v0.21	General: Refactoring of function macros 1	v0.9	General: Small addition to ‘Algorithm tricks’ 1
v0.22	General: Few additions 1		

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