

fmocdmac — FM's OCD L^AT_EX Macro*

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Released 2024/02/21

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 v0.29 of the fmocdmac package, last revised 2024/02/21.

```

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

```
165 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

\varcmd Variadic commands: `\varcmd{<A>}{}{<C>}{<D>}{<E>}{<F>} ... to do!`

```
166 \DeclareRobustCommand{\varcmd}[6]
167   {\expandafter\newcommand\csgobble#1arg\endcsname[2]
168     {\csgobble check#1arg\endcsname{\argsep{##1}{#4}{\empchk{##2}{##2}}}}%
169   \expandafter\newcommand\csgobble check#1arg\endcsname[1]
170     {\csgobble @ifnextchar\endcsname%
171     \bgroup\csgobble#1arg\endcsname{##1}{#2{##1#5}#6}}%
172   \expandafter\newcommand\csgobble#1\endcsname[1]
173     {\csgobble check#1arg\endcsname{#3##1}}}
```

```

174 %%*****%

\seqoftag Sequence of tags: \seqoftag{<A>}{<B>}{<C>} ... to do!
175 \DeclareRobustCommand{\seqoftag}[3]
176   {\@for\itr:={#1}\do%
177     {\expandafter\csedef{\itr#2}%
178       {\noexpand\csname #3\endcsname{\itr}}}}

\seqofcmd Sequence of commands: \seqofcmd{<A>}{<B>}{<C>} ... to do!
179 \DeclareRobustCommand{\seqofcmd}[3]
180   {\@for\itr:={#1}\do%
181     {\expandafter\csedef{\itr#2}%
182       {\noexpand\csname #3\endcsname{\csname \itr\endcsname}}}}

183 %%*****%

\seqoflatlow Sequence of Latin lowercase letters: \seqoflatlow{<A>}{<B>} ... to do!
184 \DeclareRobustCommand{\seqoflatlow}
185   {\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!
186 \DeclareRobustCommand{\seqoflatupp}
187   {\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!
188 \DeclareRobustCommand{\seqoflatlet}[2]
189   {\seqoflatlow{#1}{#2}\seqoflatupp{#1}{#2}}

190 %%*****%

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

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

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

201 %%*****%

\seqoflow Sequence of lowercase letters: \seqoflow{<A>}{<B>} ... to do!
202 \DeclareRobustCommand{\seqoflow}[2]
203   {\seqoflatlow{#1}{#2}\seqofgrklow{#1}{#2}}

\seqofupp Sequence of uppercase letters: \seqofupp{<A>}{<B>} ... to do!
204 \DeclareRobustCommand{\seqofupp}[2]
205   {\seqoflatupp{#1}{#2}\seqofgrkupp{#1}{#2}}

\seqoflet Sequence of all letters: \seqoflet{<A>}{<B>} ... to do!
206 \DeclareRobustCommand{\seqoflet}[2]
207   {\seqoflow{#1}{#2}\seqofupp{#1}{#2}}

208 %%*****%

```

```

209 %*****%
210 %** Auxiliary Packages *****%
211 %*****%
212 \ifaux@
213
214 \ifamsdef@
215   % AMS Packages
216   \RequirePackage{mathtools}
217   \RequirePackage{amssymb}
218   \RequirePackage{stmaryrd}
219   \interdisplaylinepenalty=2500
220 \fi
221
222 \ifamsthm@
223   % AMS Theorem Tools
224   \RequirePackage{amsthm}
225 \fi
226
227 \ifthmtls@
228   % Extended Theorem Tools
229   \RequirePackage{thmtools}
230   \RequirePackage{thm-restate}
231 \fi
232
233 \ifenmtls@
234   % Enumeration Tools
235   \RequirePackage{paralist}
236 \fi
237
238 \ifhympref@
239   % Hyper References
240   \RequirePackage{hyperref}
241   \hypersetup {
242     pdfsubject      = {},
243     pdfkeywords     = {},
244     pdfproducer     = {},
245     pdfcreator      = {},
246     pdfpagemode     = {UseNone},
247     pdfstartview    = {FitH},
248     urlcolor        = {blue},
249     colorlinks
250   }
251 \fi
252
253 \iffnttls@
254   % Font Tools
255   \RequirePackage[final]{microtype}
256 \fi
257
258 \ifcrv@
259   % Camera-Ready Version
260
261   %...
262
263 \else
264   % Draft Version
265
266   %...
267
268   \ifchgbar@
269     % Change Bars
270     \RequirePackage{changebar}
271   \fi

```

```

272
273 \iflnum@
274 % Line Numbers
275 \if@twocolumn
276 \RequirePackage[switch, columnwise, mathlines]{lineno}\linenumbers
277 \else
278 \RequirePackage[columnwise, mathlines]{lineno}\linenumbers
279 \fi
280 \fi
281
282 %...
283
284 \fi
285
286 \fi
287 %*****%
288 %*****%
289 %** Auxiliary Font Declarations *****%
290 %*****%

```

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

```

291 \ifdef{\mathbbo}{\DeclareMathAlphabet{\mathbbo}{U}{bbold}{m}{n}}

```

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

```

292 \ifdef{\matheus}{\DeclareMathAlphabet{\matheus}{U}{eus}{m}{n}}

```

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

```

293 \ifdef{\mathpzc}{\DeclareMathAlphabet{\mathpzc}{T1}{pzc}{m}{it}}

```

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

```

294 \ifdef{\mathscr}{\DeclareMathAlphabet{\mathscr}{U}{rsfs}{m}{n}}

```

```

295 %*****%
296 %*****%
297 %** Text Meta Commands *****%
298 %*****%

```

\newtxt ... to do!

```

• \newtxt[\rmfamily]{Name}[sub][sup][Ext] = "NamesubExt"
• \newtxt[\sffamily]{Name}[sub][sup][Ext] = "NamesubExt"
• \newtxt[\ttfamily]{Name}[sub][sup][Ext] = "NamesubExt"
• \newtxt*[\rmfamily]{Name}[sub][sup][Ext] = "NamesubExt"
• \newtxt*[\sffamily]{Name}[sub][sup][Ext] = "NamesubExt"
• \newtxt*[\ttfamily]{Name}[sub][sup][Ext] = "NamesubExt"
299 \DeclareRobustCommand{\newtxt}
300 {\@ifstar{\@snewtxt}{\@newtxt}}
301 \DeclareRobustCommandx{\@newtxt}[5][1=, 3=, 4=, 5=]
302 {\text{#1#2\txsubsup{#1}{#3}{#4}{#5}\xspace}}
303 \DeclareRobustCommandx{\@snewtxt}[5][1=, 3=, 4=, 5=]
304 {#1#2\txsubsup{#1}{#3}{#4}{#5}\normalfont\xspace}}

```

\newtxtsty ... to do!

```

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

```

```

305 \DeclareRobustCommand{\newtxtsty}
306   {\@ifstar{\@snewtxtsty}{\@newtxtsty}}
307 \DeclareRobustCommandx{\@newtxtsty}[2][2=]
308   {\newtxt[\defval{#2}{#1}]}
309 \DeclareRobustCommandx{\@snewtxtsty}[2][2=]
310   {\newtxt*[\defval{#2}{#1}]}

```

\newtxtarg ... to do!

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

```

311 \DeclareRobustCommand{\newtxtarg}
312   {\@ifstar{\@snewtxtarg}{\@newtxtarg}}
313 \DeclareRobustCommandx{\@newtxtarg}[7][1=, 3=, 4=, 5=, 7=]
314   {\newtxt[#1]{#2}[#3][#4][\argmid{#5}{#6}{#7}]}
315 \DeclareRobustCommandx{\@snewtxtarg}[7][1=, 3=, 4=, 5=, 7=]
316   {\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”

```

317 \DeclareRobustCommand{\newtxtargsty}
318   {\@ifstar{\@snewtxtargsty}{\@newtxtargsty}}
319 \DeclareRobustCommandx{\@newtxtargsty}[2][2=]
320   {\newtxtarg[\defval{#2}{#1}]}
321 \DeclareRobustCommandx{\@snewtxtargsty}[2][2=]
322   {\newtxtarg*[\defval{#2}{#1}]}

```

\newtxtoarg ... to do!

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

```

323 \DeclareRobustCommand{\newtxtoarg}
324   {\@ifstar{\@snewtxtoarg}{\@newtxtoarg}}
325 \DeclareRobustCommandx{\@newtxtoarg}[5][1=, 3=, 4=, 5=]
326   {\newtxarg[#1]{#2}[#3][#4][\#5]}
327 \DeclareRobustCommandx{\@snewtxtoarg}[5][1=, 3=, 4=, 5=]
328   {\newtxarg*[#1]{#2}[#3][#4][\#5]}

```

\newtxtoargsty ... to do!

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

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

```

329 \DeclareRobustCommand{\newtxtoargsty}
330   {\@ifstar{\@snewtxtoargsty}{\@newtxtoargsty}}
331 \DeclareRobustCommandx{\@newtxtoargsty}[2][2=]
332   {\newtxtoarg[\defval{#2}{#1}]}
333 \DeclareRobustCommandx{\@snewtxtoargsty}[2][2=]
334   {\newtxtoarg*[\defval{#2}{#1}]}

```

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

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

```

335 \DeclareRobustCommand{\newtxtpar}
336   {\@ifstar{\@snewtxtpar}{\@newtxtpar}}
337 \DeclareRobustCommandx{\@newtxtpar}[7][1=, 3=, 4=, 5=, 7=]
338   {\newtxt[#1]{#2}[#3][#4][\argmid{#5}{#6}{#7}]}
339 \DeclareRobustCommandx{\@snewtxtpar}[7][1=, 3=, 4=, 5=, 7=]
340   {\newtxt*[#1]{#2}[#3][#4][\argmid{#5}{#6}{#7}]}

```

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

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

```

341 \DeclareRobustCommand{\newtxtparsty}
342   {\@ifstar{\@snewtxtparsty}{\@newtxtparsty}}
343 \DeclareRobustCommandx{\@newtxtparsty}[2][2=]
344   {\newtxtpar[\defval{#2}{#1}]}
345 \DeclareRobustCommandx{\@snewtxtparsty}[2][2=]
346   {\newtxtpar*[\defval{#2}{#1}]}

```

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

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

```

347 \DeclareRobustCommand{\newtxtopar}
348   {\@ifstar{\@snewtxtopar}{\@newtxtopar}}
349 \DeclareRobustCommandx{\@newtxtopar}[5][1=, 3=, 4=, 5=]
350   {\newtxtpar[#1]{#2}[#3][#4][#5]}
351 \DeclareRobustCommandx{\@snewtxtopar}[5][1=, 3=, 4=, 5=]
352   {\newtxtpar*[#1]{#2}[#3][#4][#5]}

```

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

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

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

```

353 \DeclareRobustCommand{\newtxtoparsty}
354   {\@ifstar{\@snewtxtoparsty}{\@newtxtoparsty}}
355 \DeclareRobustCommand{\@newtxtoparsty}[2][2=]
356   {\newtxtopar[\defval{#2}{#1}]}
357 \DeclareRobustCommand{\@snewtxtoparsty}[2][2=]
358   {\newtxtopar*\defval{#2}{#1}}

```

$\texttt{\textsubscript}$... to do!

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

```

359 \DeclareRobustCommand{\textsubsup}[3]{}
360   {\ensuremath{\empchk{#2}{_}\text{#1#2}}\empchk{#3}{\text{#1#3}}}}
361 %*****%

```

$\texttt{\textsup}$... to do!

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

```

362 \DeclareRobustCommand{\textsup}
363   {\@ifstar{\newtxtsty}{\newtxtsty}{\newtxtsty}}

```

$\texttt{\textarg}$... to do!

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

```

364 \DeclareRobustCommand{\textarg}
365   {\@ifstar{\newtxargsty}{\newtxargsty}{\newtxargsty}}

```

$\texttt{\texttoarg}$... to do!

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

```

366 \DeclareRobustCommand{\texttoarg}
367   {\@ifstar{\newtxtoargsty}{\newtxtoargsty}{\newtxtoargsty}}

```

$\texttt{\textpar}$... to do!

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

```

    • \txtpar*[\bfseries]{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesupsubExt1[Par]Ext2"
368 \DeclareRobustCommand{\txtpar}
369   {\@ifstar{\newtxtparsty*{\txtsty}}{\newtxtparsty{\txtsty}}}

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

\txststy ... to do!
372 \DeclareRobustCommand{\txststy}
373   {\mdseries\upshape\rmfamily}

374 %%*****%

\cmdtxt ... to do!
    • \cmdtxt{NewCmd}; \newcommand{\txststyNewCmd}{\scshape\ttfamily};
      \txtNewCmd{Name}[sub][sup][Ext] = NAMEsupSUBEXT
      \txtNewCmd*{Name}[sub][sup][Ext] = NAMEsupSUBEXT
375 \DeclareRobustCommand{\cmdtxt}[1]
376   {\csdef{\txt#1}%
377     {\protect\@ifstar%
378       {\newtxststy*{\csname txtsty#1\endcsname}}%
379       {\newtxststy{\csname txtsty#1\endcsname}}}}

\cmdtxtarg ... to do!
    • \cmdtxtarg{NewCmd}; \newcommand{\txststyNewCmd}{\scshape\ttfamily};
      \txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMEsupSUBEXT1(ARG)EXT2
      \txtargNewCmd*{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMEsupSUBEXT1(ARG)EXT2
380 \DeclareRobustCommand{\cmdtxtarg}[1]
381   {\csdef{\txtarg#1}%
382     {\protect\@ifstar%
383       {\newtxtargsty*{\csname txtsty#1\endcsname}}%
384       {\newtxtargsty{\csname txtsty#1\endcsname}}}}

\cmdtxttoarg ... to do!
    • \cmdtxttoarg{NewCmd}; \newcommand{\txststyNewCmd}{\scshape\ttfamily};
      \txtoargNewCmd{Name}[sub][sup][Arg] = NAMEsupSUB(ARG)
      \txtoargNewCmd*{Name}[sub][sup][Arg] = NAMEsupSUB(ARG)
385 \DeclareRobustCommand{\cmdtxttoarg}[1]
386   {\csdef{\txtoarg#1}%
387     {\protect\@ifstar%
388       {\newtxtoargsty*{\csname txtsty#1\endcsname}}%
389       {\newtxtoargsty{\csname txtsty#1\endcsname}}}}

\cmdtxtpar ... to do!
    • \cmdtxtpar{NewCmd}; \newcommand{\txststyNewCmd}{\scshape\ttfamily};
      \txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMEsupSUBEXT1[PAR]EXT2
      \txtparNewCmd*{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMEsupSUBEXT1[PAR]EXT2
390 \DeclareRobustCommand{\cmdtxtpar}[1]
391   {\csdef{\txtpar#1}%
392     {\protect\@ifstar%
393       {\newtxtparsty*{\csname txtsty#1\endcsname}}%
394       {\newtxtparsty{\csname txtsty#1\endcsname}}}}

```

\cmdtxtopar ... to do!

```

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

395 \DeclareRobustCommand{\cmdtxtopar}[1]
396   {\csdef{txtopar#1}%
397    {\protect\ifstar%
398     {\newtxtoparsty{\csname txtsty#1\endcsname}}%
399     {\newtxtoparsty{\csname txtsty#1\endcsname}}}}

```

\cmdtxtall ... to do!

```

• \cmdtxtall{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
  \txtNewCmd{Name}[sub][sup][Ext] = NAMESUBExt
  \txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBExt1(AR)Ext2
  \txtoargNewCmd{Name}[sub][sup][Arg] = NAMESUB(AR)
  \txtparNewCmd{Name}[sub][sup][Ext1][Par][Ext2] = NAMESUBExt1[PAR]Ext2
  \txtoparNewCmd{Name}[sub][sup][Par] = NAMESUB[PAR]

400 \DeclareRobustCommand{\cmdtxtall}[1]
401   {\cmdtxt{#1}\cmdtxtarg{#1}\cmdtxtoarg{#1}\cmdtxtpar{#1}\cmdtxtopar{#1}}

402 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

\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]

403 \DeclareRobustCommandx{\usrtxt}[4][4=]
404   {\csdef{#1#2}%
405    {\protect\ifstar%
406     {\csname txt#3\endcsname*\defval{#4}{#1}}}%
407     {\csname txt#3\endcsname\defval{#4}{#1}}}}

408 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
409 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
410 %** Math Meta Commands %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
411 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

\newmth ... to do!

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

```

412 \DeclareRobustCommand{\newmth}
413   {\@ifstar{\@snewmth}{\@newmth}}
414 \DeclareRobustCommandx{\@newmth}[5][1=, 3=, 4=, 5=]
415   {\ensuremath{\csname#1\endcsname{#2}\mthsubsup{#3}{#4}{#5}}}
416 \DeclareRobustCommandx{\@snewmth}[5][1=, 3=, 4=, 5=]
417   {\ensuremath{\csname#1\endcsname #2\mthsubsup{#3}{#4}{#5}}}

```

\newmthsty ... to do!

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

```

418 \DeclareRobustCommand{\newmthsty}
419   {\@ifstar{\@snewmthsty}{\@newmthsty}}
420 \DeclareRobustCommandx{\@newmthsty}[2][2=]
421   {\newmth[\defval{#2}{#1}]}
422 \DeclareRobustCommandx{\@snewmthsty}[2][2=]
423   {\newmth*\defval{#2}{#1}}

```

\newmtharg ... to do!

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

```

424 \DeclareRobustCommand{\newmtharg}
425   {\@ifstar{\@snewmtharg}{\@newmtharg}}
426 \DeclareRobustCommandx{\@newmtharg}[7][1=, 3=, 4=, 5=, 7=]
427   {\newmth[#1]{#2}{#3}{#4}[\argmid{#5}!\left(\right)\arglef{!}{#7}]}
428 \DeclareRobustCommandx{\@snewmtharg}[7][1=, 3=, 4=, 5=, 7=]
429   {\newmth[#1]{#2}{#3}{#4}[\argmid{#5}(\right){#7}]}

```

\newmthargsty ... to do!

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

```

430 \DeclareRobustCommand{\newmthargsty}
431   {\@ifstar{\@snewmthargsty}{\@newmthargsty}}
432 \DeclareRobustCommandx{\@newmthargsty}[2][2=]
433   {\newmtharg[\defval{#2}{#1}]}
434 \DeclareRobustCommandx{\@snewmthargsty}[2][2=]
435   {\newmtharg*\defval{#2}{#1}}

```

\newmthoarg ... to do!

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

- ```

436 \DeclareRobustCommand{\newmthoarg}
437 {\@ifstar{\@snewmthoarg}{\@newmthoarg}}
438 \DeclareRobustCommandx{\@newmthoarg}[5][1=, 3=, 4=, 5=]
439 {\newmtharg{#1}{#2}{#3}[#4] [] {#5} []}
440 \DeclareRobustCommandx{\@snewmthoarg}[5][1=, 3=, 4=, 5=]
441 {\newmtharg*{#1}{#2}{#3}[#4] [] {#5} []}

```

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

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

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

```

454 \DeclareRobustCommand{\newmthparsty}
455 {\@ifstar{\@snewmthparsty}{\@newmthparsty}}
456 \DeclareRobustCommandx{\@newmthparsty}[2][2=]
457 {\newmthpar[\defval{#2}{#1}]}
458 \DeclareRobustCommandx{\@snewmthparsty}[2][2=]
459 {\newmthpar*[\defval{#2}{#1}]}

```

\newmthopar ... to do!

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

```

460 \DeclareRobustCommand{\newmthopar}
461 {\@ifstar{\@snewmthopar}{\@newmthopar}}
462 \DeclareRobustCommandx{\@newmthopar}[5][1=, 3=, 4=, 5=]
463 {\newmthpar{#1}{#2}{#3}{#4}[]{}{#5}[]}
464 \DeclareRobustCommandx{\@snewmthopar}[5][1=, 3=, 4=, 5=]
465 {\newmthpar*{#1}{#2}{#3}{#4}[]{}{#5}[]}

```

\newmthoparsty ... to do!

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

```

466 \DeclareRobustCommand{\newmthoparsty}
467 {\@ifstar{\@snewmthoparsty}{\@newmthoparsty}}
468 \DeclareRobustCommandx{\@newmthoparsty}[2][2=]
469 {\newmthopar[\defval{#2}{#1}]}
470 \DeclareRobustCommandx{\@snewmthoparsty}[2][2=]
471 {\newmthopar*[\defval{#2}{#1}]}

```

\mthsubsup ... to do!

```

472 \DeclareRobustCommand{\mthsubsup}[2]
473 {\empchk{#1}{_}{#1}}{\empchk{#2}{^}{#2}}

```

```

474 %%*****

```

\mth ... to do!

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

```

475 \DeclareRobustCommand{\mth}
476 {\@ifstar{\newmthsty}{\mthsty}}{\newmthsty{\mthsty}}

```

\mtharg ... to do!





```

• \cmdmth{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthNewCmd{Name}[sub][sup][Ext] = NamesubsubExt
\mthNewCmd*{Name}[sub][sup][Ext] = NamesubsubExt

488 \DeclareRobustCommand{\cmdmth}[1]
489 {\csdef{mth#1}%
490 {\protect\@ifstar{\newmthsty*{mthsty#1}}{\newmthsty{mthsty#1}}}}

\cmdmtharg ... to do!

• \cmdmtharg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthargNewCmd{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsubExt1(ArgExExEx)Ext2
\mthargNewCmd*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsubExt1(ArgExExEx)Ext2

491 \DeclareRobustCommand{\cmdmtharg}[1]
492 {\csdef{mtharg#1}%
493 {\protect\@ifstar{\newmthargsty*{mthsty#1}}{\newmthargsty{mthsty#1}}}}

\cmdmthoarg ... to do!

• \cmdmthoarg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExExEx)
\mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExExEx)

494 \DeclareRobustCommand{\cmdmthoarg}[1]
495 {\csdef{mthoarg#1}%
496 {\protect\@ifstar{\newmthoargsty*{mthsty#1}}{\newmthoargsty{mthsty#1}}}}

\cmdmthpar ... to do!

• \cmdmthpar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsubExt1[ParExExEx]Ext2
\mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsubExt1[ParExExEx]Ext2

497 \DeclareRobustCommand{\cmdmthpar}[1]
498 {\csdef{mthpar#1}%
499 {\protect\@ifstar{\newmthparsty*{mthsty#1}}{\newmthparsty{mthsty#1}}}}

\cmdmthopar ... to do!

• \cmdmthopar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExExEx]
\mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExExEx]

500 \DeclareRobustCommand{\cmdmthopar}[1]
501 {\csdef{mthopar#1}%
502 {\protect\@ifstar{\newmthoparsty*{mthsty#1}}{\newmthoparsty{mthsty#1}}}}

\cmdmthall ... to do!

• \cmdmthall{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthNewCmd{Name}[sub][sup][Ext] = NamesubsubExt
\mthargNewCmd{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsubExt1(ArgExExEx)Ext2
\mthargNewCmd*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsubExt1(ArgExExEx)Ext2
\mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExExEx)
\mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExExEx)
\mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsubExt1[ParExExEx]Ext2
\mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsubExt1[ParExExEx]Ext2
\mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExExEx]
\mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExExEx]

503 \DeclareRobustCommand{\cmdmthall}[1]
504 {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#1}}

505 %%*****%

```

\usrmth ... to do!

- \usrmth{cmdName}{Suf}{};  
 $\text{cmdNameSuf} = \text{cmdName}$   
 $\text{cmdNameSuf*} = \text{cmdName}$   
 $\text{usrmth}\{\text{cmdName}\}\{\text{Suf}\}\{\text{arg}\};$   
 $\text{cmdNameSuf}\{\text{Arg}^{\text{Ex}}\{\text{Ex}\}\} = \text{cmdName}\left(\text{Arg}^{\text{Ex}^{\text{Ex}}}\right)$   
 $\text{cmdNameSuf*}\{\text{Arg}^{\text{Ex}}\{\text{Ex}\}\} = \text{cmdName}\left(\text{Arg}^{\text{Ex}^{\text{Ex}}}\right)$   
 $\text{usrmth}\{\text{cmdName}\}\{\text{Suf}\}\{\text{par}\};$   
 $\text{cmdNameSuf}\{\text{Par}^{\text{Ex}}\{\text{Ex}\}\} = \text{cmdName}\left[\text{Par}^{\text{Ex}^{\text{Ex}}}\right]$   
 $\text{cmdNameSuf*}\{\text{Par}^{\text{Ex}}\{\text{Ex}\}\} = \text{cmdName}\left[\text{Par}^{\text{Ex}^{\text{Ex}}}\right]$
- \usrmth{cmdName}{Suf}{}[newName];  
 $\text{cmdNameSuf} = \text{newName}$   
 $\text{cmdNameSuf*} = \text{newName}$   
 $\text{usrmth}\{\text{cmdName}\}\{\text{Suf}\}\{\text{arg}\}[\text{newName}];$   
 $\text{cmdNameSuf}\{\text{Arg}^{\text{Ex}}\{\text{Ex}\}\} = \text{newName}\left(\text{Arg}^{\text{Ex}^{\text{Ex}}}\right)$   
 $\text{cmdNameSuf*}\{\text{Arg}^{\text{Ex}}\{\text{Ex}\}\} = \text{newName}\left(\text{Arg}^{\text{Ex}^{\text{Ex}}}\right)$   
 $\text{usrmth}\{\text{cmdName}\}\{\text{Suf}\}\{\text{par}\}[\text{newName}];$   
 $\text{cmdNameSuf}\{\text{Par}^{\text{Ex}}\{\text{Ex}\}\} = \text{newName}\left[\text{Par}^{\text{Ex}^{\text{Ex}}}\right]$   
 $\text{cmdNameSuf*}\{\text{Par}^{\text{Ex}}\{\text{Ex}\}\} = \text{newName}\left[\text{Par}^{\text{Ex}^{\text{Ex}}}\right]$

506 \DeclareRobustCommandx{\usrmth}[4][4=]

507 {\csdef{#1#2}%

508 {\protect\ifstar%

509 {\csname mth#3\endcsname\*\defval{#4}{#1}}%

510 {\csname mth#3\endcsname\defval{#4}{#1}}}}

511 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\usrmthlatlow ... to do!

512 \DeclareRobustCommandx{\usrmthlatlow}[4][4=]

513 {\usrmth{#1}{#2}{#3}[#4]\seqoflatlow{#1#2}{mth#3}}

\usrmthlatupp ... to do!

514 \DeclareRobustCommandx{\usrmthlatupp}[4][4=]

515 {\usrmth{#1}{#2}{#3}[#4]\seqoflatupp{#1#2}{mth#3}}

\usrmthlatlet ... to do!

516 \DeclareRobustCommandx{\usrmthlatlet}[4][4=]

517 {\usrmth{#1}{#2}{#3}[#4]\seqoflatlet{#1#2}{mth#3}}

\usrmthgrklow ... to do!

518 \DeclareRobustCommandx{\usrmthgrklow}[4][4=]

519 {\usrmth{#1}{#2}{#3}[#4]\seqofgrklow{#1#2}{mth#3}}

\usrmthgrkupp ... to do!

520 \DeclareRobustCommandx{\usrmthgrkupp}[4][4=]

521 {\usrmth{#1}{#2}{#3}[#4]\seqofgrkupp{#1#2}{mth#3}}

\usrmthgrklet ... to do!

522 \DeclareRobustCommandx{\usrmthgrklet}[4][4=]

523 {\usrmth{#1}{#2}{#3}[#4]\seqofgrklet{#1#2}{mth#3}}

\usrmthlow ... to do!

524 \DeclareRobustCommandx{\usrmthlow}[4][4=]

525 {\usrmth{#1}{#2}{#3}[#4]\seqoflow{#1#2}{mth#3}}

\usrmthupp ... to do!

526 \DeclareRobustCommandx{\usrmthupp}[4][4=]

527 {\usrmth{#1}{#2}{#3}[#4]\seqofupp{#1#2}{mth#3}}

```

\usrmthlet ... to do!
528 \DeclareRobustCommand{\usrmthlet}[4][4=]
529 {\usrmth{#1}{#2}{#3}{#4}\seqoflet{#1#2}{mth#3}}

530 %*****%
531 %*****%
532 %** Text Macro Generators *****%
533 %*****%
534 \iftxtgen@

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

535 % Style for Definitions
536 \cmdtxtdf{def}
537 \DeclareRobustCommand{\txtdf}{\normalfont\bfseries\em}

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

538 \DeclareRobustCommand{\cmdtxtdf}[2][2=]
539 {\usrtxt{#1}{def}[#2]}

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

540 \DeclareRobustCommand{\cmdtxtargdf}[2][2=]
541 {\usrtxt{#1}{argdef}[#2]}

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

542 \DeclareRobustCommand{\cmdtxtoargdf}[2][2=]
543 {\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] = $newName_{sub}^{sub}ext1[par]ext2$

544 \DeclareRobustCommand{\cmdtxtpardef}[2][2=]
545 {\usrtxt{#1}{pardef}[#2]}

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

546 \DeclareRobustCommand{\cmdtxtopardef}[2][2=]
547 {\usrtxt{#1}{opardef}[#2]}

```

```

\txtabr ... to do!
...
• \txtabr{Name}[sub][sup][Ext] = $Name_{sub}^{sup}Ext$
• \txtargabr{Name}[sub][sup][Ext1]{Arg}[Ext2] = $Name_{sub}^{sup}Ext1(Arg)Ext2$
• \txtparabr{Name}[sub][sup][Ext1]{Par}[Ext2] = $Name_{sub}^{sup}Ext1[Par]Ext2$
548 %% Style for Abbreviations
549 \cmdtxtall{abr}
550 \DeclareRobustCommand{\txtstyabr}{\em}

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

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

\cmdtxtoargabr ... to do!
• \cmdtxtoargabr{cmdName};
 \cmdName[sub][sub][arg] = $cmdName_{sub}^{sub}(arg)$
• \cmdtxtoargabr{cmdName}[newName];
 \cmdName[sub][sub][arg] = $newName_{sub}^{sub}(arg)$
555 \DeclareRobustCommandx{\cmdtxtoargabr}[2][2=]
556 {\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] = $newName_{sub}^{sub}ext1[par]ext2$
557 \DeclareRobustCommandx{\cmdtxtparabr}[2][2=]
558 {\usrtxt{#1}{-}{parabr}[#2]}

\cmdtxtoparabr ... to do!
• \cmdtxtoparabr{cmdName};
 \cmdName[sub][sub][par] = $cmdName_{sub}^{sub}[par]$
• \cmdtxtoparabr{cmdName}[newName];
 \cmdName[sub][sub][par] = $newName_{sub}^{sub}[par]$
559 \DeclareRobustCommandx{\cmdtxtoparabr}[2][2=]
560 {\usrtxt{#1}{-}{oparabr}[#2]}

561 %%%

\txtname ... to do!
...
• \txtname{Name}[sub][sup][Ext] = $NAME_{SUB}^{SUP}EXT$
• \txtargname{Name}[sub][sup][Ext1]{Arg}[Ext2] = $NAME_{SUB}^{SUP}EXT1(ARG)EXT2$
• \txtparname{Name}[sub][sup][Ext1]{Par}[Ext2] = $NAME_{SUB}^{SUP}EXT1[PAR]EXT2$
562 %% Style for Names
563 \cmdtxtall{name}
564 \DeclareRobustCommand{\txtstyname}{\normalfont\mdseries\scshape\sffamily}

```

```

\cmdtxtname ... to do!
 • \cmdtxtname{cmdName};
 \cmdName[sub][sub][ext] = CMDNAMESUBEXT
 • \cmdtxtname{cmdName}[newName];
 \cmdName[sub][sub][ext] = NEWNAMESUBEXT
565 \DeclareRobustCommandx{\cmdtxtname}[2][2=]
566 {\usrtxt{#1}{-}{name}[#2]}

\cmdtxtargname ... to do!
 • \cmdtxtargname{cmdName};
 \cmdName[sub][sub][ext1]{arg}[ext2] = CMDNAMESUBEXT1(ARG)EXT2
 • \cmdtxtargname{cmdName}[newName];
 \cmdName[sub][sub][ext1]{arg}[ext2] = NEWNAMESUBEXT1(ARG)EXT2
567 \DeclareRobustCommandx{\cmdtxtargname}[2][2=]
568 {\usrtxt{#1}{-}{argname}[#2]}

\cmdtxtoargname ... to do!
 • \cmdtxtoargname{cmdName};
 \cmdName[sub][sub][arg] = CMDNAMESUB(ARG)
 • \cmdtxtoargname{cmdName}[newName];
 \cmdName[sub][sub][arg] = NEWNAMESUB(ARG)
569 \DeclareRobustCommandx{\cmdtxtoargname}[2][2=]
570 {\usrtxt{#1}{-}{oargname}[#2]}

\cmdtxtparname ... to do!
 • \cmdtxtparname{cmdName};
 \cmdName[sub][sub][ext1]{par}[ext2] = CMDNAMESUBEXT1[PAR]EXT2
 • \cmdtxtparname{cmdName}[newName];
 \cmdName[sub][sub][ext1]{par}[ext2] = NEWNAMESUBEXT1[PAR]EXT2
571 \DeclareRobustCommandx{\cmdtxtparname}[2][2=]
572 {\usrtxt{#1}{-}{parname}[#2]}

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

\txtcom ... to do!
...
 • \txtcom{Name}[sub][sup][Ext] = NAMESUPEXT
 • \txtargcom{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUPEXT1(ARG)EXT2
 • \txtparcom{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUPEXT1[PAR]EXT2
575 %% Style for Complexities
576 \cmdtxtall{com}
577 \DeclareRobustCommand{\txtstycom}{\normalfont\mdseries\scshape\rmfamily}

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

\cmdtxtargcom ... to do!

```

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

580  $\backslash\text{DeclareRobustCommand}\{\text{cmdtxtargcom}\}[2][2=]$   
581  $\{\backslash\text{usrtxt}\{\#1\}\{\}\{\text{argcom}\}[\#2]\}$

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

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

582  $\backslash\text{DeclareRobustCommand}\{\text{cmdtxttoargcom}\}[2][2=]$   
583  $\{\backslash\text{usrtxt}\{\#1\}\{\}\{\text{oargcom}\}[\#2]\}$

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

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

584  $\backslash\text{DeclareRobustCommand}\{\text{cmdtxtparcom}\}[2][2=]$   
585  $\{\backslash\text{usrtxt}\{\#1\}\{\}\{\text{parcom}\}[\#2]\}$

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

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

586  $\backslash\text{DeclareRobustCommand}\{\text{cmdtxttoparcom}\}[2][2=]$   
587  $\{\backslash\text{usrtxt}\{\#1\}\{\}\{\text{oparcom}\}[\#2]\}$

588  $\backslash\text{fi}$   
589  $\%*****\%$   
590  $\%*****\%$   
591  $\%** \text{Math Macro Generators} *****\%$   
592  $\%*****\%$   
593  $\backslash\text{ifmthgen@}$

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

... •  $\backslash\text{mthname}\{\text{NAME}\}[\text{sub}][\text{sup}][\text{Ext}] = \mathcal{NAME}_{\text{sub}}^{\text{sup}}\text{Ext}$

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

594  $\% \text{Style for Names}$   
595  $\backslash\text{cmdmthall}\{\text{name}\}$   
596  $\backslash\text{DeclareRobustCommand}\{\text{mthstynname}\}\{\backslash\text{mathcal}\}$

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

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

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

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

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

```
598 \DeclareRobustCommandx{\cmdmthname}[2][2=]
599 {\usrmth{\#1}\{Name\}\{name\}[\#2]}
```

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

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

```
600 \DeclareRobustCommandx{\cmdmthargname}[2][2=]
601 {\usrmth{\#1}\{Name\}\{argname\}[\#2]}
```

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

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

```
602 \DeclareRobustCommandx{\cmdmthoargname}[2][2=]
603 {\usrmth{\#1}\{Name\}\{oargname\}[\#2]}
```

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

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

```
604 \DeclareRobustCommandx{\cmdmthparname}[2][2=]
605 {\usrmth{\#1}\{Name\}\{parname\}[\#2]}
```

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

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

```
606 \DeclareRobustCommandx{\cmdmthoparname}[2][2=]
607 {\usrmth{\#1}\{Name\}\{oparname\}[\#2]}
```

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

```
... • \mthfam{NAME}[sub][sup][Ext] = \mathcal{M}\mathcal{E}_{sub}^{sup}Ext
 • \mthargfam{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \mathcal{M}\mathcal{E}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
 • \mthargfam*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \mathcal{M}\mathcal{E}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
 • \mthparfam{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \mathcal{M}\mathcal{E}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2
 • \mthparfam*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \mathcal{M}\mathcal{E}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2
608 %% Style for Families
609 \cmdmthall{fam}
610 \DeclareRobustCommand{\mthstyfam}{\mathscr}
```

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

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

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

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

```

612 \DeclareRobustCommandx{\cmdmthfam}[2][2=]
613 {\usrmth{#1}{Fam}{fam}[#2]}

\cmdmthargfam ... to do!
 • \cmdmthargfam{CMDNAME};
 \CMDNAMEFam[sub][sub][ext1]{arg}[ext2] = $\mathcal{CMDNAME}_{sub}^{sub}ext1(arg)ext2$
 • \cmdmthargfam{cmdName}[NEWNAME];
 \cmdNameFam[sub][sub][ext1]{arg}[ext2] = $\mathcal{NEWNAME}_{sub}^{sub}ext1(arg)ext2$
614 \DeclareRobustCommandx{\cmdmthargfam}[2][2=]
615 {\usrmth{#1}{Fam}{argfam}[#2]}

\cmdmthoargfam ... to do!
 • \cmdmthoargfam{CMDNAME};
 \CMDNAMEFam[sub][sub][arg] = $\mathcal{CMDNAME}_{sub}^{sub}(arg)$
 • \cmdmthoargfam{cmdFam}[NEWNAME];
 \cmdFamFam[sub][sub][arg] = $\mathcal{NEWNAME}_{sub}^{sub}(arg)$
616 \DeclareRobustCommandx{\cmdmthoargfam}[2][2=]
617 {\usrmth{#1}{Fam}{oargfam}[#2]}

\cmdmthparfam ... to do!
 • \cmdmthparfam{CMDNAME};
 \CMDNAMEFam[sub][sub][ext1]{par}[ext2] = $\mathcal{CMDNAME}_{sub}^{sub}ext1[par]ext2$
 • \cmdmthparfam{cmdName}[NEWNAME];
 \cmdNameFam[sub][sub][ext1]{par}[ext2] = $\mathcal{NEWNAME}_{sub}^{sub}ext1[par]ext2$
618 \DeclareRobustCommandx{\cmdmthparfam}[2][2=]
619 {\usrmth{#1}{Fam}{parfam}[#2]}

\cmdmthoparfam ... to do!
 • \cmdmthoparfam{CMDNAME};
 \CMDNAMEFam[sub][sub][par] = $\mathcal{CMDNAME}_{sub}^{sub}[par]$
 • \cmdmthoparfam{cmdFam}[NEWNAME];
 \cmdFamFam[sub][sub][par] = $\mathcal{NEWNAME}_{sub}^{sub}[par]$
620 \DeclareRobustCommandx{\cmdmthoparfam}[2][2=]
621 {\usrmth{#1}{Fam}{oparfam}[#2]}

\mthcls ... to do!
...
 • \mthcls{NAME}[sub][sup][Ext] = $\mathcal{NAME}_{sub}^{sup}Ext$
 • \mthargcls{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargcls*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
 • \mthparcls{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparcls*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$
622 %% Style for Classes
623 \cmdmthall{cls}
624 \DeclareRobustCommand{\mthstcls}{\matheus}

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

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

```



```

\cmdmthargcls ... to do!
 • \cmdmthargcls{CMDNAME};
 \CMDNAMECcls[sub][sub][ext1]{arg}[ext2] = \CMDNAME\mathcal{E}_{sub}^{sub}ext1(arg)ext2
 • \cmdmthargcls{cmdName}[NEWNAME];
 \cmdNameCcls[sub][sub][ext1]{arg}[ext2] = \NEWNAME\mathcal{E}_{sub}^{sub}ext1(arg)ext2
628 \DeclareRobustCommandx{\cmdmthargcls}[2][2=]
629 {\usrmth{#1}{Ccls}{argcls}[#2]}

\cmdmthoargcls ... to do!
 • \cmdmthoargcls{CMDNAME};
 \CMDNAMECcls[sub][sub][arg] = \CMDNAME\mathcal{E}_{sub}^{sub}(arg)
 • \cmdmthoargcls{cmdCcls}[NEWNAME];
 \cmdCclsCcls[sub][sub][arg] = \NEWNAME\mathcal{E}_{sub}^{sub}(arg)
630 \DeclareRobustCommandx{\cmdmthoargcls}[2][2=]
631 {\usrmth{#1}{Ccls}{oargcls}[#2]}

\cmdmthparcls ... to do!
 • \cmdmthparcls{CMDNAME};
 \CMDNAMECcls[sub][sub][ext1]{par}[ext2] = \CMDNAME\mathcal{E}_{sub}^{sub}ext1[par]ext2
 • \cmdmthparcls{cmdName}[NEWNAME];
 \cmdNameCcls[sub][sub][ext1]{par}[ext2] = \NEWNAME\mathcal{E}_{sub}^{sub}ext1[par]ext2
632 \DeclareRobustCommandx{\cmdmthparcls}[2][2=]
633 {\usrmth{#1}{Ccls}{parcls}[#2]}

\cmdmthoparcls ... to do!
 • \cmdmthoparcls{CMDNAME};
 \CMDNAMECcls[sub][sub][par] = \CMDNAME\mathcal{E}_{sub}^{sub}[par]
 • \cmdmthoparcls{cmdCcls}[NEWNAME];
 \cmdCclsCcls[sub][sub][par] = \NEWNAME\mathcal{E}_{sub}^{sub}[par]
634 \DeclareRobustCommandx{\cmdmthoparcls}[2][2=]
635 {\usrmth{#1}{Ccls}{oparcls}[#2]}

\mthsig ... to do!
...
 • \mthsig{Name}[sub][sup][Ext] = \name_{sub}^{sup}Ext
 • \mthargsig{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \name_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2
 • \mthargsig*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
 • \mthparsig{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \name_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2
 • \mthparsig*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2
636 %% Style for Signatures
637 \cmdmthall{sig}
638 \DeclareRobustCommand{\mthstysig}{\mathpzc}

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

\cmdmthsig ... to do!
 • \cmdmthsig{cmdName};
 \cmdNameSig[sub][sub][ext] = cmd\name_{sub}^{sub}ext
 • \cmdmthsig{cmdName}[NewName];
 \cmdNameSig[sub][sub][ext] = \new\name_{sub}^{sub}ext
640 \DeclareRobustCommandx{\cmdmthsig}[2][2=]
641 {\usrmth{#1}{Sig}{sig}[#2]}

```

```

\cmdmthargsig ... to do!
 • \cmdmthargsig{cmdName};
 \cmdNameSig[sub][sub][ext1]{arg}[ext2] = cmd\namesubext1(arg)ext2
 • \cmdmthargsig{cmdName}[NewName];
 \cmdNameSig[sub][sub][ext1]{arg}[ext2] = \new\namesubext1(arg)ext2
642 \DeclareRobustCommandx{\cmdmthargsig}[2][2=]
643 {\usrmth{#1}{Sig}{argsig}{#2}}

\cmdmthoargsig ... to do!
 • \cmdmthoargsig{cmdName};
 \cmdNameSig[sub][sub][arg] = cmd\namesub(arg)
 • \cmdmthoargsig{cmdSig}[NewName];
 \cmdSigSig[sub][sub][arg] = \new\namesub(arg)
644 \DeclareRobustCommandx{\cmdmthoargsig}[2][2=]
645 {\usrmth{#1}{Sig}{oargsig}{#2}}

\cmdmthparsig ... to do!
 • \cmdmthparsig{cmdName};
 \cmdNameSig[sub][sub][ext1]{par}[ext2] = cmd\namesubext1[par]ext2
 • \cmdmthparsig{cmdName}[NewName];
 \cmdNameSig[sub][sub][ext1]{par}[ext2] = \new\namesubext1[par]ext2
646 \DeclareRobustCommandx{\cmdmthparsig}[2][2=]
647 {\usrmth{#1}{Sig}{parsig}{#2}}

\cmdmthoparsig ... to do!
 • \cmdmthoparsig{cmdName};
 \cmdNameSig[sub][sub][par] = cmd\namesub[par]
 • \cmdmthoparsig{cmdSig}[NewName];
 \cmdSigSig[sub][sub][par] = \new\namesub[par]
648 \DeclareRobustCommandx{\cmdmthoparsig}[2][2=]
649 {\usrmth{#1}{Sig}{oparsig}{#2}}

\mthstr ... to do!
 ...
 • \mthstr{Name}[sub][sup][Ext] = \namesupsubExt
 • \mthargstr{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = \namesupsubExt1(ArgExExt2)Ext2
 • \mthargstr*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = \namesupsubExt1(ArgExExt2)Ext2
 • \mthparstr{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = \namesupsubExt1[ParExExt2]Ext2
 • \mthparstr*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = \namesupsubExt1[ParExExt2]Ext2
650 %% Style for Structures
651 \cmdmthall{str}
652 \DeclareRobustCommand{\mthstystyr}{\mathfrak}

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

\cmdmthstr ... to do!
 • \cmdmthstr{cmdName};
 \cmdNameStr[sub][sub][ext] = cmd\namesubext
 • \cmdmthstr{cmdName}[NewName];
 \cmdNameStr[sub][sub][ext] = \new\namesubext
654 \DeclareRobustCommandx{\cmdmthstr}[2][2=]
655 {\usrmth{#1}{Str}{str}{#2}}

```

```

\cmdmthargstr ... to do!
 • \cmdmthargstr{cmdName};
 \cmdNameStr[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2
 • \cmdmthargstr{cmdName}[NewName];
 \cmdNameStr[sub][sub][ext1]{arg}[ext2] = NewNamesubext1(arg)ext2
656 \DeclareRobustCommandx{\cmdmthargstr}[2][2=]
657 {\usrmth{#1}{Str}{argstr}[#2]}

\cmdmthoargstr ... to do!
 • \cmdmthoargstr{cmdName};
 \cmdNameStr[sub][sub][arg] = cmdNamesub(arg)
 • \cmdmthoargstr{cmdStr}[NewName];
 \cmdStrStr[sub][sub][arg] = NewNamesub(arg)
658 \DeclareRobustCommandx{\cmdmthoargstr}[2][2=]
659 {\usrmth{#1}{Str}{oargstr}[#2]}

\cmdmthparstr ... to do!
 • \cmdmthparstr{cmdName};
 \cmdNameStr[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2
 • \cmdmthparstr{cmdName}[NewName];
 \cmdNameStr[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2
660 \DeclareRobustCommandx{\cmdmthparstr}[2][2=]
661 {\usrmth{#1}{Str}{parstr}[#2]}

\cmdmthoparstr ... to do!
 • \cmdmthoparstr{cmdName};
 \cmdNameStr[sub][sub][par] = cmdNamesub[par]
 • \cmdmthoparstr{cmdStr}[NewName];
 \cmdStrStr[sub][sub][par] = NewNamesub[par]
662 \DeclareRobustCommandx{\cmdmthoparstr}[2][2=]
663 {\usrmth{#1}{Str}{oparstr}[#2]}

\mthset ... to do!
...
 • \mthset{Name}[sub][sup][Ext] = NamesupsubExt
 • \mthargset{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthargset*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthparset{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
 • \mthparset*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
664 %% Style for Sets
665 \cmdmthall{set}
666 \DeclareRobustCommand{\mthstyset}{\mathrm}

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

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

```

```

\cmdmthargset ... to do!
 • \cmdmthargset{cmdName};
 \cmdNameSet[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2
 • \cmdmthargset{cmdName}[NewName];
 \cmdNameSet[sub][sub][ext1]{arg}[ext2] = NewNamesubext1(arg)ext2
670 \DeclareRobustCommandx{\cmdmthargset}[2][2=]
671 {\usrmth{#1}{Set}{argset}[#2]}

\cmdmthoargset ... to do!
 • \cmdmthoargset{cmdName};
 \cmdNameSet[sub][sub][arg] = cmdNamesub(arg)
 • \cmdmthoargset{cmdSet}[NewName];
 \cmdSetSet[sub][sub][arg] = NewNamesub(arg)
672 \DeclareRobustCommandx{\cmdmthoargset}[2][2=]
673 {\usrmth{#1}{Set}{oargset}[#2]}

\cmdmthparset ... to do!
 • \cmdmthparset{cmdName};
 \cmdNameSet[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2
 • \cmdmthparset{cmdName}[NewName];
 \cmdNameSet[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2
674 \DeclareRobustCommandx{\cmdmthparset}[2][2=]
675 {\usrmth{#1}{Set}{parset}[#2]}

\cmdmthoparset ... to do!
 • \cmdmthoparset{cmdName};
 \cmdNameSet[sub][sub][par] = cmdNamesub[par]
 • \cmdmthoparset{cmdSet}[NewName];
 \cmdSetSet[sub][sub][par] = NewNamesub[par]
676 \DeclareRobustCommandx{\cmdmthoparset}[2][2=]
677 {\usrmth{#1}{Set}{oparset}[#2]}

\cmdmthsetext ... to do!
678 \DeclareRobustCommandx{\cmdmthsetext}[3][2=, 3=]
679 {\cmdmthset{#1}[#2]\caselower[q]{#1}%
680 \usrmthlet{\thestring}{Sym}{sym}
681 [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}}%
682 \usrmthlet{\thestring}{Elm}{elm}
683 [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}}]

\mthrel ... to do!
...
 • \mthrel{Name}[sub][sup][Ext] = NamesupExt
 • \mthargrel{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupExt1(ArgExExt1)Ext2
 • \mthargrel*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupExt1(ArgExExt1)Ext2
 • \mthparrel{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupExt1[ParExExt1]Ext2
 • \mthparrel*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupExt1[ParExExt1]Ext2
684 %% Style for Relations
685 \cmdmthall{rel}
686 \DeclareRobustCommand{\mthstyrel}{\mathit}

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

```

```

\cmdmthrel ... to do!
 • \cmdmthrel{cmdName};
 \cmdNameRel[sub][sub][ext] = $cmdName_{sub}^{sub}ext$
 • \cmdmthrel{cmdName}[NewName];
 \cmdNameRel[sub][sub][ext] = $NewName_{sub}^{sub}ext$
688 \DeclareRobustCommandx{\cmdmthrel}[2][2=]
689 {\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] = $NewName_{sub}^{sub}ext1(arg)ext2$
690 \DeclareRobustCommandx{\cmdmthargrel}[2][2=]
691 {\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] = $NewName_{sub}^{sub}(arg)$
692 \DeclareRobustCommandx{\cmdmthoargrel}[2][2=]
693 {\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] = $NewName_{sub}^{sub}ext1[par]ext2$
694 \DeclareRobustCommandx{\cmdmthparrel}[2][2=]
695 {\usrmth{#1}{Rel}{parrel}{#2}}

\cmdmthoparrel ... to do!
 • \cmdmthoparrel{cmdName};
 \cmdNameRel[sub][sub][par] = $cmdName_{sub}^{sub}[par]$
 • \cmdmthoparrel{cmdRel}[NewName];
 \cmdRelRel[sub][sub][par] = $NewName_{sub}^{sub}[par]$
696 \DeclareRobustCommandx{\cmdmthoparrel}[2][2=]
697 {\usrmth{#1}{Rel}{oparrel}{#2}}

\mthfun ... to do!
...
 • \mthfun{Name}[sub][sup][Ext] = $Name_{sub}^{sup}Ext$
 • \mthargfun{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargfun*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthparfun{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparfun*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
698 %% Style for Functions
699 \cmdmthall{fun}
700 \DeclareRobustCommand{\mthstyfun}{\mathsf{f}}

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

```

```

\cmdmthfun ... to do!
 • \cmdmthfun{cmdName};
 \cmdNameFun[sub][sub][ext] = cmdNamesubsubext
 • \cmdmthfun{cmdName}[NewName];
 \cmdNameFun[sub][sub][ext] = NewNamesubsubext
702 \DeclareRobustCommandx{\cmdmthfun}[2][2=]
703 {\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
704 \DeclareRobustCommandx{\cmdmthargfun}[2][2=]
705 {\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)
706 \DeclareRobustCommandx{\cmdmthoargfun}[2][2=]
707 {\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
708 \DeclareRobustCommandx{\cmdmthparfun}[2][2=]
709 {\usrmth{#1}{Fun}{parfun}[#2]}

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

\mthsym ... to do!
 ...
 • \mthsym{Name}[sub][sup][Ext] = NamesupsubExt
 • \mthargsym{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthargsym*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthparsym{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
 • \mthparsym*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
712 %% Style for Symbols
713 \cmdmthall{sym}
714 \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
 α, β, γ, δ, ε, ζ, η, 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, Z, H, Θ, Θ, I, K, Λ, M, N, Ξ, O, Π, II, P, P, Σ, Σ, T, T, Φ, Φ, X, Ψ, Ω
715 \seqoflet{Sym}{mthsym}

```

```

\cmdmthsym ... to do!
 • \cmdmthsym{cmdName};
 \cmdNameSym[sub][sub][ext] = cmdNamesubsubext
 • \cmdmthsym{cmdName}[NewName];
 \cmdNameSym[sub][sub][ext] = NewNamesubsubext
716 \DeclareRobustCommandx{\cmdmthsym}[2][2=]
717 {\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
718 \DeclareRobustCommandx{\cmdmthargsym}[2][2=]
719 {\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)
720 \DeclareRobustCommandx{\cmdmthoargsym}[2][2=]
721 {\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
722 \DeclareRobustCommandx{\cmdmthparsym}[2][2=]
723 {\usrmth{#1}{Sym}{parsym}[#2]}

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

\mthelm ... to do!
...
 • \mthelm{Name}[sub][sup][Ext] = NamesupsubExt
 • \mthargelm{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthargelm*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
 • \mthparelm{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
 • \mthparelm*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
726 %% Style for Elements
727 \cmdmthall{elm}
728 \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, Ε, Ζ, Η, Θ, I, K, K, A, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω
729 \seqoflet{Elm}{mthelm}

```

\cmdmthelm ... to do!

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

730 \DeclareRobustCommandx{\cmdmthelm}[2][2=]  
731 {\usrmth{\#1}{Elm}{elm}[\#2]}

\cmdmthargelm ... to do!

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

732 \DeclareRobustCommandx{\cmdmthargelm}[2][2=]  
733 {\usrmth{\#1}{Elm}{argelm}[\#2]}

\cmdmthoargelm ... to do!

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

734 \DeclareRobustCommandx{\cmdmthoargelm}[2][2=]  
735 {\usrmth{\#1}{Elm}{oargelm}[\#2]}

\cmdmthparelm ... to do!

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

736 \DeclareRobustCommandx{\cmdmthparelm}[2][2=]  
737 {\usrmth{\#1}{Elm}{parelm}[\#2]}

\cmdmthoparelm ... to do!

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

738 \DeclareRobustCommandx{\cmdmthoparelm}[2][2=]  
739 {\usrmth{\#1}{Elm}{oparelm}[\#2]}

740 %%\*\*\*\*\*

\cmdmthsymelm ... to do!

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

741 \DeclareRobustCommandx{\cmdmthsymelm}[2][2=]  
742 {\cmdmthsym{\#1}[\#2]}%  
743 \cmdmthelm{\#1}[\#2]}

\cmdmthargsymelm ... to do!

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



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

```

744 \DeclareRobustCommandx{\cmdmthargsymelm}[2][2=]
745 {\cmdmthargsym\#1\#2}%
746 \cmdmthargelm\#1\#2}

```

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

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

```

747 \DeclareRobustCommandx{\cmdmthoargsymelm}[2][2=]
748 {\cmdmthoargsym\#1\#2}%
749 \cmdmthoargelm\#1\#2}

```

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

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

```

750 \DeclareRobustCommandx{\cmdmthparsymelm}[2][2=]
751 {\cmdmthparsym\#1\#2}%
752 \cmdmthparelm\#1\#2}

```

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

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

```

753 \DeclareRobustCommandx{\cmdmthoparsymelm}[2][2=]
754 {\cmdmthoparsym\#1\#2}%
755 \cmdmthoparelm\#1\#2}

```

756 %\*\*\*\*\*%

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

...

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

```

757 %% Style for \LaTeX Operators
758 \cmdmth{luop}
759 \DeclareRobustCommand{\mthstyluop}[1]{\textstyle\mathop{\#1}}
760 \cmdmth{lbop}
761 \DeclareRobustCommand{\mthstylbop}[1]{\textstyle\mathbin{\#1}}

```

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

...

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

```

 • \cmdmthlbop{cmdName}[\oplus];
 \cmdNameBOp[sub][sub][ext] = $\oplus_{sub}^{sub} ext$

762 \DeclareRobustCommandx{\cmdmthluop}[2][2=]
763 {\usrmth{#1}{UOp}{luop}[#2]}
764 \DeclareRobustCommandx{\cmdmthlbop}[2][2=]
765 {\usrmth{#1}{BOp}{lbop}[#2]}

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

766 %% Style for \LaTeX Relations
767 \cmdmth{lrel}
768 \DeclareRobustCommand{\mthstylrel}{\mathrel}

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

769 \DeclareRobustCommandx{\cmdmthlrel}[2][2=]
770 {\usrmth{#1}{Rel}{lrel}[#2]}

771 %%*****%

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

772 %% Style for Sentences
773 \cmdmthall{snt}
774 \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, $\Gamma, \Delta, E, Z, H, \Theta, \vartheta, I, K, \Lambda, M, N, \Xi, O, \Pi, \varPi, P, \Sigma, \varSigma, T, \Upsilon, \Phi, \varPhi, X, \Psi, \Omega$

775 \seqoflet{Snt}{mthsnt}

\cmdmthsnt ... to do!
 • \cmdmthsnt{cmdName};
 \cmdNameSnt[sub][sub][ext] = $cmdName_{sub}^{sub} ext$
 • \cmdmthsnt{cmdName}[NewName];
 \cmdNameSnt[sub][sub][ext] = $NewName_{sub}^{sub} ext$

776 \DeclareRobustCommandx{\cmdmthsnt}[2][2=]
777 {\usrmth{#1}{Snt}{snt}[#2]}

\cmdmthargsnt ... to do!
 • \cmdmthargsnt{cmdName};
 \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = $cmdName_{sub}^{sub} ext1(arg) ext2$
 • \cmdmthargsnt{cmdName}[NewName];
 \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = $NewName_{sub}^{sub} ext1(arg) ext2$

778 \DeclareRobustCommandx{\cmdmthargsnt}[2][2=]
779 {\usrmth{#1}{Snt}{argsnt}[#2]}

\cmdmthoargsnt ... to do!

```

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

780 `\DeclareRobustCommandx{\cmdmthoargsnt}[2][2=]`  
781 `{\usrmth{#1}{Snt}{oargsnt}[#2]}`

`\cmdmthparsnt ... to do!`

- `\cmdmthparsnt{cmdName};`  
`\cmdNameSnt[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2`
- `\cmdmthparsnt{cmdName}[NewName];`  
`\cmdNameSnt[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2`

782 `\DeclareRobustCommandx{\cmdmthparsnt}[2][2=]`  
783 `{\usrmth{#1}{Snt}{parsnt}[#2]}`

`\cmdmthoparsnt ... to do!`

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

784 `\DeclareRobustCommandx{\cmdmthoparsnt}[2][2=]`  
785 `{\usrmth{#1}{Snt}{oparsnt}[#2]}`

`\mthfrm ... to do!`

...

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

786 `%% Style for Formulae`  
787 `\cmdmthall{frm}`  
788 `\DeclareRobustCommand{\mthstyfrm}{\mathit}`

`\aFrm ... to do!`

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

789 `\seqoflet{Frm}{mthfrm}`

`\cmdmthfrm ... to do!`

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

790 `\DeclareRobustCommandx{\cmdmthfrm}[2][2=]`  
791 `{\usrmth{#1}{Frm}{frm}[#2]}`

`\cmdmthargfrm ... to do!`

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

792 `\DeclareRobustCommandx{\cmdmthargfrm}[2][2=]`  
793 `{\usrmth{#1}{Frm}{argfrm}[#2]}`

```

\cmdmthoargfrm ... to do!
 • \cmdmthoargfrm{cmdName};
 \cmdNameFrm[sub][sub][arg] = $\text{cmdName}_{sub}^{sub}(arg)$

 • \cmdmthoargfrm{cmdName}[NewName];
 \cmdNameFrm[sub][sub][arg] = $\text{NewName}_{sub}^{sub}(arg)$

794 \DeclareRobustCommandx{\cmdmthoargfrm}[2][2=]
795 {\usrmth{#1}{Frm}{oargfrm}{#2}}

\cmdmthparfrm ... to do!
 • \cmdmthparfrm{cmdName};
 \cmdNameFrm[sub][sub][ext1]{par}[ext2] = $\text{cmdName}_{sub}^{sub}ext1[par]ext2$

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

796 \DeclareRobustCommandx{\cmdmthparfrm}[2][2=]
797 {\usrmth{#1}{Frm}{parfrm}{#2}}

\cmdmthoparfrm ... to do!
 • \cmdmthoparfrm{cmdName};
 \cmdNameFrm[sub][sub][par] = $\text{cmdName}_{sub}^{sub}[par]$

 • \cmdmthoparfrm{cmdName}[NewName];
 \cmdNameFrm[sub][sub][par] = $\text{NewName}_{sub}^{sub}[par]$

798 \DeclareRobustCommandx{\cmdmthoparfrm}[2][2=]
799 {\usrmth{#1}{Frm}{oparfrm}{#2}}

800 %%*****%

\mthmat ... to do!
 ...
 • \mthmat{Name}[sub][sup][Ext] = $\text{Name}_{sub}^{sup}Ext$

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

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

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

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

801 %% Style for Matrices
802 \cmdmthall{mat}
803 \DeclareRobustCommand{\mthstymat}[1]{\boldsymbol{\mathsf{#1}}}

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

804 \seqoflet{Mat}{mthmat}

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

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

805 \DeclareRobustCommandx{\cmdmthmat}[2][2=]
806 {\usrmth{#1}{Mat}{mat}{#2}}

\cmdmthargmat ... to do!
 • \cmdmthargmat{cmdName};
 \cmdNameMat[sub][sub][ext1]{arg}[ext2] = $\text{cmdName}_{sub}^{sub}ext1(arg)ext2$

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

```

```

807 \DeclareRobustCommandx{\cmdmthargmat}[2][2=]
808 {\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)
809 \DeclareRobustCommandx{\cmdmthoargmat}[2][2=]
810 {\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
811 \DeclareRobustCommandx{\cmdmthparmat}[2][2=]
812 {\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]
813 \DeclareRobustCommandx{\cmdmthoparmat}[2][2=]
814 {\usrmth{#1}{Mat}{oparmat}{#2}}

\mthvec ... to do!
... • \mthvec{Name}[sub][sup][Ext] = NamesubsupExt
 • \mthargvec{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsupExt1(ArgExEx)Ext2
 • \mthargvec*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsupExt1(ArgExEx)Ext2
 • \mthparvec{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsupExt1[ParExEx]Ext2
 • \mthparvec*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsupExt1[ParExEx]Ext2
815 %% Style for Vectors
816 \cmdmthall{vec}
817 \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
818 \seqoflet{Vec}{mthvec}

\cmdmthvec ... to do!
 • \cmdmthvec{cmdName};
 \cmdNameVec[sub][sub][ext] = cmdNamesubsubext
 • \cmdmthvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][ext] = NewNamesubsubext
819 \DeclareRobustCommandx{\cmdmthvec}[2][2=]
820 {\usrmth{#1}{Vec}{vec}{#2}}

\cmdmthargvec ... to do!
 • \cmdmthargvec{cmdName};
 \cmdNameVec[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2

```

```

 • \cmdmthargvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
821 \DeclareRobustCommandx{\cmdmthargvec}[2][2=]
822 {\usrmth{#1}{Vec}{argvec}[#2]}

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

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

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

829 \fi
830 %*****
831 %*****
832 %** Elementary Macros for Text *****
833 %*****
834 \iftxt@

\dotcheck • A\dotcheck a\dotcheck.a = A.a. a
835 \DeclareRobustCommand{\dotcheck}
836 {\@ifnextchar.{\.\@}}

837 %** Latin Abbreviations *****

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

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

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

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

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

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

```

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

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

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

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

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

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

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

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

`\etc`     • `\etc = etc.`  
852 `\cmdtxtabr{etc}[etc.\@]`

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

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

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

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

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

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

`\viz`     • `\viz = viz.`  
859 `\cmdtxtabr{viz}[viz.\@]`  
860 `%%*****%`

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

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

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

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

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

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

$\backslash$ Divideetimpera     •  $\backslash$ Divideetimpera = *Divide et impera*  
867  $\backslash$ cmdtxtabr{Divideetimpera}[Divide et impera]

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

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

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

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

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

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

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

875 %\*\* Italian Abbreviations \*\*\*\*\*%  
...  
876 %\*\*\*\*\*%  
...  
877 %\*\* French Abbreviations \*\*\*\*\*%

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

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

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

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

882 %\*\*\*\*\*%

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

884 %\*\* English Abbreviations \*\*\*\*\*%



```

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

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

\iff • \iff = iff
887 \cmdtxtabr{iff}

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

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

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

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

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

893 %%*****

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

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

896 \fi
897 %%*****
898 %%*****
899 %** Elementary Macros for Math *****%
900 %*****
901 \ifmth@
902 %** General Notation *****%

\defeq ...
\seteq 903 \DeclareRobustCommand{\defeq}
904 {\@ifstar%
905 {\mthlbop{\stackrel{\text{\textup{def}}}{=}}}%
906 {\mthlbop{\triangleq}}}
907 \DeclareRobustCommand{\seteq}
908 {\@ifstar{\mthlbop{\Coloneqq}}{\mthlbop{\coloneqq}}}
909 %%*****

\limp ...
... 910 \DeclareRobustCommand{\limp}
911 {\mthlbop{\rightarrow}}

\lcoimp ...
... 912 \DeclareRobustCommand{\lcoimp}
913 {\mthlbop{\leftrightharpoonup}}
914 %%*****

```

```

\implies ...
... 915 \DeclareRobustCommand{\implies}
916 {\mthlrel{\Rightarrow}}
917 \DeclareRobustCommand{\notimplies}
918 {\mthlrel{\not\Rightarrow}}

\implied ...
... 919 \DeclareRobustCommand{\implied}
920 {\mthlrel{\Leftarrow}}
921 \DeclareRobustCommand{\notimplied}
922 {\mthlrel{\not\Leftarrow}}

\coimplies ...
... 923 \DeclareRobustCommand{\coimplies}
924 {\mthlrel{\Leftrightarrow}}
925 \DeclareRobustCommand{\notcoimplies}
926 {\mthlrel{\not\!\Leftrightarrow}}
927 %%*****%

\cmodels ...
... 928 \DeclareRobustCommand{\cmodels}
929 {\mthlrel{\models}}
930 \DeclareRobustCommand{\notcmodels}
931 {\mthlrel{\not\models}}

\cequiv ...
... 932 \DeclareRobustCommand{\cequiv}
933 {\mthlrel{\equiv}}
934 \DeclareRobustCommand{\notcequiv}
935 {\mthlrel{\not\equiv}}
936 %%*****%

\denot ...
937 \DeclareRobustCommand{\denot}
938 {\@ifstar{\@sdenot}{\@denot}}
939 \DeclareRobustCommand{\@denot}[1]
940 {\mth{\argmid{\left\llbracket}{\#1}{\right\rrbracket}}}
941 \DeclareRobustCommand{\@sdenot}[1]
942 {\mth*{\argmid{\llbracket}{\#1}{\rrbracket}}}
943 %%*****%

\dual ...
\adj 944 \DeclareRobustCommand{\dual}[1]
... 945 {\mth{\overline{\#1}}}
946 \DeclareRobustCommand{\adj}[1]
947 {\mth{\mathring{\#1}}}
948 \DeclareRobustCommand{\der}[1]
949 {\mth{\widehat{\#1}}}
950 \DeclareRobustCommand{\trn}[1]
951 {\mth{\widetilde{\#1}}}

\vec ...
952 \DeclareRobustCommand{\vec}
953 {\@ifstar{\@svec}{\@vec}}
954 \DeclareRobustCommand{\@vec}[1]
955 {\mth{\mathaccent"017E{\#1}}}
956 \DeclareRobustCommand{\@svec}[1]
957 {\mth{\overline{\#1}}}
958 %%*****%

```

```

\enumeration ...
... 959 \varcmd{enumeration}{\mth*}{,}{,}{}
960 \varcmd{enumerationx}{\mth*}{,}{,}{}

\sequence ...
... 961 \DeclareRobustCommand{\sequence}
962 {\@ifstar{\@ssequence}{\@sequence}}
963 \varcmd{@sequence}{\mth}{\left[}{,}{\right]}{}
964 \varcmd{@ssequence}{\mth*}{[}{,}{]}{}
965 \DeclareRobustCommand{\sequence1}
966 {\@ifstar{\@ssequence1}{\@sequence1}}
967 \varcmd{@sequence1}{\mth}{\left[}{,}{\right.]}{}
968 \varcmd{@ssequence1}{\mth*}{[}{,}{]}{}
969 \DeclareRobustCommand{\sequencer}
970 {\@ifstar{\@ssequencer}{\@sequencer}}
971 \varcmd{@sequencer}{\mth}{\left.}{,}{\right]}{}
972 \varcmd{@ssequencer}{\mth*}{,}{,}{]}{}
973 \DeclareRobustCommand{\sequencex}
974 {\@ifstar{\@ssequencex}{\@sequencex}}
975 \varcmd{@sequencex}{\mth}{\left[}{;}{\right]}{}
976 \varcmd{@ssequencex}{\mth*}{[}{;}{]}{}
977 \DeclareRobustCommand{\sequencex1}
978 {\@ifstar{\@ssequencex1}{\@sequencex1}}
979 \varcmd{@sequencex1}{\mth}{\left[}{;}{\right.]}{}
980 \varcmd{@ssequencex1}{\mth*}{[}{;}{]}{}
981 \DeclareRobustCommand{\sequencexr}
982 {\@ifstar{\@ssequencexr}{\@sequencexr}}
983 \varcmd{@sequencexr}{\mth}{\left.}{;}{\right]}{}
984 \varcmd{@ssequencexr}{\mth*}{,}{,}{]}{}

\tuple ...
... 985 \DeclareRobustCommand{\tuple}
986 {\@ifstar{\@stuple}{\@tuple}}
987 \varcmd{@tuple}{\mth}{\left\angle}{,}{\right\angle]}{}
988 \varcmd{@stuple}{\mth*}{\angle}{,}{\rangle]}{}
989 \DeclareRobustCommand{\tuple1}
990 {\@ifstar{\@stuple1}{\@tuple1}}
991 \varcmd{@tuple1}{\mth}{\left\angle}{,}{\right.]}{}
992 \varcmd{@stuple1}{\mth*}{\angle}{,}{]}{}
993 \DeclareRobustCommand{\tupler}
994 {\@ifstar{\@stupler}{\@tupler}}
995 \varcmd{@tupler}{\mth}{\left.}{,}{\right\angle]}{}
996 \varcmd{@stupler}{\mth*}{,}{,}{\rangle]}{}
997 \DeclareRobustCommand{\tuplex}
998 {\@ifstar{\@stuplex}{\@tuplex}}
999 \varcmd{@tuplex}{\mth}{\left\angle}{;}{\right\angle]}{}
1000 \varcmd{@stuplex}{\mth*}{\angle}{;}{\rangle]}{}
1001 \DeclareRobustCommand{\tuplex1}
1002 {\@ifstar{\@stuplex1}{\@tuplex1}}
1003 \varcmd{@tuplex1}{\mth}{\left\angle}{;}{\right.]}{}
1004 \varcmd{@stuplex1}{\mth*}{\angle}{;}{]}{}
1005 \DeclareRobustCommand{\tuplexr}
1006 {\@ifstar{\@stuplexr}{\@tuplexr}}
1007 \varcmd{@tuplexr}{\mth}{\left.}{;}{\right\angle]}{}
1008 \varcmd{@stuplexr}{\mth*}{,}{,}{\rangle]}{}
1009 %** Sets *****%

\set ...
... 1010 \DeclareRobustCommand{\set}
1011 {\@ifstar{\@sset{\vert}}{\@set{\vert}}}}
1012 \DeclareRobustCommand{\setx}
1013 {\@ifstar{\@sset{:}}{\@set{.!\:}}}}
1014 \DeclareRobustCommand{\@set}[3]

```

```

1015 {\mth{\argmid{\left\lbrace}{\argsep{#2}{\,\middle#1\,}{#3}}{\right\rbrace}}}
1016 \DeclareRobustCommand{\@sset}[3]
1017 {\mth*{\argmid{\lbrace}{\argsep{#2}{\,\,#1\,}{#3}}{\rbrace}}}
1018 \DeclareRobustCommand{\setl}
1019 {\@ifstar{\@ssetl{\vert}}{\@setl{\vert}}}
1020 \DeclareRobustCommand{\setlx}
1021 {\@ifstar{\@ssetl{:}}{\@setl{.!\!:\!}}}
1022 \DeclareRobustCommand{\@setl}[2]
1023 {\mth{\argmid{\left\lbrace}{#2}{\,\,\right#1\!}}}
1024 \DeclareRobustCommand{\@ssetl}[2]
1025 {\mth*{\argmid{\lbrace}{#2}{\,\,\,#1\!}}}
1026 \DeclareRobustCommand{\setr}
1027 {\@ifstar{\@ssetr}{\@setr}}
1028 \DeclareRobustCommand{\setrx}
1029 {\@ifstar{\@ssetr}{\@setr}}
1030 \DeclareRobustCommand{\@setr}[1]
1031 {\mth{\argmid{\left.}{#1}{\right\rbrace}}}
1032 \DeclareRobustCommand{\@ssetr}[1]
1033 {\mth*{\argmid{}{#1}{\rbrace}}}

```

\card ...

```

1034 \DeclareRobustCommand{\card}
1035 {\@ifstar{\@scard}{\@card}}
1036 \DeclareRobustCommand{\@card}[1]
1037 {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
1038 \DeclareRobustCommand{\@scard}[1]
1039 {\mth*{\argmid{\lvert}{#1}{\rvert}}}

```

\pow ...

```

1040 \DeclareRobustCommand{\pow}[1]
1041 {\mth{2^{\defval{#1}{\cdot}}}}

1042 %** Relations *****%

```

\emptyrel ...

```

1043 \DeclareRobustCommand{\emptyrel}
1044 {\mth{\varnothing}}

1045 %*****%

```

\dom ...

```

\cod 1046 \usrmth{dom}{\argfun}
... 1047 \usrmth{cod}{\argfun}
1048 \usrmth{rng}{\argfun}
1049 \usrmth{img}{\argfun}

```

\deg ...

```

1050 \usrmth{deg}{\argfun}

1051 %*****%

```

\prj ...

```

1052 \DeclareRobustCommand{\prj}
1053 {\mthlbop{\downarrow}}

```

\rst ...

```

1054 \DeclareRobustCommand{\rst}
1055 {\mthlbop{\upharpoonright}}

```

\cmp ...

```

1056 \DeclareRobustCommand{\cmp}
1057 {\mthlbop{\circ}}

```

```

1058 %** Functions *****%

```

```

\emptyfun ...
1059 \DeclareRobustCommand{\emptyfun}
1060 {\mth{\varnothing}}

1061 %%*****%

\pto ...
\pmapsto 1062 \DeclareMathOperator{\pto}
1063 {\ensuremath{\rightharpoonup}}
1064 \DeclareMathOperator{\pmapsto}
1065 {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize\llcorner}}}%
1066 \kern-1.5ex\rightharpoonup}}

1067 %%*****%

\fix ...
\ifp 1068 \usrmth{fix}{\fun}
... 1069 \usrmth{ifp}{\fun}
1070 \usrmth{lfp}{\fun}
1071 \usrmth{gfp}{\fun}

1072 %%*****%

\Aomega ...
\AOmega 1073 \usrmth{Aomega}{\argset}[\omega]
1074 \usrmth{AOmega}{\argset}[\Omega]

\Atheta ...
\ATheta 1075 \usrmth{Atheta}{\argset}[\theta]
1076 \usrmth{ATheta}{\argset}[\Theta]

\Aomicron ...
... 1077 \usrmth{Aomicron}{\argset}[\omicron]
1078 \usrmth{AOmicron}{\argset}[\Omicron]

1079 %%** Numbers *****%

\SetB ...
1080 \DeclareRobustCommand{\SetB}
1081 {\mthset[\mathbb]{B}}

\SetF ...
1082 \DeclareRobustCommand{\SetF}
1083 {\mthset[\mathbb]{F}}

\SetN ...
... 1084 \DeclareRobustCommand{\SetN}
1085 {\mthset[\mathbb]{N}}
1086 \DeclareRobustCommand{\SetNI}[1] []
1087 {\SetN[\infty #1]}

\SetZ ...
... 1088 \DeclareRobustCommand{\SetZ}
1089 {\mthset[\mathbb]{Z}}
1090 \DeclareRobustCommand{\SetZI}[1] []
1091 {\SetZ[\pm\infty #1]}
1092 \DeclareRobustCommand{\SetZPI}[1] []
1093 {\SetZ[+\infty #1]}
1094 \DeclareRobustCommand{\SetZNI}[1] []
1095 {\SetZ[-\infty #1]}

```

```

\SetQ ...
... 1096 \DeclareRobustCommand{\SetQ}
1097 {\mthset[mathbb]{Q}}
1098 \DeclareRobustCommand{\SetQI}[1] []
1099 {\SetQ[\pm\infty #1]}
1100 \DeclareRobustCommand{\SetQPI}[1] []
1101 {\SetQ[+\infty #1]}
1102 \DeclareRobustCommand{\SetQNI}[1] []
1103 {\SetQ[-\infty #1]}

\SetR ...
... 1104 \DeclareRobustCommand{\SetR}
1105 {\mthset[mathbb]{R}}
1106 \DeclareRobustCommand{\SetRI}[1] []
1107 {\SetR[\pm\infty #1]}
1108 \DeclareRobustCommand{\SetRPI}[1] []
1109 {\SetR[+\infty #1]}
1110 \DeclareRobustCommand{\SetRNI}[1] []
1111 {\SetR[-\infty #1]}

\SetC ...
... 1112 \DeclareRobustCommand{\SetC}
1113 {\mthset[mathbb]{C}}
1114 \DeclareRobustCommand{\SetCI}[1] []
1115 {\SetC[\infty #1]}
1116 %%*****%

\num ...
... 1117 \DeclareRobustCommand{\num}[1]
1118 {\mth{[#1]}}
1119 \DeclareRobustCommand{\numcc}[2]
1120 {\mth{[\argsep{#1}{,}{#2}]}}
1121 \DeclareRobustCommand{\numco}[2]
1122 {\mth{[\argsep{#1}{,}{#2})}}
1123 \DeclareRobustCommand{\numoc}[2]
1124 {\mth{(\argsep{#1}{,}{#2})}}
1125 \DeclareRobustCommand{\numoo}[2]
1126 {\mth{(\argsep{#1}{,}{#2}))}}
1127 %%*****%

\abs ...
\norm 1128 \DeclareRobustCommand{\abs}
1129 {\@ifstar{\@sabs}{\@abs}}
1130 \DeclareRobustCommand{\@abs}[1]
1131 {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
1132 \DeclareRobustCommand{\@sabs}[1]
1133 {\mth*{\argmid{\lvert}{#1}{\rvert}}}
1134 \DeclareRobustCommand{\norm}
1135 {\@ifstar{\@snorm}{\@norm}}
1136 \DeclareRobustCommand{\@norm}[1]
1137 {\mth{\argmid{\left\lVert}{#1}{\right\rVert}}}
1138 \DeclareRobustCommand{\@snorm}[1]
1139 {\mth*{\argmid{\lVert}{#1}{\rVert}}}

\floor ...
\ceil 1140 \DeclareRobustCommand{\floor}
1141 {\@ifstar{\@sfloor}{\@ffloor}}
1142 \DeclareRobustCommand{\@ffloor}[1]
1143 {\mth{\argmid{\left\lfloor}{#1}{\right\rfloor}}}
1144 \DeclareRobustCommand{\@sfloor}[1]
1145 {\mth*{\argmid{\lfloor}{#1}{\rfloor}}}
1146 \DeclareRobustCommand{\ceil}

```



- `\defcomcls{CompClass}[NewClass];`  
`\CompClass[sub][sup][arg] = NEWCLASSSUB(ARG)`

```
1183 \DeclareRobustCommandx{\defcomcls}[2][2=]
1184 {\csdef{#1}{\txtoargcom{\defval{#2}{#1}}}}
```

`\defcomclsgrp ... to do!`

- `\defcomclsgrp{CompClass};`  
`\CompClass[sub][sup][arg] = COMPCLASSSUB(ARG)`  
`\CoCompClass[sub][sup][arg] = COCOMPCLASSSUB(ARG)`  
`\CompClassE[sub][sup][arg] = COMPCLASS-EASYSUB(ARG)`  
`\CoCompClassE[sub][sup][arg] = COCOMPCLASS-EASYSUB(ARG)`  
`\CompClassH[sub][sup][arg] = COMPCLASS-HARDSUB(ARG)`  
`\CoCompClassH[sub][sup][arg] = COCOMPCLASS-HARDSUB(ARG)`  
`\CompClassC[sub][sup][arg] = COMPCLASS-COMPLETESUB(ARG)`  
`\CoCompClassC[sub][sup][arg] = COCOMPCLASS-COMPLETESUB(ARG)`  
  
`\DCompClass[sub][sup][arg] = DCOMPCLASSSUB(ARG)`  
`\CoDCompClass[sub][sup][arg] = CODCOMPCLASSSUB(ARG)`  
`\DCompClassE[sub][sup][arg] = DCOMPCLASS-EASYSUB(ARG)`  
`\CoDCompClassE[sub][sup][arg] = CODCOMPCLASS-EASYSUB(ARG)`  
`\DCompClassH[sub][sup][arg] = DCOMPCLASS-HARDSUB(ARG)`  
`\CoDCompClassH[sub][sup][arg] = CODCOMPCLASS-HARDSUB(ARG)`  
`\DCompClassC[sub][sup][arg] = DCOMPCLASS-COMPLETESUB(ARG)`  
`\CoDCompClassC[sub][sup][arg] = CODCOMPCLASS-COMPLETESUB(ARG)`  
  
`\NCompClass[sub][sup][arg] = NCOMPCLASSSUB(ARG)`  
`\CoNCompClass[sub][sup][arg] = CONCOMPCLASSSUB(ARG)`  
`\NCompClassE[sub][sup][arg] = NCOMPCLASS-EASYSUB(ARG)`  
`\CoNCompClassE[sub][sup][arg] = CONCOMPCLASS-EASYSUB(ARG)`  
`\NCompClassH[sub][sup][arg] = NCOMPCLASS-HARDSUB(ARG)`  
`\CoNCompClassH[sub][sup][arg] = CONCOMPCLASS-HARDSUB(ARG)`  
`\NCompClassC[sub][sup][arg] = NCOMPCLASS-COMPLETESUB(ARG)`  
`\CoNCompClassC[sub][sup][arg] = CONCOMPCLASS-COMPLETESUB(ARG)`  
  
`\UCompClass[sub][sup][arg] = UCOMPCLASSSUB(ARG)`  
`\CoUCompClass[sub][sup][arg] = COUCOMPCLASSSUB(ARG)`  
`\UCompClassE[sub][sup][arg] = UCOMPCLASS-EASYSUB(ARG)`  
`\CoUCompClassE[sub][sup][arg] = COUCOMPCLASS-EASYSUB(ARG)`  
`\UCompClassH[sub][sup][arg] = UCOMPCLASS-HARDSUB(ARG)`  
`\CoUCompClassH[sub][sup][arg] = COUCOMPCLASS-HARDSUB(ARG)`  
`\UCompClassC[sub][sup][arg] = UCOMPCLASS-COMPLETESUB(ARG)`  
`\CoUCompClassC[sub][sup][arg] = COUCOMPCLASS-COMPLETESUB(ARG)`  
  
`\ACompClass[sub][sup][arg] = ACOMPCLASSSUB(ARG)`  
`\CoACompClass[sub][sup][arg] = COACOMPCLASSSUB(ARG)`  
`\ACompClassE[sub][sup][arg] = ACOMPCLASS-EASYSUB(ARG)`  
`\CoACompClassE[sub][sup][arg] = COACOMPCLASS-EASYSUB(ARG)`  
`\ACompClassH[sub][sup][arg] = ACOMPCLASS-HARDSUB(ARG)`  
`\CoACompClassH[sub][sup][arg] = COACOMPCLASS-HARDSUB(ARG)`  
`\ACompClassC[sub][sup][arg] = ACOMPCLASS-COMPLETESUB(ARG)`  
`\CoACompClassC[sub][sup][arg] = COACOMPCLASS-COMPLETESUB(ARG)`  
  
- `\defcomclsgrp{CompClass}[NewClass];`  
`\CompClass[sub][sup][arg] = NEWCLASSSUB(ARG)`  
`\CoCompClass[sub][sup][arg] = CONEWCLASSSUB(ARG)`  
`\CompClassE[sub][sup][arg] = NEWCLASS-EASYSUB(ARG)`  
`\CoCompClassE[sub][sup][arg] = CONEWCLASS-EASYSUB(ARG)`  
`\CompClassH[sub][sup][arg] = NEWCLASS-HARDSUB(ARG)`  
`\CoCompClassH[sub][sup][arg] = CONEWCLASS-HARDSUB(ARG)`  
`\CompClassC[sub][sup][arg] = NEWCLASS-COMPLETESUB(ARG)`  
`\CoCompClassC[sub][sup][arg] = CONEWCLASS-COMPLETESUB(ARG)`



```

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

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

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

\ACompClass[sub][sup][arg] = ANEWCLASSSUPSUB(ARG)
\CoACompClass[sub][sup][arg] = COANEWCLASSSUPSUB(ARG)
\ACompClassE[sub][sup][arg] = ANEWCLASS-EASYSUPSUB(ARG)
\CoACompClassE[sub][sup][arg] = COANEWCLASS-EASYSUPSUB(ARG)
\ACompClassH[sub][sup][arg] = ANEWCLASS-HARDSUPSUB(ARG)
\CoACompClassH[sub][sup][arg] = COANEWCLASS-HARDSUPSUB(ARG)
\ACompClassC[sub][sup][arg] = ANEWCLASS-COMPLETESUPSUB(ARG)
\CoACompClassC[sub][sup][arg] = COANEWCLASS-COMPLETESUPSUB(ARG)

1185 \DeclareRobustCommandx{\defcomclsggrp}[2][2=]
1186 {\defcomclsggrpsem{#1}{\defval{#2}{#1}}%
1187 \defcomclsggrpsem{#1}{\defval{#2}{#1}}[Co]}
1188 \DeclareRobustCommandx{\defcomclsggrpsem}[3][3=]
1189 {\defcomclsggrp{#3#1}{#2}{#3}%
1190 \defcomclsggrp{#3D#1}{#2}{#3D}%
1191 \defcomclsggrp{#3N#1}{#2}{#3N}%
1192 \defcomclsggrp{#3U#1}{#2}{#3U}%
1193 \defcomclsggrp{#3A#1}{#2}{#3A}}
1194 \DeclareRobustCommandx{\defcomclsggrp{pred}}[3][3=]
1195 {\defcomclsggrp{cmd{#1}{#2}{#3}%
1196 \defcomclsggrp{cmd{#1E}{#2}{#3}[-easy]}%
1197 \defcomclsggrp{cmd{#1H}{#2}{#3}[-hard]}%
1198 \defcomclsggrp{cmd{#1C}{#2}{#3}[-complete]}}%
1199 \DeclareRobustCommandx{\defcomclsggrp{cmd}}[4][3=, 4=]
1200 {\csdef{#1}{\txttoargcom{#3#2#4}}}

```

\defcomhrc ... to do!

- \defcomhrc{CompHierarchy};

CompHierarchy[sub][sup][par] = COMPHIERARCHY<sup>SUP</sup><sub>SUB</sub>[PAR]

- \defcomhrc{CompHierarchy}[NewHierarchy];

CompHierarchy[sub][sup][par] = NEWHIERARCHY<sup>SUP</sup><sub>SUB</sub>[PAR]

```

1201 \DeclareRobustCommandx{\defcomhrc}[2][2=]
1202 {\csdef{#1}{\txttoparcom{\defval{#2}{#1}}}}

```

```

1203 %%*****%

\Easy
\Hard 1204 \cmdtxtcom{Easy}
... 1205 \cmdtxtcom{Hard}
1206 \cmdtxtcom{Complete}

1207 %%*****%

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

1208 \defcomcls{FPT}
1209 \defcomcls{FPLin}[FPL]
1210 \defcomcls{FPQdr}[FPQ]
1211 \defcomcls{FPCub}[FPC]

1212 %%*****%

\Time
...
• \Time[sub][sup][arg] = TIMESUB(ARG)
• \TimeE[sub][sup][arg] = TIME-EASYSUB(ARG)
• \TimeH[sub][sup][arg] = TIME-HARDSUB(ARG)
• \TimeC[sub][sup][arg] = TIME-COMpleteSUB(ARG)
• \DTime[sub][sup][arg] = DTIMESUB(ARG)
• \DTimeE[sub][sup][arg] = DTIME-EASYSUB(ARG)
• \DTimeH[sub][sup][arg] = DTIME-HARDSUB(ARG)
• \DTimeC[sub][sup][arg] = DTIME-COMpleteSUB(ARG)
• \NTime[sub][sup][arg] = NTIMESUB(ARG)
• \NTimeE[sub][sup][arg] = NTIME-EASYSUB(ARG)
• \NTimeH[sub][sup][arg] = NTIME-HARDSUB(ARG)
• \NTimeC[sub][sup][arg] = NTIME-COMpleteSUB(ARG)
• \UTime[sub][sup][arg] = UTIMESUB(ARG)
• \UTimeE[sub][sup][arg] = UTIME-EASYSUB(ARG)
• \UTimeH[sub][sup][arg] = UTIME-HARDSUB(ARG)
• \UTimeC[sub][sup][arg] = UTIME-COMpleteSUB(ARG)
• \ATime[sub][sup][arg] = ATIMESUB(ARG)
• \ATimeE[sub][sup][arg] = ATIME-EASYSUB(ARG)
• \ATimeH[sub][sup][arg] = ATIME-HARDSUB(ARG)
• \ATimeC[sub][sup][arg] = ATIME-COMpleteSUB(ARG)

1213 \defcomclsgrp{Time}

\Space
...
• \Space[sub][sup][arg] = SPACESUB(ARG)
• \SpaceE[sub][sup][arg] = SPACE-EASYSUB(ARG)
• \SpaceH[sub][sup][arg] = SPACE-HARDSUB(ARG)
• \SpaceC[sub][sup][arg] = SPACE-COMpleteSUB(ARG)
• \DSpace[sub][sup][arg] = DSPACESUB(ARG)
• \DSpaceE[sub][sup][arg] = DSPACE-EASYSUB(ARG)
• \DSpaceH[sub][sup][arg] = DSPACE-HARDSUB(ARG)
• \DSpaceC[sub][sup][arg] = DSPACE-COMpleteSUB(ARG)
• \NSpace[sub][sup][arg] = NSPACESUB(ARG)
• \NSpaceE[sub][sup][arg] = NSPACE-EASYSUB(ARG)
• \NSpaceH[sub][sup][arg] = NSPACE-HARDSUB(ARG)
• \NSpaceC[sub][sup][arg] = NSPACE-COMpleteSUB(ARG)
• \USpace[sub][sup][arg] = USPACESUB(ARG)
• \USpaceE[sub][sup][arg] = USPACE-EASYSUB(ARG)
• \USpaceH[sub][sup][arg] = USPACE-HARDSUB(ARG)
• \USpaceC[sub][sup][arg] = USPACE-COMpleteSUB(ARG)

```



- $\backslash\text{NPTIME}[\text{sub}][\text{sup}][\text{arg}] = \text{NPTIME}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$   
 $\backslash\text{NPTIMEE}[\text{sub}][\text{sup}][\text{arg}] = \text{NPTIME-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$   
 $\backslash\text{NPTIMEH}[\text{sub}][\text{sup}][\text{arg}] = \text{NPTIME-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$   
 $\backslash\text{NPTIMEC}[\text{sub}][\text{sup}][\text{arg}] = \text{NPTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{UPTIME}[\text{sub}][\text{sup}][\text{arg}] = \text{UPTIME}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$   
 $\backslash\text{UPTIMEE}[\text{sub}][\text{sup}][\text{arg}] = \text{UPTIME-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$   
 $\backslash\text{UPTIMEH}[\text{sub}][\text{sup}][\text{arg}] = \text{UPTIME-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$   
 $\backslash\text{UPTIMEC}[\text{sub}][\text{sup}][\text{arg}] = \text{UPTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{APTIME}[\text{sub}][\text{sup}][\text{arg}] = \text{APTIME}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$   
 $\backslash\text{APTIMEE}[\text{sub}][\text{sup}][\text{arg}] = \text{APTIME-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$   
 $\backslash\text{APTIMEH}[\text{sub}][\text{sup}][\text{arg}] = \text{APTIME-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$   
 $\backslash\text{APTIMEC}[\text{sub}][\text{sup}][\text{arg}] = \text{APTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

```
1217 \def comclsgrp{PTime}
```

- \PSPACE[sub][sup][arg] = PSPACE<sup>SUB</sup>(ARG)
- \PSPACEE[sub][sup][arg] = PSPACE-EASY<sup>SUB</sup>(ARG)
- \PSPACEH[sub][sup][arg] = PSPACE-HARD<sup>SUB</sup>(ARG)
- \PSPACEC[sub][sup][arg] = PSPACE-COMPLETE<sup>SUB</sup>(ARG)
- \DSPACE[sub][sup][arg] = DSPACE<sup>SUB</sup>(ARG)
- \DSPACEE[sub][sup][arg] = DSPACE-EASY<sup>SUB</sup>(ARG)
- \DSPACEH[sub][sup][arg] = DSPACE-HARD<sup>SUB</sup>(ARG)
- \DSPACEC[sub][sup][arg] = DSPACE-COMPLETE<sup>SUB</sup>(ARG)
- \NPSPACE[sub][sup][arg] = NPSPACE<sup>SUB</sup>(ARG)
- \NPSPACEE[sub][sup][arg] = NPSPACE-EASY<sup>SUB</sup>(ARG)
- \NPSPACEH[sub][sup][arg] = NPSPACE-HARD<sup>SUB</sup>(ARG)
- \NPSPACEC[sub][sup][arg] = NPSPACE-COMPLETE<sup>SUB</sup>(ARG)
- \UPSPACE[sub][sup][arg] = UPSPACE<sup>SUB</sup>(ARG)
- \UPSPACEE[sub][sup][arg] = UPSPACE-EASY<sup>SUB</sup>(ARG)
- \UPSPACEH[sub][sup][arg] = UPSPACE-HARD<sup>SUB</sup>(ARG)
- \UPSPACEC[sub][sup][arg] = UPSPACE-COMPLETE<sup>SUB</sup>(ARG)
- \APSPACE[sub][sup][arg] = APSPACE<sup>SUB</sup>(ARG)
- \APSPACEE[sub][sup][arg] = APSPACE-EASY<sup>SUB</sup>(ARG)
- \APSPACEH[sub][sup][arg] = APSPACE-HARD<sup>SUB</sup>(ARG)
- \APSPACEC[sub][sup][arg] = APSPACE-COMPLETE<sup>SUB</sup>(ARG)

```
1218 \defcomclsgrp{PSPACE}
```

```

\QPTIME
...
• \QPTIME[sub][sup][arg] = QPTIMESUB(ARG)
 \QPTIMEE[sub][sup][arg] = QPTIME-EASYSUB(ARG)
 \QPTIMEH[sub][sup][arg] = QPTIME-HARDSUB(ARG)
 \QPTIMEC[sub][sup][arg] = QPTIME-COMPLETESUB(ARG)

• \DQPTIME[sub][sup][arg] = DQPTIMESUB(ARG)
 \DQPTIMEE[sub][sup][arg] = DQPTIME-EASYSUB(ARG)
 \DQPTIMEH[sub][sup][arg] = DQPTIME-HARDSUB(ARG)
 \DQPTIMEC[sub][sup][arg] = DQPTIME-COMPLETESUB(ARG)

• \NQPTIME[sub][sup][arg] = NQPTIMESUB(ARG)
 \NQPTIMEE[sub][sup][arg] = NQPTIME-EASYSUB(ARG)
 \NQPTIMEH[sub][sup][arg] = NQPTIME-HARDSUB(ARG)
 \NQPTIMEC[sub][sup][arg] = NQPTIME-COMPLETESUB(ARG)

• \UQPTIME[sub][sup][arg] = UQPTIMESUB(ARG)
 \UQPTIMEE[sub][sup][arg] = UQPTIME-EASYSUB(ARG)
 \UQPTIMEH[sub][sup][arg] = UQPTIME-HARDSUB(ARG)
 \UQPTIMEC[sub][sup][arg] = UQPTIME-COMPLETESUB(ARG)

• \AQPTIME[sub][sup][arg] = AQPTIMESUB(ARG)
 \AQPTIMEE[sub][sup][arg] = AQPTIME-EASYSUB(ARG)
 \AQPTIMEH[sub][sup][arg] = AQPTIME-HARDSUB(ARG)
 \AQPTIMEC[sub][sup][arg] = AQPTIME-COMPLETESUB(ARG)

```

```
1219 \defcomclsgrp{QPTime}
```

```

\QPSpace • \QPSpace[sub][sup][arg] = QPSPACESUBSUB(ARG)
... • \QPSpaceE[sub][sup][arg] = QPSPACE-EASYSUBSUB(ARG)
 • \QPSpaceH[sub][sup][arg] = QPSPACE-HARDSUBSUB(ARG)
 • \QPSpaceC[sub][sup][arg] = QPSPACE-COMLETESUBSUB(ARG)

 • \DQPSpace[sub][sup][arg] = DQPSPACESUBSUB(ARG)
 • \DQPSpaceE[sub][sup][arg] = DQPSPACE-EASYSUBSUB(ARG)
 • \DQPSpaceH[sub][sup][arg] = DQPSPACE-HARDSUBSUB(ARG)
 • \DQPSpaceC[sub][sup][arg] = DQPSPACE-COMLETESUBSUB(ARG)

 • \NQPSpace[sub][sup][arg] = NQPSPACESUBSUB(ARG)
 • \NQPSpaceE[sub][sup][arg] = NQPSPACE-EASYSUBSUB(ARG)
 • \NQPSpaceH[sub][sup][arg] = NQPSPACE-HARDSUBSUB(ARG)
 • \NQPSpaceC[sub][sup][arg] = NQPSPACE-COMLETESUBSUB(ARG)

 • \UQPSpace[sub][sup][arg] = UQPSPACESUBSUB(ARG)
 • \UQPSpaceE[sub][sup][arg] = UQPSPACE-EASYSUBSUB(ARG)
 • \UQPSpaceH[sub][sup][arg] = UQPSPACE-HARDSUBSUB(ARG)
 • \UQPSpaceC[sub][sup][arg] = UQPSPACE-COMLETESUBSUB(ARG)

 • \AQPSpace[sub][sup][arg] = AQPSPACESUBSUB(ARG)
 • \AQPSpaceE[sub][sup][arg] = AQPSPACE-EASYSUBSUB(ARG)
 • \AQPSpaceH[sub][sup][arg] = AQPSPACE-HARDSUBSUB(ARG)
 • \AQPSpaceC[sub][sup][arg] = AQPSPACE-COMLETESUBSUB(ARG)

```

1220 \defcomclsggrp{QPSpace}

```

\ExpTime • \ExpTime[sub][sup][arg] = EXPSUBSUBTIME(ARG)
... • \ExpTimeE[sub][sup][arg] = EXPSUBSUBTIME-EASY(ARG)
 • \ExpTimeH[sub][sup][arg] = EXPSUBSUBTIME-HARD(ARG)
 • \ExpTimeC[sub][sup][arg] = EXPSUBSUBTIME-COMLETE(ARG)

 • \DExpTime[sub][sup][arg] = DEXPSUBSUBTIME(ARG)
 • \DExpTimeE[sub][sup][arg] = DEXPSUBSUBTIME-EASY(ARG)
 • \DExpTimeH[sub][sup][arg] = DEXPSUBSUBTIME-HARD(ARG)
 • \DExpTimeC[sub][sup][arg] = DEXPSUBSUBTIME-COMLETE(ARG)

 • \NExpTime[sub][sup][arg] = NEXPSUBSUBTIME(ARG)
 • \NExpTimeE[sub][sup][arg] = NEXPSUBSUBTIME-EASY(ARG)
 • \NExpTimeH[sub][sup][arg] = NEXPSUBSUBTIME-HARD(ARG)
 • \NExpTimeC[sub][sup][arg] = NEXPSUBSUBTIME-COMLETE(ARG)

 • \UExpTime[sub][sup][arg] = UEXPSUBSUBTIME(ARG)
 • \UExpTimeE[sub][sup][arg] = UEXPSUBSUBTIME-EASY(ARG)
 • \UExpTimeH[sub][sup][arg] = UEXPSUBSUBTIME-HARD(ARG)
 • \UExpTimeC[sub][sup][arg] = UEXPSUBSUBTIME-COMLETE(ARG)

 • \AExpTime[sub][sup][arg] = AEXPSUBSUBTIME(ARG)
 • \AExpTimeE[sub][sup][arg] = AEXPSUBSUBTIME-EASY(ARG)
 • \AExpTimeH[sub][sup][arg] = AEXPSUBSUBTIME-HARD(ARG)
 • \AExpTimeC[sub][sup][arg] = AEXPSUBSUBTIME-COMLETE(ARG)

```

1221 \defcomclsggrp{ExpTime}

```

\ExpSpace • \ExpSpace[sub][sup][arg] = EXPSUBSUBSPACE(ARG)
... • \ExpSpaceE[sub][sup][arg] = EXPSUBSUBSPACE-EASY(ARG)
 • \ExpSpaceH[sub][sup][arg] = EXPSUBSUBSPACE-HARD(ARG)
 • \ExpSpaceC[sub][sup][arg] = EXPSUBSUBSPACE-COMLETE(ARG)

 • \DExpSpace[sub][sup][arg] = DEXPSUBSUBSPACE(ARG)
 • \DExpSpaceE[sub][sup][arg] = DEXPSUBSUBSPACE-EASY(ARG)
 • \DExpSpaceH[sub][sup][arg] = DEXPSUBSUBSPACE-HARD(ARG)
 • \DExpSpaceC[sub][sup][arg] = DEXPSUBSUBSPACE-COMLETE(ARG)

 • \NExpSpace[sub][sup][arg] = NEXPSUBSUBSPACE(ARG)
 • \NExpSpaceE[sub][sup][arg] = NEXPSUBSUBSPACE-EASY(ARG)
 • \NExpSpaceH[sub][sup][arg] = NEXPSUBSUBSPACE-HARD(ARG)
 • \NExpSpaceC[sub][sup][arg] = NEXPSUBSUBSPACE-COMLETE(ARG)

 • \UExpSpace[sub][sup][arg] = UEXPSUBSUBSPACE(ARG)
 • \UExpSpaceE[sub][sup][arg] = UEXPSUBSUBSPACE-EASY(ARG)
 • \UExpSpaceH[sub][sup][arg] = UEXPSUBSUBSPACE-HARD(ARG)
 • \UExpSpaceC[sub][sup][arg] = UEXPSUBSUBSPACE-COMLETE(ARG)

```

```

 • \AExpSpace[sub][sup][arg] = AEXPSPACESUBSUP(ARG)
 \AExpSpaceE[sub][sup][arg] = AEXPSPACE-EASYSUBSUP(ARG)
 \AExpSpaceH[sub][sup][arg] = AEXPSPACE-HARDSUBSUP(ARG)
 \AExpSpaceC[sub][sup][arg] = AEXPSPACE-COMPLETESUBSUP(ARG)
1222 \defcomclsgrp{ExpSpace}
1223 %%*****

\PH • \PH[sub][sup][par] = PHSUBSUP[PAR]
1224 \defcomhrc{PH}

\WH • \WH[sub][sup][par] = WSUBSUP[PAR]
1225 \defcomhrc{WH}[W]

\AH • \AH[sub][sup][par] = ASUBSUP[PAR]
1226 \defcomhrc{AH}[A]

\DLH • \DLH[sub][sup][par] = ΔSUBSUP[PAR]
\DBH • \DBH[sub][sup][par] = ΔSUBSUP[PAR]
1227 \defcomhrc{DLH}{\mth{\Delta}}
1228 \defcomhrc{DBH}{\mth[mathbf]{\Delta}}

\ELH • \ELH[sub][sup][par] = ΣSUBSUP[PAR]
\EBH • \EBH[sub][sup][par] = ΣSUBSUP[PAR]
1229 \defcomhrc{ELH}{\mth{\Sigma}}
1230 \defcomhrc{EBH}{\mth[mathbf]{\Sigma}}

\ULH • \ULH[sub][sup][par] = ΠSUBSUP[PAR]
\UBH • \UBH[sub][sup][par] = ΠSUBSUP[PAR]
1231 \defcomhrc{ULH}{\mth{\Pi}}
1232 \defcomhrc{UBH}{\mth[mathbf]{\Pi}}

1233 \fi
1234 %%*****

1235 %%*****
1236 %%** Macros for Graphs *****
1237 %%*****
1238 \ifgrp@
1239 %%** Syntax *****

\GrpName ...
... 1240 \newcommand{\grpname}{G}
1241 \usrmthlatupp{Grp}{Name}{name}[\grpname]

\VerSet ...
... 1242 \newcommand{\versym}{v}
1243 \newcommand{\verset}{V}
1244 \cmdmthsetext{Ver}[\verset][\versym]
1245 \cmdmthsymelm{iver}[\versym_{I}]
1246 \cmdmthsymelm{fver}[\versym_{F}]

\EdgRel ...
1247 \newcommand{\edgrel}{E}
1248 \cmdmthrel{Edg}[\edgrel]

1249 %%** Semantics *****

\PthSet ...
\pthFun 1250 \newcommand{\pthsym}{\pi}
1251 \newcommand{\pthset}{Pth}
1252 \cmdmthsetext{Pth}[\pthset][\pthsym]
1253 \usrmth{path}{-}{argfun}

```

```

\pre ...
\suc 1254 \usrmth{pre}{\oargfun}
 1255 \usrmth{suc}{\oargfun}

 1256 \fi
 1257 %%%
 1258 %%%
 1259 %** Macros for Games %%%
 1260 %%%
 1261 \ifgam@
 1262 %** Logic Games %%%

\SATG ...
... 1263 %% Satisfiability Games
 1264 \cmdtxttoparname{SATG}[Sat]
 1265
 1266 %% Validity Games
 1267 \cmdtxttoparname{VALG}[Val]
 1268
 1269 %% Evaluation Games
 1270 \cmdtxttoparname{EVLG}[Evl]
 1271
 1272 %% Synthesis Games
 1273 \cmdtxttoparname{SYNG}[Syn]
 1274
 1275 %% Model-Checking Games
 1276 \cmdtxttoparname{MCG}[MC]
 1277
 1278 %% Ehrenfeucht-Fraisse Games
 1279 \cmdtxttoparname{EFG}[EF]
 1280 %** Syntax %%%

\PlrSym ...
\OppSym 1281 \newcommand{\plrSYM}{E}
 1282 \cmdmthsym{Plr}{\plrSYM}
 1283 \newcommand{\oppSYM}{A}
 1284 \cmdmthsym{Opp}{\oppSYM}

\ArenaName ...
... 1285 \newcommand{\arenaname}{A}
 1286 \usrmthlatupp{Arena}{Name}{name}[\arenaname]

\PosSet ...
... 1287 \newcommand{\posSYM}{v}
 1288 \newcommand{\posset}{Ps}
 1289 \cmdmthsetext{Pos}[\posset][\posSYM]
 1290 \cmdmthsymelm{ipos}[\posSYM_{I}]
 1291 \cmdmthsymelm{fpos}[\posSYM_{F}]
 1292 \cmdmthset{PPos}[\posset_{\PlrSym}]
 1293 \cmdmthsymelm{ppos}[\posSYM_{\PlrSym}]
 1294 \cmdmthset{OPos}[\posset_{\OppSym}]
 1295 \cmdmthsymelm{opos}[\posSYM_{\OppSym}]

\PlrFun ...
 1296 \newcommand{\plrFUN}{pl}
 1297 \cmdmthfun{plr}[\plrFUN]

\MovRel ...
 1298 \newcommand{\movREL}{Mv}
 1299 \cmdmthrel{Mov}[\movREL]

```

```

\GameName ...
... 1300 \newcommand{\gamename}{\Game}
1301 \usrmthlatupp{Game}{Name}{name}[\gamename]

\WinSet ...
1302 \newcommand{\winset}{Wn}
1303 \cmdmthset{Win}[\winset]

\ObsSet ...
\obsFun 1304 \newcommand{\obsset}{Ob}
1305 \cmdmthset{Obs}[\obsset]
1306 \cmdmthfun{obs}
1307 %%** Semantics *****%%

\HstSet ...
... 1308 \newcommand{\hstsym}{\varpi}
1309 \newcommand{\hstset}{Hst}
1310 \cmdmthsetext{Hst}[\hstset][\hstsym]
1311 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1312 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1313 \cmdmthset{OHst}[\hstset_{\OppSym}]
1314 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1315 \usrmth{play}{\argfun}

\PlaySet ...
\playFun 1316 \newcommand{\playsym}{\pi}
1317 \newcommand{\playset}{Play}
1318 \cmdmthsetext{Play}[\playset][\playsym]
1319 \usrmth{hst}{\argfun}

\StrSet ...
... 1320 \newcommand{\strsym}{\sigma}
1321 \newcommand{\strset}{Str}
1322 \cmdmthsetext{Str}[\strset][\strsym]
1323 \cmdmthset{PStr}[\strset_{\PlrSym}]
1324 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1325 \cmdmthset{OStr}[\strset_{\OppSym}]
1326 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet ...
\prfFun 1327 \newcommand{\prfsym}{\xi}
1328 \newcommand{\prfset}{Prf}
1329 \cmdmthsetext{Prf}[\prfset][\prfsym]

\ent ...
\esc 1330 \usrmth{ent}{\argfun}
1331 \usrmth{esc}{\argfun}

\int ...
\out 1332 \usrmth{int}{\argfun}
1333 \usrmth{out}{\argfun}

\atr ...
\rch 1334 \usrmth{atr}{\argfun}
1335 \usrmth{rch}{\argfun}

\lift ...
1336 \usrmth{lift}{\argfun}

\sol ...
1337 \usrmth{sol}{\argfun}

```



```

1338 %%** Qualitative Games on Graph *****%%

\BG ...
... 1339 %% Buchi Games
1340 \cmdtxttoparname{BG}
1341
1342 %% Co-Buchi Games
1343 \cmdtxttoparname{CG}
1344
1345 %% Parity Games
1346 \cmdtxttoparname{PG}
1347
1348 %% Rabin Games
1349 \cmdtxttoparname{RG}
1350
1351 %% Streett Games
1352 \cmdtxttoparname{SG}
1353
1354 %% Muller Games
1355 \cmdtxttoparname{MG}
1356 %%** Syntax *****%%

\EvnSym ...
\OddSym 1357 \newcommand{\evnsym}{0}
1358 \cmdmthsym{Evn}[\evnsym]
1359 \newcommand{\oddsym}{1}
1360 \cmdmthsym{Odd}[\oddsym]

\PrtSet ...
\prtFun 1361 \newcommand{\prtsym}{p}
1362 \newcommand{\prtset}{Pr}
1363 \cmdmthsetext{Prt}[\prtset][\prtsym]
1364 \cmdmthfun{prt}[pr]
1365 %%** Semantics *****%%
...
1366 %%** Quantitative Games on Graph *****%%

\EG ...
... 1367 %% Energy Games
1368 \cmdtxttoparname{EG}
1369
1370 %% Mean-Payoff Games
1371 \cmdtxttoparname{MPG}
1372
1373 %% Discounted-Payoff Games
1374 \cmdtxttoparname{DPG}
1375 %%** Syntax *****%%

\MaxSym ...
\MinSym 1376 \newcommand{\maxsym}{\oplus}
1377 \cmdmthsym{Max}[\maxsym]
1378 \newcommand{\minsym}{\boxminus}
1379 \cmdmthsym{Min}[\minsym]

\WghSet ...
\wghFun 1380 \newcommand{\wghsym}{w}
1381 \newcommand{\wghset}{Wg}
1382 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1383 \cmdmthfun{wgh}[wg]
1384 %%** Semantics *****%%

```

```

...
1385 \fi
1386 %*****
1387 %*****
1388 %** Macros for Logics *****
1389 %*****
1390 \iflog@
1391 %** Propositional Logics *****

\BF ...
\QBF 1392 % Boolean Formulae
... 1393 \cmdtxtopname{BF}
1394
1395 % Quantified Boolean Formulae
1396 \DeclareRobustCommand{\QBF}
1397 {\textname{Q}}\BF}
1398 \DeclareRobustCommand{\EBF}
1399 {\ensuremath{\exists}\BF}
1400 \DeclareRobustCommand{\UBF}
1401 {\ensuremath{\forall}\BF}
1402 %** Syntax *****

\LogSig ...
... 1403 \newcommand{\logsig}{L}
1404 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

\Tt ...
\Ff 1405 \newcommand{\ttsym}{\top}
1406 \usrmth{Tt}{}{sym}[\ttsym]
1407 \newcommand{\ffsym}{\bot}
1408 \usrmth{Ff}{}{sym}[\ffsym]

\LNeg ...
\LNot 1409 \newcommand{\lnegsym}{\neg}
1410 \usrmth{LNeg}{}{luop}[\lnegsym]
1411 \newcommand{\lnotsym}{\sim}
1412 \usrmth{LNot}{}{luop}[\lnotsym]

\LCon ...
\LDis 1413 \newcommand{\lconsym}{\land}
1414 \usrmth{LCon}{}{lbop}[\lconsym]
1415 \newcommand{\ldissym}{\lor}
1416 \usrmth{LDis}{}{lbop}[\ldissym]

\LImp ...
\LCoI 1417 \newcommand{\limpsym}{\rightarrow}
1418 \usrmth{LImp}{}{lbop}[\limpsym]
1419 \newcommand{\lcoisym}{\leftrightharpoonup}
1420 \usrmth{LCoI}{}{lbop}[\lcoisym]

\LExs ...
\LAll 1421 \newcommand{\lexssym}{\exists}
1422 \usrmth{LExs}{}{luop}[\lexssym]
1423 \newcommand{\lallsym}{\forall}
1424 \usrmth{LAll}{}{luop}[\lallsym]

\APSet ...
... 1425 \newcommand{\apsym}{p}
1426 \newcommand{\apset}{AP}
1427 \cmdmthsetext{AP}[\apset] [\apsym]
1428 \usrmth{ap}{}{argfun}

```

```

\sub ...
1429 \usrmth{sub}{-}{argfun}

\Cnt ...
\Qnt 1430 \usrmth{Cnt}{-}{sym}[C]
\Sym 1431 \usrmth{Qnt}{-}{sym}[Q]
1432 \usrmth{Sym}{-}{sym}[\odot]

\QAE ...
\QEA 1433 \usrmth{QAE}{-}{sym}[\forall\exists]
1434 \usrmth{QEA}{-}{sym}[\exists\forall]

\QntSet ...
... 1435 \newcommand{\qntsym}{\wp}
1436 \newcommand{\qntset}{Qn}
1437 \cmdmthsetext{Qnt}[\qntset][\qntsym]

\free ...
\bound 1438 \usrmth{free}{-}{argfun}
1439 \usrmth{bound}{-}{argfun}

\dep ...
\alt 1440 \usrmth{dep}{-}{argfun}
1441 \usrmth{alt}{-}{argfun}

\cnf ...
\dnf 1442 \cmdtxtabr{cnf}
... 1443 \cmdtxtabr{dnf}
1444 \cmdtxtabr{pnf}
1445 \cmdtxtabr{nnf}
1446 %** Semantics *****%

\LogStr ...
... 1447 \newcommand{\logstr}{L}
1448 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet ...
... 1449 \newcommand{\valsym}{\xi}
1450 \newcommand{\valset}{Val}
1451 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet ...
... 1452 \newcommand{\asgsym}{\chi}
1453 \newcommand{\asgset}{Asg}
1454 \cmdmthsetext{Asg}[\asgset][\asgsym]
1455 %** First-Order Logics I *****%

\FOL ...
... 1456 % First-Order Logic
1457 \cmdtxtoparname{FOL}[Fol]
1458 \cmdtxtoparname{FO}[FO]
1459
1460 % Monadic First-Order Logic
1461 \DeclareRobustCommand{\MFOL}
1462 {\{\txtname{M}\}\FOL}
1463 \DeclareRobustCommand{\MFO}
1464 {\{\txtname{M}\}\FO}
1465 %** Syntax *****%

```

```

\VarSig ...
... 1466 \newcommand{\varsig}{V}
1467 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1468 \newcommand{\varsym}{x}
1469 \newcommand{\varset}{Vr}
1470 \cmdmthsetext{Var}[\varset][\varsym]
1471 \usrmth{var}{}{argfun}[vr]
1472 \usrmth{dim}{}{argfun}[dm]

\ConSig ...
... 1473 \newcommand{\consig}{C}
1474 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1475 \newcommand{\consym}{c}
1476 \newcommand{\conset}{Cn}
1477 \cmdmthsetext{Con}[\conset][\consym]
1478 \usrmth{con}{}{argfun}[cn]

\FunSig ...
... 1479 \newcommand{\funsig}{F}
1480 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1481 \newcommand{\funsym}{f}
1482 \newcommand{\funset}{Fn}
1483 \cmdmthsetext{Fun}[\funset][\funsym]
1484 \usrmth{fun}{}{argfun}[fn]
1485 \usrmth{art}{}{argfun}[ar]

\TerSig ...
... 1486 \newcommand{\tersig}{T}
1487 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1488 \newcommand{\tersym}{t}
1489 \newcommand{\terset}{Tr}
1490 \cmdmthsetext{Ter}[\terset][\tersym]
1491 \usrmth{ter}{}{argfun}

\RelSig ...
... 1492 \newcommand{\relsig}{R}
1493 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1494 \newcommand{\relsym}{r}
1495 \newcommand{\relset}{Rl}
1496 \cmdmthsetext{Rel}[\relset][\relsym]
1497 \usrmth{rel}{}{argfun}[rl]

\skm ...
1498 \usrmth{skm}{}{argfun}

1499 %** Semantics *****%

\ConStr ...
... 1500 \newcommand{\constr}{C}
1501 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr ...
... 1502 \newcommand{\funstr}{F}
1503 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr ...
... 1504 \newcommand{\terstr}{T}
1505 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr ...
... 1506 \newcommand{\relstr}{R}
1507 \usrmthlatupp{Rel}{Str}{str}[\relstr]

```

```

1508 %** First-Order Logics II *****%%

\DF ...
\IF 1509 % Dependence-Friendly Logic
... 1510 \cmdtxtoparname{DF}
1511
1512 % Independence-Friendly Logic
1513 \cmdtxtoparname{IF}
1514
1515 % Dependence/Independence-Friendly Logic
1516 \cmdtxtoparname{DIF}
1517
1518 % Dependence Logic
1519 \cmdtxtoparname{DL}
1520
1521 % Team Logic
1522 \cmdtxtoparname{TL}
1523
1524 % Alternating Dependence-Friendly Logic
1525 \cmdtxtoparname{ADF}
1526
1527 % Alternating Independence-Friendly Logic
1528 \cmdtxtoparname{AIF}
1529
1530 % Alternating Dependence/Independence-Friendly Logic
1531 \cmdtxtoparname{ADIF}
...

1532 %** Syntax *****%%

\LEExs ...
\LAAll 1533 \newcommand{\leexssym}{\Sigma}
1534 \usrmth{LEExs}{\luop}{\leexssym}
1535 \newcommand{\laallsym}{\Pi}
1536 \usrmth{LAAll}{\luop}{\laallsym}

1537 %** Semantics *****%%
...

1538 %** Second-Order Logics I *****%%

\SOL ...
... 1539 % Second-Order Logic
1540 \cmdtxtoparname{SOL}[Sol]
1541 \cmdtxtoparname{SO}
1542
1543 % Weak Second-Order Logic
1544 \DeclareRobustCommand{\WSOL}
1545 {\{\txname{W}\}\SOL}
1546 \DeclareRobustCommand{\WSO}
1547 {\{\txname{W}\}\SO}
1548
1549 % coWeak Second-Order Logic
1550 \DeclareRobustCommand{\coWSOL}
1551 {\{\txname{coW}\}\SOL}
1552 \DeclareRobustCommand{\coWSO}
1553 {\{\txname{coW}\}\SO}
1554
1555 % Monadic Second-Order Logic
1556 \DeclareRobustCommand{\MSOL}
1557 {\{\txname{M}\}\SOL}
1558 \DeclareRobustCommand{\MSO}
1559 {\{\txname{M}\}\SO}
1560

```

```

1561 % Weak Monadic Second-Order Logic
1562 \DeclareRobustCommand{\WMSOL}
1563 {\textname{W}}\MSOL}
1564 \DeclareRobustCommand{\WMSO}
1565 {\textname{W}}\MSO}
1566
1567 % coWeak Monadic Second-Order Logic
1568 \DeclareRobustCommand{\coWMSOL}
1569 {\textname{coW}}\MSOL}
1570 \DeclareRobustCommand{\coWMSO}
1571 {\textname{coW}}\MSO}
1572 %** Syntax *****%

\FVarSet ...
... 1573 \newcommand{\fvarsym}{x}
1574 \newcommand{\fvarset}{FVr}
1575 \cmdmthsettext{FVar}[\fvarset][\fvarsym]

\SVarSet ...
... 1576 \newcommand{\svarsym}{X}
1577 \newcommand{\svarset}{SVr}
1578 \cmdmthsettext{SVar}[\svarset][\svarsym]
1579 %** Semantics *****%
...
1580 %** Second-Order Logics II *****%

\TL ...
\CL 1581 % Tree Logic
\PL 1582 \cmdtxttoparname{TL}
... 1583
1584 % Weak Tree Logic
1585 \DeclareRobustCommand{\WTL}
1586 {\textname{W}}\TL}
1587
1588 % coWeak Tree Logic
1589 \DeclareRobustCommand{\coWTL}
1590 {\textname{coW}}\TL}
1591
1592 % Monadic Tree Logic
1593 \DeclareRobustCommand{\MTL}
1594 {\textname{M}}\TL}
1595
1596 % Weak Monadic Tree Logic
1597 \DeclareRobustCommand{\WMTL}
1598 {\textname{W}}\MTL}
1599
1600 % coWeak Monadic Tree Logic
1601 \DeclareRobustCommand{\coWMTL}
1602 {\textname{coW}}\MTL}
1603
1604 % Chain Logic
1605 \cmdtxttoparname{CL}
1606
1607 % Weak Chain Logic
1608 \DeclareRobustCommand{\WCL}
1609 {\textname{W}}\CL}
1610
1611 % coWeak Chain Logic
1612 \DeclareRobustCommand{\coWCL}
1613 {\textname{coW}}\CL}
1614

```

```

1615 % Monadic Chain Logic
1616 \DeclareRobustCommand{\MCL}
1617 {\txtname{M}}\CL}
1618
1619 % Weak Monadic Chain Logic
1620 \DeclareRobustCommand{\WMCL}
1621 {\txtname{W}}\MCL}
1622
1623 % coWeak Monadic Chain Logic
1624 \DeclareRobustCommand{\coWMCL}
1625 {\txtname{coW}}\MCL}
1626
1627 % Path Logic
1628 \cmdtxttoparname{PL}
1629
1630 % Weak Path Logic
1631 \DeclareRobustCommand{\WPL}
1632 {\txtname{W}}\PL}
1633
1634 % coWeak Path Logic
1635 \DeclareRobustCommand{\coWPL}
1636 {\txtname{coW}}\PL}
1637
1638 % Monadic Path Logic
1639 \DeclareRobustCommand{\MPL}
1640 {\txtname{M}}\PL}
1641
1642 % Weak Monadic Path Logic
1643 \DeclareRobustCommand{\WMPL}
1644 {\txtname{W}}\MPL}
1645
1646 % coWeak Monadic Path Logic
1647 \DeclareRobustCommand{\coWMPL}
1648 {\txtname{coW}}\MPL}
1649 %** Syntax *****%%
...
1650 %** Semantics *****%%
...
1651 %** Modal Logics I *****%%

\ML ...
\GML 1652 % Modal Logic
... 1653 \cmdtxttoparname{ML}
1654
1655 % Graded Modal Logic
1656 \DeclareRobustCommand{\GML}
1657 {\txtname{G}}\ML}
1658
1659 % Quantified Modal Logic
1660 \DeclareRobustCommand{\QML}
1661 {\txtname{Q}}\ML}
1662 \DeclareRobustCommand{\EML}
1663 {\ensuremath{\exists}\ML}
1664 \DeclareRobustCommand{\UML}
1665 {\ensuremath{\forall}\ML}
1666 %** Syntax *****%%

\Opr ...
1667 \usrmth{Opr}{\sym}[Op]

```

```

\DMod ...
\BMod 1668 \usrmth{DMod}{-}{\sym}{[\Diamond]}
 1669 \usrmth{BMod}{-}{\sym}{[\Box]}

\Exs ...
\All 1670 \DeclareRobustCommand{\Exs}
 1671 {\@ifstar{\@sexs}{\@exs}}
 1672 \DeclareRobustCommand{\@sexs}[1]
 1673 {\mth{DMod}[#1]}
 1674 \DeclareRobustCommand{\@exs}[1]
 1675 {\mth{defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
 1676 \DeclareRobustCommand{\All}
 1677 {\@ifstar{\@sall}{\@all}}
 1678 \DeclareRobustCommand{\@sall}[1]
 1679 {\mth{BMod}[#1]}
 1680 \DeclareRobustCommand{\@all}[1]
 1681 {\mth{defval{\argmid{\left[]}{#1}{\right[]}}{\BMod}}}
 1682 %** Semantics *****%

\KrpStr ...
... 1683 \newcommand{\krpstr}{K}
 1684 \usrmthlatupp{Krp}{Str}{str}{[\krpstr]}

\WrlSet ...
... 1685 \newcommand{\wrlsym}{w}
 1686 \newcommand{\wrlset}{W}
 1687 \cmdmthsetext{Wrl}{[\wrlset]}{[\wrlsym]}
 1688 \cmdmthsymelm{iwrl}{[\wrlsym_I]}

\AccRel ...
\TrnRel 1689 \newcommand{\accsym}{R}
 1690 \cmdmthrel{Acc}{[\accsym]}
 1691 \cmdmthrel{Trn}{[\accsym]}

\labFun ...
 1692 \newcommand{\labsym}{\lambda}
 1693 \cmdmthfun{lab}{[\labsym]}

\PthSet ...
... 1694 \providecommand{\pthsym}{\pi}
 1695 \providecommand{\pthset}{Pth}
 1696 \cmdmthsetext{Pth}{[\pthset]}{[\pthsym]}
 1697 \usrmth{path}{-}{\argfun}
 1698 %** Modal Logics II *****%

\MC ...
\GMC 1699 % Mu Calculus
... 1700 \cmdtxtopname{MC}{[\ensuremath{\mu}-Calculus]}
 1701
 1702 % Graded Mu Calculus
 1703 \DeclareRobustCommand{\GMC}
 1704 {\{\txtname{G}\}\MC}
 1705
 1706 % Quantified Mu Calculus
 1707 \DeclareRobustCommand{\QMC}
 1708 {\{\txtname{Q}\}\MC}
 1709 \DeclareRobustCommand{\EMC}
 1710 {\ensuremath{\exists}\MC}
 1711 \DeclareRobustCommand{\UMC}
 1712 {\ensuremath{\forall}\MC}
 1713
 1714 % Alternation-Free Mu Calculus

```



```

1715 \DeclareRobustCommand{\AFMC}
1716 {\textname{AF}}\MC}
1717
1718 % Alternation-Free Graded Mu Calculus
1719 \DeclareRobustCommand{\AFGMC}
1720 {\textname{AF}}\GMC}
1721
1722 % Quantified Alternation-Free Mu Calculus
1723 \DeclareRobustCommand{\QAFMC}
1724 {\textname{Q}}\AFMC}
1725 \DeclareRobustCommand{\EAFMC}
1726 {\ensuremath{\exists}\AFMC}
1727 \DeclareRobustCommand{\UAFMC}
1728 {\ensuremath{\forall}\AFMC}
1729
1730 %** Syntax *****%%
...
1731 %** Semantics *****%%
...
1732 %** Temporal Logics I *****%%

\PTL ...
\LTL 1733 % Propositional Temporal Logic
... 1734 \cmdtxtopname{PTL}
1735
1736 % Quantified Propositional Temporal Logic
1737 \DeclareRobustCommand{\QPTL}
1738 {\textname{Q}}\PTL}
1739 \DeclareRobustCommand{\EPTL}
1740 {\ensuremath{\exists}\PTL}
1741 \DeclareRobustCommand{\UPTL}
1742 {\ensuremath{\forall}\PTL}
1743
1744 % Linear Temporal Logic
1745 \cmdtxtopname{LTL}
1746
1747 % Quantified Linear Temporal Logic
1748 \DeclareRobustCommand{\QLTL}
1749 {\textname{Q}}\LTL}
1750 \DeclareRobustCommand{\ELTL}
1751 {\ensuremath{\exists}\LTL}
1752 \DeclareRobustCommand{\ULTL}
1753 {\ensuremath{\forall}\LTL}
1754 %** Syntax *****%%

\X ...
... 1755 \usrmth{X}{-}{sym}[X\,,]
1756 \usrmth{F}{-}{sym}[F\,,]
1757 \usrmth{G}{-}{sym}[G\,,]
1758 \usrmth{U}{-}{sym}[\,,U\,,]
1759 \usrmth{R}{-}{sym}[\,,R\,,]

\Y ...
... 1760 \usrmth{Y}{-}{sym}[G\,,]
1761 \usrmth{P}{-}{sym}[P\,,]\let\SavePilcrow\P
1762 \usrmth{H}{-}{sym}[H\,,]\let\SaveDoubleAcute\H
1763 \usrmth{S}{-}{sym}[\,,S\,,]\let\SaveSectionSymbol\S
1764 \usrmth{B}{-}{sym}[\,,B\,,]

1765 %** Semantics *****%%

```

```

...
1766 %** Temporal Logics II *****%%

\PDL ...
\CTL 1767 % Propositional Dynamic Logic
... 1768 \cmdtxtopname{PDL}
1769
1770 % Computation Tree Logic
1771 \cmdtxtopname{CTL}
1772
1773 % Weak Computation Tree Logic
1774 \DeclareRobustCommand{\WCTL}
1775 {\{\txtrname{W}\}\CTL}
1776
1777 % Quantified Computation Tree Logic
1778 \DeclareRobustCommand{\QCTL}
1779 {\{\txtrname{Q}\}\CTL}
1780 \DeclareRobustCommand{\ECTL}
1781 {\ensuremath{\exists}\CTL}
1782 \DeclareRobustCommand{\UCTL}
1783 {\ensuremath{\forall}\CTL}
1784
1785 % Improved Computation Tree Logic
1786 \cmdtxtopname{CTLP}[CTL$^{+}$]
1787
1788 % Weak Improved Computation Tree Logic
1789 \DeclareRobustCommand{\WCTLP}
1790 {\{\txtrname{W}\}\CTLP}
1791
1792 % Quantified Improved Computation Tree Logic
1793 \DeclareRobustCommand{\QCTLP}
1794 {\{\txtrname{Q}\}\CTLP}
1795 \DeclareRobustCommand{\ECTLP}
1796 {\ensuremath{\exists}\CTLP}
1797 \DeclareRobustCommand{\UCTLP}
1798 {\ensuremath{\forall}\CTLP}
1799
1800 % Full Computation Tree Logic
1801 \cmdtxtopname{CTLS}[CTL*]
1802
1803 % Weak Full Computation Tree Logic
1804 \DeclareRobustCommand{\WCTLS}
1805 {\{\txtrname{W}\}\CTLS}
1806
1807 % Quantified Full Computation Tree Logic
1808 \DeclareRobustCommand{\QCTLS}
1809 {\{\txtrname{Q}\}\CTLS}
1810 \DeclareRobustCommand{\ECTLS}
1811 {\ensuremath{\exists}\CTLS}
1812 \DeclareRobustCommand{\UCTLS}
1813 {\ensuremath{\forall}\CTLS}
1814 %** Syntax *****%%

\E ...
\A 1815 \usrmth{E}{-}{sym}
1816 \usrmth{A}{-}{sym}
1817 %** Semantics *****%%

...
1818 %** Game Logics I *****%%

\ATL ...
...
```

```

1819 % Alternating Temporal Logic
1820 \cmdtxttoparname{ATL}
1821
1822 % Weak Alternating Tree Logic
1823 \DeclareRobustCommand{\WATL}
1824 {\{\txtrname{W}\}\ATL}
1825
1826 % Quantified Alternating Temporal Logic
1827 \DeclareRobustCommand{\QATL}
1828 {\{\txtrname{Q}\}\ATL}
1829 \DeclareRobustCommand{\EATL}
1830 {\ensuremath{\exists}\ATL}
1831 \DeclareRobustCommand{\UATL}
1832 {\ensuremath{\forall}\ATL}
1833
1834 % Improved Alternating Temporal Logic
1835 \cmdtxttoparname{ATLP}[ATL$^{+}$]
1836
1837 % Weak Improved Alternating Tree Logic
1838 \DeclareRobustCommand{\WATLP}
1839 {\{\txtrname{W}\}\ATLP}
1840
1841 % Quantified Improved Alternating Temporal Logic
1842 \DeclareRobustCommand{\QATLP}
1843 {\{\txtrname{Q}\}\ATLP}
1844 \DeclareRobustCommand{\EATLP}
1845 {\ensuremath{\exists}\ATLP}
1846 \DeclareRobustCommand{\UATLP}
1847 {\ensuremath{\forall}\ATLP}
1848
1849 % Full Alternating Temporal Logic
1850 \cmdtxttoparname{ATLS}[ATL*]
1851
1852 % Weak Full Alternating Tree Logic
1853 \DeclareRobustCommand{\WATLS}
1854 {\{\txtrname{W}\}\ATLS}
1855
1856 % Quantified Full Alternating Temporal Logic
1857 \DeclareRobustCommand{\QATLS}
1858 {\{\txtrname{Q}\}\ATLS}
1859 \DeclareRobustCommand{\EATLS}
1860 {\ensuremath{\exists}\ATLS}
1861 \DeclareRobustCommand{\UATLS}
1862 {\ensuremath{\forall}\ATLS}
1863 %** Syntax *****%

```

\EExs ...

\AA11

```

1864 \DeclareRobustCommand{\EExs}[1]
1865 {\mth{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1866 \DeclareRobustCommand{\AA11}[1]
1867 {\mth{\argmid{\left[\left[{}{\defval{#1}{\emptyset}}{\right]\right]}}}
1868 %** Semantics *****%

```

\CGS ...

```

1869 \cmdtxtname{CGS}

```

\CGSStr ...

```

... 1870 \newcommand{\cgsstr}{G}
1871 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

```

\AgnSet ...

```

... 1872 \newcommand{\agnsym}{a}

```

```

1873 \newcommand{\agnset}{Ag}
1874 \cmdmthsetext{Agn}[\agnset][\agnsym]

\ActSet ...
... 1875 \newcommand{\actsym}{c}
1876 \newcommand{\actset}{Ac}
1877 \cmdmthsetext{Act}[\actset][\actsym]

\PosSet ...
... 1878 \providecommand{\possym}{v}
1879 \providecommand{\posset}{Ps}
1880 \cmdmthsetext{Pos}[\posset][\possym]
1881 \cmdmthsymelm{ipos}[\possym_{I}]
1882 \cmdmthsymelm{fpos}[\possym_{F}]
1883 \cmdmthset{PPos}[\posset_{\PlrSym}]
1884 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1885 \cmdmthset{OPos}[\posset_{\OppSym}]
1886 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet ...
... 1887 \newcommand{\sttsym}{s}
1888 \newcommand{\sttset}{St}
1889 \cmdmthsetext{Stt}[\sttset][\sttsym]
1890 \cmdmthset{IStt}[\sttset_{I}]
1891 \cmdmthsymelm{istt}[\sttsym_{I}]
1892 \cmdmthset{FStt}[\sttset_{F}]
1893 \cmdmthsymelm{fstt}[\sttsym_{F}]

\DecSet ...
... 1894 \newcommand{\decsym}{d}
1895 \newcommand{\decset}{Dc}
1896 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ...
\movRel 1897 \newcommand{\movsym}{\tau}
1898 \cmdmthfun{mov}[\movsym]
1899 \cmdmthrel{mov}[\movsym]

\trnFun ...
\trnRel 1900 \newcommand{\trnsym}{\delta}
1901 \cmdmthfun{trn}[\trnsym]
1902 \cmdmthrel{trn}[\trnsym]

\PrfSet ...
1903 \providecommand{\prfsym}{\xi}
1904 \providecommand{\prfset}{Prf}
1905 \cmdmthsetext{Prf}[\prfset][\prfsym]

\HstSet ...
... 1906 \providecommand{\hstsym}{\varpi}
1907 \providecommand{\hstset}{Hst}
1908 \cmdmthsetext{Hst}[\hstset][\hstsym]
1909 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1910 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1911 \cmdmthset{OHst}[\hstset_{\OppSym}]
1912 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1913 \usrmth{hst}{\argfun}

\PlaySet ...
... 1914 \providecommand{\playsym}{\pi}
1915 \providecommand{\playset}{Play}
1916 \cmdmthsetext{Play}[\playset][\playsym]
1917 \usrmth{play}{\argfun}

```

```

\PlnSet ...
... 1918 \providecommand{\plnsym}{\rho}
1919 \providecommand{\plnset}{Pln}
1920 \cmdmthsetext{Pln}[\plnset][\plnsym]
1921 \cmdmthset{PPln}[\plnset_{\PlrSym}]
1922 \cmdmthsymelm{pPln}[\plnsym_{\PlrSym}]
1923 \cmdmthset{OPln}[\plnset_{\OppSym}]
1924 \cmdmthsymelm{oPln}[\plnsym_{\OppSym}]

\StrSet ...
... 1925 \providecommand{\strsym}{\sigma}
1926 \providecommand{\strset}{Str}
1927 \cmdmthsetext{Str}[\strset][\strsym]
1928 \cmdmthset{PStr}[\strset_{\PlrSym}]
1929 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1930 \cmdmthset{OStr}[\strset_{\OppSym}]
1931 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

1932 %** Game Logics II *****%

\PL ...
... 1933 % Plan Logic
1934 \cmdtxttoparname{PL}
1935
1936 \DeclareRobustCommand{\EPL}
1937 {\ensuremath{\exists}\PL}
1938 \DeclareRobustCommand{\UPL}
1939 {\ensuremath{\forall}\PL}
1940
1941 \DeclareRobustCommand{\FPL}
1942 {\{\textname{F}\}\PL}
1943
1944 \DeclareRobustCommand{\EFPL}
1945 {\ensuremath{\exists}\FPL}
1946 \DeclareRobustCommand{\UFPL}
1947 {\ensuremath{\forall}\FPL}
1948
1949 % One-Goal Plan Logic
1950 \DeclareRobustCommandx{\OGPL}[3][1=, 2=, 3=]
1951 {\PL[#1][#2][1g\arglef{,}{#3}]}
1952
1953 \DeclareRobustCommand{\EOGPL}
1954 {\ensuremath{\exists}\OGPL}
1955 \DeclareRobustCommand{\UOGPL}
1956 {\ensuremath{\forall}\OGPL}
1957
1958 \DeclareRobustCommand{\FOGPL}
1959 {\{\textname{F}\}\OGPL}
1960
1961 \DeclareRobustCommand{\EFOGPL}
1962 {\ensuremath{\exists}\FOGPL}
1963 \DeclareRobustCommand{\UFOGPL}
1964 {\ensuremath{\forall}\FOGPL}
1965
1966 % Conjunctive-Goal Plan Logic
1967 \DeclareRobustCommandx{\CGPL}[3][1=, 2=, 3=]
1968 {\PL[#1][#2][cg\arglef{,}{#3}]}
1969
1970 \DeclareRobustCommand{\ECGPL}
1971 {\ensuremath{\exists}\CGPL}
1972 \DeclareRobustCommand{\UCGPL}
1973 {\ensuremath{\forall}\CGPL}
1974
1975 \DeclareRobustCommand{\FCGPL}

```

```

1976 {{\txtname{F}}\CGPL}
1977
1978 \DeclareRobustCommand{\EFCGPL}
1979 {\ensuremath{\exists}\FCGPL}
1980 \DeclareRobustCommand{\UFCGPL}
1981 {\ensuremath{\forall}\FCGPL}
1982
1983 % Disjunctive-Goal Plan Logic
1984 \DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]
1985 {\PL[#1][#2][dg\argleft{,}{#3}]}
1986
1987 \DeclareRobustCommand{\EDGPL}
1988 {\ensuremath{\exists}\DGPL}
1989 \DeclareRobustCommand{\UDGPL}
1990 {\ensuremath{\forall}\DGPL}
1991
1992 \DeclareRobustCommand{\FDGPL}
1993 {{\txtname{F}}\DGPL}
1994
1995 \DeclareRobustCommand{\EFDGPL}
1996 {\ensuremath{\exists}\FDGPL}
1997 \DeclareRobustCommand{\UFDGPL}
1998 {\ensuremath{\forall}\FDGPL}
1999
2000 % Alternating-Goal Plan Logic
2001 \DeclareRobustCommandx{\AGPL}[3][1=, 2=, 3=]
2002 {\PL[#1][#2][ag\argleft{,}{#3}]}
2003
2004 \DeclareRobustCommand{\EAGPL}
2005 {\ensuremath{\exists}\AGPL}
2006 \DeclareRobustCommand{\UAGPL}
2007 {\ensuremath{\forall}\AGPL}
2008
2009 \DeclareRobustCommand{\FAGPL}
2010 {{\txtname{F}}\AGPL}
2011
2012 \DeclareRobustCommand{\EFAGPL}
2013 {\ensuremath{\exists}\FAGPL}
2014 \DeclareRobustCommand{\UFAGPL}
2015 {\ensuremath{\forall}\FAGPL}
2016
2017 % Extended-Goal Plan Logic
2018 \DeclareRobustCommandx{\EGPL}[3][1=, 2=, 3=]
2019 {\PL[#1][#2][eg\argleft{,}{#3}]}
2020
2021 \DeclareRobustCommand{\EEGPL}
2022 {\ensuremath{\exists}\EGPL}
2023 \DeclareRobustCommand{\UEGPL}
2024 {\ensuremath{\forall}\EGPL}
2025
2026 \DeclareRobustCommand{\FEGPL}
2027 {{\txtname{F}}\EGPL}
2028
2029 \DeclareRobustCommand{\EFEGPL}
2030 {\ensuremath{\exists}\FEGPL}
2031 \DeclareRobustCommand{\UFEGPL}
2032 {\ensuremath{\forall}\FEGPL}
2033
2034 % Boolean-Goal Plan Logic
2035 \DeclareRobustCommandx{\BGPL}[3][1=, 2=, 3=]
2036 {\PL[#1][#2][bg\argleft{,}{#3}]}
2037
2038 \DeclareRobustCommand{\EBGPL}

```

```

2039 {\ensuremath{\exists}\BGPL}
2040 \DeclareRobustCommand{\UBGPL}
2041 {\ensuremath{\forall}\BGPL}
2042
2043 \DeclareRobustCommand{\FBGPL}
2044 {\{\textname{F}\}\BGPL}
2045
2046 \DeclareRobustCommand{\EFBGPL}
2047 {\ensuremath{\exists}\FBGPL}
2048 \DeclareRobustCommand{\UFBGPL}
2049 {\ensuremath{\forall}\FBGPL}
2050
2051 % Undefined-Goal Plan Logic
2052 \DeclareRobustCommandx{\XGPL}[3][1=, 2=, 3=]
2053 {\PL[#1][#2][xg\arglef{,}{#3}]}
2054
2055 \DeclareRobustCommand{\EXGPL}
2056 {\ensuremath{\exists}\XGPL}
2057 \DeclareRobustCommand{\UXGPL}
2058 {\ensuremath{\forall}\XGPL}
2059
2060 \DeclareRobustCommand{\FXGPL}
2061 {\{\textname{F}\}\XGPL}
2062
2063 \DeclareRobustCommand{\EFXGPL}
2064 {\ensuremath{\exists}\FXGPL}
2065 \DeclareRobustCommand{\UFXGPL}
2066 {\ensuremath{\forall}\FXGPL}

\SL ...
... 2067 % Strategy Logic
2068 \cmdtxttoparname{SL}
2069
2070 \DeclareRobustCommand{\ESL}
2071 {\ensuremath{\exists}\SL}
2072 \DeclareRobustCommand{\USL}
2073 {\ensuremath{\forall}\SL}
2074
2075 \DeclareRobustCommand{\FSL}
2076 {\{\textname{F}\}\SL}
2077
2078 \DeclareRobustCommand{\EFSL}
2079 {\ensuremath{\exists}\FSL}
2080 \DeclareRobustCommand{\UFSL}
2081 {\ensuremath{\forall}\FSL}
2082
2083 % One-Goal Strategy Logic
2084 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
2085 {\SL[#1][#2][lg\arglef{,}{#3}]}
2086
2087 \DeclareRobustCommand{\EOGSL}
2088 {\ensuremath{\exists}\OGSL}
2089 \DeclareRobustCommand{\UOGSL}
2090 {\ensuremath{\forall}\OGSL}
2091
2092 \DeclareRobustCommand{\FOGSL}
2093 {\{\textname{F}\}\OGSL}
2094
2095 \DeclareRobustCommand{\EFOGSL}
2096 {\ensuremath{\exists}\FOGSL}
2097 \DeclareRobustCommand{\UFOGSL}
2098 {\ensuremath{\forall}\FOGSL}
2099
2100 % Conjunctive-Goal Strategy Logic

```

```

2101 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
2102 {\SL[#1][#2][cg\arglef{,}{#3}]}
2103
2104 \DeclareRobustCommand{\ECGSL}
2105 {\ensuremath{\exists}\CGSL}
2106 \DeclareRobustCommand{\UCGSL}
2107 {\ensuremath{\forall}\CGSL}
2108
2109 \DeclareRobustCommand{\FCGSL}
2110 {\{\textname{F}\}\CGSL}
2111
2112 \DeclareRobustCommand{\EFCGSL}
2113 {\ensuremath{\exists}\FCGSL}
2114 \DeclareRobustCommand{\UFCGSL}
2115 {\ensuremath{\forall}\FCGSL}
2116
2117 % Disjunctive-Goal Strategy Logic
2118 \DeclareRobustCommandx{\DGSL}[3][1=, 2=, 3=]
2119 {\SL[#1][#2][dg\arglef{,}{#3}]}
2120
2121 \DeclareRobustCommand{\EDGSL}
2122 {\ensuremath{\exists}\DGSL}
2123 \DeclareRobustCommand{\UDGSL}
2124 {\ensuremath{\forall}\DGSL}
2125
2126 \DeclareRobustCommand{\FDGSL}
2127 {\{\textname{F}\}\DGSL}
2128
2129 \DeclareRobustCommand{\EFDGSL}
2130 {\ensuremath{\exists}\FDGSL}
2131 \DeclareRobustCommand{\UFDGSL}
2132 {\ensuremath{\forall}\FDGSL}
2133
2134 % Alternating-Goal Strategy Logic
2135 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
2136 {\SL[#1][#2][ag\arglef{,}{#3}]}
2137
2138 \DeclareRobustCommand{\EAGSL}
2139 {\ensuremath{\exists}\AGSL}
2140 \DeclareRobustCommand{\UAGSL}
2141 {\ensuremath{\forall}\AGSL}
2142
2143 \DeclareRobustCommand{\FAGSL}
2144 {\{\textname{F}\}\AGSL}
2145
2146 \DeclareRobustCommand{\EFAGSL}
2147 {\ensuremath{\exists}\FAGSL}
2148 \DeclareRobustCommand{\UFAGSL}
2149 {\ensuremath{\forall}\FAGSL}
2150
2151 % Extended-Goal Strategy Logic
2152 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
2153 {\SL[#1][#2][eg\arglef{,}{#3}]}
2154
2155 \DeclareRobustCommand{\EEGSL}
2156 {\ensuremath{\exists}\EGSL}
2157 \DeclareRobustCommand{\UEGSL}
2158 {\ensuremath{\forall}\EGSL}
2159
2160 \DeclareRobustCommand{\FEGSL}
2161 {\{\textname{F}\}\EGSL}
2162
2163 \DeclareRobustCommand{\EFEGSL}

```



```

2164 {\ensuremath{\exists}\FEGSL}
2165 \DeclareRobustCommand{\UFEGSL}
2166 {\ensuremath{\forall}\FEGSL}
2167
2168 % Boolean-Goal Strategy Logic
2169 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
2170 {\SL[#1][#2][bg\arglef{,}{#3}]}
2171
2172 \DeclareRobustCommand{\EBGSL}
2173 {\ensuremath{\exists}\BGSL}
2174 \DeclareRobustCommand{\UBGSL}
2175 {\ensuremath{\forall}\BGSL}
2176
2177 \DeclareRobustCommand{\FBGSL}
2178 {\{\textname{F}\}\BGSL}
2179
2180 \DeclareRobustCommand{\EFBGSL}
2181 {\ensuremath{\exists}\FBGSL}
2182 \DeclareRobustCommand{\UFBGSL}
2183 {\ensuremath{\forall}\FBGSL}
2184
2185 % Nested-Goal Strategy Logic
2186 \DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
2187 {\SL[#1][#2][ng\arglef{,}{#3}]}
2188
2189 \DeclareRobustCommand{\ENGSL}
2190 {\ensuremath{\exists}\NGSL}
2191 \DeclareRobustCommand{\UNGSL}
2192 {\ensuremath{\forall}\NGSL}
2193
2194 \DeclareRobustCommand{\FNGSL}
2195 {\{\textname{F}\}\NGSL}
2196
2197 \DeclareRobustCommand{\EFNGSL}
2198 {\ensuremath{\exists}\FNGSL}
2199 \DeclareRobustCommand{\UFNGSL}
2200 {\ensuremath{\forall}\FNGSL}
2201
2202 % Undefined-Goal Strategy Logic
2203 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
2204 {\SL[#1][#2][xg\arglef{,}{#3}]}
2205
2206 \DeclareRobustCommand{\EXGSL}
2207 {\ensuremath{\exists}\XGSL}
2208 \DeclareRobustCommand{\UXGSL}
2209 {\ensuremath{\forall}\XGSL}
2210
2211 \DeclareRobustCommand{\FXGSL}
2212 {\{\textname{F}\}\XGSL}
2213
2214 \DeclareRobustCommand{\EFXGSL}
2215 {\ensuremath{\exists}\FXGSL}
2216 \DeclareRobustCommand{\UFXGSL}
2217 {\ensuremath{\forall}\FXGSL}
2218 %** Syntax ****

```

\BndSet ...

```

... 2219 \newcommand{\bndsym}{\flat}
2220 \newcommand{\bndset}{\Bn}
2221 \cmdmthsetext{Bnd}[\bndset][\bndsym]
2222 \cmdmthsymelm{idbnd}[\bndsym_{\text{id}}]
2223 \usrmth{bnd}{\}{argfun}

```

```

\psn ...
2224 \usrmth{psn}{-}{argfun}

2225 %%** Semantics *****%%

\nxt ...
2226 \usrmth{nxt}{-}{argfun}

2227 \fi
2228 %%*****%%
2229 %%*****%%
2230 %%** Macros for Automata *****%%
2231 %%*****%%
2232 \ifaut@
2233 %%** Finite Word Automata *****%%

\DFA ...
... 2234 \cmdttxtoparname{DFA}\cmdttxtoparname{NFA}\cmdttxtoparname{UFA}\cmdttxtoparname{AFA}
2235
2236 \cmdttxtoparname{DWA}\cmdttxtoparname{NWA}\cmdttxtoparname{UWA}\cmdttxtoparname{AWA}
2237
2238 \cmdttxtoparname{DFW}\cmdttxtoparname{NFW}\cmdttxtoparname{UFW}\cmdttxtoparname{AFW}
2239 \cmdttxtoparname{DWW}\cmdttxtoparname{NWW}\cmdttxtoparname{UWW}\cmdttxtoparname{AWW}
2240 \cmdttxtoparname{DBW}\cmdttxtoparname{NBW}\cmdttxtoparname{UBW}\cmdttxtoparname{ABW}
2241 \cmdttxtoparname{DCW}\cmdttxtoparname{NCW}\cmdttxtoparname{UCW}\cmdttxtoparname{ACW}
2242 \cmdttxtoparname{DPW}\cmdttxtoparname{NPW}\cmdttxtoparname{UPW}\cmdttxtoparname{APW}
2243 \cmdttxtoparname{DRW}\cmdttxtoparname{NRW}\cmdttxtoparname{URW}\cmdttxtoparname{ARW}
2244 \cmdttxtoparname{DSW}\cmdttxtoparname{NSW}\cmdttxtoparname{USW}\cmdttxtoparname{ASW}
2245 \cmdttxtoparname{DMW}\cmdttxtoparname{NMW}\cmdttxtoparname{UMW}\cmdttxtoparname{AMW}

\GFG ...
... 2246 \cmdttxtoparname{GFG}
2247
2248 \cmdttxtoparname{PD}
2249 \cmdttxtoparname{PN}
2250
2251 \cmdttxtoparname{LD}
2252 \cmdttxtoparname{LN}
2253 %%** Syntax *****%%

\AutName ...
... 2254 \newcommand{\autname}{A}
2255 \usrmthlatupp{Aut}{Name}{name}[\autname]
2256 \newcommand{\autset}{Aut}
2257 \cmdmthset{Aut}[\autset]

\WAutSet ...
2258 \newcommand{\wautset}{WAut}
2259 \cmdmthset{WAut}[\wautset]

\SymSet ...
... 2260 \newcommand{\symsym}{\sigma}
2261 \newcommand{\symset}{\Sigma}
2262 \cmdmthsetext{Sym}[\symset][\symsym]

\SttSet ...
... 2263 \providecommand{\sttsym}{q}
2264 \providecommand{\sttset}{Q}
2265 \cmdmthsetext{Stt}[\sttset][\sttsym]
2266 \cmdmthset{IStt}[\sttset_{I}]
2267 \cmdmthsymelm{istt}[\sttsym_{I}]
2268 \cmdmthset{FStt}[\sttset_{F}]
2269 \cmdmthsymelm{fstt}[\sttsym_{F}]

```

```

\trnFun ...
\trnRel 2270 \providecommand{\trnsym}{\delta}
2271 \cmdmthfun{trn}[\trnsym]
2272 \cmdmthrel{trn}[\trnsym]

2273 %** Semantics *****%%

\WrdSet ...
... 2274 \newcommand{\wrdsym}{w}
2275 \newcommand{\wrdset}{Wr}
2276 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

\Lang ...
2277 \usrmth{Lang}{-}{argfun}[L]

2278 %** Finite Tree Automata *****%%

\DTA ...
... 2279 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
2280
2281 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
2282 \cmdtxtoparname{DWT}\cmdtxtoparname{NWT}\cmdtxtoparname{UWT}\cmdtxtoparname{AWT}
2283 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
2284 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
2285 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
2286 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
2287 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
2288 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}
2289 %** Syntax *****%%

\TAutSet ...
2290 \newcommand{\tautset}{TAut}
2291 \cmdmthset{TAut}[\tautset]

\DirSet ...
... 2292 \newcommand{\dirsym}{d}
2293 \newcommand{\dirset}{\Lambda}
2294 \cmdmthsetext{Dir}[\dirset][\dirsym]

2295 %** Semantics *****%%

\TreeSet ...
... 2296 \newcommand{\treesym}{T}
2297 \newcommand{\treeset}{Tr}
2298 \cmdmthsetext{Tree}[\treeset][\treesym]

\wot ...
2299 \usrmth{wot}{-}{argfun}

2300 \fi
2301 %*****%%
2302 %*****%%
2303 %** Format Tricks *****%%
2304 %*****%%
2305 \iffirm@

... ..
2306 %...

2307 \fi
2308 %*****%%

```

```

2309 %*****%
2310 %** Figure Tricks *****%
2311 %*****%
2312 \iffig@

2313 \RequirePackage{tikz}
2314 \usetikzlibrary{calc,arrows,shapes,patterns,graphs,matrix}

2315 \tikzstyle{every node} =
2316 [draw = none, fill = none, black, thin]
2317 \tikzstyle{every edge} +=
2318 [black, thick]

2319 \tikzstyle{noall} =
2320 [draw = none, fill = none]
2321 \tikzstyle{nodraw} =
2322 [draw = none, fill = white]
2323 \tikzstyle{nofill} =
2324 [draw = black, fill = none]

2325 \ifwrpfig@
2326 % Wrapfig Package
2327 \RequirePackage{wrapfig}
2328 \fi

2329 \fi
2330 %*****%

2331 %*****%
2332 %** Table Tricks *****%
2333 %*****%
2334 \iftab@

... ..

2335 %...

2336 \fi
2337 %*****%

2338 %*****%
2339 %** Algorithm Tricks *****%
2340 %*****%
2341 \ifalg@

2342 \RequirePackage[ruled,vlined]{algorithm2e}
2343 \DontPrintSemicolon
2344 \SetInd{0.25em}{0.5em}
2345 \setlength{\algomargin}{1.25em}

\Signature ...

2346 \SetKw{Signature}{signature}

\Macro ...

... 2347 \SetKwFor{Macro}{macro}{}{}
2348 \SetKwFor{Function}{function}{}{}
2349 \SetKwFor{Procedure}{procedure}{}{}

\Let ...

2350 \SetKwFor{Let}{let}{in}{}

\True ...

\False 2351 \SetKw{True}{true}
2352 \SetKw{False}{false}

\From ...

... 2353 \SetKw{From}{from}
2354 \SetKw{To}{to}
2355 \SetKw{DownTo}{downto}

```

```

\GoTo ...
... 2356 \SetKw{GoTo}{goto}
 2357 \SetKw{Break}{break}
 2358 \SetKw{Continue}{continue}

\Guess ...
... 2359 \SetKw{Guess}{guess}
 2360 \SetKw{ExsGuess}{\exists-guess}
 2361 \SetKw{AllGuess}{\forall-guess}

\MIf ...
... 2362 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
 2363 \DeclareRobustCommand{\nlr}[1]
 2364 {\addtocounter{AlgoLine}{1}%
 2365 \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

 2366 \fi
 2367 %%*****%
 2368 \endinput
 2369 \</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 | v0.4  | General: Refactoring, corrections, and extensions . . . . . 1    |
| v0.17 | General: Few additions . . . . . 1                       | v0.5  | General: Figure tricks . . . . . 1                               |
| v0.18 | General: Few new starred variants . . . . . 1            | v0.6  | General: Small refinements . . . . . 1                           |
| v0.19 | General: Additional starred variants . . . . . 1         | v0.7  | General: Refinements, corrections, and extensions . . . . . 1    |
| v0.2  | General: Changes in ‘Auxiliary tricks’ . . . . . 1       | v0.8  | General: Few refinements and corrections . . . . . 1             |
| v0.20 | General: New binary operators . . . . . 1                | v0.9  | General: Small addition to ‘Algorithm tricks’ . . . . . 1        |
| v0.21 | General: Refactoring of function macros . . . . . 1      |       |                                                                  |
| v0.22 | General: Few additions . . . . . 1                       |       |                                                                  |

## 3 Index

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

| Symbols |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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|                                                                                                                  |                                                                                             |                                                                                             |                                                                                                                                                  | <code>\UMC</code> .....                                                                                                           | <a href="#">1711</a>                                            |
|                                                                                                                  |                                                                                             |                                                                                             |                                                                                                                                                  | <code>\UML</code> .....                                                                                                           | <a href="#">1664</a>                                            |



