

# fmocdmac — FM's OCD L<sup>A</sup>T<sub>E</sub>X Macro\*

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## Abstract

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

## 1 Implementation & Usage

1 `\package`

### Required external packages:

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

### Package options:

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

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

```

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

```

```

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

```

### Option-processing code:

```

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

```

### Package main body:

```

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

```

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

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

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

```

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

```

```

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

```

`\empchk` **Emptiness check:** `\empchk{⟨A⟩}{⟨B⟩}` evaluates to the empty string, if Argument  $\langle A \rangle$  is empty, and to Argument  $\langle B \rangle$ , otherwise.

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

```

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

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

151 %%*****%

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

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

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

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

160 %%*****%

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

```

```

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

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

178 %%*****%

\seqoflatlow Sequence of Latin lowercase letters: \seqoflatlow{⟨A⟩}{⟨B⟩} ... to do!
179 \newcommand{\seqoflatlow}
180   {\seqoftag{a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z}}

\seqoflatupp Sequence of Latin uppercase letters: \seqoflatupp{⟨A⟩}{⟨B⟩} ... to do!
181 \newcommand{\seqoflatupp}
182   {\seqoftag{A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S,T,U,V,W,X,Y,Z}}

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

185 %%*****%

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

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

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

196 %%*****%

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

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

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

203 %%*****%

```

```

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

```

```

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

```

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

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

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

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

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

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

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

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

```

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

```

**\newtxt ... to do!**

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

```

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

```

**\newtxtsty ... to do!**

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

```

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

```

\newtxtarg ... to do!

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

```

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

```

\newtxtargsty ... to do!

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

```

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

```

\newtxtoarg ... to do!

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

```

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

```

\newtxtoargsty ... to do!

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



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

```

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

```

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

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

```

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

```

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

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

```

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

```

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

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

```

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

```

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

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

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

```

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

```

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

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

```

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

```

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

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

```

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

```

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

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

```

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

```

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

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

```

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

```

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

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

```

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

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

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

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

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

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

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

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

```

```

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

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

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

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

396 %%*****%

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

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

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

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

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

```

```

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

```

\newmthsty ... to do!

- \newmthsty{\mathrm}{Name}[sub][sup][Ext] = “Name<sup>sup</sup><sub>sub</sub>Ext”
- \newmthsty{\mathsf}{Name}[sub][sup][Ext] = “Name<sup>sup</sup><sub>sub</sub>Ext”
- \newmthsty{\mathtt}{Name}[sub][sup][Ext] = “Name<sup>sup</sup><sub>sub</sub>Ext”
- \newmthsty\*{\mathrm}{Name}[sub][sup][Ext] = “Name<sup>sup</sup><sub>sub</sub>Ext”
- \newmthsty\*{\mathsf}{Name}[sub][sup][Ext] = “Name<sup>sup</sup><sub>sub</sub>Ext”
- \newmthsty\*{\mathtt}{Name}[sub][sup][Ext] = “Name<sup>sup</sup><sub>sub</sub>Ext”

```

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

```

\newmtharg ... to do!

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

```

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

```

\newmthargsty ... to do!

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

```

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

```

\newmthoarg ... to do!

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

- ```

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

```

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

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

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

```

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

```

\newmthpar ... to do!

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

```

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

```

\newmthoparsty ... to do!

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

```

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

```

\mthsubsup ... to do!

```

466 \newcommand{\mthsubsup}[2]
467   {\empchk{#1}{_}{#1}}\empchk{#2}{^}{#2}}
468 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

\mth ... to do!

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

```

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

```

\mtharg ... to do!





```

• \cmdmth{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthNewCmd{Name}[sub][sup][Ext] = NamesubsubExt
\mthNewCmd*{Name}[sub][sup][Ext] = NamesubsubExt
482 \newcommand{\cmdmth}[1]
483 {\csdef{mth#1}%
484 {\@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(ArgExEx)Ext2
\mthargNewCmd*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
485 \newcommand{\cmdmtharg}[1]
486 {\csdef{mtharg#1}%
487 {\@ifstar{\newmthargsty*{mthsty#1}}{\newmthargsty{mthsty#1}}}}

\cmdmthoarg ... to do!
• \cmdmthoarg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExEx)
\mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExEx)
488 \newcommand{\cmdmthoarg}[1]
489 {\csdef{mthoarg#1}%
490 {\@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[ParExEx]Ext2
\mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
491 \newcommand{\cmdmthpar}[1]
492 {\csdef{mthpar#1}%
493 {\@ifstar{\newmthparsty*{mthsty#1}}{\newmthparsty{mthsty#1}}}}

\cmdmthopar ... to do!
• \cmdmthopar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExEx]
\mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExEx]
494 \newcommand{\cmdmthopar}[1]
495 {\csdef{mthopar#1}%
496 {\@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(ArgExEx)Ext2
\mthargNewCmd*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
\mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExEx)
\mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExEx)
\mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
\mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
\mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExEx]
\mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExEx]
497 \newcommand{\cmdmthall}[1]
498 {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#1}}
499 %%*****%

```

\usrmth ... to do!

- \usrmth{cmdName}{Suf}{};  
\cmdNameSuf = *cmdName*  
\cmdNameSuf\* = *cmdName*  
\usrmth{cmdName}{Suf}{arg};  
\cmdNameSuf{Arg<sup>Ex</sup>{Ex}} = *cmdName*(*Arg*<sup>*Ex Ex*</sup>)  
\cmdNameSuf\*{Arg<sup>Ex</sup>{Ex}} = *cmdName*(*Arg*<sup>*Ex Ex*</sup>)  
\usrmth{cmdName}{Suf}{par};  
\cmdNameSuf{Par<sup>Ex</sup>{Ex}} = *cmdName*[*Par*<sup>*Ex Ex*</sup>]  
\cmdNameSuf\*{Par<sup>Ex</sup>{Ex}} = *cmdName*[*Par*<sup>*Ex Ex*</sup>]
- \usrmth{cmdName}{Suf}{}[newName];  
\cmdNameSuf = *newName*  
\cmdNameSuf\* = *newName*  
\usrmth{cmdName}{Suf}{arg}[newName];  
\cmdNameSuf{Arg<sup>Ex</sup>{Ex}} = *newName*(*Arg*<sup>*Ex*</sup>)  
\cmdNameSuf\*{Arg<sup>Ex</sup>{Ex}} = *newName*(*Arg*<sup>*Ex*</sup>)  
\usrmth{cmdName}{Suf}{par}[newName];  
\cmdNameSuf{Par<sup>Ex</sup>{Ex}} = *newName*[*Par*<sup>*Ex*</sup>]  
\cmdNameSuf\*{Par<sup>Ex</sup>{Ex}} = *newName*[*Par*<sup>*Ex*</sup>]

500 \newcommandx{\usrmth}[4][4=]

501 {\csdef{#1#2}{%

502 \@ifstar%

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

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

505 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\usrmthlatlow ... to do!

506 \newcommandx{\usrmthlatlow}[4][4=]

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

\usrmthlatupp ... to do!

508 \newcommandx{\usrmthlatupp}[4][4=]

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

\usrmthlatlet ... to do!

510 \newcommandx{\usrmthlatlet}[4][4=]

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

\usrmthgrklow ... to do!

512 \newcommandx{\usrmthgrklow}[4][4=]

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

\usrmthgrkupp ... to do!

514 \newcommandx{\usrmthgrkupp}[4][4=]

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

\usrmthgrklet ... to do!

516 \newcommandx{\usrmthgrklet}[4][4=]

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

\usrmthlow ... to do!

518 \newcommandx{\usrmthlow}[4][4=]

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

\usrmthupp ... to do!

520 \newcommandx{\usrmthupp}[4][4=]

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

```

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

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

\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] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
529 %% Style for Definitions
530 \cmdtxtall{def}\newcommand{\txtstydef}{\normalfont\bfseries\em}

\cmdtxtdef ... to do!
    • \cmdtxtdef{cmdName};
      \cmdName[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
    • \cmdtxtdef{cmdName}[newName];
      \cmdName[sub][sub][ext] =  $newName_{sub}^{sub}ext$ 
531 \newcommandx{\cmdtxtdef}[2][2=]
532   {\usrtxt{#1}{-}{def}[#2]}

\cmdtxtargdef ... to do!
    • \cmdtxtargdef{cmdName};
      \cmdName[sub][sub][ext1]{arg}[ext2] =  $cmdName_{sub}^{sub}ext1(arg)ext2$ 
    • \cmdtxtargdef{cmdName}[newName];
      \cmdName[sub][sub][ext1]{arg}[ext2] =  $newName_{sub}^{sub}ext1(arg)ext2$ 
533 \newcommandx{\cmdtxtargdef}[2][2=]
534   {\usrtxt{#1}{-}{argdef}[#2]}

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

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

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

\txtabr, ... ... to do!

```

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

541 %% Style for Abbreviations

542 \cmdtxtall{abr}\newcommand{\txtstyabr}{\em}

\cmdtxtabr ... to do!

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

543 \newcommandx{\cmdtxtabr}[2][2=]

544   {\usrtxt{#1}{-}{abr}{#2}}

\cmdtxtargabr ... to do!

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

545 \newcommandx{\cmdtxtargabr}[2][2=]

546   {\usrtxt{#1}{-}{argabr}{#2}}

\cmdtxtoargabr ... to do!

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

547 \newcommandx{\cmdtxtoargabr}[2][2=]

548   {\usrtxt{#1}{-}{oargabr}{#2}}

\cmdtxtparabr ... to do!

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

549 \newcommandx{\cmdtxtparabr}[2][2=]

550   {\usrtxt{#1}{-}{parabr}{#2}}

\cmdtxtoparabr ... to do!

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

551 \newcommandx{\cmdtxtoparabr}[2][2=]

552   {\usrtxt{#1}{-}{oparabr}{#2}}

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

\txtname, ... to do!

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

554 %% Style for Names

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

\cmdtxtname ... to do!

- `\cmdtxtname{cmdName};`  
`\cmdName[sub][sub][ext] = CMDNAMESUBEXT`
- `\cmdtxtname{cmdName}[newName];`  
`\cmdName[sub][sub][ext] = NEWNAMESUBEXT`

556 `\newcommandx{\cmdtxtname}[2][2=]`  
557 `{\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`

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

`\cmdtxtoargname` ... to do!

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

560 `\newcommandx{\cmdtxtoargname}[2][2=]`  
561 `{\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`

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

`\cmdtxtoparname` ... to do!

- `\cmdtxtoparname{cmdName};`  
`\cmdName[sub][sub][par] = CMDNAMESUB[PAR]`
- `\cmdtxtoparname{cmdName}[newName];`  
`\cmdName[sub][sub][par] = NEWNAMESUB[PAR]`

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

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

- `\txtcom{Name}[sub][sup][Ext] = NAMESUBSUPEXT`
- `\txtargcom{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBSUPEXT1(ARG)EXT2`
- `\txtparcom{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUBSUPEXT1[PAR]EXT2`

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

`\cmdtxtcom` ... to do!

- `\cmdtxtcom{cmdName};`  
`\cmdName[sub][sub][ext] = CMDNAMESUBEXT`
- `\cmdtxtcom{cmdName}[newName];`  
`\cmdName[sub][sub][ext] = NEWNAMESUBEXT`

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

`\cmdtxtargcom` ... to do!

- `\cmdtxtargcom{cmdName};`  
`\cmdName[sub][sub][ext1]{arg}[ext2] = CMDNAMESUBEXT1(ARG)EXT2`

```

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

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

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

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

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

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

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

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

```

```

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

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

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

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

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

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

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

\cmdmthargfam ... to do!

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

612  $\backslash\text{seqoflatupp}\{\text{Cls}\}\{\text{mthcls}\}$

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

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

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

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

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



```

    • \cmdmthargcls{cmdName}[NEWNAME];
      \cmdNameCls[sub][sub][ext1]{arg}[ext2] =  $\mathcal{NEWNAME}_{sub}^{sub}ext1(arg)ext2$ 
615 \newcommandx{\cmdmthargcls}[2][2=]
616   {\usrmth{#1}{Cls}{argcls}[#2]}

\cmdmthoargcls ... to do!
    • \cmdmthoargcls{CMDNAME};
      \CMDNAMECls[sub][sub][arg] =  $\mathcal{CMDNAME}_{sub}^{sub}(arg)$ 
    • \cmdmthoargcls{cmdCls}[NEWNAME];
      \cmdClsCls[sub][sub][arg] =  $\mathcal{NEWNAME}_{sub}^{sub}(arg)$ 
617 \newcommandx{\cmdmthoargcls}[2][2=]
618   {\usrmth{#1}{Cls}{oargcls}[#2]}

\cmdmthparcls ... to do!
    • \cmdmthparcls{CMDNAME};
      \CMDNAMECls[sub][sub][ext1]{par}[ext2] =  $\mathcal{CMDNAME}_{sub}^{sub}ext1[par]ext2$ 
    • \cmdmthparcls{cmdName}[NEWNAME];
      \cmdNameCls[sub][sub][ext1]{par}[ext2] =  $\mathcal{NEWNAME}_{sub}^{sub}ext1[par]ext2$ 
619 \newcommandx{\cmdmthparcls}[2][2=]
620   {\usrmth{#1}{Cls}{parcls}[#2]}

\cmdmthoparcls ... to do!
    • \cmdmthoparcls{CMDNAME};
      \CMDNAMECls[sub][sub][par] =  $\mathcal{CMDNAME}_{sub}^{sub}[par]$ 
    • \cmdmthoparcls{cmdCls}[NEWNAME];
      \cmdClsCls[sub][sub][par] =  $\mathcal{NEWNAME}_{sub}^{sub}[par]$ 
621 \newcommandx{\cmdmthoparcls}[2][2=]
622   {\usrmth{#1}{Cls}{oparcls}[#2]}

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

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

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

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

```

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

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

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

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

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

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

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

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

```

```

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

\cmdmthoargstr ... to do!
        • \cmdmthoargstr{cmdName};
        \cmdNameStr[sub][sub][arg] = cmdNamesub(arg)

        • \cmdmthoargstr{cmdStr}[NewName];
        \cmdStrStr[sub][sub][arg] = \newNamesub(arg)
643 \newcommandx{\cmdmthoargstr}[2][2=]
644   {\usrmth{#1}{Str}{oargstr}[#2]}

\cmdmthparstr ... to do!
        • \cmdmthparstr{cmdName};
        \cmdNameStr[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2

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

\cmdmthoparstr ... to do!
        • \cmdmthoparstr{cmdName};
        \cmdNameStr[sub][sub][par] = cmdNamesub[par]

        • \cmdmthoparstr{cmdStr}[NewName];
        \cmdStrStr[sub][sub][par] = \newNamesub[par]
647 \newcommandx{\cmdmthoparstr}[2][2=]
648   {\usrmth{#1}{Str}{oparstr}[#2]}

\mthset, ... ... to do!
        • \mthset{Name}[sub][sup][Ext] = NamesupExt

        • \mthargset{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupExt1(ArgExEx)Ext2

        • \mthargset*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupExt1(ArgExEx)Ext2

        • \mthparset{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupExt1[ParExEx]Ext2

        • \mthparset*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupExt1[ParExEx]Ext2
649 %% Style for Sets
650 \cmdmthall{set}\newcommand{\mthstyset}{\mathrm}

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

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

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

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

```

```

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

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

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

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

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

\mthrel, ... ... to do!
    • \mthrel{Name}[sub][sup][Ext] =  $\text{Name}_{sub}^{sup}Ext$ 
    • \mthargrel{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left(\text{Arg}^{Ex^{Ex}}\right)Ext2$ 
    • \mthargrel*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left(\text{Arg}^{Ex^{Ex}}\right)Ext2$ 
    • \mthparrel{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left[\text{Par}^{Ex^{Ex}}\right]Ext2$ 
    • \mthparrel*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left[\text{Par}^{Ex^{Ex}}\right]Ext2$ 
668 %% Style for Relations
669 \cmdmthall{rel}\newcommand{\mthstyrel}{\mathit}

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

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

```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```

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

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

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

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

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

\mthsym, ... ... to do!
    • \mthsym{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargsym{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExExt)ExExt2
    • \mthargsym*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExExt)ExExt2
    • \mthparsym{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExExt]ExExt2
    • \mthparsym*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExExt]ExExt2
694 %% Style for Symbols
695 \cmdmthall{sym}\newcommand{\mthstysym}{\mathhtt{sym}}

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

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

```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```

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

```

\cmdmthargelm ... to do!

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

```

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

```

\cmdmthoargelm ... to do!

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

```

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

```

\cmdmthparelm ... to do!

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

```

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

```

\cmdmthoparelm ... to do!

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

```

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

```

```

720 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

\cmdmthsymelm ... to do!

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

```

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

```

\cmdmthargsymelm ... to do!

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



```

724 \newcommandx{\cmdmthargsymelm}[2][2=]
725   {\cmdmthargsym{#1}[#2]}
726   \cmdmthargelm{#1}[#2]}

```

\cmdmthoargsymelm ... to do!

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

```

727 \newcommandx{\cmdmthoargsymelm}[2][2=]
728   {\cmdmthoargsym{#1}[#2]}
729   \cmdmthoargelm{#1}[#2]}

```

\cmdmthparsymelm ... to do!

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

```

730 \newcommandx{\cmdmthparsymelm}[2][2=]
731   {\cmdmthparsym{#1}[#2]}
732   \cmdmthparelm{#1}[#2]}

```

\cmdmthoparsymelm ... to do!

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

```

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

```

```

736 %%*****%

```

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

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

```

737 %% Style for \LaTeX Operators

```

```

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

```

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

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

```

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

```

```

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

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

748 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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

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

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

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

\cmdmthoargsnt ... to do!
    • \cmdmthoargsnt{cmdName};
      \cmdNameSnt[sub][sub][arg] =  $cmdName_{sub}^{sub}(arg)$ 
    • \cmdmthoargsnt{cmdName}[NewName];
      \cmdNameSnt[sub][sub][arg] =  $NewName_{sub}^{sub}(arg)$ 
756 \newcommandx{\cmdmthoargsnt}[2][2=]
757 {\usrmth{#1}{Snt}{oargsnt}{#2}}

\cmdmthparsnt ... to do!

```

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

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

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

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

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

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

- $\backslash\text{mthfrm}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext}] = \text{Name}_{sub}^{sup}Ext$
- $\backslash\text{mthargfrm}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Arg}^{\sim}\{\text{Ex}^{\sim}\{\text{Ex}\}\}\}[\text{Ext2}] = \text{Name}_{sub}^{sup}Ext1(\text{Arg}^{Ex^{Ex}})Ext2$
- $\backslash\text{mthargfrm}^*\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Arg}^{\sim}\{\text{Ex}^{\sim}\{\text{Ex}\}\}\}[\text{Ext2}] = \text{Name}_{sub}^{sup}Ext1(\text{Arg}^{Ex^{Ex}})Ext2$
- $\backslash\text{mthparfrm}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}^{\sim}\{\text{Ex}^{\sim}\{\text{Ex}\}\}\}[\text{Ext2}] = \text{Name}_{sub}^{sup}Ext1[\text{Par}^{Ex^{Ex}}]Ext2$
- $\backslash\text{mthparfrm}^*\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}^{\sim}\{\text{Ex}^{\sim}\{\text{Ex}\}\}\}[\text{Ext2}] = \text{Name}_{sub}^{sup}Ext1[\text{Par}^{Ex^{Ex}}]Ext2$

762 %% Style for Formulae  
763  $\backslash\text{cmdmthall}\{\text{frm}\}\backslash\text{newcommand}\{\text{mthstyfrm}\}\{\backslash\text{mathit}\}$

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

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

764  $\backslash\text{seqoflet}\{\text{Frm}\}\{\text{mthfrm}\}$

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

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

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

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

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

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

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

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

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

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

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

```

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

\cmdmthoparfrm ... to do!

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

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

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

775 %*****%
```

```

\mthmat, ... ... to do!

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

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

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

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

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

776 %% Style for Matrices
777 \cmdmthall{mat}\newcommand{\mthstymat}[1]{\boldsymbol{\mathsf{\#1}}}
```

```

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

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

```

\cmdmthmat ... to do!

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

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

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

```

\cmdmthargmat ... to do!

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

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

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

```

\cmdmthoargmat ... to do!

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

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

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

```

\cmdmthparmat ... to do!
    • \cmdmthparmat{cmdName};
      \cmdNameMat[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
    • \cmdmthparmat{cmdName}[NewName];
      \cmdNameMat[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
785 \newcommandx{\cmdmthparmat}[2][2=]
786   {\usrmth{#1}{Mat}{parmat}{#2}}

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

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

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

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

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

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

```

```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

`\Viceversa`      • `\Viceversa = Vice versa`  
845 `\cmdtxtabr{Viceversa}[Vice versa]`  
846 `%%** Italian Abbreviations *****%`  
...  
847 `%%*****%`  
...  
848 `%%** French Abbreviations *****%`

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

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

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

`\role`      • `\role = rôle`  
852 `\cmdtxtabr{role}[r\`{o}le]`  
853 `%%*****%`

`\Role`      • `\Role = Rôle`  
854 `\cmdtxtabr{Role}[R\`{o}le]`  
855 `%%** English Abbreviations *****%`

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

`\contd`      • `\contd = contd.`  
857 `\cmdtxtabr{contd}[contd.]`

`\iff`      • `\iff = iff`  
858 `\cmdtxtabr{iff}`

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

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

`\resp`      • `\resp = resp.`  
861 `\cmdtxtabr{resp}[resp.]`



```

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

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

864 %%*****

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

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

867 \fi
868 %%*****

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

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

880 %%*****

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

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

885 %%*****

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

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

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

898 %%*****

```

```

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

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

907 %%*****

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

914 %%*****

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

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

929 %%*****

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

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

```

```

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

```

\tuple, ... ..

```

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

980 %** Sets *****%

```

\set, ... ..

```

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

```

```

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

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

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

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

1016 %%*****%%

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

1021 %%*****%%

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

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

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

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

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

1031 %%*****%%

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

1037 %%*****%%

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

1042 %%*****%%

```

```

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

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

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

1049 %** Numbers *****%

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

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

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

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

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

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

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

```

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

\num, ... ..

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

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

\abs, \norm ...

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

\floor, \ceil ...

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

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

\arg ...

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

\evn, \odd ...

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

\bst, ... ..

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

\min, \max, ... ..

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

```

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

1134 %** Sequences *****%

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

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

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

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

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

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

• \defcomcls{CompClass}[NewClass];

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

1153 \newcommandx{\defcomcls}[2][2=]
1154 {\csdef{#1}{\txtoargcom{\defval{#2}{#1}}}}

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

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

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

```

```

\NCompClass[sub][sup][arg] = NCOMPCLASSSUPSUB(ARG)
\CoNCompClass[sub][sup][arg] = CONCOMPCLASSSUPSUB(ARG)
\NCompClassE[sub][sup][arg] = NCOMPCLASS-EASYSUPSUB(ARG)
\CoNCompClassE[sub][sup][arg] = CONCOMPCLASS-EASYSUPSUB(ARG)
\NCompClassH[sub][sup][arg] = NCOMPCLASS-HARDSUPSUB(ARG)
\CoNCompClassH[sub][sup][arg] = CONCOMPCLASS-HARDSUPSUB(ARG)
\NCompClassC[sub][sup][arg] = NCOMPCLASS-COMPLETESUPSUB(ARG)
\CoNCompClassC[sub][sup][arg] = CONCOMPCLASS-COMPLETESUPSUB(ARG)

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

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

• \defcomclsggrp{CompClass}[NewClass];

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

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

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

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

```



```

\ACompClass[sub][sup][arg] = ANEWCLASSSUBSUB(ARG)
\CoACompClass[sub][sup][arg] = COANEWCLASSSUBSUB(ARG)
\ACompClassE[sub][sup][arg] = ANEWCLASS-EASYSUBSUB(ARG)
\CoACompClassE[sub][sup][arg] = COANEWCLASS-EASYSUBSUB(ARG)
\ACompClassH[sub][sup][arg] = ANEWCLASS-HARDSUBSUB(ARG)
\CoACompClassH[sub][sup][arg] = COANEWCLASS-HARDSUBSUB(ARG)
\ACompClassC[sub][sup][arg] = ANEWCLASS-COMPLETESUBSUB(ARG)
\CoACompClassC[sub][sup][arg] = COANEWCLASS-COMPLETESUBSUB(ARG)

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

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

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

    • \defcomhrc{CompHierarchy}[NewHierarchy];

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

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

1173 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\Easy, \Hard, ...

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

1177 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\FPT, \FPL
    • \FPT[sub][sup][arg] = FPTSUBSUB(ARG)
    • \FPL[sub][sup][arg] = FPLSUBSUB(ARG)

1178 \defcomcls{FPT}
1179 \defcomcls{FPL}

1180 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\Time, ...
    • \Time[sub][sup][arg] = TIMESUBSUB(ARG)
      \TimeE[sub][sup][arg] = TIME-EASYSUBSUB(ARG)
      \TimeH[sub][sup][arg] = TIME-HARDSUBSUB(ARG)
      \TimeC[sub][sup][arg] = TIME-COMPLETESUBSUB(ARG)
    • \DTime[sub][sup][arg] = DTIMESUBSUB(ARG)
      \DTimeE[sub][sup][arg] = DTIME-EASYSUBSUB(ARG)
      \DTimeH[sub][sup][arg] = DTIME-HARDSUBSUB(ARG)
      \DTimeC[sub][sup][arg] = DTIME-COMPLETESUBSUB(ARG)

```



\LogSpace, ...

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

1184 \defcomclsgrp{LogSpace}

\PTime, ...

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

1185 \defcomclsgrp{PTime}

\PSpace, ...

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





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

```
1199 \defcomhrc{ULH}{\mth{\Pi}}
1200 \defcomhrc{UBH}{\mth[mathbf]{\Pi}}
```

```
1201 \fi
1202 %%*****%
1203 %%*****%
1204 %%** Macros for Games *****%
1205 %%*****%
1206 \ifgam@
1207 %%** Logic Games *****%
```

\SATG, ... ..

```
1208 %% Satisfiability Games
1209 \cmdtxttoparname{SATG}{Sat}
1210
1211 %% Validity Games
1212 \cmdtxttoparname{VALG}{Val}
1213
1214 %% Evaluation Games
1215 \cmdtxttoparname{EVLG}{Evl}
1216
1217 %% Synthesis Games
1218 \cmdtxttoparname{SYNG}{Syn}
1219
1220 %% Model-Checking Games
1221 \cmdtxttoparname{MCG}{MC}
1222
1223 %% Ehrenfeucht-Fraisse Games
1224 \cmdtxttoparname{EFG}{EF}

1225 %%** Syntax *****%
```

\PlrSym, \OppSym ...

```
1226 \newcommand{\plrsym}{E}
1227 \cmdmthsym{Plr}{\plrsym}
1228 \newcommand{\oppsym}{A}
1229 \cmdmthsym{Opp}{\oppsym}
```

\ArenaName, ... ..

```
1230 \newcommand{\arenaname}{A}
1231 \usrmthlatupp{Arena}{Name}{name}{\arenaname}
```

\PosSet, ... ..

```
1232 \newcommand{\possym}{v}
1233 \newcommand{\posset}{Ps}
1234 \cmdmthsetext{Pos}{\posset}{\possym}
1235 \cmdmthsymelm{ipos}{\possym_{I}}
1236 \cmdmthsymelm{fpos}{\possym_{F}}
1237 \cmdmthset{PPos}{\posset_{\PlrSym}}
1238 \cmdmthsymelm{ppos}{\possym_{\PlrSym}}
1239 \cmdmthset{OPos}{\posset_{\OppSym}}
1240 \cmdmthsymelm{opos}{\possym_{\OppSym}}
```

\PlrFun ...

```
1241 \newcommand{\plrfun}{pl}
1242 \cmdmthfun{plr}{\plrfun}
```

\MovRel ...

```
1243 \newcommand{\movrel}{Mv}
1244 \cmdmthrel{Mov}{\movrel}
```

```

\GameName, ... ...
1245 \newcommand{\gamename}{\Game}
1246 \usrmthlatupp{Game}{Name}{name}[\gamename]

\WinSet ...
1247 \newcommand{\winset}{\Wn}
1248 \cmdmthset{Win}[\winset]

\ObsSet, \obsFun ...
1249 \newcommand{\obsset}{\Ob}
1250 \cmdmthset{Obs}[\obsset]
1251 \cmdmthfun{obs}

1252 %** Semantics ****

\PthSet, \pthFun ...
1253 \newcommand{\pthsym}{\pi}
1254 \newcommand{\pthset}{Pth}
1255 \cmdmthsetext{Pth}[\pthset][\pthsym]
1256 \usrmth{path}{-}{argfun}

\HstSet, ... ...
1257 \newcommand{\hstsym}{\varpi}
1258 \newcommand{\hstset}{Hst}
1259 \cmdmthsetext{Hst}[\hstset][\hstsym]
1260 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1261 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1262 \cmdmthset{OHst}[\hstset_{\OppSym}]
1263 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1264 \usrmth{play}{-}{argfun}

\PlaySet, \playFun ...
1265 \newcommand{\playsym}{\pi}
1266 \newcommand{\playset}{Play}
1267 \cmdmthsetext{Play}[\playset][\playsym]
1268 \usrmth{hst}{-}{argfun}

\StrSet, ... ...
1269 \newcommand{\strsym}{\sigma}
1270 \newcommand{\strset}{Str}
1271 \cmdmthsetext{Str}[\strset][\strsym]
1272 \cmdmthset{PStr}[\strset_{\PlrSym}]
1273 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1274 \cmdmthset{OStr}[\strset_{\OppSym}]
1275 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1276 \newcommand{\prfsym}{\xi}
1277 \newcommand{\prfset}{Prf}
1278 \cmdmthsetext{Prf}[\prfset][\prfsym]

\pre, \suc ...
1279 \usrmth{pre}{-}{oargfun}
1280 \usrmth{suc}{-}{oargfun}

\ent, \esc ...
1281 \usrmth{ent}{-}{oargfun}
1282 \usrmth{esc}{-}{oargfun}

\int, \out ...
1283 \usrmth{int}{-}{oargfun}
1284 \usrmth{out}{-}{oargfun}

```

```

\atr, \rch ...
1285 \usrmth{atr}{-}{oargfun}
1286 \usrmth{rch}{-}{oargfun}

\lift ...
1287 \usrmth{lift}{-}{oargfun}

\sol ...
1288 \usrmth{sol}{-}{oargfun}

1289 %** Qualitative Games on Graph *****%

\BG, ... ...
1290 %% Buchi Games
1291 \cmdtxtoparname{BG}
1292
1293 %% Co-Buchi Games
1294 \cmdtxtoparname{CG}
1295
1296 %% Parity Games
1297 \cmdtxtoparname{PG}
1298
1299 %% Rabin Games
1300 \cmdtxtoparname{RG}
1301
1302 %% Streett Games
1303 \cmdtxtoparname{SG}
1304
1305 %% Muller Games
1306 \cmdtxtoparname{MG}

1307 %** Syntax *****%

\EvnSym, \OddSym ...
1308 \newcommand{\evnsym}{0}
1309 \cmdmthsym{Evnsym}[\evnsym]
1310 \newcommand{\oddsym}{1}
1311 \cmdmthsym{Oddsym}[\oddsym]

\PrtSet, \prtFun ...
1312 \newcommand{\prtsym}{p}
1313 \newcommand{\prtset}{Pr}
1314 \cmdmthsetext{Prt}[\prtset][\prtsym]
1315 \cmdmthfun{prt}[pr]

1316 %** Semantics *****%

...

1317 %** Quantitative Games on Graph *****%

\EG, ... ...
1318 %% Energy Games
1319 \cmdtxtoparname{EG}
1320
1321 %% Mean-Payoff Games
1322 \cmdtxtoparname{MPG}
1323
1324 %% Discounted-Payoff Games
1325 \cmdtxtoparname{DPG}

1326 %** Syntax *****%

```



```

\MaxSym, \MinSym ...
1327 \newcommand{\maxsym}{\oplus}
1328 \cmdmthsym{Max}[\maxsym]
1329 \newcommand{\minsym}{\boxminus}
1330 \cmdmthsym{Min}[\minsym]

\WghSet, \wghFun ...
1331 \newcommand{\wghsym}{w}
1332 \newcommand{\wghset}{Wg}
1333 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1334 \cmdmthfun{wgh}[wg]

1335 %** Semantics *****%
...
1336 \fi
1337 %*****%
1338 %*****%
1339 %** Macros for Logics *****%
1340 %*****%
1341 \iflog@
1342 %** Propositional Logics *****%

\BF, \QBF, ... ...
1343 % Boolean Formulae
1344 \cmdtxttoparname{BF}
1345
1346 % Quantified Boolean Formulae
1347 \DeclareRobustCommand{\QBF}
1348 {\txtname{Q}\BF}
1349 \DeclareRobustCommand{\EBF}
1350 {\ensuremath{\exists}\BF}
1351 \DeclareRobustCommand{\UBF}
1352 {\ensuremath{\forall}\BF}

1353 %** Syntax *****%

\LogSig, ... ...
1354 \newcommand{\logsig}{L}
1355 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

\Tt, \Ff ...
1356 \newcommand{\ttsym}{\top}
1357 \usrmth{Tt}{}{sym}[\ttsym]
1358 \newcommand{\ffsym}{\bot}
1359 \usrmth{Ff}{}{sym}[\ffsym]

\LNeg, \LNot ...
1360 \newcommand{\lnegsym}{\neg}
1361 \usrmth{LNeg}{}{luop}[\lnegsym]
1362 \newcommand{\lnotsym}{\sim}
1363 \usrmth{LNot}{}{luop}[\lnotsym]

\LCon, \LDis ...
1364 \newcommand{\lconsym}{\land}
1365 \usrmth{LCon}{}{lbop}[\lconsym]
1366 \newcommand{\ldissym}{\lor}
1367 \usrmth{LDis}{}{lbop}[\ldissym]

\LImp, \LCoi ...
1368 \newcommand{\limpsym}{\rightarrow}
1369 \usrmth{LImp}{}{lbop}[\limpsym]
1370 \newcommand{\lcoisym}{\leftrightarrow}
1371 \usrmth{LCoi}{}{lbop}[\lcoisym]

```

```

\LExs, \LAll ...
1372 \newcommand{\lexssym}{\exists}
1373 \usrmth{LExs}{-}{\luop}[\lexssym]
1374 \newcommand{\lallsym}{\forall}
1375 \usrmth{LAll}{-}{\luop}[\lallsym]

\APSet, ... ...
1376 \newcommand{\apsym}{p}
1377 \newcommand{\apset}{AP}
1378 \cmdmthsetext{AP}[\apset] [\apsym]
1379 \usrmth{ap}{-}{argfun}

\sub ...
1380 \usrmth{sub}{-}{argfun}

\Cnt, \Qnt, \Sym ...
1381 \usrmth{Cnt}{-}{sym}[C]
1382 \usrmth{Qnt}{-}{sym}[Q]
1383 \usrmth{Sym}{-}{sym}[\odot]

\QAE, \QEA ...
1384 \usrmth{QAE}{-}{sym}[\forall\exists]
1385 \usrmth{QEA}{-}{sym}[\exists\forall]

\QntSet, ... ...
1386 \newcommand{\qntsym}{\wp}
1387 \newcommand{\qntset}{Qn}
1388 \cmdmthsetext{Qnt}[\qntset] [\qntsym]

\free, \bound ...
1389 \usrmth{free}{-}{argfun}
1390 \usrmth{bound}{-}{argfun}

\dep, \alt ...
1391 \usrmth{dep}{-}{argfun}
1392 \usrmth{alt}{-}{argfun}

\cnf, \dnf, ... ...
1393 \cmdtxtabr{cnf}
1394 \cmdtxtabr{dnf}
1395 \cmdtxtabr{pnf}
1396 \cmdtxtabr{nnf}

1397 %** Semantics *****%

\LogStr, ... ...
1398 \newcommand{\logstr}{L}
1399 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet, ... ...
1400 \newcommand{\valsym}{\xi}
1401 \newcommand{\valset}{Val}
1402 \cmdmthsetext{Val}[\valset] [\valsym]

\AsgSet, ... ...
1403 \newcommand{\asgsym}{\chi}
1404 \newcommand{\asgset}{Asg}
1405 \cmdmthsetext{Asg}[\asgset] [\asgsym]

1406 %** First-Order Logics I *****%

```

```

\FOL, ... ...
1407 % First-Order Logic
1408 \cmdtxttoparname{FOL}[Fol]
1409 \cmdtxttoparname{FO}[FO]
1410
1411 % Monadic First-Order Logic
1412 \DeclareRobustCommand{\MFOL}
1413   {\{\txtrname{M}\}\FOL}
1414 \DeclareRobustCommand{\MFO}
1415   {\{\txtrname{M}\}\FO}

1416 %** Syntax *****%

\VarSig, ... ...
1417 \newcommand{\varsig}{V}
1418 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1419 \newcommand{\varsym}{x}
1420 \newcommand{\varset}{Vr}
1421 \cmdmthsetext{Var}[\varset][\varsym]
1422 \usrmth{var}{-}{argfun}[vr]
1423 \usrmth{dim}{-}{argfun}[dm]

\ConSig, ... ...
1424 \newcommand{\consig}{C}
1425 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1426 \newcommand{\consym}{c}
1427 \newcommand{\conset}{Cn}
1428 \cmdmthsetext{Con}[\conset][\consym]
1429 \usrmth{con}{-}{argfun}[cn]

\FunSig, ... ...
1430 \newcommand{\funsig}{F}
1431 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1432 \newcommand{\funsym}{f}
1433 \newcommand{\funset}{Fn}
1434 \cmdmthsetext{Fun}[\funset][\funsym]
1435 \usrmth{fun}{-}{argfun}[fn]
1436 \usrmth{art}{-}{argfun}[ar]

\TerSig, ... ...
1437 \newcommand{\tersig}{T}
1438 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1439 \newcommand{\tersym}{t}
1440 \newcommand{\terset}{Tr}
1441 \cmdmthsetext{Ter}[\terset][\tersym]
1442 \usrmth{ter}{-}{argfun}

\RelSig, ... ...
1443 \newcommand{\relsig}{R}
1444 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1445 \newcommand{\relsym}{r}
1446 \newcommand{\relset}{Rl}
1447 \cmdmthsetext{Rel}[\relset][\relsym]
1448 \usrmth{rel}{-}{argfun}[rl]

\skm ...
1449 \usrmth{skm}{-}{argfun}

1450 %** Semantics *****%

\ConStr, ... ...
1451 \newcommand{\constr}{C}
1452 \usrmthlatupp{Con}{Str}{str}[\constr]

```

```

\FunStr, ... ...
1453 \newcommand{\funstr}{F}
1454 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr, ... ...
1455 \newcommand{\terstr}{T}
1456 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr, ... ...
1457 \newcommand{\relstr}{R}
1458 \usrmthlatupp{Rel}{Str}{str}[\relstr]

1459 %** First-Order Logics II *****%

\DF, \IF, ... ...
1460 % Dependence-Friendly Logic
1461 \cmdtxttoparname{DF}
1462
1463 % Independence-Friendly Logic
1464 \cmdtxttoparname{IF}
1465
1466 % Dependence/Independence-Friendly Logic
1467 \cmdtxttoparname{DIF}
1468
1469 % Dependence Logic
1470 \cmdtxttoparname{DL}
1471
1472 % Team Logic
1473 \cmdtxttoparname{TL}
1474
1475 % Alternating Dependence-Friendly Logic
1476 \cmdtxttoparname{ADF}
1477
1478 % Alternating Independence-Friendly Logic
1479 \cmdtxttoparname{AIF}
1480
1481 % Alternating Dependence/Independence-Friendly Logic
1482 \cmdtxttoparname{ADIF}

...

1483 %** Syntax *****%

\LEExs, \LAA11 ...
1484 \newcommand{\leexssym}{\Sigma}
1485 \usrmth{LEExs}{\luop}[\leexssym]
1486 \newcommand{\laallsym}{\Pi}
1487 \usrmth{LAA11}{\luop}[\laallsym]

1488 %** Semantics *****%

...

1489 %** Second-Order Logics I *****%

\SOL, ... ...
1490 % Second-Order Logic
1491 \cmdtxttoparname{SOL}[Sol]
1492 \cmdtxttoparname{SO}
1493
1494 % Weak Second-Order Logic
1495 \DeclareRobustCommand{\WSOL}
1496   {\{\txname{W}\}\SOL}
1497 \DeclareRobustCommand{\WSO}
1498   {\{\txname{W}\}\SO}

```

```

1499
1500 % coWeak Second-Order Logic
1501 \DeclareRobustCommand{\coWSOL}
1502   {\txtname{coW}}\SOL}
1503 \DeclareRobustCommand{\coWSO}
1504   {\txtname{coW}}\SO}
1505
1506 % Monadic Second-Order Logic
1507 \DeclareRobustCommand{\MSOL}
1508   {\txtname{M}}\SOL}
1509 \DeclareRobustCommand{\MSO}
1510   {\txtname{M}}\SO}
1511
1512 % Weak Monadic Second-Order Logic
1513 \DeclareRobustCommand{\WMSOL}
1514   {\txtname{W}}\MSOL}
1515 \DeclareRobustCommand{\WMSO}
1516   {\txtname{W}}\MSO}
1517
1518 % coWeak Monadic Second-Order Logic
1519 \DeclareRobustCommand{\coWMSOL}
1520   {\txtname{coW}}\MSOL}
1521 \DeclareRobustCommand{\coWMSO}
1522   {\txtname{coW}}\MSO}
1523 %** Syntax *****%

\FVarSet, ... ...
1524 \newcommand{\fvarsym}{x}
1525 \newcommand{\fvarset}{FVr}
1526 \cmdmthsetext{FVar}[\fvarset][\fvarsym]

\SVarSet, ... ...
1527 \newcommand{\svarsym}{X}
1528 \newcommand{\svarset}{SVr}
1529 \cmdmthsetext{SVar}[\svarset][\svarsym]

1530 %** Semantics *****%
...
1531 %** Second-Order Logics II *****%

\TL, \PL, ... ...
1532 % Tree Logic
1533 \cmdtxttoparname{\TL}
1534
1535 % Weak Tree Logic
1536 \DeclareRobustCommand{\WTL}
1537   {\txtname{W}}\TL}
1538
1539 % coWeak Tree Logic
1540 \DeclareRobustCommand{\coWTL}
1541   {\txtname{coW}}\TL}
1542
1543 % Monadic Tree Logic
1544 \DeclareRobustCommand{\MTL}
1545   {\txtname{M}}\TL}
1546
1547 % Weak Monadic Tree Logic
1548 \DeclareRobustCommand{\WMTL}
1549   {\txtname{W}}\MTL}
1550
1551 % coWeak Monadic Tree Logic
1552 \DeclareRobustCommand{\coWMTL}

```

```

1553   {\txtname{coW}}\MTL}
1554
1555 % Path Logic
1556 \cmdtxttoparname{PL}
1557
1558 % Weak Path Logic
1559 \DeclareRobustCommand{\WPL}
1560   {\txtname{W}}\PL}
1561
1562 % coWeak Path Logic
1563 \DeclareRobustCommand{\coWPL}
1564   {\txtname{coW}}\PL}
1565
1566 % Monadic Path Logic
1567 \DeclareRobustCommand{\MPL}
1568   {\txtname{M}}\PL}
1569
1570 % Weak Monadic Path Logic
1571 \DeclareRobustCommand{\WMPL}
1572   {\txtname{W}}\MPL}
1573
1574 % coWeak Monadic Path Logic
1575 \DeclareRobustCommand{\coWMPL}
1576   {\txtname{coW}}\MPL}
1577 %** Syntax *****%
...
1578 %** Semantics *****%
...
1579 %** Modal Logics I *****%

\ML, \GML, ... ...
1580 % Modal Logic
1581 \cmdtxttoparname{ML}
1582
1583 % Graded Modal Logic
1584 \DeclareRobustCommand{\GML}
1585   {\txtname{G}}\ML}
1586
1587 % Quantified Modal Logic
1588 \DeclareRobustCommand{\QML}
1589   {\txtname{Q}}\ML}
1590 \DeclareRobustCommand{\EML}
1591   {\ensuremath{\exists}\ML}
1592 \DeclareRobustCommand{\UML}
1593   {\ensuremath{\forall}\ML}
1594 %** Syntax *****%

\Opr ...
1595 \usrmth{Opr}{\sym}[Op]

\DMod, \BMod ...
1596 \usrmth{DMod}{\sym}[\Diamond]
1597 \usrmth{BMod}{\sym}[\Box]

\Exs, \All ...
1598 \DeclareRobustCommand{\Exs}
1599   {\@ifstar{\@sexs}{\@exs}}
1600 \DeclareRobustCommand{\@sexs}[1]
1601   {\mth{DMod}[#1]}
1602 \DeclareRobustCommand{\@exs}[1]

```

```

1603   {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1604 \DeclareRobustCommand{\All}
1605   {\@ifstar{\@sall}{\@all}}
1606 \DeclareRobustCommand{\@sall}[1]
1607   {\mth{\BMod}[#1]}
1608 \DeclareRobustCommand{\@all}[1]
1609   {\mth{\defval{\argmid{\left[]{\#1}{\right]}}{\BMod}}}

```

```

1610 %** Semantics *****%

```

\KrpStr, ... ..

```

1611 \newcommand{\krpstr}{K}
1612 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

```

\WrlSet, ... ..

```

1613 \newcommand{\wrlsym}{w}
1614 \newcommand{\wrlset}{W}
1615 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
1616 \cmdmthsymelm{iwrl}[\wrlsym_{I}]

```

\AccRel, \TrnRel ... ..

```

1617 \newcommand{\accsym}{R}
1618 \cmdmthrel{Acc}[\accsym]
1619 \cmdmthrel{Trn}[\accsym]

```

\labFun ... ..

```

1620 \newcommand{\labsym}{\lambda}
1621 \cmdmthfun{lab}[\labsym]

```

\PthSet, ... ..

```

1622 \providecommand{\pthsym}{\pi}
1623 \providecommand{\pthset}{Pth}
1624 \cmdmthsetext{Pth}[\pthset][\pthsym]
1625 \usrmth{path}{\}{argfun}

```

```

1626 %** Modal Logics II *****%

```

\MC, \GMC, ... ..

```

1627 % Mu Calculus
1628 \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]
1629
1630 % Graded Mu Calculus
1631 \DeclareRobustCommand{\GMC}
1632   {\{\txtname{G}\}\MC}
1633
1634 % Quantified Mu Calculus
1635 \DeclareRobustCommand{\QMC}
1636   {\{\txtname{Q}\}\MC}
1637 \DeclareRobustCommand{\EMC}
1638   {\ensuremath{\exists}\MC}
1639 \DeclareRobustCommand{\UMC}
1640   {\ensuremath{\forall}\MC}
1641
1642 % Alternation-Free Mu Calculus
1643 \DeclareRobustCommand{\AFMC}
1644   {\{\txtname{AF}\}\MC}
1645
1646 % Alternation-Free Graded Mu Calculus
1647 \DeclareRobustCommand{\AFGMC}
1648   {\{\txtname{AF}\}\GMC}
1649
1650 % Quantified Alternation-Free Mu Calculus
1651 \DeclareRobustCommand{\QAFMC}

```

```

1652  {\txtname{Q}}\AFMC}
1653 \DeclareRobustCommand{\EAFMC}
1654  {\ensuremath{\exists}\AFMC}
1655 \DeclareRobustCommand{\UAFMC}
1656  {\ensuremath{\forall}\AFMC}
1657

1658 %%** Syntax *****%%
...

1659 %%** Semantics *****%%
...

1660 %%** Temporal Logics I *****%%

```

\PTL, \LTL, ...

```

1661 % Propositional Temporal Logic
1662 \cmdtxttoparname{PTL}
1663
1664 % Quantified Propositional Temporal Logic
1665 \DeclareRobustCommand{\QPTL}
1666  {\txtname{Q}}\PTL}
1667 \DeclareRobustCommand{\EPTL}
1668  {\ensuremath{\exists}\PTL}
1669 \DeclareRobustCommand{\UPTL}
1670  {\ensuremath{\forall}\PTL}
1671
1672 % Linear Temporal Logic
1673 \cmdtxttoparname{LTL}
1674
1675 % Quantified Linear Temporal Logic
1676 \DeclareRobustCommand{\QLTL}
1677  {\txtname{Q}}\LTL}
1678 \DeclareRobustCommand{\ELTL}
1679  {\ensuremath{\exists}\LTL}
1680 \DeclareRobustCommand{\ULTL}
1681  {\ensuremath{\forall}\LTL}

1682 %%** Syntax *****%%

```

\X, ...

```

1683 \usrmth{X}{-}{sym}[X\,]
1684 \usrmth{F}{-}{sym}[F\,]
1685 \usrmth{G}{-}{sym}[G\,]
1686 \usrmth{U}{-}{sym}[\,U\,]
1687 \usrmth{R}{-}{sym}[\,R\,]

```

\Y, ...

```

1688 \usrmth{Y}{-}{sym}[G\,]
1689 \usrmth{P}{-}{sym}[P\,]\let\SavePilcrow\P
1690 \usrmth{H}{-}{sym}[H\,]\let\SaveDoubleAcute\H
1691 \usrmth{S}{-}{sym}[\,S\,]\let\SaveSectionSymbol\S
1692 \usrmth{B}{-}{sym}[\,B\,]

```

```

1693 %%** Semantics *****%%
...

1694 %%** Temporal Logics II *****%%

```

\PDL, \CTL, ...

```

1695
1696 % Propositional Dynamic Logic
1697 \cmdtxttoparname{PDL}
1698

```



```

1699 % Computation Tree Logic
1700 \cmdtxttoparname{CTL}
1701
1702 % Weak Computation Tree Logic
1703 \DeclareRobustCommand{\WCTL}
1704   {\{\txtname{W}\}\CTL}
1705
1706 % Quantified Computation Tree Logic
1707 \DeclareRobustCommand{\QCTL}
1708   {\{\txtname{Q}\}\CTL}
1709 \DeclareRobustCommand{\ECTL}
1710   {\ensuremath{\exists}\CTL}
1711 \DeclareRobustCommand{\UCTL}
1712   {\ensuremath{\forall}\CTL}
1713
1714 % Improved Computation Tree Logic
1715 \cmdtxttoparname{CTLP}[CTL$^{+}$]
1716
1717 % Weak Improved Computation Tree Logic
1718 \DeclareRobustCommand{\WCTLP}
1719   {\{\txtname{W}\}\CTLP}
1720
1721 % Quantified Improved Computation Tree Logic
1722 \DeclareRobustCommand{\QCTLP}
1723   {\{\txtname{Q}\}\CTLP}
1724 \DeclareRobustCommand{\ECTLP}
1725   {\ensuremath{\exists}\CTLP}
1726 \DeclareRobustCommand{\UCTLP}
1727   {\ensuremath{\forall}\CTLP}
1728
1729 % Full Computation Tree Logic
1730 \cmdtxttoparname{CTLS}[CTL*]
1731
1732 % Weak Full Computation Tree Logic
1733 \DeclareRobustCommand{\WCTLS}
1734   {\{\txtname{W}\}\CTLS}
1735
1736 % Quantified Full Computation Tree Logic
1737 \DeclareRobustCommand{\QCTLS}
1738   {\{\txtname{Q}\}\CTLS}
1739 \DeclareRobustCommand{\ECTLS}
1740   {\ensuremath{\exists}\CTLS}
1741 \DeclareRobustCommand{\UCTLS}
1742   {\ensuremath{\forall}\CTLS}
1743 %** Syntax *****%%

\E, \A ...
1744 \usrmth{E}{-}{sym}
1745 \usrmth{A}{-}{sym}

1746 %** Semantics *****%%
...
1747 %** Game Logics I *****%%

\ATL, ... ...
1748 % Alternating Temporal Logic
1749 \cmdtxttoparname{ATL}
1750
1751 % Weak Alternating Tree Logic
1752 \DeclareRobustCommand{\WATL}
1753   {\{\txtname{W}\}\ATL}
1754

```

```

1755 % Quantified Alternating Temporal Logic
1756 \DeclareRobustCommand{\QATL}
1757   {\textrm{Q}}\ATL}
1758 \DeclareRobustCommand{\EATL}
1759   {\ensuremath{\exists}\ATL}
1760 \DeclareRobustCommand{\UATL}
1761   {\ensuremath{\forall}\ATL}
1762
1763 % Improved Alternating Temporal Logic
1764 \cmdtxtopname{ATLP}[ATL$^{+}$]
1765
1766 % Weak Improved Alternating Tree Logic
1767 \DeclareRobustCommand{\WATLP}
1768   {\textrm{W}}\ATLP}
1769
1770 % Quantified Improved Alternating Temporal Logic
1771 \DeclareRobustCommand{\QATLP}
1772   {\textrm{Q}}\ATLP}
1773 \DeclareRobustCommand{\EATLP}
1774   {\ensuremath{\exists}\ATLP}
1775 \DeclareRobustCommand{\UATLP}
1776   {\ensuremath{\forall}\ATLP}
1777
1778 % Full Alternating Temporal Logic
1779 \cmdtxtopname{ATLS}[ATL*]
1780
1781 % Weak Full Alternating Tree Logic
1782 \DeclareRobustCommand{\WATLS}
1783   {\textrm{W}}\ATLS}
1784
1785 % Quantified Full Alternating Temporal Logic
1786 \DeclareRobustCommand{\QATLS}
1787   {\textrm{Q}}\ATLS}
1788 \DeclareRobustCommand{\EATLS}
1789   {\ensuremath{\exists}\ATLS}
1790 \DeclareRobustCommand{\UATLS}
1791   {\ensuremath{\forall}\ATLS}
1792 %** Syntax *****%%

\EExs, \AA11 ...
1793 \DeclareRobustCommand{\EExs}[1]
1794   {\mth{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1795 \DeclareRobustCommand{\AA11}[1]
1796   {\mth{\argmid{\left[\left[{\defval{#1}{\emptyset}}{\right]\right]}}}

1797 %** Semantics *****%%

\CGS ...
1798 \cmdtxtname{CGS}

\CGSstr, ... ...
1799 \newcommand{\cgsstr}{G}
1800 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet, ... ...
1801 \newcommand{\agnsym}{a}
1802 \newcommand{\agnset}{Ag}
1803 \cmdmthsetext{Agn}[\agnset][\agnsym]

\ActSet, ... ...
1804 \newcommand{\actsym}{c}
1805 \newcommand{\actset}{Ac}
1806 \cmdmthsetext{Act}[\actset][\actsym]

```

```

\PosSet, ... ...
1807 \providecommand{\possym}{v}
1808 \providecommand{\posset}{Ps}
1809 \cmdmthsettext{Pos}[\posset][\possym]
1810 \cmdmthsymelm{ipos}[\possym_{I}]
1811 \cmdmthsymelm{fpos}[\possym_{F}]
1812 \cmdmthset{PPos}[\posset_{\PlrSym}]
1813 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1814 \cmdmthset{OPos}[\posset_{\OppSym}]
1815 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet, ... ...
1816 \newcommand{\sttsym}{s}
1817 \newcommand{\sttset}{St}
1818 \cmdmthsettext{Stt}[\sttset][\sttsym]
1819 \cmdmthset{IStt}[\sttset_{I}]
1820 \cmdmthsymelm{istt}[\sttsym_{I}]
1821 \cmdmthset{FStt}[\sttset_{F}]
1822 \cmdmthsymelm{fstt}[\sttsym_{F}]

\DecSet, ... ...
1823 \newcommand{\decsym}{d}
1824 \newcommand{\decset}{Dc}
1825 \cmdmthsettext{Dec}[\decset][\decsym]

\movFun, \movRel ...
1826 \newcommand{\movsym}{\tau}
1827 \cmdmthfun{mov}[\movsym]
1828 \cmdmthrel{mov}[\movsym]

\trnFun, \trnRel ...
1829 \newcommand{\trnsym}{\delta}
1830 \cmdmthfun{trn}[\trnsym]
1831 \cmdmthrel{trn}[\trnsym]

\PrfSet ...
1832 \providecommand{\prfsym}{\xi}
1833 \providecommand{\prfset}{Prf}
1834 \cmdmthsettext{Prf}[\prfset][\prfsym]

\HstSet, ... ...
1835 \providecommand{\hstsym}{\varpi}
1836 \providecommand{\hstset}{Hst}
1837 \cmdmthsettext{Hst}[\hstset][\hstsym]
1838 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1839 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1840 \cmdmthset{OHst}[\hstset_{\OppSym}]
1841 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1842 \usrmth{hst}{\argfun}

\PlaySet, ... ...
1843 \providecommand{\playsym}{\pi}
1844 \providecommand{\playset}{Play}
1845 \cmdmthsettext{Play}[\playset][\playsym]
1846 \usrmth{play}{\argfun}

\PlnSet, ... ...
1847 \providecommand{\plnsym}{\rho}
1848 \providecommand{\plnset}{Pln}
1849 \cmdmthsettext{Pln}[\plnset][\plnsym]
1850 \cmdmthset{PPln}[\plnset_{\PlrSym}]
1851 \cmdmthsymelm{pPln}[\plnsym_{\PlrSym}]
1852 \cmdmthset{OPln}[\plnset_{\OppSym}]
1853 \cmdmthsymelm{oPln}[\plnsym_{\OppSym}]

```

```

\StrSet, ... ...
1854 \providecommand{\strsym}{\sigma}
1855 \providecommand{\strset}{Str}
1856 \cmdmthsetext{Str}[\strset][\strsym]
1857 \cmdmthset{PStr}[\strset_{\PlrSym}]
1858 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1859 \cmdmthset{OStr}[\strset_{\OppSym}]
1860 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

1861 %%** Game Logics II *****%%

\PL, ... ...
1862 % Plan Logic
1863 \cmdtxttoparname{PL}
1864
1865 \DeclareRobustCommand{\EPL}
1866   {\ensuremath{\exists}PL}
1867 \DeclareRobustCommand{\UPL}
1868   {\ensuremath{\forall}PL}
1869
1870 \DeclareRobustCommand{\XPL}
1871   {\{\textname{F}\}PL}
1872
1873 \DeclareRobustCommand{\EFPL}
1874   {\ensuremath{\exists}FPL}
1875 \DeclareRobustCommand{\UFPL}
1876   {\ensuremath{\forall}FPL}
1877
1878 % One-Goal Plan Logic
1879 \DeclareRobustCommandx{\OGPL}[3][1=, 2=, 3=]
1880   {\PL[#1][#2][1g\arglef{,}{#3}]}
1881
1882 \DeclareRobustCommand{\EOGPL}
1883   {\ensuremath{\exists}\OGPL}
1884 \DeclareRobustCommand{\UOGPL}
1885   {\ensuremath{\forall}\OGPL}
1886
1887 \DeclareRobustCommand{\FOGPL}
1888   {\{\textname{F}\}\OGPL}
1889
1890 \DeclareRobustCommand{\EFOGPL}
1891   {\ensuremath{\exists}\FOGPL}
1892 \DeclareRobustCommand{\UFOGPL}
1893   {\ensuremath{\forall}\FOGPL}
1894
1895 % Conjunctive-Goal Plan Logic
1896 \DeclareRobustCommandx{\CGPL}[3][1=, 2=, 3=]
1897   {\PL[#1][#2][cg\arglef{,}{#3}]}
1898
1899 \DeclareRobustCommand{\ECGPL}
1900   {\ensuremath{\exists}\CGPL}
1901 \DeclareRobustCommand{\UCGPL}
1902   {\ensuremath{\forall}\CGPL}
1903
1904 \DeclareRobustCommand{\FCGPL}
1905   {\{\textname{F}\}\CGPL}
1906
1907 \DeclareRobustCommand{\EFCGPL}
1908   {\ensuremath{\exists}\FCGPL}
1909 \DeclareRobustCommand{\UFCGPL}
1910   {\ensuremath{\forall}\FCGPL}
1911
1912 % Disjunctive-Goal Plan Logic
1913 \DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]

```

```

1914 {\PL[#1][#2][dg\arglef{,}{#3}]}
1915
1916 \DeclareRobustCommand{\EDGPL}
1917 {\ensuremath{\exists}\DGPL}
1918 \DeclareRobustCommand{\UDGPL}
1919 {\ensuremath{\forall}\DGPL}
1920
1921 \DeclareRobustCommand{\FDGPL}
1922 {\{\textrm{F}\}\DGPL}
1923
1924 \DeclareRobustCommand{\EFDGPL}
1925 {\ensuremath{\exists}\FDGPL}
1926 \DeclareRobustCommand{\UFDGPL}
1927 {\ensuremath{\forall}\FDGPL}
1928
1929 % Alternating-Goal Plan Logic
1930 \DeclareRobustCommandx{\AGPL}[3][1=, 2=, 3=]
1931 {\PL[#1][#2][ag\arglef{,}{#3}]}
1932
1933 \DeclareRobustCommand{\EAGPL}
1934 {\ensuremath{\exists}\AGPL}
1935 \DeclareRobustCommand{\UAGPL}
1936 {\ensuremath{\forall}\AGPL}
1937
1938 \DeclareRobustCommand{\FAGPL}
1939 {\{\textrm{F}\}\AGPL}
1940
1941 \DeclareRobustCommand{\EFAGPL}
1942 {\ensuremath{\exists}\FAGPL}
1943 \DeclareRobustCommand{\UFAGPL}
1944 {\ensuremath{\forall}\FAGPL}
1945
1946 % Extended-Goal Plan Logic
1947 \DeclareRobustCommandx{\EGPL}[3][1=, 2=, 3=]
1948 {\PL[#1][#2][eg\arglef{,}{#3}]}
1949
1950 \DeclareRobustCommand{\EEGPL}
1951 {\ensuremath{\exists}\EGPL}
1952 \DeclareRobustCommand{\UEGPL}
1953 {\ensuremath{\forall}\EGPL}
1954
1955 \DeclareRobustCommand{\FEGPL}
1956 {\{\textrm{F}\}\EGPL}
1957
1958 \DeclareRobustCommand{\EFEGPL}
1959 {\ensuremath{\exists}\FEGPL}
1960 \DeclareRobustCommand{\UFEGPL}
1961 {\ensuremath{\forall}\FEGPL}
1962
1963 % Boolean-Goal Plan Logic
1964 \DeclareRobustCommandx{\BGPL}[3][1=, 2=, 3=]
1965 {\PL[#1][#2][bg\arglef{,}{#3}]}
1966
1967 \DeclareRobustCommand{\EBGPL}
1968 {\ensuremath{\exists}\BGPL}
1969 \DeclareRobustCommand{\UBGPL}
1970 {\ensuremath{\forall}\BGPL}
1971
1972 \DeclareRobustCommand{\FBGPL}
1973 {\{\textrm{F}\}\BGPL}
1974
1975 \DeclareRobustCommand{\EFBGPL}
1976 {\ensuremath{\exists}\FBGPL}

```

```

1977 \DeclareRobustCommand{\UFBGPL}
1978   {\ensuremath{\forall}\text{FBGPL}}
1979
1980 % Undefined-Goal Plan Logic
1981 \DeclareRobustCommandx{\XGPL}[3][1=, 2=, 3=]
1982   {\PL[#1][#2][xg\argleft{,}{#3}]}
1983
1984 \DeclareRobustCommand{\EXGPL}
1985   {\ensuremath{\exists}\text{XGPL}}
1986 \DeclareRobustCommand{\UXGPL}
1987   {\ensuremath{\forall}\text{XGPL}}
1988
1989 \DeclareRobustCommand{\FXGPL}
1990   {\{\textname{F}\}\text{XGPL}}
1991
1992 \DeclareRobustCommand{\EFXGPL}
1993   {\ensuremath{\exists}\text{FXGPL}}
1994 \DeclareRobustCommand{\UFXGPL}
1995   {\ensuremath{\forall}\text{FXGPL}}

```

\SL, ... ..

```

1996 % Strategy Logic
1997 \cmdtxttopname{SL}
1998
1999 \DeclareRobustCommand{\ESL}
2000   {\ensuremath{\exists}\text{SL}}
2001 \DeclareRobustCommand{\USL}
2002   {\ensuremath{\forall}\text{SL}}
2003
2004 \DeclareRobustCommand{\FSL}
2005   {\{\textname{F}\}\text{SL}}
2006
2007 \DeclareRobustCommand{\EFSL}
2008   {\ensuremath{\exists}\text{FSL}}
2009 \DeclareRobustCommand{\UFSL}
2010   {\ensuremath{\forall}\text{FSL}}
2011
2012 % One-Goal Strategy Logic
2013 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
2014   {\SL[#1][#2][lg\argleft{,}{#3}]}
2015
2016 \DeclareRobustCommand{\EOGSL}
2017   {\ensuremath{\exists}\text{OGSL}}
2018 \DeclareRobustCommand{\UOGSL}
2019   {\ensuremath{\forall}\text{OGSL}}
2020
2021 \DeclareRobustCommand{\FOGSL}
2022   {\{\textname{F}\}\text{OGSL}}
2023
2024 \DeclareRobustCommand{\EFOGSL}
2025   {\ensuremath{\exists}\text{FOGSL}}
2026 \DeclareRobustCommand{\UFOGSL}
2027   {\ensuremath{\forall}\text{FOGSL}}
2028
2029 % Conjunctive-Goal Strategy Logic
2030 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
2031   {\SL[#1][#2][cg\argleft{,}{#3}]}
2032
2033 \DeclareRobustCommand{\ECGSL}
2034   {\ensuremath{\exists}\text{CGSL}}
2035 \DeclareRobustCommand{\UCGSL}
2036   {\ensuremath{\forall}\text{CGSL}}
2037
2038 \DeclareRobustCommand{\FCGSL}

```

```

2039  {{\txtname{F}}\CGSL}
2040
2041 \DeclareRobustCommand{\EFCGSL}
2042  {\ensuremath{\exists}\FCGSL}
2043 \DeclareRobustCommand{\UFCGSL}
2044  {\ensuremath{\forall}\FCGSL}
2045
2046 % Disjunctive-Goal Strategy Logic
2047 \DeclareRobustCommandx{\DGSL}[3][1=, 2=, 3=]
2048  {\SL[#1][#2][dg\arglef{,}{#3}]}
2049
2050 \DeclareRobustCommand{\EDGSL}
2051  {\ensuremath{\exists}\DGSL}
2052 \DeclareRobustCommand{\UDGSL}
2053  {\ensuremath{\forall}\DGSL}
2054
2055 \DeclareRobustCommand{\FDGSL}
2056  {{\txtname{F}}\DGSL}
2057
2058 \DeclareRobustCommand{\EFDGSL}
2059  {\ensuremath{\exists}\FDGSL}
2060 \DeclareRobustCommand{\UFDGSL}
2061  {\ensuremath{\forall}\FDGSL}
2062
2063 % Alternating-Goal Strategy Logic
2064 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
2065  {\SL[#1][#2][ag\arglef{,}{#3}]}
2066
2067 \DeclareRobustCommand{\EAGSL}
2068  {\ensuremath{\exists}\AGSL}
2069 \DeclareRobustCommand{\UAGSL}
2070  {\ensuremath{\forall}\AGSL}
2071
2072 \DeclareRobustCommand{\FAGSL}
2073  {{\txtname{F}}\AGSL}
2074
2075 \DeclareRobustCommand{\EFAGSL}
2076  {\ensuremath{\exists}\FAGSL}
2077 \DeclareRobustCommand{\UFAGSL}
2078  {\ensuremath{\forall}\FAGSL}
2079
2080 % Extended-Goal Strategy Logic
2081 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
2082  {\SL[#1][#2][eg\arglef{,}{#3}]}
2083
2084 \DeclareRobustCommand{\EEGSL}
2085  {\ensuremath{\exists}\EGSL}
2086 \DeclareRobustCommand{\UEGSL}
2087  {\ensuremath{\forall}\EGSL}
2088
2089 \DeclareRobustCommand{\FEGSL}
2090  {{\txtname{F}}\EGSL}
2091
2092 \DeclareRobustCommand{\EFEGSL}
2093  {\ensuremath{\exists}\FEGSL}
2094 \DeclareRobustCommand{\UFEGSL}
2095  {\ensuremath{\forall}\FEGSL}
2096
2097 % Boolean-Goal Strategy Logic
2098 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
2099  {\SL[#1][#2][bg\arglef{,}{#3}]}
2100
2101 \DeclareRobustCommand{\EBGSL}

```

```

2102 {\ensuremath{\exists}\BGS}
2103 \DeclareRobustCommand{\UBGS}
2104 {\ensuremath{\forall}\BGS}
2105
2106 \DeclareRobustCommand{\FBGS}
2107 {\{\textname{F}\}\BGS}
2108
2109 \DeclareRobustCommand{\EFBGS}
2110 {\ensuremath{\exists}\FBGS}
2111 \DeclareRobustCommand{\UFBGS}
2112 {\ensuremath{\forall}\FBGS}
2113
2114 % Nested-Goal Strategy Logic
2115 \DeclareRobustCommandx{\NGS}[3][1=, 2=, 3=]
2116 {\SL[#1][#2][ng\arglef{,}{#3}]}
2117
2118 \DeclareRobustCommand{\ENG}
2119 {\ensuremath{\exists}\NG}
2120 \DeclareRobustCommand{\UNG}
2121 {\ensuremath{\forall}\NG}
2122
2123 \DeclareRobustCommand{\FNG}
2124 {\{\textname{F}\}\NG}
2125
2126 \DeclareRobustCommand{\EFNG}
2127 {\ensuremath{\exists}\FNG}
2128 \DeclareRobustCommand{\UFNG}
2129 {\ensuremath{\forall}\FNG}
2130
2131 % Undefined-Goal Strategy Logic
2132 \DeclareRobustCommandx{\XGS}[3][1=, 2=, 3=]
2133 {\SL[#1][#2][xg\arglef{,}{#3}]}
2134
2135 \DeclareRobustCommand{\EXG}
2136 {\ensuremath{\exists}\XG}
2137 \DeclareRobustCommand{\UXG}
2138 {\ensuremath{\forall}\XG}
2139
2140 \DeclareRobustCommand{\FXG}
2141 {\{\textname{F}\}\XG}
2142
2143 \DeclareRobustCommand{\EFXG}
2144 {\ensuremath{\exists}\FXG}
2145 \DeclareRobustCommand{\UFXG}
2146 {\ensuremath{\forall}\FXG}
2147 %** Syntax *****%

\BndSet, ... ...
2148 \newcommand{\bndsym}{\flat}
2149 \newcommand{\bndset}{\Bn}
2150 \cmdmthsetext{\Bnd}[\bndset][\bndsym]
2151 \usrmth{\bnd}{\}{argfun}

\psn ...
2152 \usrmth{\psn}{\}{argfun}

2153 %** Semantics *****%

\nxt ...
2154 \usrmth{\nxt}{\}{argfun}

2155 \fi
2156 %*****%

```



```

2157 %*****%
2158 %** Macros for Automata *****%
2159 %*****%
2160 \ifaut@
2161 %** Finite Word Automata *****%

```

\DFA, ... ..

```

2162 \cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}
2163
2164 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
2165
2166 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
2167 \cmdtxtoparname{DWW}\cmdtxtoparname{NWW}\cmdtxtoparname{UWW}\cmdtxtoparname{AWW}
2168 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
2169 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
2170 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
2171 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
2172 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
2173 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

```

\GFG, ... ..

```

2174 \cmdtxtoparname{GFG}
2175
2176 \cmdtxtoparname{PD}
2177 \cmdtxtoparname{PN}
2178
2179 \cmdtxtoparname{LD}
2180 \cmdtxtoparname{LN}

2181 %** Syntax *****%

```

\AutName, ... ..

```

2182 \newcommand{\autname}{A}
2183 \usrmthlatupp{Aut}{Name}{name}[\autname]
2184 \newcommand{\autset}{Aut}
2185 \cmdmthset{Aut}[\autset]

```

\WAutSet ... ..

```

2186 \newcommand{\wautset}{WAut}
2187 \cmdmthset{WAut}[\wautset]

```

\SymSet, ... ..

```

2188 \newcommand{\symsym}{\sigma}
2189 \newcommand{\symset}{\Sigma}
2190 \cmdmthsetext{Sym}[\symset][\symsym]

```

\SttSet, ... ..

```

2191 \def\sttsym{q}
2192 \def\sttset{Q}
2193 \cmdmthsetext{Stt}[\sttset][\sttsym]
2194 \cmdmthset{IStt}[\sttset_{I}]
2195 \cmdmthsymelm{istt}[\sttsym_{I}]
2196 \cmdmthset{FStt}[\sttset_{F}]
2197 \cmdmthsymelm{fstt}[\sttsym_{F}]

```

\trnFun, \trnRel ... ..

```

2198 \def\trnsym{\delta}
2199 \cmdmthfun{trn}[\trnsym]
2200 \cmdmthrel{trn}[\trnsym]

```

```

2201 %** Semantics *****%

```

```

\WrdSet, ... ...
2202 \newcommand{\wrdsym}{w}
2203 \newcommand{\wrdset}{Wr}
2204 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

\Lang ...
2205 \usrmth{Lang}{-}{argfun}[L]

2206 %** Finite Tree Automata *****%

\DTA, ... ...
2207 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
2208
2209 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
2210 \cmdtxtoparname{DWT}\cmdtxtoparname{NWT}\cmdtxtoparname{UWT}\cmdtxtoparname{AWT}
2211 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
2212 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
2213 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
2214 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
2215 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
2216 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}

2217 %** Syntax *****%

\TAutSet ...
2218 \newcommand{\tautset}{TAut}
2219 \cmdmthset{TAut}[\tautset]

\DirSet, ... ...
2220 \newcommand{\dirsym}{d}
2221 \newcommand{\dirset}{\Lambda}
2222 \cmdmthsetext{Dir}[\dirset][\dirsym]

2223 %** Semantics *****%

\TreeSet, ... ...
2224 \newcommand{\treesym}{T}
2225 \newcommand{\treeset}{Tr}
2226 \cmdmthsetext{Tree}[\treeset][\treesym]

\wot ...
2227 \usrmth{wot}{-}{argfun}

2228 \fi
2229 %*****%

2230 %*****%
2231 %** Format Tricks *****%
2232 %*****%
2233 \iffirm@

... ...
2234 %...

2235 \fi
2236 %*****%

2237 %*****%
2238 %** Figure Tricks *****%
2239 %*****%
2240 \iffig@

2241 \RequirePackage{tikz}
2242 \usetikzlibrary{arrows,shapes,patterns,graphs,matrix}

```

```

2243 \tikzstyle{every node} =
2244   [draw = none, fill = none, black, thin]
2245 \tikzstyle{every edge} +=
2246   [black, thick]

2247 \tikzstyle{noall} =
2248   [draw = none, fill = none]
2249 \tikzstyle{nodraw} =
2250   [draw = none, fill = white]
2251 \tikzstyle{nofill} =
2252   [draw = black, fill = none]

2253 \ifwrpfig@
2254   % Wrapfig Package
2255   \RequirePackage{wrapfig}
2256 \fi

2257 \fi
2258 %*****%

2259 %*****%
2260 %** Table Tricks *****%
2261 %*****%
2262 \iftab@

... ..

2263 %...

2264 \fi
2265 %*****%

2266 %*****%
2267 %** Algorithm Tricks *****%
2268 %*****%
2269 \ifalg@

2270 \RequirePackage[ruled,vlined]{algorithm2e}
2271 \DontPrintSemicolon
2272 \SetInd{0.25em}{0.5em}
2273 \setlength{\algomargin}{1.25em}

\Signature ...
2274 \SetKw{Signature}{signature}

\Macro, ... ..
2275 \SetKwFor{Macro}{macro}{}{}
2276 \SetKwFor{Function}{function}{}{}
2277 \SetKwFor{Procedure}{procedure}{}{}

\Let ...
2278 \SetKwFor{Let}{let}{in}{}

\True, \False ...
2279 \SetKw{True}{true}
2280 \SetKw{False}{false}

\From, ... ..
2281 \SetKw{From}{from}
2282 \SetKw{To}{to}
2283 \SetKw{DownTo}{downto}

\GoTo, ... ..
2284 \SetKw{GoTo}{goto}
2285 \SetKw{Break}{break}
2286 \SetKw{Continue}{continue}

```

```

\MIf, ... ...
2287 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
2288 \DeclareRobustCommand{\nlr}[1]
2289   {\addtocounter{AlgoLine}{1}%
2290    \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

2291 \fi
2292 %%*****%
2293 \endinput
2294 \</package>

```

## 2 Change History

|       |                                                        |   |       |                                                                |   |
|-------|--------------------------------------------------------|---|-------|----------------------------------------------------------------|---|
| v0.0  | General: First public release . . . . .                | 1 | v0.2  | General: Changes in ‘Auxiliary tricks’ . . . . .               | 1 |
| v0.1  | General: Algorithm tricks . . . . .                    | 1 | v0.20 | General: New binary operators . . . . .                        | 1 |
| v0.10 | General: Small refinements . . . . .                   | 1 | v0.21 | General: Refactoring of function macros . . . . .              | 1 |
| v0.11 | General: Few additions and corrections . . . . .       | 1 | v0.22 | General: Few additions and corrections . . . . .               | 1 |
| v0.12 | General: New starred variants . . . . .                | 1 | v0.3  | General: Few problems solved . . . . .                         | 1 |
| v0.13 | General: Further starred variants . . . . .            | 1 | v0.4  | General: Refactoring, corrections, and<br>extensions . . . . . | 1 |
| v0.14 | General: Few additions and corrections . . . . .       | 1 | v0.5  | General: Figure tricks . . . . .                               | 1 |
| v0.15 | General: Refactoring of dtx sources . . . . .          | 1 | v0.6  | General: Small refinements . . . . .                           | 1 |
| v0.16 | General: Small refinements and few additions . . . . . | 1 | v0.7  | General: Refinements, corrections, and<br>extensions . . . . . | 1 |
| v0.17 | General: Few additions . . . . .                       | 1 | v0.8  | General: Few refinements and corrections . . . . .             | 1 |
| v0.18 | General: Few new starred variants . . . . .            | 1 | v0.9  | General: Small addition to ‘Algorithm tricks’ . . . . .        | 1 |
| v0.19 | General: Additional starred variants . . . . .         | 1 |       |                                                                |   |

### 3 Index

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|                                       |                                                            |                                   |                                                   |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                           |
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