

fmocdmac — FM's OCD L^AT_EX Macro*

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Abstract

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

1 Implementation & Usage

```
1 <*package>
  Required external packages:
2
3 \RequirePackage{etoolbox}
4
5 \RequirePackage{xargs}
6 \RequirePackage{xspace}
7 \RequirePackage{stringstrings}
8
  Package options:
9
10 %% Auxiliary packages
11 \newif\ifaux@ \aux@false
12 \DeclareOption{aux}{\aux@true}
13 \DeclareOption{noaux}{\aux@false}
14
15 %% AMS defaults
16 \newif\ifamsdef@ \amsdef@true
17 \DeclareOption{noamsdef}{\amsdef@false}
18
19 %% AMS theorem tools
20 \newif\ifamsthm@ \amsthm@true
21 \DeclareOption{noamsthm}{\amsthm@false}
22
23 %% Extended Theorem tools
24 \newif\ifthmtls@ \thmtls@true
25 \DeclareOption{nothmtls}{\thmtls@false}
26
27 %% Enumeration tools
28 \newif\ifenmtls@ \enmtls@true
29 \DeclareOption{noenmtls}{\enmtls@false}
30
31 %% Hyper reference
32 \newif\ifhympref@ \hympref@true
33 \DeclareOption{nohympref}{\hympref@false}
34
35 %% Font tools
36 \newif\iffnttls@ \fnttls@true
```

*This document describes version v0.11 of the fmocdmac package, last revised 2023/01/16.

```

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\text@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\math@false\gam@false\log@false\aut@false}
63
64
65 %% Elementary macros for text
66 \newif\iftext@ \text@false
67 \DeclareOption{text}{\text@true\txtgen@true}
68 \DeclareOption{notext}{\text@false}
69
70 %% Elementary macros for math
71 \newif\ifmath@ \math@false
72 \DeclareOption{math}{\math@true\mthgen@true}
73 \DeclareOption{nomath}{\math@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\iffm@ \frm@false

```

```

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

```

Option-processing code:

```

125
126 \DeclareOption*{\PackageWarning{fmodmac}{Unknown~'\CurrentOption'}}%
127
128 \ExecuteOptions{aux,txtgen,mthgen,text,math,com,gam,log,aut}%
129
130 \ProcessOptions\relax%
131
132 \ifcsdef{if@twocolumn}{\newif\if@twocolumn}
133
134 %*****
135 %** Auxiliary Tricks *****
136 %*****
137 \ifaux@
138
139 \ifamsdef@
140   % AMS Packages
141   \RequirePackage{amsmath}
142   \RequirePackage{amssymb}
143   \RequirePackage{stmaryrd}
144   \interdisplaylinepenalty=2500
145 \fi
146
147 \ifamsth@
148   % AMS Theorem Tools
149   \RequirePackage{amsthm}
150 \fi
151
152 \ifthmtls@
153   % Extended Theorem Tools
154   \RequirePackage{thmtools, thm-restate}
155 \fi
156
157 \ifenmtls@
158   % Enumeration Tools
159   \RequirePackage{paralist}
160 \fi
161

```

```

162 \ifhyref@
163   % Hyper References
164   \RequirePackage{hyperref}
165
166   \hypersetup
167   {
168     pdfsubject      = {},
169     pdfkeywords     = {},
170     pdfproducer     = {},
171     pdfcreator      = {},
172     pdfpagemode     = {UseNone},
173     pdfstartview    = {FitH},
174     urlcolor        = {blue},
175     colorlinks
176   }
177 \fi
178
179 \iffnttts@
180   % Font Tools
181   \RequirePackage[final]{microtype}
182 \fi
183
184 \ifcrv@
185   % Camera-Ready Version
186
187   %%...
188
189 \else
190   % Draft Version
191
192   %%...
193
194   \ifchgbar@
195     % Change Bars
196     \RequirePackage{changebar}
197   \fi
198
199   \iflinnum@
200     % Line Numbers
201     \if@twocolumn
202       \RequirePackage[switch, columnwise, mathlines]{lineno}\linenumbers
203     \else
204       \RequirePackage[columnwise, mathlines]{lineno}\linenumbers
205     \fi
206   \fi
207
208   %%...
209
210 \fi
211
212 \fi
213 %%*****
214 %%*****
215 %%** Auxiliary Font Declarations *****
216 %%*****

```

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

```

217 \ifdef{\mathbb}{\}{\DeclareMathAlphabet{\mathbb}{U}{bbold}{m}{n}}

```

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

```

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

```

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

```

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

```

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

```

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

221 %*****%
222 %*****%
223 %** Auxiliary Alphabet Letters *****%
224 %*****%

```

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

```

225 \csdef{omicron}{o}

```

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

```

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

230 %*****%
231 %*****%
232 %** Tools *****%
233 %*****%

```

`\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”

```

234 \newcommand{\empchk}[2]
235   {\if#1&\else#2\fi}

```

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

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

```

236 \newcommand{\defval}[2]
237   {\if#1&#2\else#1\fi}

238 %*****%

```

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

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

```

239 \newcommand{\arglef}[2]
240   {\empchk{#2}{#1\allowbreak#2}}

```

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

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

```

241 \newcommand{\argrig}[2]
242   {\empchk{#1}{#1\allowbreak#2}}

```

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

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

```

243 \newcommand{\argmid}[3]
244   {\empchk{#2}{#1\allowbreak#2\allowbreak#3}}

```

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

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

```

245 \newcommand{\argsep}[3]
246   {\if&#1&#3\else#1\allowbreak\arglef{#2}{#3}\fi}

247 %%*****%
```

\varcmd **Variadic commands:** `\varcmd{⟨A⟩}{⟨B⟩}{⟨C⟩}{⟨D⟩}{⟨E⟩}{⟨F⟩} ...` to do!

```

248 \newcommand{\varcmd}[6]
249   {\expandafter\newcommand\csname gobble#1arg\endcsname[2]
250     {\csname check#1arg\endcsname{\argsep{##1}{#4}{##2}}}%
251     \expandafter\newcommand\csname check#1arg\endcsname[1]
252       {\csname @ifnextchar\endcsname%
253         \bgroup{\csname gobble#1arg\endcsname{##1}{#2{##1#5}#6}}}%
254     \expandafter\newcommand\csname#1\endcsname[1]
255       {\csname check#1arg\endcsname{#3##1}}}
```

```

256 %%*****%
```

\seqoftag **Sequence of tags:** `\seqoftag{⟨A⟩}{⟨B⟩}{⟨C⟩} ...` to do!

```

257 \newcommand{\seqoftag}[3]
258   {\@for\itr:={#1}\do%
259     {\expandafter\csedef{\itr#2}%
260       {\noexpand\csname #3\endcsname{\itr}}}}
```

\seqofcmd **Sequence of commands:** `\seqofcmd{⟨A⟩}{⟨B⟩}{⟨C⟩} ...` to do!

```

261 \newcommand{\seqofcmd}[3]
262   {\@for\itr:={#1}\do%
263     {\expandafter\csedef{\itr#2}%
264       {\noexpand\csname #3\endcsname{\csname \itr\endcsname}}}}
```

```

265 %%*****%
```

\seqoflatlow **Sequence of Latin lowercase letters:** `\seqoflatlow{⟨A⟩}{⟨B⟩} ...` to do!

```

266 \newcommand{\seqoflatlow}
267   {\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!

```

268 \newcommand{\seqoflatupp}
269   {\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!

```

270 \newcommand{\seqoflatlet}[2]
271   {\seqoflatlow{#1}{#2}\seqoflatupp{#1}{#2}}
```

```

272 %%*****%
```

\seqofgrklow **Sequence of Greek lowercase letters:** `\seqofgrklow{⟨A⟩}{⟨B⟩} ...` to do!

```

273 \newcommand{\seqofgrklow}
274   {\seqofcmd{alpha,beta,gamma,delta,epsilon,varepsilon,zeta,eta,theta,vartheta,%
275     iota,kappa,varkappa,lambda,mu,nu,xi,omicron,pi,varpi,rho,varrho,sigma,%
276     varsigma,tau,upsilon,phi,varphi,chi,psi,omega}}
```

\seqofgrkupp **Sequence of Greek uppercase letters:** `\seqofgrkupp{⟨A⟩}{⟨B⟩} ...` to do!

```

277 \newcommand{\seqofgrkupp}
278   {\seqofcmd{Alpha,Beta,Gamma,Delta,Epsilon,varEpsilon,Zeta,Eta,Theta,varTheta,%
279     Iota,Kappa,varKappa,Lambda,Mu,Nu,Xi,Omicron,Pi,varPi,Rho,varRho,Sigma,%
280     varSigma,Tau,Upsilon,Phi,varPhi,Chi,Psi,Omega}}
```

```

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

283 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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

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

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

290 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
291 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
292 %** Text Meta Commands %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
293 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\newtxt ... to do!
  • \newtxt[\rmfamily]{Name}[sub][sup][Ext] = “NamesubExt”
  • \newtxt[\sffamily]{Name}[sub][sup][Ext] = “NamesubExt”
  • \newtxt[\ttfamily]{Name}[sub][sup][Ext] = “NamesubExt”
294 \newcommandx{\newtxt}[5][1=, 3=, 4=, 5=]
295   {\text{#1#2\txsubsup{#1}{#3}{#4}{#5}\xspace}}

\newtxtsty ... to do!
  • \newtxtsty[\rmfamily]{Name}[sub][sup][Ext] = “NamesubExt”
  • \newtxtsty[\rmfamily][\sffamily]{Name}[sub][sup][Ext] = “NamesubExt”
  • \newtxtsty[\rmfamily][\ttfamily]{Name}[sub][sup][Ext] = “NamesubExt”
296 \newcommandx{\newtxtsty}[2][2=]
297   {\newtxt[\defval{#2}{#1}]}

\newxtarg ... to do!
  • \newxtarg[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
  • \newxtarg[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
  • \newxtarg[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
298 \newcommandx{\newxtarg}[7][1=, 3=, 4=, 5=, 7=]
299   {\newtxt{#1}{#2}{#3}{#4}{#5\argmid{#6}{#7}}}

\newxtargsty ... to do!
  • \newxtargsty[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
  • \newxtargsty[\rmfamily][\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
  • \newxtargsty[\rmfamily][\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
300 \newcommandx{\newxtargsty}[2][2=]
301   {\newxtarg[\defval{#2}{#1}]}

\newtxtoarg ... to do!
  • \newtxtoarg[\rmfamily]{Name}[sub][sup][Arg] = “Namesub(Arg)”
  • \newtxtoarg[\sffamily]{Name}[sub][sup][Arg] = “Namesub(Arg)”
  • \newtxtoarg[\ttfamily]{Name}[sub][sup][Arg] = “Namesub(Arg)”
302 \newcommandx{\newtxtoarg}[5][1=, 3=, 4=, 5=]
303   {\newxtarg{#1}{#2}{#3}{#4}[]{}{#5}[]{}{}}

```

```

\newtxtoargsty ... to do!
    • \newtxtoargsty{\rmfamily}{Name}[sub][sup][Arg] = "Namesub(Arg)"
    • \newtxtoargsty{\rmfamily}{\sffamily}{Name}[sub][sup][Arg] = "Namesub(Arg)"
    • \newtxtoargsty{\rmfamily}{\ttfamily}{Name}[sub][sup][Arg] = "Namesub(Arg)"
304 \newcommandx{\newtxtoargsty}[2][2=]
305   {\newtxtoarg[\defval{#2}{#1}]}

\newtxtpar ... to do!
    • \newtxtpar[\rmfamily]{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"
    • \newtxtpar[\sffamily]{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"
    • \newtxtpar[\ttfamily]{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"
306 \newcommandx{\newtxtpar}[7][1=, 3=, 4=, 5=, 7=]
307   {\newtxt{#1}{#2}{#3}{#4}{#5}\argmid{#6}{#7}}

\newtxtparsty ... to do!
    • \newtxtparsty{\rmfamily}{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"
    • \newtxtparsty{\rmfamily}{\sffamily}{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"
    • \newtxtparsty{\rmfamily}{\ttfamily}{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"
308 \newcommandx{\newtxtparsty}[2][2=]
309   {\newtxtpar[\defval{#2}{#1}]}

\newtxtopar ... to do!
    • \newtxtopar[\rmfamily]{Name}[sub][sup][Par] = "Namesub[Par]"
    • \newtxtopar[\sffamily]{Name}[sub][sup][Par] = "Namesub[Par]"
    • \newtxtopar[\ttfamily]{Name}[sub][sup][Par] = "Namesub[Par]"
310 \newcommandx{\newtxtopar}[5][1=, 3=, 4=, 5=]
311   {\newtxtpar{#1}{#2}{#3}{#4}{#5}}

\newtxtoparsty ... to do!
    • \newtxtoparsty{\rmfamily}{Name}[sub][sup][Par] = "Namesub[Par]"
    • \newtxtoparsty{\rmfamily}{\sffamily}{Name}[sub][sup][Par] = "Namesub[Par]"
    • \newtxtoparsty{\rmfamily}{\ttfamily}{Name}[sub][sup][Par] = "Namesub[Par]"
312 \newcommandx{\newtxtoparsty}[2][2=]
313   {\newtxtopar[\defval{#2}{#1}]}

\txtsubsup ... to do!
    • \txtsubsup{sub}{} = "sub"; \txtsubsup{}{sup} = "sup"; \txtsubsup{sub}{sup} = "subsup"
    • \txtsubsup[\sffamily]{Aa}{Bb} = "AaBb"
    • \txtsubsup[\ttfamily]{Aa}{Bb} = "AaBb"
314 \newcommand{\txtsubsup}[3]{}
315   {\ensuremath{\empchk{#2}{\text{#1#2}}}\empchk{#3}{\text{#1#3}}}}

316 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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

\txtarget ... to do!
    • \txtarget{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
    • \txtarget[\scshape]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NAMESUBEXT1(ARG)EXT2"

```



```

    • \txtarg[\bfseries]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
319 \newcommand{\txtarg}
320 {\newtxtargsty{\txtsty}}

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

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

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

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

329 %*****%

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

\cmdtxtarg ... to do!
    • \cmdtxtarg{NewCmd}; \newcommand{\txtstyNewCmd}{\scshape\ttfamily};
    \txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBEXT1(ARG)EXT2
332 \newcommand{\cmdtxtarg}[1]
333 {\csdef{txtarg#1}{\newtxtargsty{\csname txtsty#1\endcsname}}}

\cmdtxtoarg ... to do!
    • \cmdtxtoarg{NewCmd}; \newcommand{\txtstyNewCmd}{\scshape\ttfamily};
    \txtoargNewCmd{Name}[sub][sup][Arg] = NAMESUB(ARG)
334 \newcommand{\cmdtxtoarg}[1]
335 {\csdef{txtoarg#1}{\newtxtoargsty{\csname txtsty#1\endcsname}}}

\cmdtxtpar ... to do!
    • \cmdtxtpar{NewCmd}; \newcommand{\txtstyNewCmd}{\scshape\ttfamily};
    \txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUBEXT1[PAR]EXT2
336 \newcommand{\cmdtxtpar}[1]
337 {\csdef{txtpar#1}{\newtxtparsty{\csname txtsty#1\endcsname}}}

\cmdtxtopar ... to do!

```

```

    • \cmdttxtopar{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
      \ttxtoparNewCmd{Name}[sub][sup][Par] = NAMESUB[PAR]
338 \newcommand{\cmdttxtopar}[1]
339   {\csdef{ttxtopar#1}{\newttxtoparsty{\csname txtsty#1\endcsname}}}

\cmdttxall ... to do!
    • \cmdttxall{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
      \ttxtoparNewCmd{Name}[sub][sup][Par] = NAMESUB[PAR]
340 \newcommand{\cmdttxall}[1]
341   {\cmdttx{#1}\cmdttxarg{#1}\cmdttxoarg{#1}\cmdttxpar{#1}\cmdttxtopar{#1}}

342 %%*****%

\usrtxt ... to do!
    • \usrtxt{cmdName}{Suf}{}; \cmdNameSuf = cmdName
      \usrtxt{cmdName}{Suf}{arg}; \cmdNameSuf{Arg} = cmdName(Arg)
      \usrtxt{cmdName}{Suf}{par}; \cmdNameSuf{Par} = cmdName[Par]
    • \usrtxt{cmdName}{Suf}{newName}; \cmdNameSuf = newName
      \usrtxt{cmdName}{Suf}{arg}[newName]; \cmdNameSuf{Arg} = newName(Arg)
      \usrtxt{cmdName}{Suf}{par}[newName]; \cmdNameSuf{Par} = newName[Par]
343 \newcommandx{\usrtxt}[4][4=]
344   {\csdef{#1#2}{\csname txt#3\endcsname{\defval{#4}{#1}}}}

345 %%*****%
346 %%*****%
347 %** Math Meta Commands *****%
348 %%*****%

\newmth ... to do!
    • \newmth[mathrm]{Name}[sub][sup][Ext] = "NamesupsubExt"
    • \newmth[mathsf]{Name}[sub][sup][Ext] = "NamesupsubExt"
    • \newmth[mathtt]{Name}[sub][sup][Ext] = "NamesupsubExt"
349 \newcommandx{\newmth}[5][1=, 3=, 4=, 5=]
350   {\ensuremath{\csname#1\endcsname{#2}\mthsubsup{#3}{#4}{#5}}}

\newmthsty ... to do!
    • \newmthsty[mathrm]{Name}[sub][sup][Ext] = "NamesupsubExt"
    • \newmthsty[mathsf]{Name}[sub][sup][Ext] = "NamesupsubExt"
    • \newmthsty[mathtt]{Name}[sub][sup][Ext] = "NamesupsubExt"
351 \newcommandx{\newmthsty}[2][2=]
352   {\newmth[\defval{#2}{#1}]}

\newmtharg ... to do!
    • \newmtharg[mathrm]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesupsubExt1(Arg)Ext2"
    • \newmtharg[mathsf]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesupsubExt1(Arg)Ext2"
    • \newmtharg[mathtt]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesupsubExt1(Arg)Ext2"
353 \newcommandx{\newmtharg}[7][1=, 3=, 4=, 5=, 7=]
354   {\newmth{#1}{#2}{#3}{#4}{#5}\argmid{\!\left(\!{#6}{\right)}\arglef{\!}{#7}}}}

\newmthargsty ... to do!
    • \newmthargsty[mathrm]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesupsubExt1(Arg)Ext2"
    • \newmthargsty[mathsf]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesupsubExt1(Arg)Ext2"
    • \newmthargsty[mathtt]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesupsubExt1(Arg)Ext2"

```

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355 \newcommandx{\newmthargsty}[2][2=]
356   {\newmtharg[\defval{#2}{#1}]}

\newmthoarg ... to do!


- \newmthoarg[\mathrm]{Name}[sub][sup][Arg] = “Namesupsub(Arg)”
- \newmthoarg[\mathsf]{Name}[sub][sup][Arg] = “Namesupsub(Arg)”
- \newmthoarg[\mathtt]{Name}[sub][sup][Arg] = “Namesupsub(Arg)”


357 \newcommandx{\newmthoarg}[5][1=, 3=, 4=, 5=]
358   {\newmtharg[#1]{#2}{#3}{#4}[] {#5}[] }

\newmthoargsty ... to do!


- \newmthoargsty[\mathrm]{Name}[sub][sup][Arg] = “Namesupsub(Arg)”
- \newmthoargsty[\mathrm]{\mathsf}{Name}[sub][sup][Arg] = “Namesupsub(Arg)”
- \newmthoargsty[\mathrm]{\mathtt}{Name}[sub][sup][Arg] = “Namesupsub(Arg)”


359 \newcommandx{\newmthoargsty}[2][2=]
360   {\newmtharg[\defval{#2}{#1}]}

\newmthpar ... to do!


- \newmthpar[\mathrm]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”
- \newmthpar[\mathsf]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”
- \newmthpar[\mathtt]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”


361 \newcommandx{\newmthpar}[7][1=, 3=, 4=, 5=, 7=]
362   {\newmth[#1]{#2}{#3}{#4}{#5\argmid{!}\left[] {#6}{\right]}\arglef{!}{#7}}}]

\newmthparsty ... to do!


- \newmthparsty[\mathrm]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”
- \newmthparsty[\mathrm]{\mathsf}{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”
- \newmthparsty[\mathrm]{\mathtt}{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”


363 \newcommandx{\newmthparsty}[2][2=]
364   {\newmthpar[\defval{#2}{#1}]}

\newmthopar ... to do!


- \newmthopar[\mathrm]{Name}[sub][sup][Par] = “Namesupsub[Par]”
- \newmthopar[\mathsf]{Name}[sub][sup][Par] = “Namesupsub[Par]”
- \newmthopar[\mathtt]{Name}[sub][sup][Par] = “Namesupsub[Par]”


365 \newcommandx{\newmthopar}[5][1=, 3=, 4=, 5=]
366   {\newmthpar[#1]{#2}{#3}{#4}[] {#5}[] }

\newmthoparsty ... to do!


- \newmthoparsty[\mathrm]{Name}[sub][sup][Par] = “Namesupsub[Par]”
- \newmthoparsty[\mathrm]{\mathsf}{Name}[sub][sup][Par] = “Namesupsub[Par]”
- \newmthoparsty[\mathrm]{\mathtt}{Name}[sub][sup][Par] = “Namesupsub[Par]”


367 \newcommandx{\newmthoparsty}[2][2=]
368   {\newmthopar[\defval{#2}{#1}]}

\mthsubsup ... to do!
369 \newcommand{\mthsubsup}[2]
370   {\empchk{#1}{_ {#1}}\empchk{#2}{^{#2}}}

371 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\mth ... to do!


- \mth{Name}[sub][sup][Ext] = “NamesupsubExt”
- \mth[\mathbf]{Name}[sub][sup][Ext] = “NamesupsubExt”
- \mth[\mathtt]{Name}[sub][sup][Ext] = “NamesupsubExt”

```

```

372 \newcommand{\mth}
373   {\newmthsty{\mthsty}}

\mtharg ... to do!
  • \mtharg{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
  • \mtharg[\mathbf]{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathbf{Name}_{sub}^{sup}Ext1(Arg)Ext2$ 
  • \mtharg[\mathtt]{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathtt{Name}_{sub}^{sup}Ext1(Arg)Ext2$ 
374 \newcommand{\mtharg}
375   {\newmthargsty{\mthsty}}

\mthoarg ... to do!
  • \mthoarg{Name}[sub][sup][Arg] =  $Name_{sub}^{sup}(Arg)$ 
  • \mthoarg[\mathbf]{Name}[sub][sup][Arg] =  $\mathbf{Name}_{sub}^{sup}(Arg)$ 
  • \mthoarg[\mathtt]{Name}[sub][sup][Arg] =  $\mathtt{Name}_{sub}^{sup}(Arg)$ 
376 \newcommand{\mthoarg}
377   {\newmthoargsty{\mthsty}}

\mthpar ... to do!
  • \mthpar{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
  • \mthpar[\mathbf]{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\mathbf{Name}_{sub}^{sup}Ext1[Par]Ext2$ 
  • \mthpar[\mathtt]{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\mathtt{Name}_{sub}^{sup}Ext1[Par]Ext2$ 
378 \newcommand{\mthpar}
379   {\newmthparsty{\mthsty}}

\mthopar ... to do!
  • \mthopar{Name}[sub][sup][Par] =  $Name_{sub}^{sup}[Par]$ 
  • \mthopar[\mathbf]{Name}[sub][sup][Par] =  $\mathbf{Name}_{sub}^{sup}[Par]$ 
  • \mthopar[\mathtt]{Name}[sub][sup][Par] =  $\mathtt{Name}_{sub}^{sup}[Par]$ 
380 \newcommand{\mthopar}
381   {\newmthoparsty{\mthsty}}

\mthsty ... to do!
382 \newcommand{\mthsty}
383   {}

384 %%*****%

\cmdmth ... to do!
  • \cmdmth{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
    \mthNewCmd{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
385 \newcommand{\cmdmth}[1]
386   {\csdef{mth#1}{\newmthsty{mthsty#1}}}

\cmdmtharg ... to do!
  • \cmdmtharg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
    \mthargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
387 \newcommand{\cmdmtharg}[1]
388   {\csdef{mtharg#1}{\newmthargsty{mthsty#1}}}

\cmdmthoarg ... to do!
  • \cmdmthoarg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
    \mthoargNewCmd{Name}[sub][sup][Arg] =  $Name_{sub}^{sup}(Arg)$ 
389 \newcommand{\cmdmthoarg}[1]
390   {\csdef{mthoarg#1}{\newmthoargsty{mthsty#1}}}

\cmdmthpar ... to do!

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    • \cmdmthpar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
      \mthparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesubExt1[Par]Ext2
391 \newcommand{\cmdmthpar}[1]
392   {\csdef{mthpar#1}{\newmthparsty{mthsty#1}}}

\cmdmthopar ... to do!
    • \cmdmthopar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
      \mthoparNewCmd{Name}[sub][sup][Par] = Namesub[Par]
393 \newcommand{\cmdmthopar}[1]
394   {\csdef{mthopar#1}{\newmthoparsty{mthsty#1}}}

\cmdmthall ... to do!
    • \cmdmthall{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
      \mthNewCmd{Name}[sub][sup][Ext] = NamesubExt
      \mthargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesubExt1(Arg)Ext2
      \mthoargNewCmd{Name}[sub][sup][Arg] = Namesub(Arg)
      \mthparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesubExt1[Par]Ext2
      \mthoparNewCmd{Name}[sub][sup][Par] = Namesub[Par]
395 \newcommand{\cmdmthall}[1]
396   {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#1}}

397 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\usrmth ... to do!
    • \usrmth{cmdName}{Suf}{}; \cmdNameSuf = cmdName
      \usrmth{cmdName}{Suf}{arg}; \cmdNameSuf{Arg} = cmdName(Arg)
      \usrmth{cmdName}{Suf}{par}; \cmdNameSuf{Par} = cmdName[Par]
    • \usrmth{cmdName}{Suf}{}[newName]; \cmdNameSuf = newName
      \usrmth{cmdName}{Suf}{arg}[newName]; \cmdNameSuf{Arg} = newName(Arg)
      \usrmth{cmdName}{Suf}{par}[newName]; \cmdNameSuf{Par} = newName[Par]
398 \newcommandx{\usrmth}[4][4=]
399   {\csdef{#1#2}{\csname mth#3\endcsname{\defval{#4}{#1}}}}

400 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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

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

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

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

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

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

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

```

```

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

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

419 %%*****%
420 %%*****%
421 %%** Text Macro Generators *****%
422 %%*****%
423 \iftxtgen@

\txtdef, ... ... to do!
  • \txtdef{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
  • \txtargdef{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
  • \txtpardef{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
424 %% Style for Definitions
425 \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] =  $newName_{sub}^{sub}ext$ 
426 \newcommandx{\cmdtxtdef}[2][2=]
427   {\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] =  $newName_{sub}^{sub}ext1(arg)ext2$ 
428 \newcommandx{\cmdtxtargdef}[2][2=]
429   {\usrtxt{#1}{}\{argdef\}[#2]}

\cmdtxtoargdef ... to do!
  • \cmdtxtoargdef{cmdName};
    \cmdName[sub][sub][arg] =  $cmdName_{sub}^{sub}(arg)$ 
  • \cmdtxtoargdef{cmdName}[newName];
    \cmdName[sub][sub][arg] =  $newName_{sub}^{sub}(arg)$ 
430 \newcommandx{\cmdtxtoargdef}[2][2=]
431   {\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] =  $newName_{sub}^{sub}ext1[par]ext2$ 
432 \newcommandx{\cmdtxtpardef}[2][2=]
433   {\usrtxt{#1}{}\{pardef\}[#2]}

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

```

```

434 \newcommandx{\cmdtxtopardef}[2][2=]
435   {\usrtxt{#1}{\opardef}[#2]}

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

436 %% Style for Abbreviations
437 \cmdtxtall{abr}\newcommand{\txtstyabr}{\em}

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

438 \newcommandx{\cmdtxtabr}[2][2=]
439   {\usrtxt{#1}{\abr}[#2]}

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

440 \newcommandx{\cmdtxtargabr}[2][2=]
441   {\usrtxt{#1}{\argabr}[#2]}

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

442 \newcommandx{\cmdtxtoargabr}[2][2=]
443   {\usrtxt{#1}{\oargabr}[#2]}

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

444 \newcommandx{\cmdtxtparabr}[2][2=]
445   {\usrtxt{#1}{\parabr}[#2]}

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

446 \newcommandx{\cmdtxtoparabr}[2][2=]
447   {\usrtxt{#1}{\oparabr}[#2]}

448 %%*****

\txtname, ... ... to do!
  • \txtname{Name}[sub][sup][Ext] =  $NAME_{\text{SUB}}^{\text{SUP}} \text{EXT}$ 
  • \txtargname{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $NAME_{\text{SUB}}^{\text{SUP}} \text{EXT1}(\text{ARG})\text{EXT2}$ 
  • \txtparname{Name}[sub][sup][Ext1]{Par}[Ext2] =  $NAME_{\text{SUB}}^{\text{SUP}} \text{EXT1}[\text{PAR}]\text{EXT2}$ 

```

```

449 %% Style for Names
450 \cmdtxtall{name}\newcommand{\txtstytname}{\normalfont\mdseries\scshape\sffamily}

```

```
\cmdtxtname ... to do!
```

- \cmdtxtname{cmdName};
 \cmdName[sub][sub][ext] = CMDNAME^{SUB}EXT
- \cmdtxtname{cmdName}[newName];
 \cmdName[sub][sub][ext] = NEWNAME^{SUB}EXT

```
451 \newcommandx{\cmdtxtname}[2][2=]
```

```
452 {\usrtxt{#1}{-}{name}[#2]}
```

```
\cmdtxtargname ... to do!
```

- \cmdtxtargname{cmdName};
 \cmdName[sub][sub][ext1]{arg}[ext2] = CMDNAME^{SUB}EXT1(ARG)EXT2
- \cmdtxtargname{cmdName}[newName];
 \cmdName[sub][sub][ext1]{arg}[ext2] = NEWNAME^{SUB}EXT1(ARG)EXT2

```
453 \newcommandx{\cmdtxtargname}[2][2=]
```

```
454 {\usrtxt{#1}{-}{argname}[#2]}
```

```
\cmdtxtoargname ... to do!
```

- \cmdtxtoargname{cmdName};
 \cmdName[sub][sub][arg] = CMDNAME^{SUB}(ARG)
- \cmdtxtoargname{cmdName}[newName];
 \cmdName[sub][sub][arg] = NEWNAME^{SUB}(ARG)

```
455 \newcommandx{\cmdtxtoargname}[2][2=]
```

```
456 {\usrtxt{#1}{-}{oargname}[#2]}
```

```
\cmdtxtparname ... to do!
```

- \cmdtxtparname{cmdName};
 \cmdName[sub][sub][ext1]{par}[ext2] = CMDNAME^{SUB}EXT1[PAR]EXT2
- \cmdtxtparname{cmdName}[newName];
 \cmdName[sub][sub][ext1]{par}[ext2] = NEWNAME^{SUB}EXT1[PAR]EXT2

```
457 \newcommandx{\cmdtxtparname}[2][2=]
```

```
458 {\usrtxt{#1}{-}{parname}[#2]}
```

```
\cmdtxtoparname ... to do!
```

- \cmdtxtoparname{cmdName};
 \cmdName[sub][sub][par] = CMDNAME^{SUB}[PAR]
- \cmdtxtoparname{cmdName}[newName];
 \cmdName[sub][sub][par] = NEWNAME^{SUB}[PAR]

```
459 \newcommandx{\cmdtxtoparname}[2][2=]
```

```
460 {\usrtxt{#1}{-}{oparname}[#2]}
```

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

- \txtcom{Name}[sub][sup][Ext] = NAME^{SUP}EXT
- \txtargcom{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAME^{SUP}EXT1(ARG)EXT2
- \txtparcom{Name}[sub][sup][Ext1]{Par}[Ext2] = NAME^{SUP}EXT1[PAR]EXT2

```
461 %% Style for Complexities
```

```
462 \cmdtxtall{com}\newcommand{\txtstytcom}{\normalfont\mdseries\scshape\rmfamily}
```

```
\cmdtxtcom ... to do!
```

- \cmdtxtcom{cmdName};
 \cmdName[sub][sub][ext] = CMDNAME^{SUB}EXT
- \cmdtxtcom{cmdName}[newName];
 \cmdName[sub][sub][ext] = NEWNAME^{SUB}EXT

```
463 \newcommandx{\cmdtxtcom}[2][2=]
```

```
464 {\usrtxt{#1}{-}{com}[#2]}
```



```

\cmdtxtargcom ... to do!
    • \cmdtxtargcom{cmdName};
      \cmdName[sub][sub][ext1]{arg}[ext2] = CMDNAMESUBSUBEXT1(ARG)EXT2
    • \cmdtxtargcom{cmdName}[newName];
      \cmdName[sub][sub][ext1]{arg}[ext2] = NEWNAMESUBSUBEXT1(ARG)EXT2
465 \newcommandx{\cmdtxtargcom}[2][2=]
466   {\usrtxt{#1}{-}{argcom}[#2]}

\cmdtxtoargcom ... to do!
    • \cmdtxtoargcom{cmdName};
      \cmdName[sub][sub][arg] = CMDNAMESUBSUB(ARG)
    • \cmdtxtoargcom{cmdName}[newName];
      \cmdName[sub][sub][arg] = NEWNAMESUBSUB(ARG)
467 \newcommandx{\cmdtxtoargcom}[2][2=]
468   {\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
469 \newcommandx{\cmdtxtparcom}[2][2=]
470   {\usrtxt{#1}{-}{parcom}[#2]}

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

473 \fi
474 %*****%
475 %*****%
476 %** Math Macro Generators *****%
477 %*****%
478 \ifmthgen@

\mthname, ... ... to do!
    • \mthname{NAME}[sub][sup][Ext] =  $\mathcal{NAME}_{sub}^{sup}Ext$ 
    • \mthargname{NAME}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparname{NAME}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1(Par)Ext2$ 
479 % Style for Names
480 \cmdmthall{name}\newcommand{\mthstname}{\mathcal}

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

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

```

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

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

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

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

\mthfam, ... ... to do!
    • \mthfam{NAME}[sub][sup][Ext] =  $\mathcal{NAME}_{sub}^{sup}Ext$ 
    • \mthargfam{NAME}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparfam{NAME}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1[Par]Ext2$ 
492 %% Style for Families
493 \cmdmthall{fam}\newcommand{\mthstyfam}{\mathscr}

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

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

\cmdmthargfam ... to do!
    • \cmdmthargfam{CMDNAME};
      \CMDNAMEFam[sub][sub][ext1]{arg}[ext2] =  $\mathcal{CMDNAME}_{sub}^{sub}ext1(arg)ext2$ 
    • \cmdmthargfam{cmdName}{NEWNAME};
      \cmdNameFam[sub][sub][ext1]{arg}[ext2] =  $\mathcal{NEWNAME}_{sub}^{sub}ext1(arg)ext2$ 

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497 \newcommandx{\cmdmthargfam}[2][2=]
498   {\usrmth{#1}{Fam}{argfam}{#2}}

\cmdmthoargfam ... to do!
  • \cmdmthoargfam{CMDNAME};
    \CMDNAMEFam[sub][sub][arg] =  $\mathcal{CMDNAME}^{\text{sub}}(arg)$ 
  • \cmdmthoargfam{cmdFam}[NEWNAME];
    \cmdFamFam[sub][sub][arg] =  $\mathcal{NEWNAME}^{\text{sub}}(arg)$ 
499 \newcommandx{\cmdmthoargfam}[2][2=]
500   {\usrmth{#1}{Fam}{oargfam}{#2}}

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

\cmdmthoparfam ... to do!
  • \cmdmthoparfam{CMDNAME};
    \CMDNAMEFam[sub][sub][par] =  $\mathcal{CMDNAME}^{\text{sub}}[par]$ 
  • \cmdmthoparfam{cmdFam}[NEWNAME];
    \cmdFamFam[sub][sub][par] =  $\mathcal{NEWNAME}^{\text{sub}}[par]$ 
503 \newcommandx{\cmdmthoparfam}[2][2=]
504   {\usrmth{#1}{Fam}{oparfam}{#2}}

\mthcls, ... ... to do!
  • \mthcls{NAME}[sub][sup][Ext] =  $\mathcal{NAME}^{\text{sup}}_{\text{sub}}Ext$ 
  • \mthargcls{NAME}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{NAME}^{\text{sup}}_{\text{sub}}Ext1(Arg)Ext2$ 
  • \mthparcls{NAME}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{NAME}^{\text{sup}}_{\text{sub}}Ext1[Par]Ext2$ 
505 %% Style for Classes
506 \cmdmthall{cls}\newcommand{\mthstcls}{\matheus}

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

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

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

\cmdmthoargcls ... to do!
  • \cmdmthoargcls{CMDNAME};
    \CMDNAMECls[sub][sub][arg] =  $\mathcal{CMDNAME}^{\text{sub}}(arg)$ 

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    • \cmdmthoargcls{cmdCls}[NEWNAME];
      \cmdClsCls[sub][sub][arg] =  $\mathcal{NEWNAME}_{sub}^{sub}(arg)$ 
512 \newcommandx{\cmdmthoargcls}[2][2=]
513   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}ext1[par]ext2$ 
514 \newcommandx{\cmdmthparcls}[2][2=]
515   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}[par]$ 
516 \newcommandx{\cmdmthoparcls}[2][2=]
517   {\usrmth{#1}{Cls}{oparcls}{#2}}

\mthsig, ... ... to do!
    • \mthsig{Name}[sub][sup][Ext] =  $\mathcal{ame}_{sub}^{sup}Ext$ 
    • \mthargsig{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{ame}_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparsig{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{ame}_{sub}^{sup}Ext1[Par]Ext2$ 
518 %% Style for Signatures
519 \cmdmthall{sig}\newcommand{\mthstysig}{\mathpzc}

\asig, ... ... to do!
a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ε, ζ, η, θ, ϑ, ι, κ, λ, μ, ν, ξ, ο, π, ϖ, ρ, ϑ, σ, ς, τ, υ, φ, ϕ, χ, ψ, ω
520 \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] =  $\mathcal{ew}\mathcal{ame}_{sub}^{sub}ext$ 
521 \newcommandx{\cmdmthsig}[2][2=]
522   {\usrmth{#1}{Sig}{sig}{#2}}

\cmdmthargsig ... to do!
    • \cmdmthargsig{cmdName};
      \cmdNameSig[sub][sub][ext1]{arg}[ext2] =  $cmd\mathcal{ame}_{sub}^{sub}ext1(arg)ext2$ 
    • \cmdmthargsig{cmdName}[NewName];
      \cmdNameSig[sub][sub][ext1]{arg}[ext2] =  $\mathcal{ew}\mathcal{ame}_{sub}^{sub}ext1(arg)ext2$ 
523 \newcommandx{\cmdmthargsig}[2][2=]
524   {\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] =  $\mathcal{ew}\mathcal{ame}_{sub}^{sub}(arg)$ 
525 \newcommandx{\cmdmthoargsig}[2][2=]
526   {\usrmth{#1}{Sig}{oargsig}{#2}}

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

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

\mthstr, ... ... to do!
    • \mthstr{Name}[sub][sup][Ext] = \namesupsubExt
    • \mthargstr{Name}[sub][sup][Ext1]{Arg}[Ext2] = \namesupsubExt1(Arg)Ext2
    • \mthparstr{Name}[sub][sup][Ext1]{Par}[Ext2] = \namesupsubExt1[Par]Ext2
531 %% Style for Structures
532 \cmdmthall{str}\newcommand{\mthstystyr}{\mathfrak}

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

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

\cmdmthargstr ... to do!
    • \cmdmthargstr{cmdName};
      \cmdNameStr[sub][sub][ext1]{arg}[ext2] = cmd\namesubext1(arg)ext2
    • \cmdmthargstr{cmdName}[NewName];
      \cmdNameStr[sub][sub][ext1]{arg}[ext2] = \new\namesubext1(arg)ext2
536 \newcommandx{\cmdmthargstr}[2][2=]
537   {\usrmth{#1}{Str}{argstr}{#2}}

\cmdmthoargstr ... to do!
    • \cmdmthoargstr{cmdName};
      \cmdNameStr[sub][sub][arg] = cmd\namesub(arg)
    • \cmdmthoargstr{cmdStr}[NewName];
      \cmdStrStr[sub][sub][arg] = \new\namesub(arg)
538 \newcommandx{\cmdmthoargstr}[2][2=]
539   {\usrmth{#1}{Str}{oargstr}{#2}}

\cmdmthparstr ... to do!
    • \cmdmthparstr{cmdName};
      \cmdNameStr[sub][sub][ext1]{par}[ext2] = cmd\namesubext1[par]ext2

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    • \cmdmthparstr{cmdName}[NewName];
      \cmdNameStr[sub][sub][ext1]{par}[ext2] = \newNamesubsubext1[par]ext2
540 \newcommandx{\cmdmthparstr}[2][2=]
541   {\usrmth{#1}{Str}{parstr}[#2]}

\cmdmthoparstr ... to do!
    • \cmdmthoparstr{cmdName};
      \cmdNameStr[sub][sub][par] = cmdNamesubsub[par]
    • \cmdmthoparstr{cmdStr}[NewName];
      \cmdStrStr[sub][sub][par] = \newNamesubsub[par]
542 \newcommandx{\cmdmthoparstr}[2][2=]
543   {\usrmth{#1}{Str}{oparstr}[#2]}

\mthset, ... ... to do!
    • \mthset{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargset{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
    • \mthparset{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
544 %% Style for Sets
545 \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
 $\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$ 
A, B,  $\Gamma, \Delta, E, Z, H, \Theta, \vartheta, I, K, \Lambda, M, N, \Xi, O, \Pi, \varPi, P, \Sigma, \varSigma, T, \Upsilon, \Phi, \varPhi, X, \Psi, \Omega$ 
546 \seqoflet{Set}{mthset}

\cmdmthset ... to do!
    • \cmdmthset{cmdName};
      \cmdNameSet[sub][sub][ext] = cmdNamesubsubext
    • \cmdmthset{cmdName}[NewName];
      \cmdNameSet[sub][sub][ext] = NewNamesubsubext
547 \newcommandx{\cmdmthset}[2][2=]
548   {\usrmth{#1}{Set}{set}[#2]}

\cmdmthargset ... to do!
    • \cmdmthargset{cmdName};
      \cmdNameSet[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
    • \cmdmthargset{cmdName}[NewName];
      \cmdNameSet[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
549 \newcommandx{\cmdmthargset}[2][2=]
550   {\usrmth{#1}{Set}{argset}[#2]}

\cmdmthoargset ... to do!
    • \cmdmthoargset{cmdName};
      \cmdNameSet[sub][sub][arg] = cmdNamesubsub(arg)
    • \cmdmthoargset{cmdSet}[NewName];
      \cmdSetSet[sub][sub][arg] = NewNamesubsub(arg)
551 \newcommandx{\cmdmthoargset}[2][2=]
552   {\usrmth{#1}{Set}{oargset}[#2]}

\cmdmthparset ... to do!
    • \cmdmthparset{cmdName};
      \cmdNameSet[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
    • \cmdmthparset{cmdName}[NewName];
      \cmdNameSet[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
553 \newcommandx{\cmdmthparset}[2][2=]
554   {\usrmth{#1}{Set}{parset}[#2]}

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\cmdmthoparset ... to do!
    • \cmdmthoparset{cmdName};
      \cmdNameSet[sub][sub][par] = cmdNamesubsub[par]
    • \cmdmthoparset{cmdSet}[NewName];
      \cmdSetSet[sub][sub][par] = NewNamesubsub[par]
555 \newcommandx{\cmdmthoparset}[2][2=]
556   {\usrmth{#1}{Set}{oparset}{#2}}

\cmdmthsetext ... to do!
557 \newcommandx{\cmdmthsetext}[3][2=, 3=]
558   {\cmdmthset{#1}[#2]\caselower[q]{#1}%
559   \usrmthlet{\thestring}{Sym}{sym}
560   [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}}%
561   \usrmthlet{\thestring}{Elm}{elm}
562   [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}}]

\mthrel, ... ... to do!
    • \mthrel{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargrel{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
    • \mthparrel{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
563 %% Style for Relations
564 \cmdmthall{rel}\newcommand{\mthstyrel}{\mathit}

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

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

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

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

\cmdmthparrel ... to do!
    • \cmdmthparrel{cmdName};
      \cmdNameRel[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2

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    • \cmdmthparrel{cmdName}[NewName];
      \cmdNameRel[sub][sub][ext1]{par}[ext2] =  $NewName_{sub}^{sub}ext1[par]ext2$ 
572 \newcommandx{\cmdmthparrel}[2][2=]
573   {\usrmth{#1}{Rel}{parrel}{#2}}

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

\mthfun, ... ... to do!
    • \mthfun{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
    • \mthargfun{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparfun{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
576 %% Style for Functions
577 \cmdmthall{fun}\newcommand{\mthstyfun}{\mathsf}

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

\cmdmthfun ... to do!
    • \cmdmthfun{cmdName};
      \cmdNameFun[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
    • \cmdmthfun{cmdName}[NewName];
      \cmdNameFun[sub][sub][ext] =  $NewName_{sub}^{sub}ext$ 
579 \newcommandx{\cmdmthfun}[2][2=]
580   {\usrmth{#1}{Fun}{fun}{#2}}

\cmdmthargfun ... to do!
    • \cmdmthargfun{cmdName};
      \cmdNameFun[sub][sub][ext1]{arg}[ext2] =  $cmdName_{sub}^{sub}ext1(arg)ext2$ 
    • \cmdmthargfun{cmdName}[NewName];
      \cmdNameFun[sub][sub][ext1]{arg}[ext2] =  $NewName_{sub}^{sub}ext1(arg)ext2$ 
581 \newcommandx{\cmdmthargfun}[2][2=]
582   {\usrmth{#1}{Fun}{argfun}{#2}}

\cmdmthoargfun ... to do!
    • \cmdmthoargfun{cmdName};
      \cmdNameFun[sub][sub][arg] =  $cmdName_{sub}^{sub}(arg)$ 
    • \cmdmthoargfun{cmdFun}[NewName];
      \cmdFunFun[sub][sub][arg] =  $NewName_{sub}^{sub}(arg)$ 
583 \newcommandx{\cmdmthoargfun}[2][2=]
584   {\usrmth{#1}{Fun}{oargfun}{#2}}

\cmdmthparfun ... to do!
    • \cmdmthparfun{cmdName};
      \cmdNameFun[sub][sub][ext1]{par}[ext2] =  $cmdName_{sub}^{sub}ext1[par]ext2$ 
    • \cmdmthparfun{cmdName}[NewName];
      \cmdNameFun[sub][sub][ext1]{par}[ext2] =  $NewName_{sub}^{sub}ext1[par]ext2$ 
585 \newcommandx{\cmdmthparfun}[2][2=]
586   {\usrmth{#1}{Fun}{parfun}{#2}}

```



```

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

\mthsym, ... ... to do!
    • \mthsym{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargsym{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
    • \mthparsym{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
589 %% Style for Symbols
590 \cmdmthall{sym}\newcommand{\mthstysym}{\mathhtt}

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

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

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

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

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

\cmdmthoparsym ... to do!
    • \cmdmthoparsym{cmdName};
      \cmdNameSym[sub][sub][par] = cmdNamesubsub[par]

```

```

    • \cmdmthoparsym{cmdSym}[NewName];
      \cmdSymSym[sub][sub][par] =  $NewName_{sub}^{sub}[par]$ 
600 \newcommandx{\cmdmthoparsym}[2][2=]
601   {\usrmth{#1}{Sym}{oparsym}[#2]}

\mthelm, ... ... to do!
    • \mthelm{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
    • \mthargelm{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparelm{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
602 %% Style for Elements
603 \cmdmthall{elm}\newcommand{\mthstyelm}{\mathnormal}

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

\cmdmthelm ... to do!
    • \cmdmthelm{cmdName};
      \cmdNameElm[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
    • \cmdmthelm{cmdName}[NewName];
      \cmdNameElm[sub][sub][ext] =  $NewName_{sub}^{sub}ext$ 
605 \newcommandx{\cmdmthelm}[2][2=]
606   {\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] =  $NewName_{sub}^{sub}ext1(arg)ext2$ 
607 \newcommandx{\cmdmthargelm}[2][2=]
608   {\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] =  $NewName_{sub}^{sub}(arg)$ 
609 \newcommandx{\cmdmthoargelm}[2][2=]
610   {\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] =  $NewName_{sub}^{sub}ext1[par]ext2$ 
611 \newcommandx{\cmdmthparelm}[2][2=]
612   {\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] =  $NewName_{sub}^{sub}[par]$ 
613 \newcommandx{\cmdmthoparelm}[2][2=]
614   {\usrmth{#1}{Elm}{oparelm}[#2]}

```

```

615 %%*****%

\cmdmthsymelm ... to do!
    • \cmdmthsymelm{cmdName};
      \cmdNameSym[sub][sub][ext] = cmdNamesubsubext
      \cmdNameElm[sub][sub][ext] = cmdNamesubsubext
    • \cmdmthsymelm{cmdName}[NewName];
      \cmdNameSym[sub][sub][ext] = NewNamesubsubext
      \cmdNameElm[sub][sub][ext] = NewNamesubsubext
616 \newcommandx{\cmdmthsymelm}[2][2=]
617   {\cmdmthsym{#1}[#2]}
618   \cmdmthelm{#1}[#2]}

\cmdmthargsymelm ... to do!
    • \cmdmthargsymelm{cmdName};
      \cmdNameSym[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
      \cmdNameElm[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
    • \cmdmthargsymelm{cmdName}[NewName];
      \cmdNameSym[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
      \cmdNameElm[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
619 \newcommandx{\cmdmthargsymelm}[2][2=]
620   {\cmdmthargsym{#1}[#2]}
621   \cmdmthargelm{#1}[#2]}

\cmdmthoargsymelm ... to do!
    • \cmdmthoargsymelm{cmdName};
      \cmdNameSym[sub][sub][arg] = cmdNamesubsub(arg)
      \cmdNameElm[sub][sub][arg] = cmdNamesubsub(arg)
    • \cmdmthoargsymelm{cmdName}[NewName];
      \cmdNameSym[sub][sub][arg] = NewNamesubsub(arg)
      \cmdNameElm[sub][sub][arg] = NewNamesubsub(arg)
622 \newcommandx{\cmdmthoargsymelm}[2][2=]
623   {\cmdmthoargsym{#1}[#2]}
624   \cmdmthoargelm{#1}[#2]}

\cmdmthparsymelm ... to do!
    • \cmdmthparsymelm{cmdName};
      \cmdNameSym[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
      \cmdNameElm[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
    • \cmdmthparsymelm{cmdName}[NewName];
      \cmdNameSym[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
      \cmdNameElm[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
625 \newcommandx{\cmdmthparsymelm}[2][2=]
626   {\cmdmthparsym{#1}[#2]}
627   \cmdmthparelm{#1}[#2]}

\cmdmthoparsymelm ... to do!
    • \cmdmthoparsymelm{cmdName};
      \cmdNameSym[sub][sub][par] = cmdNamesubsub[par]
      \cmdNameElm[sub][sub][par] = cmdNamesubsub[par]
    • \cmdmthoparsymelm{cmdName}[NewName];
      \cmdNameSym[sub][sub][par] = NewNamesubsub[par]
      \cmdNameElm[sub][sub][par] = NewNamesubsub[par]
628 \newcommandx{\cmdmthoparsymelm}[2][2=]
629   {\cmdmthoparsym{#1}[#2]}
630   \cmdmthoparelm{#1}[#2]}

631 %%*****%

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

```

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

```
632 %% Style for \LaTeX Operators
633 \cmdmth{luop}\newcommand{\mthstyluop}[1]{\textstyle\mathop{\#1}}
634 \cmdmth{lbop}\newcommand{\mthstylbop}[1]{\textstyle\mathbin{\#1}}
```

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

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

```
635 \newcommandx{\cmdmthluop}[2][2=]
636   {\usrmth{\#1}\{UOp\}\{luop\}[\#2]}
637 \newcommandx{\cmdmthlbop}[2][2=]
638   {\usrmth{\#1}\{BOp\}\{lbop\}[\#2]}
```

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

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

```
639 %% Style for \LaTeX Relations
640 \cmdmth{lrel}\newcommand{\mthstylrel}{\mathrel}
```

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

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

```
641 \newcommandx{\cmdmthlrel}[2][2=]
642   {\usrmth{\#1}\{Rel\}\{lrel\}[\#2]}
```

```
643 %%*****%
```

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

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

```
644 %% Style for Sentences
645 \cmdmthall{snt}\newcommand{\mthstysnt}{\mathsf}
```

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

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

```
646 \seqoflet{\Snt}{\mthsnt}
```

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

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

```
647 \newcommandx{\cmdmthsnt}[2][2=]
648   {\usrmth{\#1}\{Snt\}\{snt\}[\#2]}
```

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

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

649 `\newcommandx{\cmdmthargsnt}[2][2=]`
650 `{\usrmth{#1}{Snt}{argsnt}{#2}}`

`\cmdmthoargsnt` ... to do!

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

651 `\newcommandx{\cmdmthoargsnt}[2][2=]`
652 `{\usrmth{#1}{Snt}{oargsnt}{#2}}`

`\cmdmthparsnt` ... to do!

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

653 `\newcommandx{\cmdmthparsnt}[2][2=]`
654 `{\usrmth{#1}{Snt}{parsnt}{#2}}`

`\cmdmthoparsnt` ... to do!

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

655 `\newcommandx{\cmdmthoparsnt}[2][2=]`
656 `{\usrmth{#1}{Snt}{oparsnt}{#2}}`

`\mthfrm, ...` ... to do!

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

657 `%% Style for Formulae`
658 `\cmdmthall{frm}\newcommand{\mthstyfrm}{\mathit}`

`\aFrm, ...` ... to do!

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

659 `\seqoflet{Frm}{mthfrm}`

`\cmdmthfrm` ... to do!

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

660 `\newcommandx{\cmdmthfrm}[2][2=]`
661 `{\usrmth{#1}{Frm}{frm}{#2}}`

`\cmdmthargfrm` ... to do!

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

```

662 \newcommandx{\cmdmthargfrm}[2][2=]
663   {\usrmth{#1}{Frm}{argfrm}{#2}}

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

\cmdmthparfrm ... to do!
  • \cmdmthparfrm{cmdName};
    \cmdNameFrm[sub][sub][ext1]{par}[ext2] =  $cmdName_{sub}^{sub}ext1[par]ext2$ 
  • \cmdmthparfrm{cmdName}[NewName];
    \cmdNameFrm[sub][sub][ext1]{par}[ext2] =  $NewName_{sub}^{sub}ext1[par]ext2$ 
666 \newcommandx{\cmdmthparfrm}[2][2=]
667   {\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] =  $NewName_{sub}^{sub}[par]$ 
668 \newcommandx{\cmdmthoparfrm}[2][2=]
669   {\usrmth{#1}{Frm}{oparfrm}{#2}}

670 %%*****%

\mthmat, ... ... to do!
  • \mthmat{Name}[sub][sup][Ext] =  $\mathbf{Name}_{sub}^{sup}Ext$ 
  • \mthargmat{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathbf{Name}_{sub}^{sup}Ext1(Arg)Ext2$ 
  • \mthparmat{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\mathbf{Name}_{sub}^{sup}Ext1[Par]Ext2$ 
671 %% Style for Matrices
672 \cmdmthall{mat}\newcommand{\mthstymat}[1]{\boldsymbol{\mathsf{#1}}}

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

\cmdmthmat ... to do!
  • \cmdmthmat{cmdName};
    \cmdNameMat[sub][sub][ext] =  $\mathbf{cmdName}_{sub}^{sub}ext$ 
  • \cmdmthmat{cmdName}[NewName];
    \cmdNameMat[sub][sub][ext] =  $\mathbf{NewName}_{sub}^{sub}ext$ 
674 \newcommandx{\cmdmthmat}[2][2=]
675   {\usrmth{#1}{Mat}{mat}{#2}}

\cmdmthargmat ... to do!
  • \cmdmthargmat{cmdName};
    \cmdNameMat[sub][sub][ext1]{arg}[ext2] =  $\mathbf{cmdName}_{sub}^{sub}ext1(arg)ext2$ 
  • \cmdmthargmat{cmdName}[NewName];
    \cmdNameMat[sub][sub][ext1]{arg}[ext2] =  $\mathbf{NewName}_{sub}^{sub}ext1(arg)ext2$ 
676 \newcommandx{\cmdmthargmat}[2][2=]
677   {\usrmth{#1}{Mat}{argmat}{#2}}

```

```

\cmdmthoargmat ... to do!
    • \cmdmthoargmat{cmdName};
      \cmdNameMat[sub][sub][arg] = cmdNamesub(arg)
    • \cmdmthoargmat{cmdName}[NewName];
      \cmdNameMat[sub][sub][arg] = NewNamesub(arg)
678 \newcommandx{\cmdmthoargmat}[2][2=]
679   {\usrmth{#1}{Mat}{oargmat}{#2}}

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

\cmdmthoparmat ... to do!
    • \cmdmthoparmat{cmdName};
      \cmdNameMat[sub][sub][par] = cmdNamesub[par]
    • \cmdmthoparmat{cmdName}[NewName];
      \cmdNameMat[sub][sub][par] = NewNamesub[par]
682 \newcommandx{\cmdmthoparmat}[2][2=]
683   {\usrmth{#1}{Mat}{oparmat}{#2}}

\mthvec, ... ... to do!
    • \mthvec{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargvec{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
    • \mthparvec{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
684 %% Style for Vectors
685 \cmdmthall{vec}\newcommand{\mthstyvec}[1]{\boldsymbol{\mathit{#1}}}

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

\cmdmthvec ... to do!
    • \cmdmthvec{cmdName};
      \cmdNameVec[sub][sub][ext] = cmdNamesubsubext
    • \cmdmthvec{cmdName}[NewName];
      \cmdNameVec[sub][sub][ext] = NewNamesubsubext
687 \newcommandx{\cmdmthvec}[2][2=]
688   {\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
689 \newcommandx{\cmdmthargvec}[2][2=]
690   {\usrmth{#1}{Vec}{argvec}{#2}}

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

```

- `\cmdmthoargvec{cmdName}[NewName];`
`\cmdNameVec[sub][sub][arg] = $NewName_{sub}^{sub}(arg)$`

691 `\newcommandx{\cmdmthoargvec}[2][2=]`
692 `{\usrmth{#1}{Vec}{oargvec}{#2}}`

`\cmdmthparvec` ... to do!

- `\cmdmthparvec{cmdName};`
`\cmdNameVec[sub][sub][ext1]{par}[ext2] = $cmdName_{sub}^{sub}ext1[par]ext2$`
- `\cmdmthparvec{cmdName}[NewName];`
`\cmdNameVec[sub][sub][ext1]{par}[ext2] = $NewName_{sub}^{sub}ext1[par]ext2$`

693 `\newcommandx{\cmdmthparvec}[2][2=]`
694 `{\usrmth{#1}{Vec}{parvec}{#2}}`

`\cmdmthoparvec` ... to do!

- `\cmdmthoparvec{cmdName};`
`\cmdNameVec[sub][sub][par] = $cmdName_{sub}^{sub}[par]$`
- `\cmdmthoparvec{cmdName}[NewName];`
`\cmdNameVec[sub][sub][par] = $NewName_{sub}^{sub}[par]$`

695 `\newcommandx{\cmdmthoparvec}[2][2=]`
696 `{\usrmth{#1}{Vec}{oparvec}{#2}}`

697 `\fi`
698 `%%*****`
699 `%%*****`
700 `%%** Elementary Macros for Text *****`
701 `%%*****`
702 `\iftext@`
703 `%%** Latin Abbreviations *****`

`\adhoc` • `\adhoc = ad hoc`

704 `\cmdtxtabr{adhoc}[ad hoc]`

`\afortiori` • `\afortiori = a fortiori`

705 `\cmdtxtabr{afortiori}[a fortiori]`

`\apriori` • `\apriori = a priori`

706 `\cmdtxtabr{apriori}[a priori]`

`\aposteriori` • `\aposteriori = a posteriori`

707 `\cmdtxtabr{aposteriori}[a posteriori]`

`\cf` • `\cf = cf.`

708 `\cmdtxtabr{cf}[cf.]`

`\dedicto` • `\dedicto = de dicto`

709 `\cmdtxtabr{dedicto}[de dicto]`

`\defacto` • `\defacto = de facto`

710 `\cmdtxtabr{defacto}[de facto]`

`\dere` • `\dere = de re`

711 `\cmdtxtabr{dere}[de re]`

`\divideetimpera` • `\divideetimpera = divide et impera`

712 `\cmdtxtabr{divideetimpera}[divide et impera]`

`\eg` • `\eg = e.g.`

713 `\cmdtxtabr{eg}[e.g.]`

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

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

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

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

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

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

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

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

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

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

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

`\viz` • `\viz = viz.`
725 `\cmdtxtabr{viz}[viz.]`
726 `%%*****%`

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

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

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

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

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

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

`\Divideetimperaper` • `\Divideetimperaper = Divide et impera`
733 `\cmdtxtabr{Divideetimperaper}[Divide et impera]`

`\Eg` • `\Eg = E.g.`

734 `\cmdtxtabr{Eg}[E.g.]`

`\Errata` • `\Errata = Errata`

735 `\cmdtxtabr{Errata}`

`\Erratum` • `\Erratum = Erratum`

736 `\cmdtxtabr{Erratum}`

`\Mutatismutandis` • `\Mutatismutandis = Mutatis mutandis`

737 `\cmdtxtabr{Mutatismutandis}[Mutatis mutandis]`

`\Percontra` • `\Percontra = Per contra`

738 `\cmdtxtabr{Percontra}[Per contra]`

`\Primafacie` • `\Primafacie = Prima facie`

739 `\cmdtxtabr{Primafacie}[Prima facie]`

`\Viceversa` • `\Viceversa = Vice versa`

740 `\cmdtxtabr{Viceversa}[Vice versa]`

741 `%%** Italian Abbreviations *****%`

...

742 `%%*****%`

...

743 `%%** French Abbreviations *****%`

`\naif` • `\naif = naïf`

744 `\cmdtxtabr{naif}[na\{i}f]`

`\naive` • `\naive = naïve`

745 `\cmdtxtabr{naive}[na\{i}ve]`

`\role` • `\role = rôle`

746 `\cmdtxtabr{role}[r\{o}le]`

747 `%%*****%`

`\Role` • `\Role = Rôle`

748 `\cmdtxtabr{Role}[R\{o}le]`

749 `%%** English Abbreviations *****%`

`\aka` • `\aka = a.k.a.`

750 `\cmdtxtabr{aka}[a.k.a.]`

`\contd` • `\contd = contd.`

751 `\cmdtxtabr{contd}[contd.]`

`\iff` • `\iff = iff`

752 `\cmdtxtabr{iff}`

`\stx` • `\stx = s.t.`

753 `\cmdtxtabr{stx}[s.t.]`

`\resp` • `\resp = resp.`

754 `\cmdtxtabr{resp}[resp.]`

```

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

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

757 %*****

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

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

760 \fi
761 %*****

762 %*****
763 %** Elementary Macros for Math *****
764 %*****
765 \ifmath@
766 %** General Notation *****

\defeq, \seteq ...
767 \DeclareRobustCommand{\defeq}
768   {\mthlrel{\triangleq}}
769 \DeclareRobustCommand{\seteq}
770   {\mthlrel{:=}}
771 %*****

\implies, ... ...
772 \DeclareRobustCommand{\implies}
773   {\mthlrel{\rightarrow}}
774 \DeclareRobustCommand{\notimplies}
775   {\mthlrel{\not\rightarrow}}

\implied, ... ...
776 \DeclareRobustCommand{\implied}
777   {\mthlrel{\leftarrow}}
778 \DeclareRobustCommand{\notimplied}
779   {\mthlrel{\not\leftarrow}}

\coimplies, ... ...
780 \DeclareRobustCommand{\coimplies}
781   {\mthlrel{\Leftrightarrow}}
782 \DeclareRobustCommand{\notcoimplies}
783   {\mthlrel{\not\!\Leftrightarrow}}
784 %*****

\cmodels, ... ...
785 \DeclareRobustCommand{\cmodels}
786   {\mthlrel{\models}}
787 \DeclareRobustCommand{\notcmodels}
788   {\mthlrel{\not\models}}

\cequiv, ... ...
789 \DeclareRobustCommand{\cequiv}
790   {\mthlrel{\equiv}}
791 \DeclareRobustCommand{\notcequiv}
792   {\mthlrel{\not\equiv}}

```

```

793 %%*****%

\dual, \adj, ... ...
794 \DeclareRobustCommand{\dual}[1]
795   {\mth{\overline{#1}}}
796 \DeclareRobustCommand{\adj}[1]
797   {\mth{\mathring{#1}}}
798 \DeclareRobustCommand{\der}[1]
799   {\mth{\widehat{#1}}}
800 \DeclareRobustCommand{\trn}[1]
801   {\mth{\widetilde{#1}}}

\vec ...
802 \DeclareRobustCommand{\vec}[1]
803   {\mth{\mathaccent"017E{#1}}}

804 %%*****%

\enumeration, ... ...
805 \varcmd{enumeration}{\mth}{\{,\}}{\{,\}}{\{,\}}
806 \varcmd{enumerationx}{\mth}{\{;\}}{\{;\}}{\{;\}}

\sequence, ... ...
807 \varcmd{sequence}{\mth}{\left[\{,\}\right]}{\{,\}}{\{,\}}
808 \varcmd{sequence1}{\mth}{\left[\{,\}\right.]}{\{,\}}{\{,\}}
809 \varcmd{sequencer}{\mth}{\left.\{,\}\right]}{\{,\}}{\{,\}}
810 \varcmd{sequencex}{\mth}{\left[\{;\}\right]}{\{;\}}{\{;\}}
811 \varcmd{sequencex1}{\mth}{\left[\{;\}\right.]}{\{;\}}{\{;\}}
812 \varcmd{sequencexr}{\mth}{\left.\{;\}\right]}{\{;\}}{\{;\}}

\tuple, ... ...
813 \varcmd{tuple}{\mth}{\left\langle\{,\}\right\rangle}{\{,\}}{\{,\}}
814 \varcmd{tuple1}{\mth}{\left\langle\{,\}\right.]}{\{,\}}{\{,\}}
815 \varcmd{tupler}{\mth}{\left.\{,\}\right\rangle}{\{,\}}{\{,\}}
816 \varcmd{tuplex}{\mth}{\left\langle\{;\}\right\rangle}{\{;\}}{\{;\}}
817 \varcmd{tuplex1}{\mth}{\left\langle\{;\}\right.]}{\{;\}}{\{;\}}
818 \varcmd{tuplexr}{\mth}{\left.\{;\}\right\rangle}{\{;\}}{\{;\}}

819 %%** Sets *****%

\set, ... ...
820 \DeclareRobustCommand{\set}[2]
821   {\argmid{\left\lbrace}{\argsep{#1}{\,\middle\vert\,}}{#2}{\right\rbrace}}
822 \DeclareRobustCommand{\setl}[1]
823   {\argmid{\left\lbrace}{#1}{\,\right\vert\!}}
824 \DeclareRobustCommand{\setr}[1]
825   {\argmid{\left.\right\lbrace}{#1}{\right\vert\!}}

\card ...
826 \DeclareRobustCommand{\card}[1]
827   {\mth{\argmid{\lvert}{#1}{\rvert}}}

\pow ...
828 \DeclareRobustCommand{\pow}[1]
829   {\mth{2^{\defval{#1}{\cdot}}}}

\denot ...
830 \DeclareRobustCommand{\denot}[1]
831   {\mth{\argmid{\llbracket}{#1}{\rrbracket}}}

832 %%** Relations *****%

```

```

\emptyrel ...
833 \DeclareRobustCommand{\emptyrel}
834   {\mth{\varnothing}}

835 %%*****%

\dom, \cod, ... ...
836 \DeclareRobustCommand{\dom}
837   {\mthargfun{dom}}
838 \DeclareRobustCommand{\cod}
839   {\mthargfun{cod}}
840 \DeclareRobustCommand{\rng}
841   {\mthargfun{rng}}
842 \DeclareRobustCommand{\img}
843   {\mthargfun{img}}

844 %%*****%

\prj ...
845 \DeclareRobustCommand{\prj}
846   {\mthargfun{prj}}

\rst ...
847 \DeclareRobustCommand{\rst}
848   {\mthlbop{\upharpoonright}}

\cmp ...
849 \DeclareRobustCommand{\cmp}
850   {\mthlbop{\circ}}

851 %%** Functions *****%

\emptyfun ...
852 \DeclareRobustCommand{\emptyfun}
853   {\mth{\varnothing}}

854 %%*****%

\pto, \pmapsto ...
855 \DeclareMathOperator{\pto}
856   {\ensuremath{\rightharpoonup}}
857 \DeclareMathOperator{\pmapsto}
858   {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize$\llcorner$}}}%
859     \kern-1.5ex\rightharpoonup}}

860 %%*****%

\fix, \ifp, ... ...
861 \DeclareRobustCommand{\fix}
862   {\mthfun{fix}}
863 \DeclareRobustCommand{\ifp}
864   {\mthfun{ifp}}
865 \DeclareRobustCommand{\lfp}
866   {\mthfun{lfp}}
867 \DeclareRobustCommand{\gfp}
868   {\mthfun{gfp}}

869 %%*****%

\Aomega, \AOmega ...
870 \DeclareRobustCommand{\Aomega}
871   {\mthargset{\omega}}
872 \DeclareRobustCommand{\AOmega}
873   {\mthargset{\Omega}}

```

```

\Atheta, \Atheta ...
874 \DeclareRobustCommand{\Atheta}
875   {\mthargset{\theta}}
876 \DeclareRobustCommand{\Atheta}
877   {\mthargset{\Theta}}

\Aomicron, ... ...
878 \DeclareRobustCommand{\Aomicron}
879   {\mthargset{\omicron}}
880 \DeclareRobustCommand{\AOmicron}
881   {\mthargset{\Omicron}}

882 %** Numbers *****%

\SetB ...
883 \DeclareRobustCommand{\SetB}
884   {\mthset[mathbb]{B}}

\SetF ...
885 \DeclareRobustCommand{\SetF}
886   {\mthset[mathbb]{F}}

\SetN, ... ...
887 \DeclareRobustCommand{\SetN}
888   {\mthset[mathbb]{N}}
889 \DeclareRobustCommand{\SetNI}[1] []
890   {\SetN[\infty #1]}

\SetZ, ... ...
891 \DeclareRobustCommand{\SetZ}
892   {\mthset[mathbb]{Z}}
893 \DeclareRobustCommand{\SetZI}[1] []
894   {\SetZ[\pm\infty #1]}
895 \DeclareRobustCommand{\SetZPI}[1] []
896   {\SetZ[+\infty #1]}
897 \DeclareRobustCommand{\SetZNI}[1] []
898   {\SetZ[-\infty #1]}

\SetQ, ... ...
899 \DeclareRobustCommand{\SetQ}
900   {\mthset[mathbb]{Q}}
901 \DeclareRobustCommand{\SetQI}[1] []
902   {\SetQ[\pm\infty #1]}
903 \DeclareRobustCommand{\SetQPI}[1] []
904   {\SetQ[+\infty #1]}
905 \DeclareRobustCommand{\SetQNI}[1] []
906   {\SetQ[-\infty #1]}

\SetR, ... ...
907 \DeclareRobustCommand{\SetR}
908   {\mthset[mathbb]{R}}
909 \DeclareRobustCommand{\SetRI}[1] []
910   {\SetR[\pm\infty #1]}
911 \DeclareRobustCommand{\SetRPI}[1] []
912   {\SetR[+\infty #1]}
913 \DeclareRobustCommand{\SetRNI}[1] []
914   {\SetR[-\infty #1]}

\SetC, ... ...
915 \DeclareRobustCommand{\SetC}
916   {\mthset[mathbb]{C}}
917 \DeclareRobustCommand{\SetCI}[1] []
918   {\SetC[\infty #1]}

```

```

919 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\num, ... ...
920 \DeclareRobustCommand{\num}[1]
921   {\mth{[#1]}}
922 \DeclareRobustCommand{\numcc}[2]
923   {\mth{[\argsep{#1}{,}{#2}]}}
924 \DeclareRobustCommand{\numco}[2]
925   {\mth{[\argsep{#1}{,}{#2})]}}
926 \DeclareRobustCommand{\numoc}[2]
927   {\mth{(\argsep{#1}{,}{#2})]}}
928 \DeclareRobustCommand{\numoo}[2]
929   {\mth{(\argsep{#1}{,}{#2}))}}

930 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\floor, \ceil ...
931 \DeclareRobustCommand{\floor}[1]
932   {\mth{\argmid{\left\lfloor}{#1}{\right\rfloor}}}
933 \DeclareRobustCommand{\ceil}[1]
934   {\mth{\argmid{\left\lceil}{#1}{\right\rceil}}}

935 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\arg ...
936 \DeclareRobustCommand{\arg}
937   {\mthfun{arg}}

\evn, \odd ...
938 \DeclareRobustCommand{\evn}
939   {\mthfun{evn}}
940 \DeclareRobustCommand{\odd}
941   {\mthfun{odd}}

\bst, ... ...
942 \DeclareRobustCommand{\bst}
943   {\mthfun{bst}}
944 \DeclareRobustCommand{\argbst}
945   {\mthfun{arg bst}}

\min, \max, ... ...
946 \DeclareRobustCommand{\min}
947   {\mthfun{min}}
948 \DeclareRobustCommand{\max}
949   {\mthfun{max}}
950 \DeclareRobustCommand{\argmin}
951   {\mthfun{arg min}}
952 \DeclareRobustCommand{\argmax}
953   {\mthfun{arg max}}

\inf, \sup ...
954 \DeclareRobustCommand{\inf}
955   {\mthfun{inf}}
956 \DeclareRobustCommand{\sup}
957   {\mthfun{sup}}

958 %** Sequences %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\emptyseq ...
959 \DeclareRobustCommand{\emptyseq}
960   {\mth{\varepsilon}}

```

```

\fst, \lst ...

961 \DeclareRobustCommand{\fst}
962   {\mthargfun{fst}}
963 \DeclareRobustCommand{\lst}
964   {\mthargfun{lst}}

965 \fi
966 %*****%
967 %*****%
968 %** Macros for Computational-Complexity Classes *****%
969 %*****%
970 \ifcom@

\defcomcls ... to do!

  • \defcomcls{CompClass};

    \CompClass[sub][sup][ext] = COMPCLASSSUPSUBEXT
    \CoCompClass[sub][sup][ext] = CoCOMPCLASSSUPSUBEXT
    \CompClassE[sub][sup][ext] = COMPCLASS-EASYSUPSUBEXT
    \CoCompClassE[sub][sup][ext] = CoCOMPCLASS-EASYSUPSUBEXT
    \CompClassH[sub][sup][ext] = COMPCLASS-HARDSUPSUBEXT
    \CoCompClassH[sub][sup][ext] = CoCOMPCLASS-HARDSUPSUBEXT
    \CompClassC[sub][sup][ext] = COMPCLASS-COMPLETESUPSUBEXT
    \CoCompClassC[sub][sup][ext] = CoCOMPCLASS-COMPLETESUPSUBEXT

    \NCompClass[sub][sup][ext] = NCOMPCLASSSUPSUBEXT
    \CoNCompClass[sub][sup][ext] = CoNCOMPCLASSSUPSUBEXT
    \NCompClassE[sub][sup][ext] = NCOMPCLASS-EASYSUPSUBEXT
    \CoNCompClassE[sub][sup][ext] = CoNCOMPCLASS-EASYSUPSUBEXT
    \NCompClassH[sub][sup][ext] = NCOMPCLASS-HARDSUPSUBEXT
    \CoNCompClassH[sub][sup][ext] = CoNCOMPCLASS-HARDSUPSUBEXT
    \NCompClassC[sub][sup][ext] = NCOMPCLASS-COMPLETESUPSUBEXT
    \CoNCompClassC[sub][sup][ext] = CoNCOMPCLASS-COMPLETESUPSUBEXT

    \UCompClass[sub][sup][ext] = UCOMPCLASSSUPSUBEXT
    \CoUCompClass[sub][sup][ext] = CoUCOMPCLASSSUPSUBEXT
    \UCompClassE[sub][sup][ext] = UCOMPCLASS-EASYSUPSUBEXT
    \CoUCompClassE[sub][sup][ext] = CoUCOMPCLASS-EASYSUPSUBEXT
    \UCompClassH[sub][sup][ext] = UCOMPCLASS-HARDSUPSUBEXT
    \CoUCompClassH[sub][sup][ext] = CoUCOMPCLASS-HARDSUPSUBEXT
    \UCompClassC[sub][sup][ext] = UCOMPCLASS-COMPLETESUPSUBEXT
    \CoUCompClassC[sub][sup][ext] = CoUCOMPCLASS-COMPLETESUPSUBEXT

    \ACompClass[sub][sup][ext] = ACOMPCLASSSUPSUBEXT
    \CoACompClass[sub][sup][ext] = CoACOMPCLASSSUPSUBEXT
    \ACompClassE[sub][sup][ext] = ACOMPCLASS-EASYSUPSUBEXT
    \CoACompClassE[sub][sup][ext] = CoACOMPCLASS-EASYSUPSUBEXT
    \ACompClassH[sub][sup][ext] = ACOMPCLASS-HARDSUPSUBEXT
    \CoACompClassH[sub][sup][ext] = CoACOMPCLASS-HARDSUPSUBEXT
    \ACompClassC[sub][sup][ext] = ACOMPCLASS-COMPLETESUPSUBEXT
    \CoACompClassC[sub][sup][ext] = CoACOMPCLASS-COMPLETESUPSUBEXT

  • \defcomcls{CompClass}{NewClass};

    \CompClass[sub][sup][ext] = NEWCLASSSUPSUBEXT
    \CoCompClass[sub][sup][ext] = CoNEWCLASSSUPSUBEXT
    \CompClassE[sub][sup][ext] = NEWCLASS-EASYSUPSUBEXT
    \CoCompClassE[sub][sup][ext] = CoNEWCLASS-EASYSUPSUBEXT
    \CompClassH[sub][sup][ext] = NEWCLASS-HARDSUPSUBEXT
    \CoCompClassH[sub][sup][ext] = CoNEWCLASS-HARDSUPSUBEXT
    \CompClassC[sub][sup][ext] = NEWCLASS-COMPLETESUPSUBEXT
    \CoCompClassC[sub][sup][ext] = CoNEWCLASS-COMPLETESUPSUBEXT

    \NCompClass[sub][sup][ext] = NNEWCLASSSUPSUBEXT
    \CoNCompClass[sub][sup][ext] = CoNNEWCLASSSUPSUBEXT

```



```

\NCompClassE[sub][sup][ext] = NNEWCLASS-EASYSUPSUBEXT
\CoNCompClassE[sub][sup][ext] = CoNNEWCLASS-EASYSUPSUBEXT
\NCompClassH[sub][sup][ext] = NNEWCLASS-HARDSUPSUBEXT
\CoNCompClassH[sub][sup][ext] = CoNNEWCLASS-HARDSUPSUBEXT
\NCompClassC[sub][sup][ext] = NNEWCLASS-COMPLETESUPSUBEXT
\CoNCompClassC[sub][sup][ext] = CoNNEWCLASS-COMPLETESUPSUBEXT

```

```

\UCompClass[sub][sup][ext] = UNEWCLASSSUPSUBEXT
\CoUCompClass[sub][sup][ext] = CoUNEWCLASSSUPSUBEXT
\UCompClassE[sub][sup][ext] = UNEWCLASS-EASYSUPSUBEXT
\CoUCompClassE[sub][sup][ext] = CoUNEWCLASS-EASYSUPSUBEXT
\UCompClassH[sub][sup][ext] = UNEWCLASS-HARDSUPSUBEXT
\CoUCompClassH[sub][sup][ext] = CoUNEWCLASS-HARDSUPSUBEXT
\UCompClassC[sub][sup][ext] = UNEWCLASS-COMPLETESUPSUBEXT
\CoUCompClassC[sub][sup][ext] = CoUNEWCLASS-COMPLETESUPSUBEXT

```

```

\ACompClass[sub][sup][ext] = ANEWCLASSSUPSUBEXT
\CoACompClass[sub][sup][ext] = CoANEWCLASSSUPSUBEXT
\ACompClassE[sub][sup][ext] = ANEWCLASS-EASYSUPSUBEXT
\CoACompClassE[sub][sup][ext] = CoANEWCLASS-EASYSUPSUBEXT
\ACompClassH[sub][sup][ext] = ANEWCLASS-HARDSUPSUBEXT
\CoACompClassH[sub][sup][ext] = CoANEWCLASS-HARDSUPSUBEXT
\ACompClassC[sub][sup][ext] = ANEWCLASS-COMPLETESUPSUBEXT
\CoACompClassC[sub][sup][ext] = CoANEWCLASS-COMPLETESUPSUBEXT

```

```

971 \newcommandx{\defcomcls}[2][2=]
972   {\defcomclssem{#1}{\defval{#2}{#1}}}%
973   \defcomclssem{#1}{\defval{#2}{#1}}[Co]}
974 \newcommandx{\defcomclsred}[3][3=]
975   {\defcomclsred{#3#1}{#2}{#3}}%
976   \defcomclsred{#3N#1}{#2}{#3N}}%
977   \defcomclsred{#3U#1}{#2}{#3U}}%
978   \defcomclsred{#3A#1}{#2}{#3A}}%
979 \newcommandx{\defcomclscmd}[3][3=]
980   {\defcomclscmd{#1}{#2}{#3}}%
981   \defcomclscmd{#1E}{#2}{#3}[-easy]}%
982   \defcomclscmd{#1H}{#2}{#3}[-hard]}%
983   \defcomclscmd{#1C}{#2}{#3}[-complete]}%
984 \newcommandx{\defcomclscmd}[4][3=, 4=]
985   {\csdef{#1}{\txtcom{#3#2#4}}}%

```

\defcomhrc ... to do!

- \defcomhrc{CompHierarchy};

```
CompHierarchy[sub][sup][ext] = COMPHIERARCHYSUPSUBEXT
```

- \defcomhrc{CompHierarchy}[NewHierarchy];

```
CompHierarchy[sub][sup][ext] = NEWHIERARCHYSUPSUBEXT
```

```

986 \newcommandx{\defcomhrc}[2][2=]
987   {\csdef{#1}{\txtcom{\defval{#2}{#1}}}%
988   %%*****%

```

\Easy, \Hard, ...

```

989 \cmdtxtcom{Easy}
990 \cmdtxtcom{Hard}
991 \cmdtxtcom{Complete}
992 %%*****%

```

\Time, ...

- \Time[sub][sup][ext] = TIME^{SUP}_{SUB}EXT
- \TimeE[sub][sup][ext] = TIME-EASY^{SUP}_{SUB}EXT
- \TimeH[sub][sup][ext] = TIME-HARD^{SUP}_{SUB}EXT
- \TimeC[sub][sup][ext] = TIME-COMPLETE^{SUP}_{SUB}EXT


```

1003 %%*****%
\PH      • \PH[sub][sup][ext] = PHSUBEXT
1004 \defcomhrc{PH}

...

1005 \fi
1006 %%*****%
1007 %%*****%
1008 %** Macros for Games *****%
1009 %%*****%
1010 \ifgam@
1011 %** Logic Games *****%

\SATG, ... ...
1012 %% Satisfiability Games
1013 \cmdtxtoparname{SATG}[Sat]
1014
1015 %% Validity Games
1016 \cmdtxtoparname{VALG}[Val]
1017
1018 %% Evaluation Games
1019 \cmdtxtoparname{EVLG}[Evl]
1020
1021 %% Synthesis Games
1022 \cmdtxtoparname{SYNG}[Syn]
1023
1024 %% Model-Checking Games
1025 \cmdtxtoparname{MCG}[MC]
1026
1027 %% Ehrenfeucht-Fraisse Games
1028 \cmdtxtoparname{EFG}[EF]

1029 %** Syntax *****%

\PlrSym, \OppSym ...
1030 \newcommand{\plrSym}{E}
1031 \cmdmthsym{Plr}[\plrSym]
1032 \newcommand{\oppsym}{A}
1033 \cmdmthsym{Opp}[\oppsym]

\ArenaName, ... ...
1034 \newcommand{\arenaname}{A}
1035 \usrmthlatupp{Arena}{Name}{name}[\arenaname]

\PosSet, ... ...
1036 \newcommand{\possym}{v}
1037 \newcommand{\posset}{Ps}
1038 \cmdmthsetext{Pos}[\posset][\possym]
1039 \cmdmthsymelm{ipos}[\possym_{I}]
1040 \cmdmthsymelm{fpos}[\possym_{F}]
1041 \cmdmthset{PPos}[\posset_{\PlrSym}]
1042 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1043 \cmdmthset{OPos}[\posset_{\OppSym}]
1044 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\PlrFun ...
1045 \newcommand{\plrFun}{pl}
1046 \cmdmthfun{plr}[\plrFun]

\MovRel ...
1047 \newcommand{\movrel}{Mv}
1048 \cmdmthrel{Mov}[\movrel]

```

```

\GameName, ... ...
1049 \newcommand{\gamename}{\Game}
1050 \usrnthlatupp{Game}{Name}{name}[\gamename]

\WinSet ...
1051 \newcommand{\winset}{\Wn}
1052 \cmdmthset{Win}[\winset]

\ObsSet, \obsFun ...
1053 \newcommand{\obsset}{\Ob}
1054 \cmdmthset{Obs}[\obsset]
1055 \cmdmthfun{obs}

1056 %** Semantics *****%%

\PthSet, \pthFun ...
1057 \newcommand{\pthsym}{\pi}
1058 \newcommand{\pthset}{Pth}
1059 \cmdmthsetext{Pth}[\pthset][\pthsym]
1060 \cmdmthfun{pth}

\HstSet, ... ...
1061 \newcommand{\hstsym}{\rho}
1062 \newcommand{\hstset}{Hst}
1063 \cmdmthsetext{Hst}[\hstset][\hstsym]
1064 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1065 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1066 \cmdmthset{OHst}[\hstset_{\OppSym}]
1067 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1068 \cmdmthfun{hst}

\PlaySet, \playFun ...
1069 \newcommand{\playsym}{\pi}
1070 \newcommand{\playset}{Play}
1071 \cmdmthsetext{Play}[\playset][\playsym]
1072 \cmdmthfun{play}

\StrSet, ... ...
1073 \newcommand{\strsym}{\sigma}
1074 \newcommand{\strset}{Str}
1075 \cmdmthsetext{Str}[\strset][\strsym]
1076 \cmdmthset{PStr}[\strset_{\PlrSym}]
1077 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1078 \cmdmthset{OStr}[\strset_{\OppSym}]
1079 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1080 \newcommand{\prfsym}{\xi}
1081 \newcommand{\prfset}{Prf}
1082 \cmdmthsetext{Prf}[\prfset][\prfsym]

\preFun, \sucFun ...
1083 \newcommand{\prefun}{pre}
1084 \cmdmthoargfun{pre}[\prefun]
1085 \newcommand{\sucfun}{suc}
1086 \cmdmthoargfun{suc}[\sucfun]

\entFun, \escFun ...
1087 \newcommand{\entfun}{ent}
1088 \cmdmthoargfun{ent}[\entfun]
1089 \newcommand{\escfun}{esc}
1090 \cmdmthoargfun{esc}[\escfun]

```

```

\intFun, \outFun ...
1091 \newcommand{\intfun}{int}
1092 \cmdmthoargfun{int}[\intfun]
1093 \newcommand{\outfun}{out}
1094 \cmdmthoargfun{out}[\outfun]

\atrFun, \rchFun ...
1095 \newcommand{\atrfun}{atr}
1096 \cmdmthoargfun{atr}[\atrfun]
1097 \newcommand{\rchfun}{rch}
1098 \cmdmthoargfun{rch}[\rchfun]

\liftFun ...
1099 \newcommand{\liftfun}{lift}
1100 \cmdmthoargfun{lift}[\liftfun]

\solFun ...
1101 \newcommand{\solfun}{sol}
1102 \cmdmthoargfun{sol}[\solfun]

1103 %** Qualitative Games on Graph *****%%

\BG, ... ...
1104 %% Buchi Games
1105 \cmdtxtoparname{BG}
1106
1107 %% Co-Buchi Games
1108 \cmdtxtoparname{CG}
1109
1110 %% Parity Games
1111 \cmdtxtoparname{PG}
1112
1113 %% Rabin Games
1114 \cmdtxtoparname{RG}
1115
1116 %% Streett Games
1117 \cmdtxtoparname{SG}
1118
1119 %% Muller Games
1120 \cmdtxtoparname{MG}

1121 %** Syntax *****%%

\EvnSym, \OddSym ...
1122 \newcommand{\evnsym}{0}
1123 \cmdmthsym{Evnsym}[\evnsym]
1124 \newcommand{\oddsym}{1}
1125 \cmdmthsym{Oddsym}[\oddsym]

\PrtSet, \prtFun ...
1126 \newcommand{\prtsym}{p}
1127 \newcommand{\prtset}{Pr}
1128 \cmdmthsetext{Prt}[\prtset][\prtsym]
1129 \cmdmthfun{prt}[pr]

1130 %** Semantics *****%%
...
1131 %** Quantitative Games on Graph *****%%

\EG, ... ...
1132 %% Energy Games
1133 \cmdtxtoparname{EG}

```

```

1134
1135 %% Mean-Payoff Games
1136 \cmdtxttoparname{MPG}
1137
1138 %% Discounted-Payoff Games
1139 \cmdtxttoparname{DPG}

1140 %** Syntax *****%
```

\MaxSym, \MinSym ...

```

1141 \newcommand{\maxsym}{\oplus}
1142 \cmdmthsym{Max}[\maxsym]
1143 \newcommand{\minsym}{\boxminus}
1144 \cmdmthsym{Min}[\minsym]
```

\WghSet, \wghFun ...

```

1145 \newcommand{\wghsym}{w}
1146 \newcommand{\wghset}{Wg}
1147 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1148 \cmdmthfun{wgh}[wg]
```

```

1149 %** Semantics *****%
```

...

```

1150 \fi
1151 %*****%
1152 %*****%
1153 %** Macros for Logics *****%
1154 %*****%
1155 \iflog@
1156 %** Propositional Logics *****%
```

\BF, \QBF, ...

```

1157 % Boolean Formulae
1158 \cmdtxttoparname{BF}
1159
1160 % Quantified Boolean Formulae
1161 \DeclareRobustCommand{\QBF}
1162   {\{\txtname{Q}\}\BF}
1163 \DeclareRobustCommand{\EBF}
1164   {\ensuremath{\exists}\BF}
1165 \DeclareRobustCommand{\UBF}
1166   {\ensuremath{\forall}\BF}
```

```

1167 %** Syntax *****%
```

\LogSig, ...

```

1168 \newcommand{\logsig}{L}
1169 \usrmthlatupp{Log}{Sig}{sig}[\logsig]
```

\Tt, \Ff ...

```

1170 \newcommand{\ttsym}{\top}
1171 \usrmth{Tt}{\}{sym}[\ttsym]
1172 \newcommand{\ffsym}{\bot}
1173 \usrmth{Ff}{\}{sym}[\ffsym]
```

\LNeg, \LNot ...

```

1174 \newcommand{\lnegsym}{\neg}
1175 \usrmth{LNeg}{\}{luop}[\lnegsym]
1176 \newcommand{\lnotsym}{\sim}
1177 \usrmth{LNot}{\}{luop}[\lnotsym]
```



```

\LCon, \LDis ...
1178 \newcommand{\lconsym}{\land}
1179 \usrmth{LCon}{-}{\lbp}{\lconsym}
1180 \newcommand{\ldissym}{\lor}
1181 \usrmth{LDis}{-}{\lbp}{\ldissym}

\LImp, \LCoi ...
1182 \newcommand{\limpsym}{\rightarrow}
1183 \usrmth{LImp}{-}{\lbp}{\limpsym}
1184 \newcommand{\lcoisym}{\leftrightharpoonup}
1185 \usrmth{LCoi}{-}{\lbp}{\lcoisym}

\LExs, \LAll ...
1186 \newcommand{\lexssym}{\exists}
1187 \usrmth{LExs}{-}{\luop}{\lexssym}
1188 \newcommand{\lallsym}{\forall}
1189 \usrmth{LAll}{-}{\luop}{\lallsym}

\APSet, ... ...
1190 \newcommand{\apsym}{p}
1191 \newcommand{\apset}{AP}
1192 \cmdmthsetext{AP}{\apset}[\apsym]
1193 \cmdmthfun{ap}{\usrmth{ap}{-}{argfun}}

\sub ...
1194 \usrmth{sub}{-}{argfun}

\Cnt, \Qnt, \Sym ...
1195 \usrmth{Cnt}{-}{sym}[C]
1196 \usrmth{Qnt}{-}{sym}[Q]
1197 \usrmth{Sym}{-}{sym}[\odot]

\QAE, \QEA ...
1198 \usrmth{QAE}{-}{sym}[\forall\exists]
1199 \usrmth{QEA}{-}{sym}[\exists\forall]

\QntSet, ... ...
1200 \newcommand{\qntsym}{\wp}
1201 \newcommand{\qntset}{Qn}
1202 \cmdmthsetext{Qnt}{\qntset}[\qntsym]

\free, \bound ...
1203 \usrmth{free}{-}{argfun}
1204 \usrmth{bound}{-}{argfun}

\dep, \alt ...
1205 \usrmth{dep}{-}{argfun}
1206 \usrmth{alt}{-}{argfun}

\cnf, \dnf, ... ...
1207 \cmdtxtabr{cnf}
1208 \cmdtxtabr{dnf}
1209 \cmdtxtabr{pnf}
1210 \cmdtxtabr{nnf}

1211 %%** Semantics *****%%

\LogStr, ... ...
1212 \newcommand{\logstr}{L}
1213 \usrmthlatupp{Log}{Str}{str}[\logstr]

```

```

\ValSet, ... ...
1214 \newcommand{\valsym}{\xi}
1215 \newcommand{\valset}{Val}
1216 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet, ... ...
1217 \newcommand{\asgsym}{\chi}
1218 \newcommand{\asgset}{Asg}
1219 \cmdmthsetext{Asg}[\asgset][\asgsym]

1220 %** First-Order Logics I *****%%

\FOL, ... ...
1221 % First-Order Logic
1222 \cmdtxttoparname{FOL}[Fol]
1223 \cmdtxttoparname{FO}[FO]
1224
1225 % Monadic First-Order Logic
1226 \DeclareRobustCommand{\MFOL}
1227   {\{\txtname{M}\}\FOL}
1228 \DeclareRobustCommand{\MFO}
1229   {\{\txtname{M}\}\FO}

1230 %** Syntax *****%%

\VarSig, ... ...
1231 \newcommand{\varsig}{V}
1232 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1233 \newcommand{\varsym}{x}
1234 \newcommand{\varset}{Vr}
1235 \cmdmthsetext{Var}[\varset][\varsym]
1236 \usrmth{var}{\}{argfun}[vr]
1237 \cmdmthfun{dim}[dm]\usrmth{dim}{\}{argfun}[dm]

\ConSig, ... ...
1238 \newcommand{\consig}{C}
1239 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1240 \newcommand{\consym}{c}
1241 \newcommand{\conset}{Cn}
1242 \cmdmthsetext{Con}[\conset][\consym]
1243 \usrmth{con}{\}{argfun}[cn]

\FunSig, ... ...
1244 \newcommand{\funsig}{F}
1245 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1246 \newcommand{\funsym}{f}
1247 \newcommand{\funset}{Fn}
1248 \cmdmthsetext{Fun}[\funset][\funsym]
1249 \usrmth{fun}{\}{argfun}[fn]
1250 \cmdmthfun{art}[ar]\usrmth{art}{\}{argfun}[ar]

\TerSig, ... ...
1251 \newcommand{\tersig}{T}
1252 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1253 \newcommand{\tersym}{t}
1254 \newcommand{\terset}{Tr}
1255 \cmdmthsetext{Ter}[\terset][\tersym]
1256 \usrmth{ter}{\}{argfun}

\RelSig, ... ...
1257 \newcommand{\relsig}{R}
1258 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1259 \newcommand{\relsym}{r}

```

```

1260 \newcommand{\relset}{Rl}
1261 \cmdmthsetext{Rel}[\relset][\relsym]
1262 \usrmth{rel}{\}{argfun}[rl]

\skm ...
1263 \usrmth{skm}{\}{argfun}

1264 %** Semantics *****%%

\ConStr, ... ...
1265 \newcommand{\constr}{C}
1266 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr, ... ...
1267 \newcommand{\funstr}{F}
1268 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr, ... ...
1269 \newcommand{\terstr}{T}
1270 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr, ... ...
1271 \newcommand{\relstr}{R}
1272 \usrmthlatupp{Rel}{Str}{str}[\relstr]

1273 %** First-Order Logics II *****%%

\DF, \IF, ... ...
1274 % Dependence-Friendly Logic
1275 \cmdtxtoparname{DF}
1276
1277 % Independence-Friendly Logic
1278 \cmdtxtoparname{IF}
1279
1280 % Dependence/Independence-Friendly Logic
1281 \cmdtxtoparname{DIF}
1282
1283 % Dependence Logic
1284 \cmdtxtoparname{DL}
1285
1286 % Team Logic
1287 \cmdtxtoparname{TL}
1288
1289 % Alternating Dependence-Friendly Logic
1290 \cmdtxtoparname{ADF}
1291
1292 % Alternating Independence-Friendly Logic
1293 \cmdtxtoparname{AIF}
1294
1295 % Alternating Dependence/Independence-Friendly Logic
1296 \cmdtxtoparname{ADIF}

...

1297 %** Syntax *****%%

\LEExs, \LAA11 ...
1298 \newcommand{\leexssym}{\Sigma}
1299 \usrmth{LEExs}{\}{luop}[\leexssym]
1300 \newcommand{\laallsym}{\Pi}
1301 \usrmth{LAA11}{\}{luop}[\laallsym]

1302 %** Semantics *****%%

```

```

...
1303 %** Second-Order Logics I *****%
\SOL, ... ...
1304 % Second-Order Logic
1305 \cmdtxttoparname{SOL}[Sol]
1306 \cmdtxttoparname{SO}
1307
1308 % Weak Second-Order Logic
1309 \DeclareRobustCommand{\WSOL}
1310   {\{\txtname{W}\}\SOL}
1311 \DeclareRobustCommand{\WSO}
1312   {\{\txtname{W}\}\SO}
1313
1314 % coWeak Second-Order Logic
1315 \DeclareRobustCommand{\coWSOL}
1316   {\{\txtname{coW}\}\SOL}
1317 \DeclareRobustCommand{\coWSO}
1318   {\{\txtname{coW}\}\SO}
1319
1320 % Monadic Second-Order Logic
1321 \DeclareRobustCommand{\MSOL}
1322   {\{\txtname{M}\}\SOL}
1323 \DeclareRobustCommand{\MSO}
1324   {\{\txtname{M}\}\SO}
1325
1326 % Weak Monadic Second-Order Logic
1327 \DeclareRobustCommand{\WMSOL}
1328   {\{\txtname{W}\}\MSOL}
1329 \DeclareRobustCommand{\WMSO}
1330   {\{\txtname{W}\}\MSO}
1331
1332 % coWeak Monadic Second-Order Logic
1333 \DeclareRobustCommand{\coWMSOL}
1334   {\{\txtname{coW}\}\MSOL}
1335 \DeclareRobustCommand{\coWMSO}
1336   {\{\txtname{coW}\}\MSO}
1337 %** Syntax *****%
\FVarSet, ... ...
1338 \newcommand{\fvarsym}{x}
1339 \newcommand{\fvarset}{FVr}
1340 \cmdmthsetext{FVar}[\fvarset][\fvarsym]
\SVarSet, ... ...
1341 \newcommand{\svarsym}{X}
1342 \newcommand{\svarset}{SVr}
1343 \cmdmthsetext{SVar}[\svarset][\svarsym]
1344 %** Semantics *****%
...
1345 %** Second-Order Logics II *****%
\TL, \PL, ... ...
1346 % Tree Logic
1347 \cmdtxttoparname{TL}
1348
1349 % Weak Tree Logic
1350 \DeclareRobustCommand{\WTL}
1351   {\{\txtname{W}\}\TL}
1352

```

```

1353 % coWeak Tree Logic
1354 \DeclareRobustCommand{\coWTL}
1355   {\txtname{coW}}\TL}
1356
1357 % Monadic Tree Logic
1358 \DeclareRobustCommand{\MTL}
1359   {\txtname{M}}\TL}
1360
1361 % Weak Monadic Tree Logic
1362 \DeclareRobustCommand{\WMTL}
1363   {\txtname{W}}\MTL}
1364
1365 % coWeak Monadic Tree Logic
1366 \DeclareRobustCommand{\coWMTL}
1367   {\txtname{coW}}\MTL}
1368
1369 % Path Logic
1370 \cmdtxttoparname{PL}
1371
1372 % Weak Path Logic
1373 \DeclareRobustCommand{\WPL}
1374   {\txtname{W}}\PL}
1375
1376 % coWeak Path Logic
1377 \DeclareRobustCommand{\coWPL}
1378   {\txtname{coW}}\PL}
1379
1380 % Monadic Path Logic
1381 \DeclareRobustCommand{\MPL}
1382   {\txtname{M}}\PL}
1383
1384 % Weak Monadic Path Logic
1385 \DeclareRobustCommand{\WMPL}
1386   {\txtname{W}}\MPL}
1387
1388 % coWeak Monadic Path Logic
1389 \DeclareRobustCommand{\coWMPL}
1390   {\txtname{coW}}\MPL}
1391
1391 %** Syntax *****%
...
1392 %** Semantics *****%
...
1393 %** Modal Logics I *****%

\ML, \GML, ... ...
1394 % Modal Logic
1395 \cmdtxttoparname{ML}
1396
1397 % Graded Modal Logic
1398 \DeclareRobustCommand{\GML}
1399   {\txtname{G}}\ML}
1400
1401 % Quantified Modal Logic
1402 \DeclareRobustCommand{\QML}
1403   {\txtname{Q}}\ML}
1404 \DeclareRobustCommand{\EML}
1405   {\ensuremath{\exists}\ML}
1406 \DeclareRobustCommand{\UML}
1407   {\ensuremath{\forall}\ML}
1408
1408 %** Syntax *****%

```

```

\Opr ...
1409 \usrmth{Opr}{\sym}[Op]

\DMod, \BMod ...
1410 \usrmth{DMod}{\sym}[\Diamond]
1411 \usrmth{BMod}{\sym}[\Box]

\Exs, \All ...
1412 \DeclareRobustCommand{\Exs}[1]
1413   {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1414 \DeclareRobustCommand{\All}[1]
1415   {\mth{\defval{\argmid{\left[]{\#1}{\right[]}}{\BMod}}}

1416 %** Semantics *****%%

\KrpStr, ... ...
1417 \newcommand{\krpstr}{K}
1418 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

\WrlSet, ... ...
1419 \newcommand{\wrlsym}{w}
1420 \newcommand{\wrlset}{W}
1421 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
1422 \cmdmthsymelm{iwrl}[\wrlsym_{I}]

\AccRel, \TrnRel ...
1423 \newcommand{\accsym}{R}
1424 \cmdmthrel{Acc}[\accsym]
1425 \cmdmthrel{Trn}[\accsym]

\labFun ...
1426 \newcommand{\labsym}{\lambda}
1427 \cmdmthfun{lab}[\labsym]

\PthSet, \pthFun ...
1428 \providecommand{\pthsym}{\pi}
1429 \providecommand{\pthset}{Pth}
1430 \cmdmthsetext{Pth}[\pthset][\pthsym]
1431 \cmdmthfun{pth}

1432 %** Modal Logics II *****%%

\MC, \GMC, ... ...
1433 % Mu Calculus
1434 \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]
1435
1436 % Graded Mu Calculus
1437 \DeclareRobustCommand{\GMC}
1438   {\{\txtname{G}\}\MC}
1439
1440 % Quantified Mu Calculus
1441 \DeclareRobustCommand{\QMC}
1442   {\{\txtname{Q}\}\MC}
1443 \DeclareRobustCommand{\EMC}
1444   {\ensuremath{\exists}\MC}
1445 \DeclareRobustCommand{\UMC}
1446   {\ensuremath{\forall}\MC}
1447
1448 % Alternation-Free Mu Calculus
1449 \DeclareRobustCommand{\AFMC}
1450   {\{\txtname{AF}\}\MC}
1451
1452 % Alternation-Free Graded Mu Calculus

```

```

1453 \DeclareRobustCommand{\AFGMC}
1454   {\textname{AF}}\GMC}
1455
1456 % Quantified Alternation-Free Mu Calculus
1457 \DeclareRobustCommand{\QAFMC}
1458   {\textname{Q}}\AFMC}
1459 \DeclareRobustCommand{\EAFMC}
1460   {\ensuremath{\exists}\AFMC}
1461 \DeclareRobustCommand{\UAFMC}
1462   {\ensuremath{\forall}\AFMC}
1463
1464 %** Syntax *****%
...
1465 %** Semantics *****%
...
1466 %** Temporal Logics I *****%

\PTL, \LTL, ... ...
1467 % Propositional Temporal Logic
1468 \cmdtxttoparname{PTL}
1469
1470 % Quantified Propositional Temporal Logic
1471 \DeclareRobustCommand{\QPTL}
1472   {\textname{Q}}\PTL}
1473 \DeclareRobustCommand{\EPTL}
1474   {\ensuremath{\exists}\PTL}
1475 \DeclareRobustCommand{\UPTL}
1476   {\ensuremath{\forall}\PTL}
1477
1478 % Linear Temporal Logic
1479 \cmdtxttoparname{LTL}
1480
1481 % Quantified Linear Temporal Logic
1482 \DeclareRobustCommand{\QLTL}
1483   {\textname{Q}}\LTL}
1484 \DeclareRobustCommand{\ELTL}
1485   {\ensuremath{\exists}\LTL}
1486 \DeclareRobustCommand{\ULTL}
1487   {\ensuremath{\forall}\LTL}
1488 %** Syntax *****%

\X, ... ...
1489 \usrmth{X}{-}{sym}[X\,,]
1490 \usrmth{F}{-}{sym}[F\,,]
1491 \usrmth{G}{-}{sym}[G\,,]
1492 \usrmth{U}{-}{sym}[\,,U\,,]
1493 \usrmth{R}{-}{sym}[\,,R\,,]

\Y, ... ...
1494 \usrmth{Y}{-}{sym}[G\,,]
1495 \usrmth{P}{-}{sym}[P\,,]\let\SavePildcrow\p
1496 \usrmth{H}{-}{sym}[H\,,]\let\SaveDoubleAcute\H
1497 \usrmth{S}{-}{sym}[\,,S\,,]\let\SaveSectionSymbol\S
1498 \usrmth{B}{-}{sym}[\,,B\,,]

1499 %** Semantics *****%
...
1500 %** Temporal Logics II *****%

```

```

\ PDL, \ CTL, ... ...
1501
1502 % Propositional Dynamic Logic
1503 \cmdtxttoparname{PDL}
1504
1505 % Computation Tree Logic
1506 \cmdtxttoparname{CTL}
1507
1508 % Weak Computation Tree Logic
1509 \DeclareRobustCommand{\WCTL}
1510   {\{\txtrname{W}\}\CTL}
1511
1512 % Quantified Computation Tree Logic
1513 \DeclareRobustCommand{\QCTL}
1514   {\{\txtrname{Q}\}\CTL}
1515 \DeclareRobustCommand{\ECTL}
1516   {\ensuremath{\exists}\CTL}
1517 \DeclareRobustCommand{\UCTL}
1518   {\ensuremath{\forall}\CTL}
1519
1520 % Improved Computation Tree Logic
1521 \cmdtxttoparname{CTLP}[CTL$^{+}$]
1522
1523 % Weak Improved Computation Tree Logic
1524 \DeclareRobustCommand{\WCTLP}
1525   {\{\txtrname{W}\}\CTLP}
1526
1527 % Quantified Improved Computation Tree Logic
1528 \DeclareRobustCommand{\QCTLP}
1529   {\{\txtrname{Q}\}\CTLP}
1530 \DeclareRobustCommand{\ECTLP}
1531   {\ensuremath{\exists}\CTLP}
1532 \DeclareRobustCommand{\UCTLP}
1533   {\ensuremath{\forall}\CTLP}
1534
1535 % Full Computation Tree Logic
1536 \cmdtxttoparname{CTLS}[CTL*]
1537
1538 % Weak Full Computation Tree Logic
1539 \DeclareRobustCommand{\WCTLS}
1540   {\{\txtrname{W}\}\CTLS}
1541
1542 % Quantified Full Computation Tree Logic
1543 \DeclareRobustCommand{\QCTLS}
1544   {\{\txtrname{Q}\}\CTLS}
1545 \DeclareRobustCommand{\ECTLS}
1546   {\ensuremath{\exists}\CTLS}
1547 \DeclareRobustCommand{\UCTLS}
1548   {\ensuremath{\forall}\CTLS}
1549 %** Syntax *****%

\ E, \ A ...
1550 \usrmth{E}{-}{sym}
1551 \usrmth{A}{-}{sym}
1552 %** Semantics *****%

...

1553 %** Strategic Logics I *****%

\ ATL, ... ...
1554 % Alternating Temporal Logic
1555 \cmdtxttoparname{ATL}

```



```

1556
1557 % Weak Alternating Tree Logic
1558 \DeclareRobustCommand{\WATL}
1559   {\txtname{W}}\ATL}
1560
1561 % Quantified Alternating Temporal Logic
1562 \DeclareRobustCommand{\QATL}
1563   {\txtname{Q}}\ATL}
1564 \DeclareRobustCommand{\EATL}
1565   {\ensuremath{\exists}\ATL}
1566 \DeclareRobustCommand{\UATL}
1567   {\ensuremath{\forall}\ATL}
1568
1569 % Improved Alternating Temporal Logic
1570 \cmdtxtopname{ATLP}[ATL^{+}]
1571
1572 % Weak Improved Alternating Tree Logic
1573 \DeclareRobustCommand{\WATLP}
1574   {\txtname{W}}\ATLP}
1575
1576 % Quantified Improved Alternating Temporal Logic
1577 \DeclareRobustCommand{\QATLP}
1578   {\txtname{Q}}\ATLP}
1579 \DeclareRobustCommand{\EATLP}
1580   {\ensuremath{\exists}\ATLP}
1581 \DeclareRobustCommand{\UATLP}
1582   {\ensuremath{\forall}\ATLP}
1583
1584 % Full Alternating Temporal Logic
1585 \cmdtxtopname{ATLS}[ATL*]
1586
1587 % Weak Full Alternating Tree Logic
1588 \DeclareRobustCommand{\WATLS}
1589   {\txtname{W}}\ATLS}
1590
1591 % Quantified Full Alternating Temporal Logic
1592 \DeclareRobustCommand{\QATLS}
1593   {\txtname{Q}}\ATLS}
1594 \DeclareRobustCommand{\EATLS}
1595   {\ensuremath{\exists}\ATLS}
1596 \DeclareRobustCommand{\UATLS}
1597   {\ensuremath{\forall}\ATLS}
1598 %** Syntax *****%
\EExs, \AA11 ...
1599 \DeclareRobustCommand{\EExs}[1]
1600   {\mth{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1601 \DeclareRobustCommand{\AA11}[1]
1602   {\mth{\argmid{\left[\left[\defval{#1}{\emptyset}\right]\right]}}}
1603 %** Semantics *****%
\CGS ...
1604 \cmdtxtname{CGS}
\CGSstr, ... ...
1605 \newcommand{\cgsstr}{G}
1606 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]
\AgnSet, ... ...
1607 \newcommand{\agnsym}{a}
1608 \newcommand{\agnset}{Ag}
1609 \cmdmthsetext{Agn}[\agnset][\agnsym]

```

```

\PosSet, ... ...
1610 \providecommand{\possym}{v}
1611 \providecommand{\posset}{Ps}
1612 \cmdmthsetext{Pos}[\posset][\possym]
1613 \cmdmthsymelm{ipos}[\possym_{I}]
1614 \cmdmthsymelm{fpos}[\possym_{F}]
1615 \cmdmthset{PPos}[\posset_{\PlrSym}]
1616 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1617 \cmdmthset{OPos}[\posset_{\OppSym}]
1618 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet, ... ...
1619 \newcommand{\sttsym}{s}
1620 \newcommand{\sttset}{St}
1621 \cmdmthsetext{Stt}[\sttset][\sttsym]
1622 \cmdmthset{IStt}[\sttset_{I}]
1623 \cmdmthsymelm{istt}[\sttsym_{I}]
1624 \cmdmthset{FStt}[\sttset_{F}]
1625 \cmdmthsymelm{fstt}[\sttsym_{F}]

\ActSet, ... ...
1626 \newcommand{\actsym}{c}
1627 \newcommand{\actset}{Ac}
1628 \cmdmthsetext{Act}[\actset][\actsym]

\DecSet, ... ...
1629 \newcommand{\decsym}{d}
1630 \newcommand{\decset}{Dc}
1631 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ...
1632 \newcommand{\movsym}{\tau}
1633 \cmdmthfun{mov}[\movsym]

\HstSet, ... ...
1634 \providecommand{\hstsym}{\rho}
1635 \providecommand{\hstset}{Hst}
1636 \cmdmthsetext{Hst}[\hstset][\hstsym]
1637 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1638 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1639 \cmdmthset{OHst}[\hstset_{\OppSym}]
1640 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1641 \cmdmthfun{hst}

\PlaySet, \playFun ...
1642 \providecommand{\playsym}{\pi}
1643 \providecommand{\playset}{Play}
1644 \cmdmthsetext{Play}[\playset][\playsym]
1645 \cmdmthfun{play}

\StrSet, ... ...
1646 \providecommand{\strsym}{\sigma}
1647 \providecommand{\strset}{Str}
1648 \cmdmthsetext{Str}[\strset][\strsym]
1649 \cmdmthset{PStr}[\strset_{\PlrSym}]
1650 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1651 \cmdmthset{OStr}[\strset_{\OppSym}]
1652 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1653 \providecommand{\prfsym}{\xi}
1654 \providecommand{\prfset}{Prf}
1655 \cmdmthsetext{Prf}[\prfset][\prfsym]

```

```

1656 %** Strategic Logics II *****%%
\SL, ... ...
1657 % Strategy Logic
1658 \cmdtxtopname{SL}
1659
1660 \DeclareRobustCommand{\ESL}
1661   {\ensuremath{\exists}\SL}
1662 \DeclareRobustCommand{\USL}
1663   {\ensuremath{\forall}\SL}
1664
1665 \DeclareRobustCommand{\FSL}
1666   {\{\textname{F}\}\SL}
1667
1668 \DeclareRobustCommand{\EFSL}
1669   {\ensuremath{\exists}\FSL}
1670 \DeclareRobustCommand{\UFSL}
1671   {\ensuremath{\forall}\FSL}
1672
1673 % One-Goal Strategy Logic
1674 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
1675   {\SL[#1][#2][1g\arglef{,}{#3}]}
1676
1677 \DeclareRobustCommand{\EOGSL}
1678   {\ensuremath{\exists}\OGSL}
1679 \DeclareRobustCommand{\UOGSL}
1680   {\ensuremath{\forall}\OGSL}
1681
1682 \DeclareRobustCommand{\FOGSL}
1683   {\{\textname{F}\}\OGSL}
1684
1685 \DeclareRobustCommand{\EFOGSL}
1686   {\ensuremath{\exists}\FOGSL}
1687 \DeclareRobustCommand{\UFOGSL}
1688   {\ensuremath{\forall}\FOGSL}
1689
1690 % Conjunctive-Goal Strategy Logic
1691 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
1692   {\SL[#1][#2][cg\arglef{,}{#3}]}
1693
1694 \DeclareRobustCommand{\ECGSL}
1695   {\ensuremath{\exists}\CGSL}
1696 \DeclareRobustCommand{\UCGSL}
1697   {\ensuremath{\forall}\CGSL}
1698
1699 \DeclareRobustCommand{\FCGSL}
1700   {\{\textname{F}\}\CGSL}
1701
1702 \DeclareRobustCommand{\EFCGSL}
1703   {\ensuremath{\exists}\FCGSL}
1704 \DeclareRobustCommand{\UFCGSL}
1705   {\ensuremath{\forall}\FCGSL}
1706
1707 % Disjunctive-Goal Strategy Logic
1708 \DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]
1709   {\SL[#1][#2][dg\arglef{,}{#3}]}
1710
1711 \DeclareRobustCommand{\EDGPL}
1712   {\ensuremath{\exists}\DGPL}
1713 \DeclareRobustCommand{\UDGPL}
1714   {\ensuremath{\forall}\DGPL}
1715
1716 \DeclareRobustCommand{\FDGPL}
1717   {\{\textname{F}\}\DGPL}

```

```

1718
1719 \DeclareRobustCommand{\EFDGSL}
1720   {\ensuremath{\exists}\FDGSL}
1721 \DeclareRobustCommand{\UFDGSL}
1722   {\ensuremath{\forall}\FDGSL}
1723
1724 % Alternating-Goal Strategy Logic
1725 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
1726   {\SL[#1][#2][ag\arglef{,}{#3}]}
1727
1728 \DeclareRobustCommand{\EAGSL}
1729   {\ensuremath{\exists}\AGSL}
1730 \DeclareRobustCommand{\UAGSL}
1731   {\ensuremath{\forall}\AGSL}
1732
1733 \DeclareRobustCommand{\FAGSL}
1734   {\{\textname{F}\}\xGSL}
1735
1736 \DeclareRobustCommand{\EFAGSL}
1737   {\ensuremath{\exists}\FAGSL}
1738 \DeclareRobustCommand{\UFAGSL}
1739   {\ensuremath{\forall}\FAGSL}
1740
1741 % Extended-Goal Strategy Logic
1742 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
1743   {\SL[#1][#2][eg\arglef{,}{#3}]}
1744
1745 \DeclareRobustCommand{\EEGSL}
1746   {\ensuremath{\exists}\EGSL}
1747 \DeclareRobustCommand{\UEGSL}
1748   {\ensuremath{\forall}\EGSL}
1749
1750 \DeclareRobustCommand{\FEGSL}
1751   {\{\textname{F}\}\xGSL}
1752
1753 \DeclareRobustCommand{\EFEGSL}
1754   {\ensuremath{\exists}\FEGSL}
1755 \DeclareRobustCommand{\UFEGSL}
1756   {\ensuremath{\forall}\FEGSL}
1757
1758 % Boolean-Goal Strategy Logic
1759 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
1760   {\SL[#1][#2][bg\arglef{,}{#3}]}
1761
1762 \DeclareRobustCommand{\EBGSL}
1763   {\ensuremath{\exists}\BGSL}
1764 \DeclareRobustCommand{\UBGSL}
1765   {\ensuremath{\forall}\BGSL}
1766
1767 \DeclareRobustCommand{\FBGSL}
1768   {\{\textname{F}\}\xGSL}
1769
1770 \DeclareRobustCommand{\EFBGSL}
1771   {\ensuremath{\exists}\FBGSL}
1772 \DeclareRobustCommand{\UFBGSL}
1773   {\ensuremath{\forall}\FBGSL}
1774
1775 % Nested-Goal Strategy Logic
1776 \DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
1777   {\SL[#1][#2][ng\arglef{,}{#3}]}
1778
1779 \DeclareRobustCommand{\ENGSL}
1780   {\ensuremath{\exists}\NGSL}

```

```

1781 \DeclareRobustCommand{\UNGSL}
1782   {\ensuremath{\forall}\UNGSL}
1783
1784 \DeclareRobustCommand{\FNGSL}
1785   {\{\txtname{F}\}\xGSL}
1786
1787 \DeclareRobustCommand{\EFNGSL}
1788   {\ensuremath{\exists}\FNGSL}
1789 \DeclareRobustCommand{\UFNGSL}
1790   {\ensuremath{\forall}\FNGSL}
1791
1792 % Undefined-Goal Strategy Logic
1793 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
1794   {\SL[#1][#2][xg\arglef{,}{#3}]}
1795
1796 \DeclareRobustCommand{\EXGSL}
1797   {\ensuremath{\exists}\XGSL}
1798 \DeclareRobustCommand{\UXGSL}
1799   {\ensuremath{\forall}\XGSL}
1800
1801 \DeclareRobustCommand{\FXGSL}
1802   {\{\txtname{F}\}\xGSL}
1803
1804 \DeclareRobustCommand{\EFXGSL}
1805   {\ensuremath{\exists}\FXGSL}
1806 \DeclareRobustCommand{\UFXGSL}
1807   {\ensuremath{\forall}\FXGSL}
1808 %** Syntax *****%

```

\BndSet,

```

1809 \newcommand{\bndsym}{\flat}
1810 \newcommand{\bndset}{Bn}
1811 \cmdmthsetext{Bnd}[\bndset][\bndsym]
1812 \usrmth{bnd}{-}{argfun}

```

\psn ...

```

1813 \usrmth{psn}{-}{argfun}

```

```

1814 %** Semantics *****%

```

\nxtFun ...

```

1815 \newcommand{\nxtfun}{nxt}
1816 \cmdmthfun{nxt}[\nxtfun]

```

```

1817 \fi
1818 %*****%

```

```

1819 %*****%
1820 %** Macros for Automata *****%
1821 %*****%
1822 \ifaut@

```

```

1823 %** Finite Word Automata *****%

```

\DWA,

```

1824 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
1825
1826 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
1827 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
1828 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
1829 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
1830 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
1831 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
1832 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

```

```

\GFG, \PD, ... ...
1833 \cmdtxtoparname{GFG}
1834
1835 \cmdtxtoparname{PD}
1836
1837 %% ...

1838 %** Syntax *****%

\AutName, ... ...
1839 \newcommand{\autname}{A}
1840 \usrmthlatupp{Aut}{Name}{name}[\autname]
1841 \newcommand{\autset}{Aut}
1842 \cmdmthset{Aut}[\autset]

\WAutSet ...
1843 \newcommand{\wautset}{WAut}
1844 \cmdmthset{WAut}[\wautset]

\SttSet, ... ...
1845 \def\sttsym{q}
1846 \def\sttset{Q}
1847 \cmdmthsetext{Stt}[\sttset][\sttsym]
1848 \cmdmthset{IStt}[\sttset_{I}]
1849 \cmdmthsymelm{istt}[\sttsym_{I}]
1850 \cmdmthset{FStt}[\sttset_{F}]
1851 \cmdmthsymelm{fstt}[\sttsym_{F}]

\SymSet, ... ...
1852 \newcommand{\symsym}{\sigma}
1853 \newcommand{\symset}{\Sigma}
1854 \cmdmthsetext{Sym}[\symset][\symsym]

\trnFun ...
1855 \newcommand{\trnsym}{\delta}
1856 \cmdmthfun{trn}[\trnsym]

1857 %** Semantics *****%

\LangFun ...
1858 \newcommand{\langfun}{L}
1859 \cmdmthfun{Lang}[\langfun]

\WrdSet, ... ...
1860 \newcommand{\wrdsym}{w}
1861 \newcommand{\wrdset}{Wr}
1862 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

1863 %** Finite Tree Automata *****%

\DTA, ... ...
1864 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
1865
1866 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
1867 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
1868 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
1869 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
1870 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
1871 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
1872 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}

1873 %** Syntax *****%

```

```

\TAutSet ...
1874 \newcommand{\tautset}{TAut}
1875 \cmdmthset{TAut}[\tautset]

\DirSet, ... ...
1876 \newcommand{\dirsym}{d}
1877 \newcommand{\dirset}{\Lambda}
1878 \cmdmthsettext{Dir}[\dirset][\dirsym]

1879 %** Semantics *****%%

\TreeSet, ... ...
1880 \newcommand{\treesym}{T}
1881 \newcommand{\treeset}{Tr}
1882 \cmdmthsettext{Tree}[\treeset][\treesym]

\wotFun ...
1883 \newcommand{\wotfun}{wot}
1884 \cmdmthfun{wot}[\wotfun]

1885 \fi
1886 %*****%%

1887 %*****%%
1888 %** Format Tricks *****%%
1889 %*****%%
1890 \iffirm@

... ...
1891 %...

1892 \fi
1893 %*****%%

1894 %*****%%
1895 %** Figure Tricks *****%%
1896 %*****%%
1897 \iffig@

1898 \RequirePackage{tikz}
1899 \usetikzlibrary{arrows,graphs,matrix,patterns,shapes}

1900 \tikzstyle{every node} =
1901   [draw = none, fill = none, black, thin]
1902 \tikzstyle{every edge} +=
1903   [black, thick]

1904 \tikzstyle{noall} =
1905   [draw = none, fill = none]
1906 \tikzstyle{nodraw} =
1907   [draw = none, fill = white]
1908 \tikzstyle{nofill} =
1909   [draw = black, fill = none]

1910 \ifwrpfig@
1911   % Wrapfig Package
1912   \RequirePackage{wrapfig}
1913 \fi

1914 \fi
1915 %*****%%

1916 %*****%%
1917 %** Table Tricks *****%%
1918 %*****%%
1919 \iftab@

... ...
1920 %...

```

```

1921 \fi
1922 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1923 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1924 %** Algorithm Tricks %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1925 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1926 \ifalg@

1927 \RequirePackage[ruled,vlined]{algorithm2e}
1928 \setlength{\algomargin}{1.25em}
1929 \DontPrintSemicolon
1930 \SetInd{0.25em}{0.5em}

\Signature ...
1931 \SetKw{Signature}{signature}

\Macro, ... ...
1932 \SetKwFor{Macro}{macro}{}{}
1933 \SetKwFor{Function}{function}{}{}
1934 \SetKwFor{Procedure}{procedure}{}{}

\Let ...
1935 \SetKwFor{Let}{let}{in}{}

\True, \False ...
1936 \SetKw{True}{true}
1937 \SetKw{False}{false}

\From, ... ...
1938 \SetKw{From}{from}
1939 \SetKw{To}{to}
1940 \SetKw{DownTo}{downto}

\GoTo, ... ...
1941 \SetKw{GoTo}{goto}
1942 \SetKw{Break}{break}
1943 \SetKw{Continue}{continue}

\MIf, ... ...
1944 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
1945 \DeclareRobustCommand{\nlr}[1]
1946   {\addtocounter{AlgoLine}{1}%
1947   \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

1948 \fi
1949 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1950 \endinput
1951 \</package>

```


2 Change History

v0.0	extensions	1
General: First public release	v0.5	
v0.1	General: Figure tricks	1
General: Algorithm tricks	v0.6	
v0.10	General: Small refinements	1
General: Small refinements	v0.7	
v0.11	General: Refinements, corrections, and extensions	1
General: Few additions and corrections	v0.8	
v0.2	General: Few refinements and corrections	1
General: Changes in auxiliary tricks	v0.9	
v0.3	General: Small addition to ‘Algorithm tricks’	1
General: Few problems solved		
v0.4		
General: Refactoring, corrections, and		

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