

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 v0.13 of the fmocdmac package, last revised 2023/02/01.

```

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\iffrm@ \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 \ifamsthm@
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   \hypersetup {
166     pdfsubject      = {},
167     pdfkeywords     = {},
168     pdfproducer     = {},
169     pdfcreator      = {},
170     pdfpagemode     = {UseNone},
171     pdfstartview    = {FitH},
172     urlcolor        = {blue},
173     colorlinks
174   }
175 \fi
176
177 \iffnttts@
178   % Font Tools
179   \RequirePackage[final]{microtype}
180 \fi
181
182 \ifcrv@
183   % Camera-Ready Version
184
185   %%...
186
187 \else
188   % Draft Version
189
190   %%...
191
192   \ifchgbar@
193     % Change Bars
194     \RequirePackage{changebar}
195   \fi
196
197   \iflinnum@
198     % Line Numbers
199     \if@twocolumn
200       \RequirePackage[switch, columnwise, mathlines]{lineno}\linenumbers
201     \else
202       \RequirePackage[columnwise, mathlines]{lineno}\linenumbers
203     \fi
204   \fi
205
206   %%...
207
208 \fi
209
210 \fi
211 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
212 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
213 %** Auxiliary Font Declarations %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
214 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\mathbbo Bbo Math Font: ... to do!
215 \ifdef{\mathbbo}{\DeclareMathAlphabet{\mathbbo}{U}{bbold}{m}{n}}
\matheus Eus Math Font: ... to do!
216 \ifdef{\matheus}{\DeclareMathAlphabet{\matheus}{U}{eus}{m}{n}}
\mathpzc Pzc Math Font: ... to do!
217 \ifdef{\mathpzc}{\DeclareMathAlphabet{\mathpzc}{T1}{pzc}{m}{it}}

```

```

\mathscr Scr Math Font: ... to do!
218 \ifdef{\mathscr}{\DeclareMathAlphabet{\mathscr}{U}{rsfs}{m}{n}}

219 %*****%
220 %*****%
221 %** Auxiliary Alphabet Letters *****%
222 %*****%

\omicron Auxiliary Greek lowercase letter: ... to do!
223 \csdef{omicron}{o}

\Alpha, ... Auxiliary Greek uppercase letters: ... to do!
224 \csdef{Alpha}{A} \csdef{Beta}{B} \csdef{Epsilon}{E} \csdef{varEpsilon}{E}
225 \csdef{Zeta}{Z} \csdef{Eta}{H} \csdef{Iota}{I} \csdef{Kappa}{K}
226 \csdef{varKappa}{K} \csdef{Mu}{M} \csdef{Nu}{N} \csdef{Omicron}{O}
227 \csdef{Rho}{P} \csdef{varRho}{P} \csdef{Tau}{T} \csdef{Chi}{X}

228 %*****%
229 %*****%
230 %** Tools *****%
231 %*****%

\empchk Emptiness check: \empchk{<A>}{<B>} evaluates to the empty string, if Argument <A> is empty,
and to Argument <B>, otherwise.


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


232 \newcommand{\empchk}[2]
233 {\if&#1&\else#2\fi}

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


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


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

236 %*****%

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


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


237 \newcommand{\arglef}[2]
238 {\empchk{#2}{#1#2}}

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


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


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

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


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


241 \newcommand{\argmid}[3]
242 {\empchk{#2}{#1#2#3}}

```

\argsep **Separators:** `\argsep{⟨A⟩}{⟨B⟩}{⟨C⟩}` evaluates to Argument $\langle A \rangle$, 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”

```

243 \newcommand{\argsep}[3]
244   {\if&#1&#3\else#1\arglef{#2}{#3}\fi}

245 %*****%
```

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

```

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

254 %*****%
```

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

```

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

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

```

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

263 %*****%
```

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

```

264 \newcommand{\seqoflatlow}
265   {\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!

```

266 \newcommand{\seqoflatupp}
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}}
```

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

```

268 \newcommand{\seqoflatlet}[2]
269   {\seqoflatlow{#1}{#2}\seqoflatupp{#1}{#2}}

270 %*****%
```

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

```

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

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

```

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

```

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

281 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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

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

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

288 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
289 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
290 %** Text Meta Commands %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
291 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\newtxt ... to do!
  • \newtxt[\rmfamily]{Name}[sub][sup][Ext] = “NamesubExt”
  • \newtxt[\sffamily]{Name}[sub][sup][Ext] = “NamesubExt”
  • \newtxt[\ttfamily]{Name}[sub][sup][Ext] = “NamesubExt”
292 \newcommandx{\newtxt}[5][1=, 3=, 4=, 5=]
293   {\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”
294 \newcommandx{\newtxtsty}[2][2=]
295   {\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”
296 \newcommandx{\newxtarg}[7][1=, 3=, 4=, 5=, 7=]
297   {\newtxt{#1}{#2}{#3}{#4}[\argmid{#5}{#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”
298 \newcommandx{\newxtargsty}[2][2=]
299   {\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)”
300 \newcommandx{\newtxtoarg}[5][1=, 3=, 4=, 5=]
301   {\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)"
302 \newcommandx{\newtxtoargsty}[2][2=]
303   {\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"
304 \newcommandx{\newtxtpar}[7][1=, 3=, 4=, 5=, 7=]
305   {\newtxt{#1}{#2}{#3}{#4}[\argmid{#5}{#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"
306 \newcommandx{\newtxtparsty}[2][2=]
307   {\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]"
308 \newcommandx{\newtxtopar}[5][1=, 3=, 4=, 5=]
309   {\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]"
310 \newcommandx{\newtxtoparsty}[2][2=]
311   {\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"
312 \newcommand{\txtsubsup}[3] []
313   {\ensuremath{\empchk{#2}{_}{\text{#1#2}}}\empchk{#3}{^{\text{#1#3}}}}}

314 %%*****%

\txt ... to do!
    • \txt{Name}[sub][sup][Ext] = "NamesubExt"
    • \txt[\scshape]{Name}[sub][sup][Ext] = "NAMESUBEXT"
    • \txt[\bfseries]{Name}[sub][sup][Ext] = "NamesubExt"
315 \newcommand{\txt}
316   {\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"
317 \newcommand{\txtarg}
318 {\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)"
319 \newcommand{\txtoarg}
320 {\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"
321 \newcommand{\txtpar}
322 {\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]"
323 \newcommand{\txtopar}
324 {\newtxtoparsty{\txtsty}}

\txtsty ... to do!
325 \newcommand{\txtsty}
326 {\mdseries\upshape\rmfamily}

327 %*****%

\cmdtxt ... to do!
    • \cmdtxt{NewCmd}; \newcommand{\txtstyNewCmd}{\scshape\ttfamily};
    \txtNewCmd{Name}[sub][sup][Ext] = NAMESUBEXT
328 \newcommand{\cmdtxt}[1]
329 {\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
330 \newcommand{\cmdtxtarg}[1]
331 {\csdef{txtarg#1}{\newtxtargsty{\csname txtsty#1\endcsname}}}

\cmdtxtoarg ... to do!
    • \cmdtxtoarg{NewCmd}; \newcommand{\txtstyNewCmd}{\scshape\ttfamily};
    \txtoargNewCmd{Name}[sub][sup][Arg] = NAMESUB(ARG)
332 \newcommand{\cmdtxtoarg}[1]
333 {\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
334 \newcommand{\cmdtxtpar}[1]
335 {\csdef{txtpar#1}{\newtxtparsty{\csname txtsty#1\endcsname}}}

\cmdtxtopar ... to do!

```

```

    • \cmdtxtopar{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
    \txtoparNewCmd{Name}[sub][sup][Par] = NAMESUB[PAR]
336 \newcommand{\cmdtxtopar}[1]
337 {\csdef{txtopar#1}{\newtxtoparsty{\csname txtsty#1\endcsname}}}

\cmdtxtall ... to do!
    • \cmdtxtall{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
    \txtNewCmd{Name}[sub][sup][Ext] = NAMESUBEXT
    \txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBEXT1(ARG)EXT2
    \txtoargNewCmd{Name}[sub][sup][Arg] = NAMESUB(ARG)
    \txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUBEXT1[PAR]EXT2
    \txtoparNewCmd{Name}[sub][sup][Par] = NAMESUB[PAR]
338 \newcommand{\cmdtxtall}[1]
339 {\cmdtxt{#1}\cmdtxtarg{#1}\cmdtxtoarg{#1}\cmdtxtpar{#1}\cmdtxtopar{#1}}

340 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\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]
341 \newcommandx{\usrtxt}[4][4=]
342 {\csdef{#1#2}{\csname txt#3\endcsname{\defval{#4}{#1}}}}

343 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
344 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
345 %** Math Meta Commands %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
346 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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

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

\newmtharg ... to do!
    • \newmtharg[mathrm]{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = "NamesubExt1(ArgExEx)Ext2"
    • \newmtharg[mathsf]{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = "NamesubExt1(ArgExEx)Ext2"
    • \newmtharg[mathtt]{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = "NamesubExt1(ArgExEx)Ext2"
    • \newmtharg*[mathrm]{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = "NamesubExt1(ArgExEx)Ext2"
    • \newmtharg*[mathsf]{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = "NamesubExt1(ArgExEx)Ext2"
    • \newmtharg*[mathtt]{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = "NamesubExt1(ArgExEx)Ext2"

```

```

351 \newcommand{\newmtharg}
352   {\@ifstar{\@snewmtharg}{\@newmtharg}}
353 \newcommandx{\@newmtharg}[7][1=, 3=, 4=, 5=, 7=]
354   {\newmth{#1}{#2}{#3}{#4}[\argmid{#5}\!\left\{\!#6\!\right\}\!\arglef{\!#7\!}]}
355 \newcommandx{\@snewmtharg}[7][1=, 3=, 4=, 5=, 7=]
356   {\newmth{#1}{#2}{#3}{#4}[\argmid{#5}(\!#6\!)#7]}

```

\newmthargsty ... to do!

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

```

357 \newcommand{\newmthargsty}
358   {\@ifstar{\@snewmthargsty}{\@newmthargsty}}
359 \newcommandx{\@newmthargsty}[2][2=]
360   {\newmtharg[\defval{#2}{#1}]}
361 \newcommandx{\@snewmthargsty}[2][2=]
362   {\newmtharg*[\defval{#2}{#1}]}

```

\newmthoarg ... to do!

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

```

363 \newcommand{\newmthoarg}
364   {\@ifstar{\@snewmthoarg}{\@newmthoarg}}
365 \newcommandx{\@newmthoarg}[5][1=, 3=, 4=, 5=]
366   {\newmtharg{#1}{#2}{#3}[#4][\!#5\!]}
367 \newcommandx{\@snewmthoarg}[5][1=, 3=, 4=, 5=]
368   {\newmtharg*{#1}{#2}{#3}[#4][\!#5\!]}

```

\newmthoargsty ... to do!

- $\newmthoargsty{\mathrm}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[Arg^{Ex^{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\left(Arg^{Ex^{Ex}}\right)\text{"}$
- $\newmthoargsty{\mathrm}{mathsf}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[Arg^{Ex^{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\left(Arg^{Ex^{Ex}}\right)\text{"}$
- $\newmthoargsty{\mathrm}{mathtt}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[Arg^{Ex^{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\left(Arg^{Ex^{Ex}}\right)\text{"}$
- $\newmthoargsty*{\mathrm}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[Arg^{Ex^{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\left(Arg^{Ex^{Ex}}\right)\text{"}$
- $\newmthoargsty*{\mathrm}{mathsf}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[Arg^{Ex^{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\left(Arg^{Ex^{Ex}}\right)\text{"}$
- $\newmthoargsty*{\mathrm}{mathtt}{Name}_{\mathrm{sub}}^{\mathrm{sup}}[Arg^{Ex^{Ex}}] = \text{"Name}_{\mathrm{sub}}^{\mathrm{sup}}\left(Arg^{Ex^{Ex}}\right)\text{"}$

```

369 \newcommand{\newmthoargsty}
370   {\@ifstar{\@snewmthoargsty}{\@newmthoargsty}}
371 \newcommandx{\@newmthoargsty}[2][2=]
372   {\newmthoarg[\defval{#2}{#1}]}
373 \newcommandx{\@snewmthoargsty}[2][2=]
374   {\newmthoarg*[\defval{#2}{#1}]}

```

\newmthpar ... to do!

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

```

393 \newcommand{\newmthoparsty}
394   {\@ifstar{\@snewmthoparsty}{\@newmthoparsty}}
395 \newcommandx{\@newmthoparsty}[2][2=]
396   {\newmthopar[\defval{\#2}{\#1}]}
397 \newcommandx{\@snewmthoparsty}[2][2=]
398   {\newmthopar*[\defval{\#2}{\#1}]}

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

401 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\mth ... to do!


- $\backslash\mathrm{mth}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \text{“Name}_{sub}^{sup}Ext”$
- $\backslash\mathrm{mth}[\mathrm{mathbf}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \text{“Name}_{sub}^{sup}Ext”$
- $\backslash\mathrm{mth}[\mathrm{mathtt}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \text{“Name}_{sub}^{sup}Ext”$


402 \newcommand{\mth}
403   {\newmthsty{\mthsty}}

\mtharg ... to do!


- $\backslash\mathrm{mtharg}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}][\mathrm{Ext2}] = \text{“Name}_{sub}^{sup}Ext1(Ar^{ExEx})Ext2”$
- $\backslash\mathrm{mtharg}[\mathrm{mathbf}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}][\mathrm{Ext2}] = \text{“Name}_{sub}^{sup}Ext1(Ar^{ExEx})Ext2”$
- $\backslash\mathrm{mtharg}[\mathrm{mathtt}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}][\mathrm{Ext2}] = \text{“Name}_{sub}^{sup}Ext1(Ar^{ExEx})Ext2”$
- $\backslash\mathrm{mtharg}^*\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}][\mathrm{Ext2}] = \text{“Name}_{sub}^{sup}Ext1(Ar^{ExEx})Ext2”$
- $\backslash\mathrm{mtharg}^*[\mathrm{mathbf}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}][\mathrm{Ext2}] = \text{“Name}_{sub}^{sup}Ext1(Ar^{ExEx})Ext2”$
- $\backslash\mathrm{mtharg}^*[\mathrm{mathtt}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}][\mathrm{Ext2}] = \text{“Name}_{sub}^{sup}Ext1(Ar^{ExEx})Ext2”$


404 \newcommand{\mtharg}
405   {\@ifstar{\newmthargsty*{\mthsty}}{\newmthargsty{\mthsty}}}

\mthoarg ... to do!


- $\backslash\mathrm{mthoarg}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \text{“Name}_{sub}^{sup}(Ar^{ExEx})”$
- $\backslash\mathrm{mthoarg}[\mathrm{mathbf}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \text{“Name}_{sub}^{sup}(Ar^{ExEx})”$
- $\backslash\mathrm{mthoarg}[\mathrm{mathtt}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \text{“Name}_{sub}^{sup}(Ar^{ExEx})”$
- $\backslash\mathrm{mthoarg}^*\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \text{“Name}_{sub}^{sup}(Ar^{ExEx})”$
- $\backslash\mathrm{mthoarg}^*[\mathrm{mathbf}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \text{“Name}_{sub}^{sup}(Ar^{ExEx})”$
- $\backslash\mathrm{mthoarg}^*[\mathrm{mathtt}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \text{“Name}_{sub}^{sup}(Ar^{ExEx})”$


406 \newcommand{\mthoarg}
407   {\@ifstar{\newmthoargsty*{\mthsty}}{\newmthoargsty{\mthsty}}}

\mthpar ... to do!


- $\backslash\mathrm{mthpar}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}][\mathrm{Par}^{\mathrm{Ex}\mathrm{Ex}}][\mathrm{Ext2}] = \text{“Name}_{sub}^{sup}Ext1[Par^{ExEx}]Ext2”$
- $\backslash\mathrm{mthpar}[\mathrm{mathbf}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}][\mathrm{Par}^{\mathrm{Ex}\mathrm{Ex}}][\mathrm{Ext2}] = \text{“Name}_{sub}^{sup}Ext1[Par^{ExEx}]Ext2”$
- $\backslash\mathrm{mthpar}[\mathrm{mathtt}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}][\mathrm{Par}^{\mathrm{Ex}\mathrm{Ex}}][\mathrm{Ext2}] = \text{“Name}_{sub}^{sup}Ext1[Par^{ExEx}]Ext2”$
- $\backslash\mathrm{mthpar}^*\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}][\mathrm{Par}^{\mathrm{Ex}\mathrm{Ex}}][\mathrm{Ext2}] = \text{“Name}_{sub}^{sup}Ext1[Par^{ExEx}]Ext2”$
- $\backslash\mathrm{mthpar}^*[\mathrm{mathbf}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}][\mathrm{Par}^{\mathrm{Ex}\mathrm{Ex}}][\mathrm{Ext2}] = \text{“Name}_{sub}^{sup}Ext1[Par^{ExEx}]Ext2”$

```

```

    • \mthpar*[\mathtt]{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = "Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2"
408 \newcommand{\mthpar}
409   {\@ifstar{\newmthparsty*{\mthsty}}{\newmthparsty{\mthsty}}}

\mthopar ... to do!

    • \mthopar{Name}[sub][sup][Par^{Ex^{Ex}}] = "Name_{sub}^{sup}[Par^{Ex^{Ex}}]"
    • \mthopar[\mathbf]{Name}[sub][sup][Par^{Ex^{Ex}}] = "\mathbf{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]"
    • \mthopar[\mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}] = "Name_{sub}^{sup}[Par^{Ex^{Ex}}]"
    • \mthopar*{Name}[sub][sup][Par^{Ex^{Ex}}] = "Name_{sub}^{sup}[Par^{Ex^{Ex}}]"
    • \mthopar*[\mathbf]{Name}[sub][sup][Par^{Ex^{Ex}}] = "\mathbf{Name}_{sub}^{sup}[Par^{Ex^{Ex}}]"
    • \mthopar*[\mathtt]{Name}[sub][sup][Par^{Ex^{Ex}}] = "Name_{sub}^{sup}[Par^{Ex^{Ex}}]"
410 \newcommand{\mthopar}
411   {\@ifstar{\newmthoparsty*{\mthsty}}{\newmthoparsty{\mthsty}}}

\mthsty ... to do!
412 \newcommand{\mthsty}
413 {}

414 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\cmdmth ... to do!

    • \cmdmth{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
      \mthNewCmd{Name}[sub][sup][Ext] = Name_{sub}^{sup}Ext
415 \newcommand{\cmdmth}[1]
416   {\csdef{mth#1}{\newmthsty{mthsty#1}}}

\cmdmtharg ... to do!

    • \cmdmtharg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
      \mthargNewCmd{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
      \mthargNewCmd*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
417 \newcommand{\cmdmtharg}[1]
418   {\csdef{mtharg#1}%
419     {\@ifstar{\newmthargsty*{mthsty#1}}{\newmthargsty{mthsty#1}}}}

\cmdmthoarg ... to do!

    • \cmdmthoarg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
      \mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}] = Name_{sub}^{sup}(Arg^{Ex^{Ex}})
      \mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = Name_{sub}^{sup}(Arg^{Ex^{Ex}})
420 \newcommand{\cmdmthoarg}[1]
421   {\csdef{mthoarg#1}%
422     {\@ifstar{\newmthoargsty*{mthsty#1}}{\newmthoargsty{mthsty#1}}}}

\cmdmthpar ... to do!

    • \cmdmthpar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
      \mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2
      \mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2
423 \newcommand{\cmdmthpar}[1]
424   {\csdef{mthpar#1}%
425     {\@ifstar{\newmthparsty*{mthsty#1}}{\newmthparsty{mthsty#1}}}}

\cmdmthopar ... to do!

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

```

```

426 \newcommand{\cmdmthopar}[1]
427   {\csdef{mthopar#1}%
428     {\@ifstar{\newmthoparsty*{mthsty#1}}{\newmthoparsty{mthsty#1}}}}

\cmdmthall ... to do!


- \cmdmthall{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthNewCmd{Name}[sub][sup][Ext] = NamesubExt
  \mthargNewCmd{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesubExt1(ArgExExt2)Ext2
  \mthargNewCmd*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesubExt1(ArgExExt2)Ext2
  \mthoargNewCmd{Name}[sub][sup][ArgEx{Ex}] = Namesub(ArgExExt2)
  \mthoargNewCmd*{Name}[sub][sup][ArgEx{Ex}] = Namesub(ArgExExt2)
  \mthparNewCmd{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesubExt1[ParExExt2]Ext2
  \mthparNewCmd*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesubExt1[ParExExt2]Ext2
  \mthoparNewCmd{Name}[sub][sup][ParEx{Ex}] = Namesub[ParExExt2]
  \mthoparNewCmd*{Name}[sub][sup][ParEx{Ex}] = Namesub[ParExExt2]


429 \newcommand{\cmdmthall}[1]
430   {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#1}}

431 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\usrmth ... to do!


- \usrmth{cmdName}{Suf}{}; \cmdNameSuf = cmdName
  \usrmth{cmdName}{Suf}{arg}; \cmdNameSuf{ArgEx{Ex}} = cmdName(ArgExExt2)
  \usrmth{cmdName}{Suf}{par}; \cmdNameSuf{ParEx{Ex}} = cmdName[ParExExt2]
- \usrmth{cmdName}{Suf}{}[newName]; \cmdNameSuf = newName
  \usrmth{cmdName}{Suf}{arg}[newName]; \cmdNameSuf{ArgEx{Ex}} = newName(ArgExExt2)
  \usrmth{cmdName}{Suf}{par}[newName]; \cmdNameSuf{ParEx{Ex}} = newName[ParExExt2]


432 \newcommandx{\usrmth}[4][4=]
433   {\csdef{#1#2}{\csname\expandafter mth#3\endcsname{\defval{#4}{#1}}}}

434 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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

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

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

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

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

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

```

```

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

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

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

453 %%*****
454 %%*****
455 %%** Text Macro Generators *****
456 %%*****
457 \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] =  $Name_{sub}^{sup}Ext1[Par]Ext2$


458 %% Style for Definitions
459 \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] =  $newName_{sub}^{sub}ext$


460 \newcommandx{\cmdtxtdef}[2][2=]
461 {\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] =  $newName_{sub}^{sub}ext1(arg)ext2$


462 \newcommandx{\cmdtxtargdef}[2][2=]
463 {\usrtxt{#1}{\argdef}[#2]}

\cmdtxtoargdef ... to do!


- \cmdtxtoargdef{cmdName};  

\cmdName[sub][sub][arg] =  $cmdName_{sub}^{sub}(arg)$
- \cmdtxtoargdef{cmdName}[newName];  

\cmdName[sub][sub][arg] =  $newName_{sub}^{sub}(arg)$


464 \newcommandx{\cmdtxtoargdef}[2][2=]
465 {\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] =  $newName_{sub}^{sub}ext1[par]ext2$


466 \newcommandx{\cmdtxtpardef}[2][2=]
467 {\usrtxt{#1}{\pardef}[#2]}

\cmdtxtopardef ... to do!

```


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

468 $\backslash\text{newcommandx}\{\backslash\text{cmdtxtopardef}\}[2][2=]$
469 $\{\backslash\text{usrtxt}\{\#1\}\}\{\text{opardef}\}[\#2]\}$

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

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

470 %% Style for Abbreviations
471 $\backslash\text{cmdtxtall}\{\text{abr}\}\backslash\text{newcommand}\{\backslash\text{txtstyabr}\}\{\backslash\text{em}\}$

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

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

472 $\backslash\text{newcommandx}\{\backslash\text{cmdtxtabr}\}[2][2=]$
473 $\{\backslash\text{usrtxt}\{\#1\}\}\{\text{abr}\}[\#2]\}$

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

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

474 $\backslash\text{newcommandx}\{\backslash\text{cmdtxtargabr}\}[2][2=]$
475 $\{\backslash\text{usrtxt}\{\#1\}\}\{\text{argabr}\}[\#2]\}$

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

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

476 $\backslash\text{newcommandx}\{\backslash\text{cmdtxtoargabr}\}[2][2=]$
477 $\{\backslash\text{usrtxt}\{\#1\}\}\{\text{oargabr}\}[\#2]\}$

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

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

478 $\backslash\text{newcommandx}\{\backslash\text{cmdtxtparabr}\}[2][2=]$
479 $\{\backslash\text{usrtxt}\{\#1\}\}\{\text{parabr}\}[\#2]\}$

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

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

480 $\backslash\text{newcommandx}\{\backslash\text{cmdtxtoparabr}\}[2][2=]$
481 $\{\backslash\text{usrtxt}\{\#1\}\}\{\text{oparabr}\}[\#2]\}$

482 %*****%

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

```

    • \txtname{Name}[sub][sup][Ext] = NAMESUBEXT
    • \txtargname{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBEXT1(ARG)EXT2
    • \txtparname{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUBEXT1[PAR]EXT2
483 %% Style for Names
484 \cmdtxtall{name}\newcommand{\txtstname}{\normalfont\mdseries\scshape\sffamily}

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

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

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

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

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

\txtcom, ... ... to do!
    • \txtcom{Name}[sub][sup][Ext] = NAMESUBEXT
    • \txtargcom{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBEXT1(ARG)EXT2
    • \txtparcom{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUBEXT1[PAR]EXT2
495 %% Style for Complexities
496 \cmdtxtall{com}\newcommand{\txtstycom}{\normalfont\mdseries\scshape\rmfamily}

\cmdtxtcom ... to do!
    • \cmdtxtcom{cmdName};
      \cmdName[sub][sub][ext] = CMDNAMESUBEXT

```

```

    • \cmdtxtcom{cmdName}[newName];
      \cmdName[sub][sub][ext] = NEWNAMESUBEXT
497 \newcommandx{\cmdtxtcom}[2][2=]
498   {\usrtxt{#1}{-}{com}[#2]}

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

\cmdtxtoargcom ... to do!
    • \cmdtxtoargcom{cmdName};
      \cmdName[sub][sub][arg] = CMDNAMESUB(ARG)
    • \cmdtxtoargcom{cmdName}[newName];
      \cmdName[sub][sub][arg] = NEWNAMESUB(ARG)
501 \newcommandx{\cmdtxtoargcom}[2][2=]
502   {\usrtxt{#1}{-}{oargcom}[#2]}

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

\cmdtxtoparcom ... to do!
    • \cmdtxtoparcom{cmdName};
      \cmdName[sub][sub][par] = CMDNAMESUB[PAR]
    • \cmdtxtoparcom{cmdName}[newName];
      \cmdName[sub][sub][par] = NEWNAMESUB[PAR]
505 \newcommandx{\cmdtxtoparcom}[2][2=]
506   {\usrtxt{#1}{-}{oparcom}[#2]}

507 \fi
508 %*****%
509 %*****%
510 %** Math Macro Generators *****%
511 %*****%
512 \ifmthgen@

\mthname, ... ... to do!
    • \mthname{NAME}[sub][sup][Ext] =  $\mathcal{NAME}_{sub}^{sup}Ext$ 
    • \mthargname{NAME}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
    • \mthargname*(NAME)[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$ 
    • \mthparname{NAME}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
    • \mthparname*(NAME)[sub][sup][Ext1]{ParEx{Ex}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$ 
513 %% Style for Names
514 \cmdmthall{name}\newcommand{\mthstynome}{\mathcal}

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

```

```

\cmdmthname ... to do!
    • \cmdmthname{CMDNAME};
      \CMDNAMEName[sub][sub][ext] =  $CMDNAME\mathcal{E}_{sub}^{sub}ext$ 
    • \cmdmthname{cmdName}[NEWNAME];
      \cmdNameName[sub][sub][ext] =  $NEWNAME\mathcal{E}_{sub}^{sub}ext$ 
516 \newcommandx{\cmdmthname}[2][2=]
517   {\usrmth{#1}{Name}{name}{#2}}

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

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

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

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

\mthfam, ... ... to do!
    • \mthfam{NAME}[sub][sup][Ext] =  $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext$ 
    • \mthargfam{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
    • \mthargfam*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
    • \mthparfam{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
    • \mthparfam*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
526 %% Style for Families
527 \cmdmthall{fam}\newcommand{\mthstyfam}{\mathscr}

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

\cmdmthfam ... to do!

```

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

529 `\newcommandx{\cmdmthfam}[2][2=]`
530 `{\usrmth{\#1}\Fam}\fam{\#2}`

`\cmdmthargfam ... to do!`

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

531 `\newcommandx{\cmdmthargfam}[2][2=]`
532 `{\usrmth{\#1}\Fam}\argfam{\#2}`

`\cmdmthoargfam ... to do!`

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

533 `\newcommandx{\cmdmthoargfam}[2][2=]`
534 `{\usrmth{\#1}\Fam}\oargfam{\#2}`

`\cmdmthparfam ... to do!`

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

535 `\newcommandx{\cmdmthparfam}[2][2=]`
536 `{\usrmth{\#1}\Fam}\parfam{\#2}`

`\cmdmthoparfam ... to do!`

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

537 `\newcommandx{\cmdmthoparfam}[2][2=]`
538 `{\usrmth{\#1}\Fam}\oparfam{\#2}`

`\mthcls, to do!`

- `\mthcls{NAME}[sub][sup][Ext] = \NAME \mathcal{E}_{\text{sub}}^{\text{sup}} \text{Ext}`
- `\mthargcls{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \NAME \mathcal{E}_{\text{sub}}^{\text{sup}} \text{Ext1}(\text{Arg}^{\text{Ex}^{\text{Ex}}}) \text{Ext2}`
- `\mthargcls*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \NAME \mathcal{E}_{\text{sub}}^{\text{sup}} \text{Ext1}(\text{Arg}^{\text{Ex}^{\text{Ex}}}) \text{Ext2}`
- `\mthparcls{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \NAME \mathcal{E}_{\text{sub}}^{\text{sup}} \text{Ext1}[\text{Par}^{\text{Ex}^{\text{Ex}}}] \text{Ext2}`
- `\mthparcls*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \NAME \mathcal{E}_{\text{sub}}^{\text{sup}} \text{Ext1}[\text{Par}^{\text{Ex}^{\text{Ex}}}] \text{Ext2}`

539 `%% Style for Classes`
540 `\cmdmthall{cls}\newcommand{\mthstcls}{\matheus}`

`\ACls, to do!`

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

541 `\seqoflatupp{Cls}\mthcls`

`\cmdmthcls ... to do!`

- `\cmdmthcls{CMDNAME};`
 $\text{CMDNAMECls}[\text{sub}][\text{sub}][\text{ext}] = \text{CMDNAME} \mathcal{E}_{\text{sub}}^{\text{sub}} \text{ext}$

```

    • \cmdmthcls{cmdName}[NEWNAME];
      \cmdNameCls[sub][sub][ext] =  $\mathcal{NEWNAME}_{sub}^{sub}ext$ 
542 \newcommandx{\cmdmthcls}[2][2=]
543   {\usrmth{#1}{Cls}{cls}[#2]}

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

\cmdmthoargcls ... to do!
    • \cmdmthoargcls{CMDNAME};
      \CMDNAMECls[sub][sub][arg] =  $\mathcal{CMDNAME}_{sub}^{sub}(arg)$ 
    • \cmdmthoargcls{cmdCls}[NEWNAME];
      \cmdClsCls[sub][sub][arg] =  $\mathcal{NEWNAME}_{sub}^{sub}(arg)$ 
546 \newcommandx{\cmdmthoargcls}[2][2=]
547   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}ext1[par]ext2$ 
548 \newcommandx{\cmdmthparcls}[2][2=]
549   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}[par]$ 
550 \newcommandx{\cmdmthoparcls}[2][2=]
551   {\usrmth{#1}{Cls}{oparcls}[#2]}

\mthsig, ... ... to do!
    • \mthsig{Name}[sub][sup][Ext] =  $\mathcal{ame}_{sub}^{sup}Ext$ 
    • \mthargsig{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{ame}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
    • \mthargsig*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{ame}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
    • \mthparsig{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{ame}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
    • \mthparsig*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{ame}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
552 %% Style for Signatures
553 \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
554 \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] =  $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}ext$ 
555 \newcommandx{\cmdmthsig}[2][2=]
556   {\usrmth{#1}{Sig}{sig}[#2]}

\cmdmthargsig ... to do!
    • \cmdmthargsig{cmdName};
      \cmdNameSig[sub][sub][ext1]{arg}[ext2] =  $cmd\mathcal{N}ame_{sub}^{sub}ext1(arg)ext2$ 
    • \cmdmthargsig{cmdName}[NewName];
      \cmdNameSig[sub][sub][ext1]{arg}[ext2] =  $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}ext1(arg)ext2$ 
557 \newcommandx{\cmdmthargsig}[2][2=]
558   {\usrmth{#1}{Sig}{argsig}[#2]}

\cmdmthoargsig ... to do!
    • \cmdmthoargsig{cmdName};
      \cmdNameSig[sub][sub][arg] =  $cmd\mathcal{N}ame_{sub}^{sub}(arg)$ 
    • \cmdmthoargsig{cmdSig}[NewName];
      \cmdSigSig[sub][sub][arg] =  $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}(arg)$ 
559 \newcommandx{\cmdmthoargsig}[2][2=]
560   {\usrmth{#1}{Sig}{oargsig}[#2]}

\cmdmthparsig ... to do!
    • \cmdmthparsig{cmdName};
      \cmdNameSig[sub][sub][ext1]{par}[ext2] =  $cmd\mathcal{N}ame_{sub}^{sub}ext1[par]ext2$ 
    • \cmdmthparsig{cmdName}[NewName];
      \cmdNameSig[sub][sub][ext1]{par}[ext2] =  $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}ext1[par]ext2$ 
561 \newcommandx{\cmdmthparsig}[2][2=]
562   {\usrmth{#1}{Sig}{parsig}[#2]}

\cmdmthoparsig ... to do!
    • \cmdmthoparsig{cmdName};
      \cmdNameSig[sub][sub][par] =  $cmd\mathcal{N}ame_{sub}^{sub}[par]$ 
    • \cmdmthoparsig{cmdSig}[NewName];
      \cmdSigSig[sub][sub][par] =  $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}[par]$ 
563 \newcommandx{\cmdmthoparsig}[2][2=]
564   {\usrmth{#1}{Sig}{oparsig}[#2]}

\mthstr, ... ... to do!
    • \mthstr{Name}[sub][sup][Ext] =  $\mathcal{N}ame_{sub}^{sup}Ext$ 
    • \mthargstr{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{N}ame_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
    • \mthargstr*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{N}ame_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
    • \mthparstr{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{N}ame_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
    • \mthparstr*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{N}ame_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
565 %% Style for Structures
566 \cmdmthall{str}\newcommand{\mthstyst}{\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, τ, υ, φ, ϕ, χ, ψ, ω
567 \seqoflatlet{Str}{mthstr}\seqofgrklow{Str}{mthstr}

\cmdmthstr ... to do!
    • \cmdmthstr{cmdName};
      \cmdNameStr[sub][sub][ext] =  $cmd\mathcal{N}ame_{sub}^{sub}ext$ 

```

- `\cmdmthstr{cmdName}[NewName];`
`\cmdNameStr[sub][sub][ext] = \newNamesubext`

```
568 \newcommandx{\cmdmthstr}[2][2=]
569 {\usrmth{#1}{Str}{str}[#2]}
```

`\cmdmthargstr` ... to do!

- `\cmdmthargstr{cmdName};`
`\cmdNameStr[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2`
- `\cmdmthargstr{cmdName}[NewName];`
`\cmdNameStr[sub][sub][ext1]{arg}[ext2] = \newNamesubext1(arg)ext2`

```
570 \newcommandx{\cmdmthargstr}[2][2=]
571 {\usrmth{#1}{Str}{argstr}[#2]}
```

`\cmdmthoargstr` ... to do!

- `\cmdmthoargstr{cmdName};`
`\cmdNameStr[sub][sub][arg] = cmdNamesub(arg)`
- `\cmdmthoargstr{cmdStr}[NewName];`
`\cmdStrStr[sub][sub][arg] = \newNamesub(arg)`

```
572 \newcommandx{\cmdmthoargstr}[2][2=]
573 {\usrmth{#1}{Str}{oargstr}[#2]}
```

`\cmdmthparstr` ... to do!

- `\cmdmthparstr{cmdName};`
`\cmdNameStr[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2`
- `\cmdmthparstr{cmdName}[NewName];`
`\cmdNameStr[sub][sub][ext1]{par}[ext2] = \newNamesubext1[par]ext2`

```
574 \newcommandx{\cmdmthparstr}[2][2=]
575 {\usrmth{#1}{Str}{parstr}[#2]}
```

`\cmdmthoparstr` ... to do!

- `\cmdmthoparstr{cmdName};`
`\cmdNameStr[sub][sub][par] = cmdNamesub[par]`
- `\cmdmthoparstr{cmdStr}[NewName];`
`\cmdStrStr[sub][sub][par] = \newNamesub[par]`

```
576 \newcommandx{\cmdmthoparstr}[2][2=]
577 {\usrmth{#1}{Str}{oparstr}[#2]}
```

`\mthset, ...` ... to do!

- `\mthset{Name}[sub][sup][Ext] = NamesupExt`
- `\mthargset{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupExt1(Arg^{Ex^{Ex}})Ext2`
- `\mthargset*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupExt1(Arg^{Ex^{Ex}})Ext2`
- `\mthparset{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupExt1[Par^{Ex^{Ex}}]Ext2`
- `\mthparset*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupExt1[Par^{Ex^{Ex}}]Ext2`

```
578 %% Style for Sets
579 \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, $\Gamma, \Delta, E, \Xi, Z, H, \Theta, \Theta, I, K, K, \Lambda, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, Y, \Phi, \Phi, X, \Psi, \Omega$

```
580 \seqoflet{Set}{mthset}
```

`\cmdmthset` ... to do!

- `\cmdmthset{cmdName};`
`\cmdNameSet[sub][sub][ext] = cmdNamesubext`


```

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

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

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

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

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

\cmdmthsetext ... to do!
591 \newcommandx{\cmdmthsetext}[3][2=, 3=]
592   {\cmdmthset{#1}[#2]\caselower[q]{#1}%
593   \usrmthlet{\thestring}{Sym}{sym}
594   [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}}%
595   \usrmthlet{\thestring}{Elm}{elm}
596   [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}]}

\mthrel, ... ... to do!
    • \mthrel{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargrel{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
    • \mthargrel*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
    • \mthparrel{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
    • \mthparrel*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
597 %% Style for Relations
598 \cmdmthall{rel}\newcommand{\mthstyrel}{\mathit}

```

```

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

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

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

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

\cmdmthparrel ... to do!
• \cmdmthparrel{cmdName};
  \cmdNameRel[sub][sub][ext1]{par}[ext2] =  $cmdName_{sub}^{sub}ext1[par]ext2$ 
• \cmdmthparrel{cmdName}[NewName];
  \cmdNameRel[sub][sub][ext1]{par}[ext2] =  $NewName_{sub}^{sub}ext1[par]ext2$ 
606 \newcommandx{\cmdmthparrel}[2][2=]
607   {\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] =  $NewName_{sub}^{sub}[par]$ 
608 \newcommandx{\cmdmthoparrel}[2][2=]
609   {\usrmth{#1}{Rel}{oparrel}{#2}}

\mthfun, ... ... to do!
• \mthfun{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
• \mthargfun{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $Name_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
• \mthargfun*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $Name_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
• \mthparfun{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $Name_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
• \mthparfun*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $Name_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
610 %% Style for Functions
611 \cmdmthall{fun}\newcommand{\mthstyfun}{\mathsf{f}}

```

```

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

\cmdmthfun ... to do!
• \cmdmthfun{cmdName};
  \cmdNameFun[sub][sub][ext] = cmdNamesubext
• \cmdmthfun{cmdName}[NewName];
  \cmdNameFun[sub][sub][ext] = NewNamesubext
613 \newcommandx{\cmdmthfun}[2][2=]
614   {\usrmth{#1}{Fun}{fun}{#2}}

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

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

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

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

\mthsym, ... ... to do!
• \mthsym{Name}[sub][sup][Ext] = NamesupExt
• \mthargsym{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupExt1(ArgEx^{Ex})Ext2
• \mthargsym*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupExt1(ArgEx^{Ex})Ext2
• \mthparsym{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupExt1[ParEx^{Ex}]Ext2
• \mthparsym*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupExt1[ParEx^{Ex}]Ext2
623 %% Style for Symbols
624 \cmdmthall{sym}\newcommand{\mthstysym}{\mathhtt{sym}}

```

```

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

\cmdmthsym ... to do!
• \cmdmthsym{cmdName};
  \cmdNameSym[sub][sub][ext] = cmdNamesubsubext
• \cmdmthsym{cmdName}[NewName];
  \cmdNameSym[sub][sub][ext] = NewNamesubsubext
626 \newcommandx{\cmdmthsym}[2][2=]
627   {\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
628 \newcommandx{\cmdmthargsym}[2][2=]
629   {\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)
630 \newcommandx{\cmdmthoargsym}[2][2=]
631   {\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
632 \newcommandx{\cmdmthparsym}[2][2=]
633   {\usrmth{#1}{Sym}{parsym}[#2]}

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

\mthelm, ... ... to do!
• \mthelm{Name}[sub][sup][Ext] = NamesupsubExt
• \mthargelm{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupsubExt1( $Arg^{Ex^{Ex}}$ )Ext2
• \mthargelm*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupsubExt1( $Arg^{Ex^{Ex}}$ )Ext2
• \mthparelm{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupsubExt1[ $Par^{Ex^{Ex}}$ ]Ext2
• \mthparelm*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupsubExt1[ $Par^{Ex^{Ex}}$ ]Ext2
636 %% Style for Elements
637 \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
 $\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$ 
A, B,  $\Gamma, \Delta, E, E, Z, H, \Theta, \Theta, I, K, K, \Lambda, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, \Upsilon, \Phi, \Phi, X, \Psi, \Omega$ 
638 \seqoflet{Elm}{mthelm}

\cmdmthelm ... to do!
• \cmdmthelm{cmdName};
\cmdNameElm[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
• \cmdmthelm{cmdName}[NewName];
\cmdNameElm[sub][sub][ext] =  $NewName_{sub}^{sub}ext$ 
639 \newcommandx{\cmdmthelm}[2][2=]
640 {\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] =  $NewName_{sub}^{sub}ext1(arg)ext2$ 
641 \newcommandx{\cmdmthargelm}[2][2=]
642 {\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] =  $NewName_{sub}^{sub}(arg)$ 
643 \newcommandx{\cmdmthoargelm}[2][2=]
644 {\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] =  $NewName_{sub}^{sub}ext1[par]ext2$ 
645 \newcommandx{\cmdmthparelm}[2][2=]
646 {\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] =  $NewName_{sub}^{sub}[par]$ 
647 \newcommandx{\cmdmthoparelm}[2][2=]
648 {\usrmth{#1}{Elm}{oparelm}{#2}}

649 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\cmdmthsymelm ... to do!
• \cmdmthsymelm{cmdName};
\cmdNameSym[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
\cmdNameElm[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
• \cmdmthsymelm{cmdName}[NewName];
\cmdNameSym[sub][sub][ext] =  $NewName_{sub}^{sub}ext$ 
\cmdNameElm[sub][sub][ext] =  $NewName_{sub}^{sub}ext$ 
650 \newcommandx{\cmdmthsymelm}[2][2=]
651 {\cmdmthsym{#1}{#2}}
652 \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
653 \newcommandx{\cmdmthargsymelm}[2][2=]
654   {\cmdmthargsym{#1}[#2]%
655   \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)
656 \newcommandx{\cmdmthoargsymelm}[2][2=]
657   {\cmdmthoargsym{#1}[#2]%
658   \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
659 \newcommandx{\cmdmthparsymelm}[2][2=]
660   {\cmdmthparsym{#1}[#2]%
661   \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]
662 \newcommandx{\cmdmthoparsymelm}[2][2=]
663   {\cmdmthoparsym{#1}[#2]%
664   \cmdmthoparelm{#1}[#2]}

665 %%*****%

\mthluop, ... ... to do!
    • \mthluop{\oplus}[sub][sup][Ext] =  $\oplus_{sub}^{sup} Ext$ 
    • \mthlbop{\oplus}[sub][sup][Ext] =  $\oplus_{sub}^{sup} Ext$ 
666 %% Style for \LaTeX Operators
667 \cmdmth{luop}\newcommand{\mthstyluop}[1]{\textstyle\mathop{#1}}
668 \cmdmth{lbop}\newcommand{\mthstylbop}[1]{\textstyle\mathbin{#1}}

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

```

```

    • \cmdmthlbop{cmdName};
      \cmdNameBOp[sub][sub][ext] = cmdNamesubext
    • \cmdmthlbop{cmdName}[\oplus];
      \cmdNameBOp[sub][sub][ext] =  $\oplus_{sub}^{sub} ext$ 
669 \newcommandx{\cmdmthluop}[2][2=]
670   {\usrmth{#1}{UOp}{luop}{#2}}
671 \newcommandx{\cmdmthlbop}[2][2=]
672   {\usrmth{#1}{BOp}{lbop}{#2}}

\mthlrel ... to do!
    • \mthlrel{\preceq}[sub][sup][Ext] =  $\preceq_{sub}^{sup} Ext$ 
673 %% Style for \LaTeX Relations
674 \cmdmth{lrel}\newcommand{\mthstylrel}{\mathrel}

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

677 %%*****%

\mthsnt, ... ... to do!
    • \mthsnt{Name}[sub][sup][Ext] = NamesubExt
    • \mthargsnt{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesubExt1( $Arg^{Ex^{Ex}}$ )Ext2
    • \mthargsnt*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesubExt1( $Arg^{Ex^{Ex}}$ )Ext2
    • \mthparsnt{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesubExt1[ $Par^{Ex^{Ex}}$ ]Ext2
    • \mthparsnt*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesubExt1[ $Par^{Ex^{Ex}}$ ]Ext2
678 %% Style for Sentences
679 \cmdmthall{snt}\newcommand{\mthstysnt}{\mathsf}

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

\cmdmthsnt ... to do!
    • \cmdmthsnt{cmdName};
      \cmdNameSnt[sub][sub][ext] = cmdNamesubext
    • \cmdmthsnt{cmdName}[NewName];
      \cmdNameSnt[sub][sub][ext] = NewNamesubext
681 \newcommandx{\cmdmthsnt}[2][2=]
682   {\usrmth{#1}{Snt}{snt}{#2}}

\cmdmthargsnt ... to do!
    • \cmdmthargsnt{cmdName};
      \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2
    • \cmdmthargsnt{cmdName}[NewName];
      \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = NewNamesubext1(arg)ext2
683 \newcommandx{\cmdmthargsnt}[2][2=]
684   {\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)`

685 `\newcommandx{\cmdmthoargsnt}[2][2=]`
686 `{\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`

687 `\newcommandx{\cmdmthparsnt}[2][2=]`
688 `{\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]`

689 `\newcommandx{\cmdmthoparsnt}[2][2=]`
690 `{\usrmth{#1}{Snt}{oparsnt}[#2]}`

`\mthfrm, to do!`

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

691 `%% Style for Formulae`
692 `\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, E, Z, H, Θ, Θ, I, K, K, A, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω

693 `\seqoflet{Frm}{mthfrm}`

`\cmdmthfrm ... to do!`

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

694 `\newcommandx{\cmdmthfrm}[2][2=]`
695 `{\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`

696 `\newcommandx{\cmdmthargfrm}[2][2=]`
697 `{\usrmth{#1}{Frm}{argfrm}[#2]}`

`\cmdmthoargfrm ... to do!`


```

    • \cmdmthoargfrm{cmdName};
      \cmdNameFrm[sub][sub][arg] =  $\text{cmdName}_{sub}^{sub}(arg)$ 
    • \cmdmthoargfrm{cmdName}[NewName];
      \cmdNameFrm[sub][sub][arg] =  $\text{NewName}_{sub}^{sub}(arg)$ 
698 \newcommandx{\cmdmthoargfrm}[2][2=]
699   {\usrmth{#1}{Frm}{oargfrm}{#2}}

\cmdmthparfrm ... to do!
    • \cmdmthparfrm{cmdName};
      \cmdNameFrm[sub][sub][ext1]{par}[ext2] =  $\text{cmdName}_{sub}^{sub}ext1[par]ext2$ 
    • \cmdmthparfrm{cmdName}[NewName];
      \cmdNameFrm[sub][sub][ext1]{par}[ext2] =  $\text{NewName}_{sub}^{sub}ext1[par]ext2$ 
700 \newcommandx{\cmdmthparfrm}[2][2=]
701   {\usrmth{#1}{Frm}{parfrm}{#2}}

\cmdmthoparfrm ... to do!
    • \cmdmthoparfrm{cmdName};
      \cmdNameFrm[sub][sub][par] =  $\text{cmdName}_{sub}^{sub}[par]$ 
    • \cmdmthoparfrm{cmdName}[NewName];
      \cmdNameFrm[sub][sub][par] =  $\text{NewName}_{sub}^{sub}[par]$ 
702 \newcommandx{\cmdmthoparfrm}[2][2=]
703   {\usrmth{#1}{Frm}{oparfrm}{#2}}

704 %%*****%

\mthmat, ... ... to do!
    • \mthmat{Name}[sub][sup][Ext] =  $\text{Name}_{sub}^{sup}Ext$ 
    • \mthargmat{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left(\text{Arg}^{Ex^{Ex}}\right)Ext2$ 
    • \mthargmat*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left(\text{Arg}^{Ex^{Ex}}\right)Ext2$ 
    • \mthparmat{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left[\text{Par}^{Ex^{Ex}}\right]Ext2$ 
    • \mthparmat*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left[\text{Par}^{Ex^{Ex}}\right]Ext2$ 
705 %% Style for Matrices
706 \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,  $\Gamma, \Delta, E, Z, H, \Theta, \Theta, I, K, K, \Lambda, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, T, \Phi, \Phi, X, \Psi, \Omega$ 
707 \seqoflet{Mat}{mthmat}

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

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

```

```

\cmdmthoargmat ... to do!
    • \cmdmthoargmat{cmdName};
      \cmdNameMat[sub][sub][arg] = cmdNamesubsub(arg)
    • \cmdmthoargmat{cmdName}[NewName];
      \cmdNameMat[sub][sub][arg] = NewNamesubsub(arg)
712 \newcommandx{\cmdmthoargmat}[2][2=]
713   {\usrmth{#1}{Mat}{oargmat}{#2}}

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

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

\mthvec, ... ... to do!
    • \mthvec{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargvec{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExExt2)Ext2
    • \mthargvec*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExExt2)Ext2
    • \mthparvec{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExExt2]Ext2
    • \mthparvec*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExExt2]Ext2
718 %% Style for Vectors
719 \cmdmthall{vec}\newcommand{\mthstyvec}[1]{\boldsymbol{\mathit{#1}}}

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

\cmdmthvec ... to do!
    • \cmdmthvec{cmdName};
      \cmdNameVec[sub][sub][ext] = cmdNamesubsubext
    • \cmdmthvec{cmdName}[NewName];
      \cmdNameVec[sub][sub][ext] = NewNamesubsubext
721 \newcommandx{\cmdmthvec}[2][2=]
722   {\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
723 \newcommandx{\cmdmthargvec}[2][2=]
724   {\usrmth{#1}{Vec}{argvec}{#2}}

```

```

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

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

\cmdmthoparvec ... to do!
    • \cmdmthoparvec{cmdName};
      \cmdNameVec[sub][sub][par] =  $cmdName_{sub}[par]$ 
    • \cmdmthoparvec{cmdName}[NewName];
      \cmdNameVec[sub][sub][par] =  $NewName_{sub}[par]$ 
729 \newcommandx{\cmdmthoparvec}[2][2=]
730   {\usrmth{#1}{Vec}{oparvec}{#2}}

731 \fi
732 %*****%
733 %*****%
734 %** Elementary Macros for Text *****%
735 %*****%
736 \iftext@
737 %** Latin Abbreviations *****%

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

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

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

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

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

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

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

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

\divideetimperaper    • \divideetimperaper = divide et impera
746 \cmdtxtabr{divideetimperaper}[divide et impera]

```

`\eg` • `\eg` = *e.g.*

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

`\ergo` • `\ergo` = *ergo*

748 `\cmdtxtabr{ergo}`

`\errata` • `\errata` = *errata*

749 `\cmdtxtabr{errata}`

`\erratum` • `\erratum` = *erratum*

750 `\cmdtxtabr{erratum}`

`\etal` • `\etal` = *et al.*

751 `\cmdtxtabr{etal}[et al.]`

`\etc` • `\etc` = *etc.*

752 `\cmdtxtabr{etc}[etc.]`

`\ie` • `\ie` = *i.e.*

753 `\cmdtxtabr{ie}[i.e.]`

`\mutatismutandis` • `\mutatismutandis` = *mutatis mutandis*

754 `\cmdtxtabr{mutatismutandis}[mutatis mutandis]`

`\percontra` • `\percontra` = *per contra*

755 `\cmdtxtabr{percontra}[per contra]`

`\primafacie` • `\primafacie` = *prima facie*

756 `\cmdtxtabr{primafacie}[prima facie]`

`\viceversa` • `\viceversa` = *vice versa*

757 `\cmdtxtabr{viceversa}[vice versa]`

`\vs` • `\vs` = *vs.*

758 `\cmdtxtabr{vs}[vs.]`

`\viz` • `\viz` = *viz.*

759 `\cmdtxtabr{viz}[viz.]`

760 `%%*****%`

`\Afortiori` • `\Afortiori` = *A fortiori*

761 `\cmdtxtabr{Afortiori}[A fortiori]`

`\Apriori` • `\Apriori` = *A priori*

762 `\cmdtxtabr{Apriori}[A priori]`

`\Aposteriori` • `\Aposteriori` = *A posteriori*

763 `\cmdtxtabr{Aposteriori}[A posteriori]`

`\Dedicto` • `\Dedicto` = *De dicto*

764 `\cmdtxtabr{Dedicto}[De dicto]`

`\Defacto` • `\Defacto` = *De facto*

765 `\cmdtxtabr{Defacto}[De facto]`

`\Dere` • `\Dere` = *De re*

766 `\cmdtxtabr{Dere}[De re]`

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

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

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

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

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

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

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

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

775 `%%** Italian Abbreviations *****%`
...
776 `%%*****%`
...
777 `%%** French Abbreviations *****%`

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

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

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

781 `%%*****%`

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

783 `%%** English Abbreviations *****%`

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

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

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

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

```

\resp      • \resp = resp.
788 \cmdtxtabr{resp}[resp.]

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

\wlogx     • \wlogx = w.l.o.g.
790 \cmdtxtabr{wlogx}[w.l.o.g.]
791 %*****

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

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

794 \fi
795 %*****
796 %*****
797 %** Elementary Macros for Math *****
798 %*****
799 \ifmath@
800 %** General Notation *****

\defeq, \seteq ...
801 \DeclareRobustCommand{\defeq}
802   {\@ifstar%
803     {\mthlbop{\stackrel{\text{\textup{def}}}{=}}{=}}%
804     {\mthlbop{\triangleq}}}
805 \DeclareRobustCommand{\seteq}
806   {\@ifstar{\mthlbop{:=}}{\mthlbop{:}}}
807 %*****

\implies, ... ...
808 \DeclareRobustCommand{\implies}
809   {\mthlrel{\rightarrow}}
810 \DeclareRobustCommand{\notimplies}
811   {\mthlrel{\not\rightarrow}}

\implied, ... ...
812 \DeclareRobustCommand{\implied}
813   {\mthlrel{\leftarrow}}
814 \DeclareRobustCommand{\notimplied}
815   {\mthlrel{\not\leftarrow}}

\coimplies, ... ...
816 \DeclareRobustCommand{\coimplies}
817   {\mthlrel{\Leftrightarrow}}
818 \DeclareRobustCommand{\notcoimplies}
819   {\mthlrel{\not\Leftrightarrow}}
820 %*****

\cmodels, ... ...
821 \DeclareRobustCommand{\cmodels}
822   {\mthlrel{\models}}
823 \DeclareRobustCommand{\notcmodels}
824   {\mthlrel{\not\models}}

```

```

\cequiv, ... ...
825 \DeclareRobustCommand{\cequiv}
826   {\mthlrel{\equiv}}
827 \DeclareRobustCommand{\notcequiv}
828   {\mthlrel{\not\equiv}}

829 %%*****%

\denot ...
830 \DeclareRobustCommand{\denot}
831   {\@ifstar{\@denot}{\@denot[\left][\right]}}
832 \DeclareRobustCommandx{\@denot}[3][1=, 2=]
833   {\mth{\argmid{#1\llbracket}{#3}{#2\rrbracket}}}

834 %%*****%

\dual, \adj, ... ...
835 \DeclareRobustCommand{\dual}[1]
836   {\mth{\overline{#1}}}
837 \DeclareRobustCommand{\adj}[1]
838   {\mth{\mathring{#1}}}
839 \DeclareRobustCommand{\der}[1]
840   {\mth{\widehat{#1}}}
841 \DeclareRobustCommand{\trn}[1]
842   {\mth{\widetilde{#1}}}

\vec ...
843 \DeclareRobustCommand{\vec}
844   {\@ifstar{\@svec}{\@vec}}
845 \DeclareRobustCommand{\@vec}[1]
846   {\mth{\mathaccent"017E{#1}}}
847 \DeclareRobustCommand{\@svec}[1]
848   {\mth{\overline{#1}}}

849 %%*****%

\enumeration, ... ...
850 \varcmd{enumeration}{\mth}{\{,\}}{}{}
851 \varcmd{enumerationx}{\mth}{\{;\}}{}{}

\sequence, ... ...
852 \varcmd{sequence}{\mth}{\left[\{,\}\right]}{}
853 \varcmd{sequence1}{\mth}{\left[\{,\}\right.]}{}
854 \varcmd{sequencer}{\mth}{\left.\{,\}\right]}{}
855 \varcmd{sequencecx}{\mth}{\left[\{;\}\right]}{}
856 \varcmd{sequencecx1}{\mth}{\left[\{;\}\right.]}{}
857 \varcmd{sequencecxr}{\mth}{\left.\{;\}\right]}{}

\tuple, ... ...
858 \varcmd{tuple}{\mth}{\left\langle\right\rangle}{,\}}{}
859 \varcmd{tuple1}{\mth}{\left\langle\right\rangle}{,\}\right.]}{}
860 \varcmd{tupler}{\mth}{\left.\right\rangle}{,\}}{}
861 \varcmd{tuplex}{\mth}{\left\langle\right\rangle}{;\}}{}
862 \varcmd{tuplex1}{\mth}{\left\langle\right\rangle}{;\}\right.]}{}
863 \varcmd{tuplexrx}{\mth}{\left.\right\rangle}{;\}}{}

864 %%** Sets *****%

\set, ... ...
865 \DeclareRobustCommand{\set}
866   {\@ifstar{\@set}{\@set[\left][\middle][\right]}}
867 \DeclareRobustCommandx{\@set}[5][1=, 2=, 3=]
868   {\mth{\argmid{#1\lbrace}{\argsep{#4}{\,,#2\vert\,,}{#5}}{#3\rbrace}}}

```

```

869 \DeclareRobustCommand{\setl}
870   {\@ifstar{\@setl}{\@setl[\left][\right]}}
871 \DeclareRobustCommandx{\@setl}[3][1=, 2=]
872   {\mth{\argmid{#1\lbrace}{#3}{\, #2\vert\!}}}
873 \DeclareRobustCommand{\setr}
874   {\@ifstar{\@setr}{\@setr[\left.][\right]}}
875 \DeclareRobustCommandx{\@setr}[3][1=, 2=]
876   {\mth{\argmid{#1}{#3}{#2\rbrace}}}

\card ...
877 \DeclareRobustCommand{\card}
878   {\@ifstar{\@card}{\@card[\left][\right]}}
879 \DeclareRobustCommandx{\@card}[3][1=, 2=]
880   {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}

\pow ...
881 \DeclareRobustCommand{\pow}[1]
882   {\mth{2^{\defval{#1}{\cdot}}}}

883 %** Relations *****%%

\emptyrel ...
884 \DeclareRobustCommand{\emptyrel}
885   {\mth{\varnothing}}

886 %*****%%

\dom, \cod, ... ...
887 \DeclareRobustCommand{\dom}
888   {\mthargfun{dom}}
889 \DeclareRobustCommand{\cod}
890   {\mthargfun{cod}}
891 \DeclareRobustCommand{\rng}
892   {\mthargfun{rng}}
893 \DeclareRobustCommand{\img}
894   {\mthargfun{img}}

895 %*****%%

\prj ...
896 \DeclareRobustCommand{\prj}
897   {\mthargfun{prj}}

\rst ...
898 \DeclareRobustCommand{\rst}
899   {\mthlbop{\upharpoonright}}

\cmp ...
900 \DeclareRobustCommand{\cmp}
901   {\mthlbop{\circ}}

902 %** Functions *****%%

\emptyfun ...
903 \DeclareRobustCommand{\emptyfun}
904   {\mth{\varnothing}}

905 %*****%%

\pto, \pmapsto ...
906 \DeclareMathOperator{\pto}
907   {\ensuremath{\rightharpoonup}}
908 \DeclareMathOperator{\pmapsto}
909   {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize$\llcorner$}}}%
910     \kern-1.5ex\rightharpoonup}}

```


911 %%*****%

\fix, \ifp,

```
912 \DeclareRobustCommand{\fix}
913   {\mthfun{fix}}
914 \DeclareRobustCommand{\ifp}
915   {\mthfun{ifp}}
916 \DeclareRobustCommand{\lfp}
917   {\mthfun{lfp}}
918 \DeclareRobustCommand{\gfp}
919   {\mthfun{gfp}}
```

920 %%*****%

\Aomega, \AOmega

```
921 \DeclareRobustCommand{\Aomega}
922   {\mthargset{\omega}}
923 \DeclareRobustCommand{\AOmega}
924   {\mthargset{\Omega}}
```

\Atheta, \ATheta

```
925 \DeclareRobustCommand{\Atheta}
926   {\mthargset{\theta}}
927 \DeclareRobustCommand{\ATheta}
928   {\mthargset{\Theta}}
```

\Aomicron,

```
929 \DeclareRobustCommand{\Aomicron}
930   {\mthargset{\omicron}}
931 \DeclareRobustCommand{\AOmicron}
932   {\mthargset{\Omicron}}
```

933 %%** Numbers *****%

\SetB

```
934 \DeclareRobustCommand{\SetB}
935   {\mthset[mathbb]{B}}
```

\SetF

```
936 \DeclareRobustCommand{\SetF}
937   {\mthset[mathbb]{F}}
```

\SetN,

```
938 \DeclareRobustCommand{\SetN}
939   {\mthset[mathbb]{N}}
940 \DeclareRobustCommand{\SetNI}[1] []
941   {\SetN[\infty #1]}
```

\SetZ,

```
942 \DeclareRobustCommand{\SetZ}
943   {\mthset[mathbb]{Z}}
944 \DeclareRobustCommand{\SetZI}[1] []
945   {\SetZ[\pm\infty #1]}
946 \DeclareRobustCommand{\SetZPI}[1] []
947   {\SetZ[+\infty #1]}
948 \DeclareRobustCommand{\SetZNI}[1] []
949   {\SetZ[-\infty #1]}
```

\SetQ,

```
950 \DeclareRobustCommand{\SetQ}
951   {\mthset[mathbb]{Q}}
952 \DeclareRobustCommand{\SetQI}[1] []
953   {\SetQ[\pm\infty #1]}
```

```

954 \DeclareRobustCommand{\SetQPI}[1] []
955   {\SetQ[+\infty #1]}
956 \DeclareRobustCommand{\SetQNI}[1] []
957   {\SetQ[-\infty #1]}

\SetR, ... ...
958 \DeclareRobustCommand{\SetR}
959   {\mthset[mathbb]{R}}
960 \DeclareRobustCommand{\SetRI}[1] []
961   {\SetR[\pm\infty #1]}
962 \DeclareRobustCommand{\SetRPI}[1] []
963   {\SetR[+\infty #1]}
964 \DeclareRobustCommand{\SetRNI}[1] []
965   {\SetR[-\infty #1]}

\SetC, ... ...
966 \DeclareRobustCommand{\SetC}
967   {\mthset[mathbb]{C}}
968 \DeclareRobustCommand{\SetCI}[1] []
969   {\SetC[\infty #1]}

970 %%*****%

\num, ... ...
971 \DeclareRobustCommand{\num}[1]
972   {\mth{[#1]}}
973 \DeclareRobustCommand{\numcc}[2]
974   {\mth{[\argsep{#1}{,}{#2}]}}
975 \DeclareRobustCommand{\numco}[2]
976   {\mth{[\argsep{#1}{,}{#2})}}
977 \DeclareRobustCommand{\numoc}[2]
978   {\mth{(\argsep{#1}{,}{#2}]}}
979 \DeclareRobustCommand{\numoo}[2]
980   {\mth{(\argsep{#1}{,}{#2})}}

981 %%*****%

\abs ...
982 \DeclareRobustCommand{\abs}
983   {\@ifstar{\@abs}{\@abs[\left][\right]}}
984 \DeclareRobustCommandx{\@abs}[3][1=, 2=]
985   {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}

\floor, \ceil ...
986 \DeclareRobustCommand{\floor}
987   {\@ifstar{\@floor}{\@floor[\left][\right]}}
988 \DeclareRobustCommandx{\@floor}[3][1=, 2=]
989   {\mth{\argmid{#1\lfloor}{#3}{#2\rfloor}}}
990 \DeclareRobustCommand{\ceil}
991   {\@ifstar{\@ceil}{\@ceil[\left][\right]}}
992 \DeclareRobustCommandx{\@ceil}[3][1=, 2=]
993   {\mth{\argmid{#1\lceil}{#3}{#2\rceil}}}

994 %%*****%

\arg ...
995 \DeclareRobustCommand{\arg}
996   {\mthfun{arg}}

\evn, \odd ...
997 \DeclareRobustCommand{\evn}
998   {\mthfun{evn}}
999 \DeclareRobustCommand{\odd}
1000   {\mthfun{odd}}

```

```

\bst, ... ...
1001 \DeclareRobustCommand{\bst}
1002   {\mthfun{bst}}
1003 \DeclareRobustCommand{\argbst}
1004   {\mthfun{arg bst}}

\min, \max, ... ...
1005 \DeclareRobustCommand{\min}
1006   {\mthfun{min}}
1007 \DeclareRobustCommand{\max}
1008   {\mthfun{max}}
1009 \DeclareRobustCommand{\argmin}
1010   {\mthfun{arg min}}
1011 \DeclareRobustCommand{\argmax}
1012   {\mthfun{arg max}}

\inf, \sup ...
1013 \DeclareRobustCommand{\inf}
1014   {\mthfun{inf}}
1015 \DeclareRobustCommand{\sup}
1016   {\mthfun{sup}}

1017 %** Sequences *****%

\emptyseq ...
1018 \DeclareRobustCommand{\emptyseq}
1019   {\mth{\varepsilon}}

\fst, \lst ...
1020 \DeclareRobustCommand{\fst}
1021   {\mthargfun{fst}}
1022 \DeclareRobustCommand{\lst}
1023   {\mthargfun{lst}}

1024 \fi
1025 %*****%
1026 %*****%
1027 %** Macros for Computational-Complexity Classes *****%
1028 %*****%
1029 \ifcom@

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

    \CompClass[sub][sup][ext] = COMPCLASSSUBEXT
    \CoCompClass[sub][sup][ext] = CoCOMPCLASSSUBEXT
    \CompClassE[sub][sup][ext] = COMPCLASS-EASYSUBEXT
    \CoCompClassE[sub][sup][ext] = CoCOMPCLASS-EASYSUBEXT
    \CompClassH[sub][sup][ext] = COMPCLASS-HARDSUBEXT
    \CoCompClassH[sub][sup][ext] = CoCOMPCLASS-HARDSUBEXT
    \CompClassC[sub][sup][ext] = COMPCLASS-COMPLETESUBEXT
    \CoCompClassC[sub][sup][ext] = CoCOMPCLASS-COMPLETESUBEXT

    \NCompClass[sub][sup][ext] = NCOMPCLASSSUBEXT
    \CoNCompClass[sub][sup][ext] = CoNCOMPCLASSSUBEXT
    \NCompClassE[sub][sup][ext] = NCOMPCLASS-EASYSUBEXT
    \CoNCompClassE[sub][sup][ext] = CoNCOMPCLASS-EASYSUBEXT
    \NCompClassH[sub][sup][ext] = NCOMPCLASS-HARDSUBEXT
    \CoNCompClassH[sub][sup][ext] = CoNCOMPCLASS-HARDSUBEXT
    \NCompClassC[sub][sup][ext] = NCOMPCLASS-COMPLETESUBEXT
    \CoNCompClassC[sub][sup][ext] = CoNCOMPCLASS-COMPLETESUBEXT

    \UCompClass[sub][sup][ext] = UCOMPCLASSSUBEXT

```

```

\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

1030 \newcommandx{\defcomcls}[2][2=]
1031   {\defcomclssem{#1}{\defval{#2}{#1}}%
1032   \defcomclssem{#1}{\defval{#2}{#1}}[Co]}
1033 \newcommandx{\defcomclssem}[3][3=]
1034   {\defcomclsred{#3#1}{#2}{#3}%
1035   \defcomclsred{#3N#1}{#2}{#3N}%
1036   \defcomclsred{#3U#1}{#2}{#3U}%
1037   \defcomclsred{#3A#1}{#2}{#3A}}
1038 \newcommandx{\defcomclsred}[3][3=]
1039   {\defcomclscmd{#1}{#2}{#3}%
1040   \defcomclscmd{#1E}{#2}{#3}[-easy]%

```

```

1041 \defcomclscmd{#1H}{#2}{#3}[-hard]%
1042 \defcomclscmd{#1C}{#2}{#3}[-complete]]%
1043 \newcommandx{\defcomclscmd}[4][3=, 4=]
1044 {\csdef{#1}{\txtcom{#3#2#4}}}

\defcomhrc ... to do!


- \defcomhrc{CompHierarchy};

CompHierarchy[sub][sup][ext] = COMPHIERARCHYSUBEXT

- \defcomhrc{CompHierarchy}[NewHierarchy];

CompHierarchy[sub][sup][ext] = NEWHIERARCHYSUBEXT

1045 \newcommandx{\defcomhrc}[2][2=]
1046 {\csdef{#1}{\txtcom{\defval{#2}{#1}}}}

1047 %%*****%

```

\Easy, \Hard, ...

```

1048 \cmdtxtcom{Easy}
1049 \cmdtxtcom{Hard}
1050 \cmdtxtcom{Complete}

1051 %%*****%
```

```

\Time, ...


- \Time[sub][sup][ext] = TIMESUBEXT
\TimeE[sub][sup][ext] = TIME-EASYSUBEXT
\TimeH[sub][sup][ext] = TIME-HARDSUBEXT
\TimeC[sub][sup][ext] = TIME-COMPLETESUBEXT
- \NTime[sub][sup][ext] = NTIMESUBEXT
\NTimeE[sub][sup][ext] = NTIME-EASYSUBEXT
\NTimeH[sub][sup][ext] = NTIME-HARDSUBEXT
\NTimeC[sub][sup][ext] = NTIME-COMPLETESUBEXT
- \UTime[sub][sup][ext] = UTIMESUBEXT
\UTimeE[sub][sup][ext] = UTIME-EASYSUBEXT
\UTimeH[sub][sup][ext] = UTIME-HARDSUBEXT
\UTimeC[sub][sup][ext] = UTIME-COMPLETESUBEXT
- \ATime[sub][sup][ext] = ATIMESUBEXT
\ATimeE[sub][sup][ext] = ATIME-EASYSUBEXT
\ATimeH[sub][sup][ext] = ATIME-HARDSUBEXT
\ATimeC[sub][sup][ext] = ATIME-COMPLETESUBEXT

```

```
1052 \defcomcls{Time}
```

```

\Space, ...


- \Space[sub][sup][ext] = SPACESUBEXT
\SpaceE[sub][sup][ext] = SPACE-EASYSUBEXT
\SpaceH[sub][sup][ext] = SPACE-HARDSUBEXT
\SpaceC[sub][sup][ext] = SPACE-COMPLETESUBEXT
- \NSpace[sub][sup][ext] = NSPACESUBEXT
\NSpaceE[sub][sup][ext] = NSPACE-EASYSUBEXT
\NSpaceH[sub][sup][ext] = NSPACE-HARDSUBEXT
\NSpaceC[sub][sup][ext] = NSPACE-COMPLETESUBEXT
- \USpace[sub][sup][ext] = USPACESUBEXT
\USpaceE[sub][sup][ext] = USPACE-EASYSUBEXT
\USpaceH[sub][sup][ext] = USPACE-HARDSUBEXT
\USpaceC[sub][sup][ext] = USPACE-COMPLETESUBEXT
- \ASpace[sub][sup][ext] = ASPACESUBEXT
\ASpaceE[sub][sup][ext] = ASPACE-EASYSUBEXT
\ASpaceH[sub][sup][ext] = ASPACE-HARDSUBEXT
\ASpaceC[sub][sup][ext] = ASPACE-COMPLETESUBEXT

```

```
1053 \defcomcls{Space}
```

\LogTime, ...

- \LogTime[sub][sup][ext] = LOGTIME^{SUB}EXT
- \LogTimeE[sub][sup][ext] = LOGTIME-EASY^{SUB}EXT
- \LogTimeH[sub][sup][ext] = LOGTIME-HARD^{SUB}EXT
- \LogTimeC[sub][sup][ext] = LOGTIME-COMPLETE^{SUB}EXT
- \NLogTime[sub][sup][ext] = NLOGTIME^{SUB}EXT
- \NLogTimeE[sub][sup][ext] = NLOGTIME-EASY^{SUB}EXT
- \NLogTimeH[sub][sup][ext] = NLOGTIME-HARD^{SUB}EXT
- \NLogTimeC[sub][sup][ext] = NLOGTIME-COMPLETE^{SUB}EXT
- \ULogTime[sub][sup][ext] = ULOGTIME^{SUB}EXT
- \ULogTimeE[sub][sup][ext] = ULOGTIME-EASY^{SUB}EXT
- \ULogTimeH[sub][sup][ext] = ULOGTIME-HARD^{SUB}EXT
- \ULogTimeC[sub][sup][ext] = ULOGTIME-COMPLETE^{SUB}EXT
- \ALogTime[sub][sup][ext] = ALOGTIME^{SUB}EXT
- \ALogTimeE[sub][sup][ext] = ALOGTIME-EASY^{SUB}EXT
- \ALogTimeH[sub][sup][ext] = ALOGTIME-HARD^{SUB}EXT
- \ALogTimeC[sub][sup][ext] = ALOGTIME-COMPLETE^{SUB}EXT

1054 \defcomcls{LogTime}

\LogSpace, ...

- \LogSpace[sub][sup][ext] = LOGSPACE^{SUB}EXT
- \LogSpaceE[sub][sup][ext] = LOGSPACE-EASY^{SUB}EXT
- \LogSpaceH[sub][sup][ext] = LOGSPACE-HARD^{SUB}EXT
- \LogSpaceC[sub][sup][ext] = LOGSPACE-COMPLETE^{SUB}EXT
- \NLogSpace[sub][sup][ext] = NLOGSPACE^{SUB}EXT
- \NLogSpaceE[sub][sup][ext] = NLOGSPACE-EASY^{SUB}EXT
- \NLogSpaceH[sub][sup][ext] = NLOGSPACE-HARD^{SUB}EXT
- \NLogSpaceC[sub][sup][ext] = NLOGSPACE-COMPLETE^{SUB}EXT
- \ULogSpace[sub][sup][ext] = ULOGSPACE^{SUB}EXT
- \ULogSpaceE[sub][sup][ext] = ULOGSPACE-EASY^{SUB}EXT
- \ULogSpaceH[sub][sup][ext] = ULOGSPACE-HARD^{SUB}EXT
- \ULogSpaceC[sub][sup][ext] = ULOGSPACE-COMPLETE^{SUB}EXT
- \ALogSpace[sub][sup][ext] = ALOGSPACE^{SUB}EXT
- \ALogSpaceE[sub][sup][ext] = ALOGSPACE-EASY^{SUB}EXT
- \ALogSpaceH[sub][sup][ext] = ALOGSPACE-HARD^{SUB}EXT
- \ALogSpaceC[sub][sup][ext] = ALOGSPACE-COMPLETE^{SUB}EXT

1055 \defcomcls{LogSpace}

\PTime, ...

- \PTime[sub][sup][ext] = PTIME^{SUB}EXT
- \PTimeE[sub][sup][ext] = PTIME-EASY^{SUB}EXT
- \PTimeH[sub][sup][ext] = PTIME-HARD^{SUB}EXT
- \PTimeC[sub][sup][ext] = PTIME-COMPLETE^{SUB}EXT
- \NPTime[sub][sup][ext] = NPTime^{SUB}EXT
- \NPTimeE[sub][sup][ext] = NPTime-EASY^{SUB}EXT
- \NPTimeH[sub][sup][ext] = NPTime-HARD^{SUB}EXT
- \NPTimeC[sub][sup][ext] = NPTime-COMPLETE^{SUB}EXT
- \UPTime[sub][sup][ext] = UPTIME^{SUB}EXT
- \UPTimeE[sub][sup][ext] = UPTIME-EASY^{SUB}EXT
- \UPTimeH[sub][sup][ext] = UPTIME-HARD^{SUB}EXT
- \UPTimeC[sub][sup][ext] = UPTIME-COMPLETE^{SUB}EXT
- \APTime[sub][sup][ext] = APTIME^{SUB}EXT
- \APTimeE[sub][sup][ext] = APTIME-EASY^{SUB}EXT
- \APTimeH[sub][sup][ext] = APTIME-HARD^{SUB}EXT
- \APTimeC[sub][sup][ext] = APTIME-COMPLETE^{SUB}EXT

1056 \defcomcls{PTime}

\PSpace, ...

- \PSpace[sub][sup][ext] = PSPACE^{SUB}EXT
- \PSpaceE[sub][sup][ext] = PSPACE-EASY^{SUB}EXT
- \PSpaceH[sub][sup][ext] = PSPACE-HARD^{SUB}EXT
- \PSpaceC[sub][sup][ext] = PSPACE-COMPLETE^{SUB}EXT

```
1057 \defcomcls{PSpace}
```

```
1058 \defcomcls{QPTime}
```

1059 \defcomcls{QPSpace}

- $\backslash \text{ExpTime}[\text{sub}][\text{sup}][\text{ext}] = \text{UExpTime}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{ExpTimeE}[\text{sub}][\text{sup}][\text{ext}] = \text{UExpTime-EASY}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{ExpTimeH}[\text{sub}][\text{sup}][\text{ext}] = \text{UExpTime-HARD}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{ExpTimeC}[\text{sub}][\text{sup}][\text{ext}] = \text{UExpTime-COMplete}_{\text{SUBEXT}}^{\text{SUP}}$
- $\backslash \text{AExpTime}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{AExpTimeE}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime-EASY}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{AExpTimeH}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime-HARD}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{AExpTimeC}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime-COMplete}_{\text{SUBEXT}}^{\text{SUP}}$

1060 $\backslash \text{defcomcls}\{\text{ExpTime}\}$

$\backslash \text{ExpSpace}, \dots$

- $\backslash \text{ExpSpace}[\text{sub}][\text{sup}][\text{ext}] = \text{ExpSpace}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{ExpSpaceE}[\text{sub}][\text{sup}][\text{ext}] = \text{ExpSpace-EASY}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{ExpSpaceH}[\text{sub}][\text{sup}][\text{ext}] = \text{ExpSpace-HARD}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{ExpSpaceC}[\text{sub}][\text{sup}][\text{ext}] = \text{ExpSpace-COMplete}_{\text{SUBEXT}}^{\text{SUP}}$
- $\backslash \text{NExpSpace}[\text{sub}][\text{sup}][\text{ext}] = \text{NExpSpace}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{NExpSpaceE}[\text{sub}][\text{sup}][\text{ext}] = \text{NExpSpace-EASY}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{NExpSpaceH}[\text{sub}][\text{sup}][\text{ext}] = \text{NExpSpace-HARD}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{NExpSpaceC}[\text{sub}][\text{sup}][\text{ext}] = \text{NExpSpace-COMplete}_{\text{SUBEXT}}^{\text{SUP}}$
- $\backslash \text{UExpSpace}[\text{sub}][\text{sup}][\text{ext}] = \text{UExpSpace}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{UExpSpaceE}[\text{sub}][\text{sup}][\text{ext}] = \text{UExpSpace-EASY}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{UExpSpaceH}[\text{sub}][\text{sup}][\text{ext}] = \text{UExpSpace-HARD}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{UExpSpaceC}[\text{sub}][\text{sup}][\text{ext}] = \text{UExpSpace-COMplete}_{\text{SUBEXT}}^{\text{SUP}}$
- $\backslash \text{AExpSpace}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpSpace}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{AExpSpaceE}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpSpace-EASY}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{AExpSpaceH}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpSpace-HARD}_{\text{SUBEXT}}^{\text{SUP}}$
 $\backslash \text{AExpSpaceC}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpSpace-COMplete}_{\text{SUBEXT}}^{\text{SUP}}$

1061 $\backslash \text{defcomcls}\{\text{ExpSpace}\}$

1062 $\%*****\%$

$\backslash \text{PH}$ • $\backslash \text{PH}[\text{sub}][\text{sup}][\text{ext}] = \text{PH}_{\text{SUBEXT}}^{\text{SUP}}$

1063 $\backslash \text{defcomhrc}\{\text{PH}\}$

...

1064 $\backslash \text{fi}$

1065 $\%*****\%$

1066 $\%*****\%$

1067 $\%** \text{ Macros for Games }*****\%$

1068 $\%*****\%$

1069 $\backslash \text{ifgam@}$

1070 $\%** \text{ Logic Games }*****\%$

$\backslash \text{SATG}, \dots$...

1071 $\% \text{ Satisfiability Games}$

1072 $\backslash \text{cmdtxtopname}\{\text{SATG}\}[\text{Sat}]$

1073

1074 $\% \text{ Validity Games}$

1075 $\backslash \text{cmdtxtopname}\{\text{VALG}\}[\text{Val}]$

1076

1077 $\% \text{ Evaluation Games}$

1078 $\backslash \text{cmdtxtopname}\{\text{EVLG}\}[\text{Evl}]$

1079

1080 $\% \text{ Synthesis Games}$

1081 $\backslash \text{cmdtxtopname}\{\text{SYNG}\}[\text{Syn}]$

1082

1083 $\% \text{ Model-Checking Games}$

1084 $\backslash \text{cmdtxtopname}\{\text{MCG}\}[\text{MC}]$

1085

1086 $\% \text{ Ehrenfeucht-Fraisse Games}$

1087 $\backslash \text{cmdtxtopname}\{\text{EFG}\}[\text{EF}]$

1088 %** Syntax *****%

\PlrSym, \OppSym ...

1089 \newcommand{\plrSym}{E}
 1090 \cmdmthSym{Plr}[\plrSym]
 1091 \newcommand{\oppSym}{A}
 1092 \cmdmthSym{Opp}[\oppSym]

\ArenaName,

1093 \newcommand{\arenaName}{A}
 1094 \usrmthlatupp{Arena}{Name}{name}[\arenaName]

\PosSet,

1095 \newcommand{\posSym}{v}
 1096 \newcommand{\posSet}{Ps}
 1097 \cmdmthsetext{Pos}[\posSet][\posSym]
 1098 \cmdmthSymelm{ipos}[\posSym_{I}]
 1099 \cmdmthSymelm{fpos}[\posSym_{F}]
 1100 \cmdmthset{PPos}[\posSet_{\PlrSym}]
 1101 \cmdmthSymelm{ppos}[\posSym_{\PlrSym}]
 1102 \cmdmthset{OPos}[\posSet_{\OppSym}]
 1103 \cmdmthSymelm{opos}[\posSym_{\OppSym}]

\PlrFun ...

1104 \newcommand{\plrFun}{pl}
 1105 \cmdmthFun{plr}[\plrFun]

\MovRel ...

1106 \newcommand{\movRel}{Mv}
 1107 \cmdmthRel{Mov}[\movRel]

\GameName,

1108 \newcommand{\gameName}{\Game}
 1109 \usrmthlatupp{Game}{Name}{name}[\gameName]

\WinSet ...

1110 \newcommand{\winSet}{Wn}
 1111 \cmdmthset{Win}[\winSet]

\ObsSet, \obsFun ...

1112 \newcommand{\obsSet}{Ob}
 1113 \cmdmthset{Obs}[\obsSet]
 1114 \cmdmthFun{obs}

1115 %** Semantics *****%

\PthSet, \pthFun ...

1116 \newcommand{\pthSym}{\pi}
 1117 \newcommand{\pthSet}{Pth}
 1118 \cmdmthsetext{Pth}[\pthSet][\pthSym]
 1119 \cmdmthFun{pth}

\HstSet,

1120 \newcommand{\hstSym}{\rho}
 1121 \newcommand{\hstSet}{Hst}
 1122 \cmdmthsetext{Hst}[\hstSet][\hstSym]
 1123 \cmdmthset{PHst}[\hstSet_{\PlrSym}]
 1124 \cmdmthSymelm{phst}[\hstSym_{\PlrSym}]
 1125 \cmdmthset{OHst}[\hstSet_{\OppSym}]
 1126 \cmdmthSymelm{ohst}[\hstSym_{\OppSym}]
 1127 \cmdmthFun{hst}

```

\PlaySet, \playFun ...
1128 \newcommand{\playsym}{\pi}
1129 \newcommand{\playset}{Play}
1130 \cmdmthsetext{Play}[\playset][\playsym]
1131 \cmdmthfun{play}

\StrSet, ... ...
1132 \newcommand{\strsym}{\sigma}
1133 \newcommand{\strset}{Str}
1134 \cmdmthsetext{Str}[\strset][\strsym]
1135 \cmdmthset{PStr}[\strset_{\PlrSym}]
1136 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1137 \cmdmthset{OStr}[\strset_{\OppSym}]
1138 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1139 \newcommand{\prfsym}{\xi}
1140 \newcommand{\prfset}{Prf}
1141 \cmdmthsetext{Prf}[\prfset][\prfsym]

\preFun, \sucFun ...
1142 \newcommand{\prefun}{pre}
1143 \cmdmthoargfun{pre}[\prefun]
1144 \newcommand{\sucfun}{suc}
1145 \cmdmthoargfun{suc}[\sucfun]

\entFun, \escFun ...
1146 \newcommand{\entfun}{ent}
1147 \cmdmthoargfun{ent}[\entfun]
1148 \newcommand{\escfun}{esc}
1149 \cmdmthoargfun{esc}[\escfun]

\intFun, \outFun ...
1150 \newcommand{\intfun}{int}
1151 \cmdmthoargfun{int}[\intfun]
1152 \newcommand{\outfun}{out}
1153 \cmdmthoargfun{out}[\outfun]

\atrFun, \rchFun ...
1154 \newcommand{\atrfun}{atr}
1155 \cmdmthoargfun{atr}[\atrfun]
1156 \newcommand{\rchfun}{rch}
1157 \cmdmthoargfun{rch}[\rchfun]

\liftFun ...
1158 \newcommand{\liftfun}{lift}
1159 \cmdmthoargfun{lift}[\liftfun]

\solFun ...
1160 \newcommand{\solfun}{sol}
1161 \cmdmthoargfun{sol}[\solfun]

1162 %%** Qualitative Games on Graph *****%%

\BG, ... ...
1163 %% Buchi Games
1164 \cmdtxttoparname{BG}
1165
1166 %% Co-Buchi Games
1167 \cmdtxttoparname{CG}
1168
1169 %% Parity Games

```

```

1170 \cmdtxttoparname{PG}
1171
1172 %% Rabin Games
1173 \cmdtxttoparname{RG}
1174
1175 %% Streett Games
1176 \cmdtxttoparname{SG}
1177
1178 %% Muller Games
1179 \cmdtxttoparname{MG}

1180 %** Syntax *****%
```

\EvnSym, \OddSym ...

```

1181 \newcommand{\evnsym}{0}
1182 \cmdmthsym{Evn}[\evnsym]
1183 \newcommand{\oddsym}{1}
1184 \cmdmthsym{Odd}[\oddsym]
```

\PrtSet, \prtFun ...

```

1185 \newcommand{\prtsym}{p}
1186 \newcommand{\prtset}{Pr}
1187 \cmdmthsetext{Prt}[\prtset][\prtsym]
1188 \cmdmthfun{prt}[pr]
```

```

1189 %** Semantics *****%
...
1190 %** Quantitative Games on Graph *****%
```

\EG,

```

1191 %% Energy Games
1192 \cmdtxttoparname{EG}
1193
1194 %% Mean-Payoff Games
1195 \cmdtxttoparname{MPG}
1196
1197 %% Discounted-Payoff Games
1198 \cmdtxttoparname{DPG}
```

```

1199 %** Syntax *****%
```

\MaxSym, \MinSym ...

```

1200 \newcommand{\maxsym}{\oplus}
1201 \cmdmthsym{Max}[\maxsym]
1202 \newcommand{\minsym}{\boxminus}
1203 \cmdmthsym{Min}[\minsym]
```

\WghSet, \wghFun ...

```

1204 \newcommand{\wghsym}{w}
1205 \newcommand{\wghset}{Wg}
1206 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1207 \cmdmthfun{wgh}[wg]
```

```

1208 %** Semantics *****%
...
1209 \fi
1210 %*****%
1211 %*****%
1212 %** Macros for Logics *****%
1213 %*****%
1214 \iflog@
```

1215 %** Propositional Logics *****%

\BF, \QBF, ...

1216 % Boolean Formulae
 1217 \cmdtxttoparname{BF}
 1218
 1219 % Quantified Boolean Formulae
 1220 \DeclareRobustCommand{\QBF}
 1221 {\textname{Q}\BF}
 1222 \DeclareRobustCommand{\EBF}
 1223 {\ensuremath{\exists}\BF}
 1224 \DeclareRobustCommand{\UBF}
 1225 {\ensuremath{\forall}\BF}

1226 %** Syntax *****%

\LogSig, ...

1227 \newcommand{\logsig}{L}
 1228 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

\Tt, \Ff ...

1229 \newcommand{\ttsym}{\top}
 1230 \usrmth{Tt}{\sym}[\ttsym]
 1231 \newcommand{\ffsym}{\bot}
 1232 \usrmth{Ff}{\sym}[\ffsym]

\LNeg, \LNot ...

1233 \newcommand{\lnegsym}{\neg}
 1234 \usrmth{LNeg}{\luop}[\lnegsym]
 1235 \newcommand{\lnotsym}{\sim}
 1236 \usrmth{LNot}{\luop}[\lnotsym]

\LCon, \LDis ...

1237 \newcommand{\lconsym}{\land}
 1238 \usrmth{LCon}{\lbop}[\lconsym]
 1239 \newcommand{\ldissym}{\lor}
 1240 \usrmth{LDis}{\lbop}[\ldissym]

\LImp, \LCoi ...

1241 \newcommand{\limpsym}{\rightarrow}
 1242 \usrmth{LImp}{\lbop}[\limpsym]
 1243 \newcommand{\lcoisym}{\leftrightarrow}
 1244 \usrmth{LCoi}{\lbop}[\lcoisym]

\LExs, \LAll ...

1245 \newcommand{\lexssym}{\exists}
 1246 \usrmth{LExs}{\luop}[\lexssym]
 1247 \newcommand{\lallsym}{\forall}
 1248 \usrmth{LAll}{\luop}[\lallsym]

\APSet, ...

1249 \newcommand{\apsym}{p}
 1250 \newcommand{\apset}{AP}
 1251 \cmdmthsetext{AP}[\apset][\apsym]
 1252 \cmdmthfun{ap}\usrmth{ap}{\argfun}

\sub ...

1253 \usrmth{sub}{\argfun}

\Cnt, \Qnt, \Sym ...

1254 \usrmth{Cnt}{\sym}[C]
 1255 \usrmth{Qnt}{\sym}[Q]
 1256 \usrmth{Sym}{\sym}[\odot]

```

\QAE, \QEA ...
1257 \usrmth{QAE}{-}{sym}[\forall\exists]
1258 \usrmth{QEA}{-}{sym}[\exists\forall]

\QntSet, ... ...
1259 \newcommand{\qntsym}{\wp}
1260 \newcommand{\qntset}{Qn}
1261 \cmdmthsetext{Qnt}{\qntset}[\qntsym]

\free, \bound ...
1262 \usrmth{free}{-}{argfun}
1263 \usrmth{bound}{-}{argfun}

\dep, \alt ...
1264 \usrmth{dep}{-}{argfun}
1265 \usrmth{alt}{-}{argfun}

\cnf, \dnf, ... ...
1266 \cmdtxtabr{cnf}
1267 \cmdtxtabr{dnf}
1268 \cmdtxtabr{pnf}
1269 \cmdtxtabr{nnf}

1270 %** Semantics *****%

\LogStr, ... ...
1271 \newcommand{\logstr}{L}
1272 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet, ... ...
1273 \newcommand{\valsym}{\xi}
1274 \newcommand{\valset}{Val}
1275 \cmdmthsetext{Val}{\valset}[\valsym]

\AsgSet, ... ...
1276 \newcommand{\asgsym}{\chi}
1277 \newcommand{\asgset}{Asg}
1278 \cmdmthsetext{Asg}{\asgset}[\asgsym]

1279 %** First-Order Logics I *****%

\FOL, ... ...
1280 % First-Order Logic
1281 \cmdtxtoparname{FOL}[Fol]
1282 \cmdtxtoparname{FO}[FO]
1283
1284 % Monadic First-Order Logic
1285 \DeclareRobustCommand{\MFOL}
1286   {\{\txtname{M}\}\FOL}
1287 \DeclareRobustCommand{\MFO}
1288   {\{\txtname{M}\}\FO}

1289 %** Syntax *****%

\VarSig, ... ...
1290 \newcommand{\varsig}{V}
1291 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1292 \newcommand{\varsym}{x}
1293 \newcommand{\varset}{Vr}
1294 \cmdmthsetext{Var}{\varset}[\varsym]
1295 \usrmth{var}{-}{argfun}[vr]
1296 \cmdmthfun{dim}[dm]\usrmth{dim}{-}{argfun}[dm]

```

```

\ConSig, ... ...
1297 \newcommand{\consig}{C}
1298 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1299 \newcommand{\consym}{c}
1300 \newcommand{\conset}{Cn}
1301 \cmdmthsetext{Con}[\conset][\consym]
1302 \usrmth{con}{-}{argfun}[cn]

\FunSig, ... ...
1303 \newcommand{\funsig}{F}
1304 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1305 \newcommand{\funsym}{f}
1306 \newcommand{\funset}{Fn}
1307 \cmdmthsetext{Fun}[\funset][\funsym]
1308 \usrmth{fun}{-}{argfun}[fn]
1309 \cmdmthfun{art}[ar]\usrmth{art}{-}{argfun}[ar]

\TerSig, ... ...
1310 \newcommand{\tersig}{T}
1311 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1312 \newcommand{\tersym}{t}
1313 \newcommand{\terset}{Tr}
1314 \cmdmthsetext{Ter}[\terset][\tersym]
1315 \usrmth{ter}{-}{argfun}

\RelSig, ... ...
1316 \newcommand{\relsig}{R}
1317 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1318 \newcommand{\relsym}{r}
1319 \newcommand{\relset}{Rl}
1320 \cmdmthsetext{Rel}[\relset][\relsym]
1321 \usrmth{rel}{-}{argfun}[rl]

\skm ...
1322 \usrmth{skm}{-}{argfun}

1323 %** Semantics *****%%

\ConStr, ... ...
1324 \newcommand{\constr}{C}
1325 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr, ... ...
1326 \newcommand{\funstr}{F}
1327 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr, ... ...
1328 \newcommand{\terstr}{T}
1329 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr, ... ...
1330 \newcommand{\relstr}{R}
1331 \usrmthlatupp{Rel}{Str}{str}[\relstr]

1332 %** First-Order Logics II *****%%

\DF, \IF, ... ...
1333 % Dependence-Friendly Logic
1334 \cmdtxtoparname{DF}
1335
1336 % Independence-Friendly Logic
1337 \cmdtxtoparname{IF}
1338

```

```

1339 % Dependence/Independence-Friendly Logic
1340 \cmdtxttoparname{DIF}
1341
1342 % Dependence Logic
1343 \cmdtxttoparname{DL}
1344
1345 % Team Logic
1346 \cmdtxttoparname{TL}
1347
1348 % Alternating Dependence-Friendly Logic
1349 \cmdtxttoparname{ADF}
1350
1351 % Alternating Independence-Friendly Logic
1352 \cmdtxttoparname{AIF}
1353
1354 % Alternating Dependence/Independence-Friendly Logic
1355 \cmdtxttoparname{ADIF}

```

...

```

1356 %** Syntax *****%

```

\LEExs, \LAA11 ...

```

1357 \newcommand{\leexssym}{\Sigma}
1358 \usrmth{LEExs}{\luop}[\leexssym]
1359 \newcommand{\laallsym}{\Pi}
1360 \usrmth{LAA11}{\luop}[\laallsym]

```

```

1361 %** Semantics *****%

```

...

```

1362 %** Second-Order Logics I *****%

```

\SOL,

```

1363 % Second-Order Logic
1364 \cmdtxttoparname{SOL}[Sol]
1365 \cmdtxttoparname{SO}
1366
1367 % Weak Second-Order Logic
1368 \DeclareRobustCommand{\WSOL}
1369   {\{\txtrname{W}\}\SOL}
1370 \DeclareRobustCommand{\WSO}
1371   {\{\txtrname{W}\}\SO}
1372
1373 % coWeak Second-Order Logic
1374 \DeclareRobustCommand{\coWSOL}
1375   {\{\txtrname{coW}\}\SOL}
1376 \DeclareRobustCommand{\coWSO}
1377   {\{\txtrname{coW}\}\SO}
1378
1379 % Monadic Second-Order Logic
1380 \DeclareRobustCommand{\MSOL}
1381   {\{\txtrname{M}\}\SOL}
1382 \DeclareRobustCommand{\MSO}
1383   {\{\txtrname{M}\}\SO}
1384
1385 % Weak Monadic Second-Order Logic
1386 \DeclareRobustCommand{\WMSOL}
1387   {\{\txtrname{W}\}\MSOL}
1388 \DeclareRobustCommand{\WMSO}
1389   {\{\txtrname{W}\}\MSO}
1390
1391 % coWeak Monadic Second-Order Logic
1392 \DeclareRobustCommand{\coWMSOL}

```

```

1393   {{\txtname{coW}}}\MSOL}
1394 \DeclareRobustCommand{\coWMSO}
1395   {{\txtname{coW}}}\MSO}

1396 %** Syntax *****%%

\FVarSet, ... ...
1397 \newcommand{\fvarsym}{x}
1398 \newcommand{\fvarset}{FVr}
1399 \cmdmthsettext{FVar}[\fvarset][\fvarsym]

\SVarSet, ... ...
1400 \newcommand{\svarsym}{X}
1401 \newcommand{\svarset}{SVr}
1402 \cmdmthsettext{SVar}[\svarset][\svarsym]

1403 %** Semantics *****%%
...
1404 %** Second-Order Logics II *****%%

\TL, \PL, ... ...
1405 % Tree Logic
1406 \cmdtxttoparname{TL}
1407
1408 % Weak Tree Logic
1409 \DeclareRobustCommand{\WTL}
1410   {{\txtname{W}}}\TL}
1411
1412 % coWeak Tree Logic
1413 \DeclareRobustCommand{\coWTL}
1414   {{\txtname{coW}}}\TL}
1415
1416 % Monadic Tree Logic
1417 \DeclareRobustCommand{\MTL}
1418   {{\txtname{M}}}\TL}
1419
1420 % Weak Monadic Tree Logic
1421 \DeclareRobustCommand{\WMTL}
1422   {{\txtname{W}}}\MTL}
1423
1424 % coWeak Monadic Tree Logic
1425 \DeclareRobustCommand{\coWMTL}
1426   {{\txtname{coW}}}\MTL}
1427
1428 % Path Logic
1429 \cmdtxttoparname{PL}
1430
1431 % Weak Path Logic
1432 \DeclareRobustCommand{\WPL}
1433   {{\txtname{W}}}\PL}
1434
1435 % coWeak Path Logic
1436 \DeclareRobustCommand{\coWPL}
1437   {{\txtname{coW}}}\PL}
1438
1439 % Monadic Path Logic
1440 \DeclareRobustCommand{\MPL}
1441   {{\txtname{M}}}\PL}
1442
1443 % Weak Monadic Path Logic
1444 \DeclareRobustCommand{\WMPL}
1445   {{\txtname{W}}}\MPL}
1446

```



```

1447 % coWeak Monadic Path Logic
1448 \DeclareRobustCommand{\coWMPL}
1449   {\textname{coW}}\MPL}

1450 %** Syntax *****%
...
1451 %** Semantics *****%
...
1452 %** Modal Logics I *****%

```

\ML, \GML, ...

```

...
1453 % Modal Logic
1454 \cmdtxttoparname{ML}
1455
1456 % Graded Modal Logic
1457 \DeclareRobustCommand{\GML}
1458   {\textname{G}}\ML}
1459
1460 % Quantified Modal Logic
1461 \DeclareRobustCommand{\QML}
1462   {\textname{Q}}\ML}
1463 \DeclareRobustCommand{\EML}
1464   {\ensuremath{\exists}\ML}
1465 \DeclareRobustCommand{\UML}
1466   {\ensuremath{\forall}\ML}

1467 %** Syntax *****%

```

\Opr ...

```

1468 \usrmth{Opr}{\sym}[Op]

```

\DMod, \BMod ...

```

1469 \usrmth{DMod}{\sym}[\Diamond]
1470 \usrmth{BMod}{\sym}[\Box]

```

\Exs, \All ...

```

1471 \DeclareRobustCommand{\Exs}[1]
1472   {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1473 \DeclareRobustCommand{\All}[1]
1474   {\mth{\defval{\argmid{\left[]}{#1}{\right}}}{\BMod}}}

```

```

1475 %** Semantics *****%

```

\KrpStr, ...

```

1476 \newcommand{\krpstr}{K}
1477 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

```

\WrlSet, ...

```

1478 \newcommand{\wrlsym}{w}
1479 \newcommand{\wrlset}{W}
1480 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
1481 \cmdmthsymelm{iwrl}[\wrlsym_{I}]

```

\AccRel, \TrnRel ...

```

1482 \newcommand{\accsym}{R}
1483 \cmdmthrel{Acc}[\accsym]
1484 \cmdmthrel{Trn}[\accsym]

```

\labFun ...

```

1485 \newcommand{\labsym}{\lambda}
1486 \cmdmthfun{lab}[\labsym]

```

```

\PTHSet, \pthFun ...
1487 \providecommand{\pthsym}{\pi}
1488 \providecommand{\pthset}{Pth}
1489 \cmdmthsetext{Pth}[\pthset][\pthsym]
1490 \cmdmthfun{pth}

1491 %** Modal Logics II *****%

\MC, \GMC, ... ...
1492 % Mu Calculus
1493 \cmdtxttoparname{MC}[\ensuremath{\mu}-Calculus]
1494
1495 % Graded Mu Calculus
1496 \DeclareRobustCommand{\GMC}
1497   {\{\textrm{G}\}\MC}
1498
1499 % Quantified Mu Calculus
1500 \DeclareRobustCommand{\QMC}
1501   {\{\textrm{Q}\}\MC}
1502 \DeclareRobustCommand{\EMC}
1503   {\ensuremath{\exists}\MC}
1504 \DeclareRobustCommand{\UMC}
1505   {\ensuremath{\forall}\MC}
1506
1507 % Alternation-Free Mu Calculus
1508 \DeclareRobustCommand{\AFMC}
1509   {\{\textrm{AF}\}\MC}
1510
1511 % Alternation-Free Graded Mu Calculus
1512 \DeclareRobustCommand{\AFGMC}
1513   {\{\textrm{AF}\}\GMC}
1514
1515 % Quantified Alternation-Free Mu Calculus
1516 \DeclareRobustCommand{\QAFMC}
1517   {\{\textrm{Q}\}\AFMC}
1518 \DeclareRobustCommand{\EAFMC}
1519   {\ensuremath{\exists}\AFMC}
1520 \DeclareRobustCommand{\UAFMC}
1521   {\ensuremath{\forall}\AFMC}
1522

1523 %** Syntax *****%

...

1524 %** Semantics *****%

...

1525 %** Temporal Logics I *****%

\PTL, \LTL, ... ...
1526 % Propositional Temporal Logic
1527 \cmdtxttoparname{PTL}
1528
1529 % Quantified Propositional Temporal Logic
1530 \DeclareRobustCommand{\QPTL}
1531   {\{\textrm{Q}\}\PTL}
1532 \DeclareRobustCommand{\EPTL}
1533   {\ensuremath{\exists}\PTL}
1534 \DeclareRobustCommand{\UPTL}
1535   {\ensuremath{\forall}\PTL}
1536
1537 % Linear Temporal Logic
1538 \cmdtxttoparname{LTL}
1539

```

```

1540 % Quantified Linear Temporal Logic
1541 \DeclareRobustCommand{\QLTL}
1542   {\textname{Q}}\LTL}
1543 \DeclareRobustCommand{\ELTL}
1544   {\ensuremath{\exists}\LTL}
1545 \DeclareRobustCommand{\ULTL}
1546   {\ensuremath{\forall}\LTL}

1547 %** Syntax *****%

```

\X,

```

1548 \usrmth{X}{-}{sym}[X\,]
1549 \usrmth{F}{-}{sym}[F\,]
1550 \usrmth{G}{-}{sym}[G\,]
1551 \usrmth{U}{-}{sym}[\,U\,]
1552 \usrmth{R}{-}{sym}[\,R\,]

```

\Y,

```

1553 \usrmth{Y}{-}{sym}[G\,]
1554 \usrmth{P}{-}{sym}[P\,]\let\SavePildcrowP
1555 \usrmth{H}{-}{sym}[H\,]\let\SaveDoubleAcuteH
1556 \usrmth{S}{-}{sym}[\,S\,]\let\SaveSectionSymbolS
1557 \usrmth{B}{-}{sym}[\,B\,]

```

```

1558 %** Semantics *****%

```

...

```

1559 %** Temporal Logics II *****%

```

\PDL, \CTL,

```

1560
1561 % Propositional Dynamic Logic
1562 \cmdtxtopname{PDL}
1563
1564 % Computation Tree Logic
1565 \cmdtxtopname{CTL}
1566
1567 % Weak Computation Tree Logic
1568 \DeclareRobustCommand{\WCTL}
1569   {\textname{W}}\CTL}
1570
1571 % Quantified Computation Tree Logic
1572 \DeclareRobustCommand{\QCTL}
1573   {\textname{Q}}\CTL}
1574 \DeclareRobustCommand{\ECTL}
1575   {\ensuremath{\exists}\CTL}
1576 \DeclareRobustCommand{\UCTL}
1577   {\ensuremath{\forall}\CTL}
1578
1579 % Improved Computation Tree Logic
1580 \cmdtxtopname{CTLP}[CTL$^{+}$]
1581
1582 % Weak Improved Computation Tree Logic
1583 \DeclareRobustCommand{\WCTLP}
1584   {\textname{W}}\CTLP}
1585
1586 % Quantified Improved Computation Tree Logic
1587 \DeclareRobustCommand{\QCTLP}
1588   {\textname{Q}}\CTLP}
1589 \DeclareRobustCommand{\ECTLP}
1590   {\ensuremath{\exists}\CTLP}
1591 \DeclareRobustCommand{\UCTLP}
1592   {\ensuremath{\forall}\CTLP}
1593

```

```

1594 % Full Computation Tree Logic
1595 \cmdtxttoparname{CTL}[CTL*]
1596
1597 % Weak Full Computation Tree Logic
1598 \DeclareRobustCommand{\WCTL}{
1599   {\txtname{W}}\CTL}
1600
1601 % Quantified Full Computation Tree Logic
1602 \DeclareRobustCommand{\QCTL}{
1603   {\txtname{Q}}\CTL}
1604 \DeclareRobustCommand{\ECTL}{
1605   {\ensuremath{\exists}}\CTL}
1606 \DeclareRobustCommand{\UCTL}{
1607   {\ensuremath{\forall}}\CTL}

1608 %** Syntax *****%%

\E, \A ...

1609 \usrmth{E}{\sym}
1610 \usrmth{A}{\sym}

1611 %** Semantics *****%%

...

1612 %** Strategic Logics I *****%%

\ATL, ... ...

1613 % Alternating Temporal Logic
1614 \cmdtxttoparname{ATL}
1615
1616 % Weak Alternating Tree Logic
1617 \DeclareRobustCommand{\WATL}{
1618   {\txtname{W}}\ATL}
1619
1620 % Quantified Alternating Temporal Logic
1621 \DeclareRobustCommand{\QATL}{
1622   {\txtname{Q}}\ATL}
1623 \DeclareRobustCommand{\EATL}{
1624   {\ensuremath{\exists}}\ATL}
1625 \DeclareRobustCommand{\UATL}{
1626   {\ensuremath{\forall}}\ATL}
1627
1628 % Improved Alternating Temporal Logic
1629 \cmdtxttoparname{ATLP}[ATL$^{+}$]
1630
1631 % Weak Improved Alternating Tree Logic
1632 \DeclareRobustCommand{\WATLP}{
1633   {\txtname{W}}\ATLP}
1634
1635 % Quantified Improved Alternating Temporal Logic
1636 \DeclareRobustCommand{\QATLP}{
1637   {\txtname{Q}}\ATLP}
1638 \DeclareRobustCommand{\EATLP}{
1639   {\ensuremath{\exists}}\ATLP}
1640 \DeclareRobustCommand{\UATLP}{
1641   {\ensuremath{\forall}}\ATLP}
1642
1643 % Full Alternating Temporal Logic
1644 \cmdtxttoparname{ATLS}[ATL*]
1645
1646 % Weak Full Alternating Tree Logic
1647 \DeclareRobustCommand{\WATLS}{
1648   {\txtname{W}}\ATLS}
1649

```

```

1650 % Quantified Full Alternating Temporal Logic
1651 \DeclareRobustCommand{\QATLS}
1652   {\textname{Q}}\ATLS}
1653 \DeclareRobustCommand{\EATLS}
1654   {\ensuremath{\exists}\ATLS}
1655 \DeclareRobustCommand{\UATLS}
1656   {\ensuremath{\forall}\ATLS}

1657 %** Syntax *****%%

\EEs, \AA11 ...
1658 \DeclareRobustCommand{\EEs}[1]
1659   {\math{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}}
1660 \DeclareRobustCommand{\AA11}[1]
1661   {\math{\argmid{\left[\left[\right]{\defval{#1}{\emptyset}}{\right]\right]]}}}

1662 %** Semantics *****%%

\CGS ...
1663 \cmdtxtname{CGS}

\CGSStr, ... ...
1664 \newcommand{\cgsstr}{G}
1665 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet, ... ...
1666 \newcommand{\agnsym}{a}
1667 \newcommand{\agnset}{Ag}
1668 \cmdmthsetext{Agn}[\agnset][\agnsym]

\PosSet, ... ...
1669 \providecommand{\possym}{v}
1670 \providecommand{\posset}{Ps}
1671 \cmdmthsetext{Pos}[\posset][\possym]
1672 \cmdmthsymelm{ipos}[\possym_{I}]
1673 \cmdmthsymelm{fpos}[\possym_{F}]
1674 \cmdmthset{PPos}[\posset_{\PlrSym}]
1675 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1676 \cmdmthset{OPos}[\posset_{\OppSym}]
1677 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet, ... ...
1678 \newcommand{\sttsym}{s}
1679 \newcommand{\sttset}{St}
1680 \cmdmthsetext{Stt}[\sttset][\sttsym]
1681 \cmdmthset{IStt}[\sttset_{I}]
1682 \cmdmthsymelm{istt}[\sttsym_{I}]
1683 \cmdmthset{FStt}[\sttset_{F}]
1684 \cmdmthsymelm{fstt}[\sttsym_{F}]

\ActSet, ... ...
1685 \newcommand{\actsym}{c}
1686 \newcommand{\actset}{Ac}
1687 \cmdmthsetext{Act}[\actset][\actsym]

\DecSet, ... ...
1688 \newcommand{\decsym}{d}
1689 \newcommand{\decset}{Dc}
1690 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ...
1691 \newcommand{\movsym}{\tau}
1692 \cmdmthfun{mov}[\movsym]

```

```

\HstSet, ... ...
1693 \providecommand{\hstsym}{\rho}
1694 \providecommand{\hstset}{Hst}
1695 \cmdmthsetext{Hst}[\hstset][\hstsym]
1696 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1697 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1698 \cmdmthset{OHst}[\hstset_{\OppSym}]
1699 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1700 \cmdmthfun{hst}

\PlaySet, \playFun ...
1701 \providecommand{\playsym}{\pi}
1702 \providecommand{\playset}{Play}
1703 \cmdmthsetext{Play}[\playset][\playsym]
1704 \cmdmthfun{play}

\StrSet, ... ...
1705 \providecommand{\strsym}{\sigma}
1706 \providecommand{\strset}{Str}
1707 \cmdmthsetext{Str}[\strset][\strsym]
1708 \cmdmthset{PStr}[\strset_{\PlrSym}]
1709 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1710 \cmdmthset{OStr}[\strset_{\OppSym}]
1711 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1712 \providecommand{\prfsym}{\xi}
1713 \providecommand{\prfset}{Prf}
1714 \cmdmthsetext{Prf}[\prfset][\prfsym]

1715 %** Strategic Logics II *****%%

\SL, ... ...
1716 % Strategy Logic
1717 \cmdtxtoparname{SL}
1718
1719 \DeclareRobustCommand{\ESL}
1720   {\ensuremath{\exists}\SL}
1721 \DeclareRobustCommand{\USL}
1722   {\ensuremath{\forall}\SL}
1723
1724 \DeclareRobustCommand{\FSL}
1725   {\{\textname{F}\}\SL}
1726
1727 \DeclareRobustCommand{\EFSL}
1728   {\ensuremath{\exists}\FSL}
1729 \DeclareRobustCommand{\UFSL}
1730   {\ensuremath{\forall}\FSL}
1731
1732 % One-Goal Strategy Logic
1733 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
1734   {\SL[#1][#2][1g\arglef{,}{#3}]}
1735
1736 \DeclareRobustCommand{\EOGSL}
1737   {\ensuremath{\exists}\OGSL}
1738 \DeclareRobustCommand{\UOGSL}
1739   {\ensuremath{\forall}\OGSL}
1740
1741 \DeclareRobustCommand{\FOGSL}
1742   {\{\textname{F}\}\OGSL}
1743
1744 \DeclareRobustCommand{\EFOGSL}
1745   {\ensuremath{\exists}\FOGSL}

```

```

1746 \DeclareRobustCommand{\UFOGSL}
1747   {\ensuremath{\forall}\Fogsl}
1748
1749 % Conjunctive-Goal Strategy Logic
1750 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
1751   {\SL[#1][#2][cg\arglef{,}{#3}]}
1752
1753 \DeclareRobustCommand{\ECGSL}
1754   {\ensuremath{\exists}\CGSL}
1755 \DeclareRobustCommand{\UCGSL}
1756   {\ensuremath{\forall}\CGSL}
1757
1758 \DeclareRobustCommand{\FCGSL}
1759   {\{\textname{F}\}\xGSL}
1760
1761 \DeclareRobustCommand{\EFCGSL}
1762   {\ensuremath{\exists}\FCGSL}
1763 \DeclareRobustCommand{\UFCGSL}
1764   {\ensuremath{\forall}\FCGSL}
1765
1766 % Disjunctive-Goal Strategy Logic
1767 \DeclareRobustCommandx{\DGS}[3][1=, 2=, 3=]
1768   {\SL[#1][#2][dg\arglef{,}{#3}]}
1769
1770 \DeclareRobustCommand{\EDGS}
1771   {\ensuremath{\exists}\DGS}
1772 \DeclareRobustCommand{\UDGS}
1773   {\ensuremath{\forall}\DGS}
1774
1775 \DeclareRobustCommand{\FDGS}
1776   {\{\textname{F}\}\xGSL}
1777
1778 \DeclareRobustCommand{\EFDGS}
1779   {\ensuremath{\exists}\FDGS}
1780 \DeclareRobustCommand{\UFDGS}
1781   {\ensuremath{\forall}\FDGS}
1782
1783 % Alternating-Goal Strategy Logic
1784 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
1785   {\SL[#1][#2][ag\arglef{,}{#3}]}
1786
1787 \DeclareRobustCommand{\EAGSL}
1788   {\ensuremath{\exists}\AGSL}
1789 \DeclareRobustCommand{\UAGSL}
1790   {\ensuremath{\forall}\AGSL}
1791
1792 \DeclareRobustCommand{\FAGSL}
1793   {\{\textname{F}\}\xGSL}
1794
1795 \DeclareRobustCommand{\EFAGSL}
1796   {\ensuremath{\exists}\FAGSL}
1797 \DeclareRobustCommand{\UFAGSL}
1798   {\ensuremath{\forall}\FAGSL}
1799
1800 % Extended-Goal Strategy Logic
1801 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
1802   {\SL[#1][#2][eg\arglef{,}{#3}]}
1803
1804 \DeclareRobustCommand{\EEGSL}
1805   {\ensuremath{\exists}\EGSL}
1806 \DeclareRobustCommand{\UEGSL}
1807   {\ensuremath{\forall}\EGSL}
1808

```

```

1809 \DeclareRobustCommand{\FEGSL}
1810   {\textname{F}}\xGSL}
1811
1812 \DeclareRobustCommand{\EFEGSL}
1813   {\ensuremath{\exists}\FEGSL}
1814 \DeclareRobustCommand{\UFEGSL}
1815   {\ensuremath{\forall}\FEGSL}
1816
1817 % Boolean-Goal Strategy Logic
1818 \DeclareRobustCommandx{\BGS}[3][1=, 2=, 3=]
1819   {\SL[#1][#2][bg\arglef{,}{#3}]}
1820
1821 \DeclareRobustCommand{\EBGS}
1822   {\ensuremath{\exists}\BGS}
1823 \DeclareRobustCommand{\UBGS}
1824   {\ensuremath{\forall}\BGS}
1825
1826 \DeclareRobustCommand{\FBGS}
1827   {\textname{F}}\xGSL}
1828
1829 \DeclareRobustCommand{\EFBGSL}
1830   {\ensuremath{\exists}\FBGS}
1831 \DeclareRobustCommand{\UFBGSL}
1832   {\ensuremath{\forall}\FBGS}
1833
1834 % Nested-Goal Strategy Logic
1835 \DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
1836   {\SL[#1][#2][ng\arglef{,}{#3}]}
1837
1838 \DeclareRobustCommand{\ENGSL}
1839   {\ensuremath{\exists}\NGSL}
1840 \DeclareRobustCommand{\UNGSL}
1841   {\ensuremath{\forall}\NGSL}
1842
1843 \DeclareRobustCommand{\FNGSL}
1844   {\textname{F}}\xGSL}
1845
1846 \DeclareRobustCommand{\EFNGSL}
1847   {\ensuremath{\exists}\FNGSL}
1848 \DeclareRobustCommand{\UFNGSL}
1849   {\ensuremath{\forall}\FNGSL}
1850
1851 % Undefined-Goal Strategy Logic
1852 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
1853   {\SL[#1][#2][xg\arglef{,}{#3}]}
1854
1855 \DeclareRobustCommand{\EXGSL}
1856   {\ensuremath{\exists}\XGSL}
1857 \DeclareRobustCommand{\UXGSL}
1858   {\ensuremath{\forall}\XGSL}
1859
1860 \DeclareRobustCommand{\FXGSL}
1861   {\textname{F}}\xGSL}
1862
1863 \DeclareRobustCommand{\EFXGSL}
1864   {\ensuremath{\exists}\FXGSL}
1865 \DeclareRobustCommand{\UFXGSL}
1866   {\ensuremath{\forall}\FXGSL}
1867 %** Syntax ****
\BndSet, ... ...
1868 \newcommand{\bndsym}{\flat}
1869 \newcommand{\bndset}{\Bn}

```



```

1870 \cmdmthsetext{Bnd}[\bndset][\bndsym]
1871 \usrmth{bnd}{-}{argfun}

\psn ...
1872 \usrmth{psn}{-}{argfun}

1873 %** Semantics *****%%

\nxtFun ...
1874 \newcommand{\nxtfun}{nxt}
1875 \cmdmthfun{nxt}[\nxtfun]

1876 \fi
1877 %*****%%

1878 %*****%%
1879 %** Macros for Automata *****%%
1880 %*****%%
1881 \ifaut@
1882 %** Finite Word Automata *****%%

\DFA, ... ...
1883 \cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}
1884
1885 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
1886
1887 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
1888 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
1889 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
1890 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
1891 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
1892 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
1893 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

\GFG, \PD, ... ...
1894 \cmdtxtoparname{GFG}
1895
1896 \cmdtxtoparname{PD}
1897
1898 %% ...

1899 %** Syntax *****%%

\AutName, ... ...
1900 \newcommand{\autname}{A}
1901 \usrmthlatupp{Aut}{Name}{name}[\autname]
1902 \newcommand{\autset}{Aut}
1903 \cmdmthset{Aut}[\autset]

\WAutSet ...
1904 \newcommand{\wautset}{WAut}
1905 \cmdmthset{WAut}[\wautset]

\SttSet, ... ...
1906 \def\sttsym{q}
1907 \def\sttset{Q}
1908 \cmdmthsetext{Stt}[\sttset][\sttsym]
1909 \cmdmthset{IStt}[\sttset_{I}]
1910 \cmdmthsymelm{istt}[\sttsym_{I}]
1911 \cmdmthset{FStt}[\sttset_{F}]
1912 \cmdmthsymelm{fstt}[\sttsym_{F}]

```

```

\SymSet, ... ...
1913 \newcommand{\symsym}{\sigma}
1914 \newcommand{\symset}{\Sigma}
1915 \cmdmthsetext{Sym}[\symset][\symsym]

\trnFun ...
1916 \newcommand{\trnsym}{\delta}
1917 \cmdmthfun{trn}[\trnsym]

1918 %** Semantics *****%

\LangFun ...
1919 \newcommand{\langfun}{L}
1920 \cmdmthfun{Lang}[\langfun]

\WrdSet, ... ...
1921 \newcommand{\wrdsym}{w}
1922 \newcommand{\wrdsset}{Wr}
1923 \cmdmthsetext{Wrd}[\wrdsset][\wrdsym]

1924 %** Finite Tree Automata *****%

\DTA, ... ...
1925 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
1926
1927 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
1928 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
1929 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
1930 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
1931 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
1932 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
1933 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}

1934 %** Syntax *****%

\TAutSet ...
1935 \newcommand{\tautset}{TAut}
1936 \cmdmthset{TAut}[\tautset]

\DirSet, ... ...
1937 \newcommand{\dirsym}{d}
1938 \newcommand{\dirset}{\Lambda}
1939 \cmdmthsetext{Dir}[\dirset][\dirsym]

1940 %** Semantics *****%

\TreeSet, ... ...
1941 \newcommand{\treesym}{T}
1942 \newcommand{\treeset}{Tr}
1943 \cmdmthsetext{Tree}[\treeset][\treesym]

\wotFun ...
1944 \newcommand{\wotfun}{wot}
1945 \cmdmthfun{wot}[\wotfun]

1946 \fi
1947 %*****%
1948 %*****%
1949 %** Format Tricks *****%
1950 %*****%
1951 \iffirm@

```

```

... ...
1952 %%...

1953 \fi
1954 %*****%

1955 %*****%
1956 %** Figure Tricks *****%
1957 %*****%
1958 \iffig@

1959 \RequirePackage{tikz}
1960 \usetikzlibrary{arrows,graphs,matrix,patterns,shapes}

1961 \tikzstyle{every node} =
1962   [draw = none, fill = none, black, thin]
1963 \tikzstyle{every edge} +=
1964   [black, thick]

1965 \tikzstyle{noall} =
1966   [draw = none, fill = none]
1967 \tikzstyle{nodraw} =
1968   [draw = none, fill = white]
1969 \tikzstyle{nofill} =
1970   [draw = black, fill = none]

1971 \ifwrpfig@
1972   % Wrapfig Package
1973   \RequirePackage{wrapfig}
1974 \fi

1975 \fi
1976 %*****%

1977 %*****%
1978 %** Table Tricks *****%
1979 %*****%
1980 \iftab@

... ...
1981 %%...

1982 \fi
1983 %*****%

1984 %*****%
1985 %** Algorithm Tricks *****%
1986 %*****%
1987 \ifalg@

1988 \RequirePackage[ruled,vlined]{algorithm2e}
1989 \setlength{\algomargin}{1.25em}
1990 \DontPrintSemicolon
1991 \SetInd{0.25em}{0.5em}

\Signature ...
1992 \SetKw{Signature}{signature}

\Macro, ... ...
1993 \SetKwFor{Macro}{macro}{}{}
1994 \SetKwFor{Function}{function}{}{}
1995 \SetKwFor{Procedure}{procedure}{}{}

\Let ...
1996 \SetKwFor{Let}{let}{in}{}

\True, \False ...
1997 \SetKw{True}{true}
1998 \SetKw{False}{false}

```

```

\From, ... ...
1999 \SetKw{From}{from}
2000 \SetKw{To}{to}
2001 \SetKw{DownTo}{downto}

\GoTo, ... ...
2002 \SetKw{GoTo}{goto}
2003 \SetKw{Break}{break}
2004 \SetKw{Continue}{continue}

\MIf, ... ...
2005 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
2006 \DeclareRobustCommand{\nlr}[1]
2007   {\addtocounter{AlgoLine}{1}%
2008    \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

2009 \fi
2010 %%*****%
2011 \endinput
2012 \</package>

```

2 Change History

v0.0	General: First public release 1	v0.4	General: Refactoring, corrections, and extensions 1
v0.1	General: Algorithm tricks 1	v0.5	General: Figure tricks 1
v0.10	General: Small refinements 1	v0.6	General: Small refinements 1
v0.11	General: Few additions and corrections 1	v0.7	General: Refinements, corrections, and extensions 1
v0.12	General: New starred variants 1	v0.8	General: Few refinements and corrections . . . 1
v0.13	General: Further starred variants 1	v0.9	General: Small addition to ‘Algorithm tricks’ 1
v0.2	General: Changes in auxiliary tricks 1		
v0.3	General: Few problems solved 1		

3 Index

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

Symbols			
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