

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
```

*This document describes version v0.16 of the fmocdmac package, last revised 2023/02/16.

```

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

```

```

98 %% Format-related tricks
99 \newif\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{fmocdmac}{Unknown~'\CurrentOption'}}%
127
128 \ExecuteOptions{aux,txtgen,mthgen,txt,mth,com,gam,log,aut}%
129
130 \ProcessOptions\relax%
131
132 \ifcsdef{if@twocolumn}{\newif\if@twocolumn}
133

```

Package main body:

```

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

```

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

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

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

```

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

```

```

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

```

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

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

```

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

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

151 %%*****%

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

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

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

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

160 %%*****%

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

169 %%*****%

```

```

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

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

178 %%*****%

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

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

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

185 %%*****%

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

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

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

196 %%*****%

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

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

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

203 %%*****%

```

```

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

```

```

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

```

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

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

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

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

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

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

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

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

```

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

```

\newtxt ... to do!

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

```

293 \newcommandx{\newtxt}[5][1=, 3=, 4=, 5=]
294 {\text{#1#2\textsubsup{#1}{#3}{#4}{#5}\xspace}}

```

\newtxtsty ... to do!

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

```

295 \newcommandx{\newtxtsty}[2][2=]
296 {\newtxt[\defval{#2}{#1}]}

```

\newxtarg ... to do!

- $\newxtarg[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2\text{”}$
- $\newxtarg[\sfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2\text{”}$
- $\newxtarg[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2\text{”}$

```

297 \newcommandx{\newxtarg}[7][1=, 3=, 4=, 5=, 7=]
298 {\newtxt{#1}{#2}{#3}{#4}[\argmid{#5}{#6}{#7}]}

```

\newxtargsty ... to do!

- $\newxtargsty[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = \text{“Name}_{sub}^{sup}Ext1(Arg)Ext2\text{”}$

- $\newtxxargsty{\rmfamily}\{\textsf{family}\}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Arg}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}(\text{Arg})\text{Ext2}$
- $\newtxxargsty{\rmfamily}\{\ttfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Arg}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}(\text{Arg})\text{Ext2}$

```

299 \newcommandx{\newtxxargsty}[2][2=]
300   {\newtxxarg[\defval{#2}{#1}]}

```

\newtxxtoarg ... to do!

- $\newtxxtoarg[\rmfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$
- $\newtxxtoarg[\textsf{family}]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$
- $\newtxxtoarg[\ttfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$

```

301 \newcommandx{\newtxxtoarg}[5][1=, 3=, 4=, 5=]
302   {\newtxxarg[#1]{#2}[#3][#4][#5]}

```

\newtxxtoargsty ... to do!

- $\newtxxtoargsty{\rmfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$
- $\newtxxtoargsty{\rmfamily}\{\textsf{family}\}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$
- $\newtxxtoargsty{\rmfamily}\{\ttfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Arg}] = \text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$

```

303 \newcommandx{\newtxxtoargsty}[2][2=]
304   {\newtxxtoarg[\defval{#2}{#1}]}

```

\newtxxtpar ... to do!

- $\newtxxtpar[\rmfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$
- $\newtxxtpar[\textsf{family}]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$
- $\newtxxtpar[\ttfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$

```

305 \newcommandx{\newtxxtpar}[7][1=, 3=, 4=, 5=, 7=]
306   {\newtxxtpar[#1]{#2}[#3][#4][\argmid{#5}{#6}{#7}]}

```

\newtxxtparsty ... to do!

- $\newtxxtparsty{\rmfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$
- $\newtxxtparsty{\rmfamily}\{\textsf{family}\}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$
- $\newtxxtparsty{\rmfamily}\{\ttfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Ext1}]{\text{Par}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$

```

307 \newcommandx{\newtxxtparsty}[2][2=]
308   {\newtxxtpar[\defval{#2}{#1}]}

```

\newtxxtopar ... to do!

- $\newtxxtopar[\rmfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\newtxxtopar[\textsf{family}]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\newtxxtopar[\ttfamily]\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$

```

309 \newcommandx{\newtxxtopar}[5][1=, 3=, 4=, 5=]
310   {\newtxxtpar[#1]{#2}[#3][#4][#5]}

```

\newtxxtoparsty ... to do!

- $\newtxxtoparsty{\rmfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\newtxxtoparsty{\rmfamily}\{\textsf{family}\}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\newtxxtoparsty{\rmfamily}\{\ttfamily}\{\text{Name}\}_{\text{sub}}^{\text{sup}}[\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$

```

311 \newcommandx{\newtxxtoparsty}[2][2=]
312   {\newtxxtopar[\defval{#2}{#1}]}

```

\txxsubsup ... to do!

- $\txxsubsup_{\text{sub}}\{\text{sub}\} = \text{sub}$; $\txxsubsup_{\text{sup}}\{\text{sup}\} = \text{sup}$; $\txxsubsup_{\text{sub}}\{\text{sub}\}\{\text{sup}\} = \text{sub}^{\text{sup}}$
- $\txxsubsup_{\text{sub}}\{\textsf{family}\}\{\text{Aa}\}\{\text{Bb}\} = \text{Aa}^{\text{Bb}}$
- $\txxsubsup_{\text{sub}}\{\ttfamily}\{\text{Aa}\}\{\text{Bb}\} = \text{Aa}^{\text{Bb}}$

```

313 \newcommand{\txxsubsup}[3]{}
314   {\ensuremath{\empchk{#2}{\text{#1#2}}}\empchk{#3}{\text{#1#3}}}}

```

```

315 %*****%

```



```

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

\txtg ... to do!
    • \txtg{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
    • \txtg{\scshape}{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NAMESUBEXT1(ARG)EXT2"
    • \txtg{\bfseries}{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
318 \newcommand{\txtg}
319 {\newtxtgsty{\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)"
320 \newcommand{\txtoarg}
321 {\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"
322 \newcommand{\txtpar}
323 {\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]"
324 \newcommand{\txtopar}
325 {\newtxtoparsty{\txtsty}}

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

328 %*****%

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

\cmdtxtg ... to do!
    • \cmdtxtg{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
    \txtgNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBEXT1(ARG)EXT2
331 \newcommand{\cmdtxtg}[1]
332 {\csdef{txtg#1}{\newtxtgsty{\csname txtsty#1\endcsname}}}

\cmdtxtoarg ... to do!
    • \cmdtxtoarg{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
    \txtoargNewCmd{Name}[sub][sup][Arg] = NAMESUB(ARG)

```

```

333 \newcommand{\cmdtxtoarg}[1]
334 {\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


335 \newcommand{\cmdtxtpar}[1]
336 {\csdef{txtpar#1}{\newtxtparsty{\csname txtsty#1\endcsname}}}

\cmdtxtopar ... to do!


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


337 \newcommand{\cmdtxtopar}[1]
338 {\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]


339 \newcommand{\cmdtxtall}[1]
340 {\cmdtxt{#1}\cmdtxtarg{#1}\cmdtxtoarg{#1}\cmdtxtpar{#1}\cmdtxtopar{#1}}

341 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\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]


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

344 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
345 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
346 %** Math Meta Commands %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
347 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\newmth ... to do!


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


348 \newcommandx{\newmth}[5][1=, 3=, 4=, 5=]
349 {\ensuremath{\csname#1\endcsname{#2}\mthsubsup{#3}{#4}{#5}}}

\newmthsty ... to do!


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


350 \newcommandx{\newmthsty}[2][2=]
351 {\newmth{\defval{#2}{#1}}}

\newmtharg ... to do!


- \newmtharg[mathrm]{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = "NamesupsubExt1(ArgExEx)Ext2"

```



```

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

```

\newmthpar ... to do!

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

```

376 \newcommand{\newmthpar}
377   {\@ifstar{\@snewmthpar}{\@newmthpar}}
378 \newcommandx{\@newmthpar}[7][1=, 3=, 4=, 5=, 7=]
379   {\newmth[#1]{#2}[#3][#4][\argmid{#5}\!\left[\right]{#6}\!\right]{\arglef{!}{#7}}]}
380 \newcommandx{\@snewmthpar}[7][1=, 3=, 4=, 5=, 7=]
381   {\newmth[#1]{#2}[#3][#4][\argmid{#5}]{#6}{#7}}

```

\newmthparsty ... to do!

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

```

382 \newcommand{\newmthparsty}
383   {\@ifstar{\@snewmthparsty}{\@newmthparsty}}
384 \newcommandx{\@newmthparsty}[2][2=]
385   {\newmthpar[\defval{#2}{#1}]}
386 \newcommandx{\@snewmthparsty}[2][2=]
387   {\newmthpar*[\defval{#2}{#1}]}

```

\newmthopar ... to do!

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

```

388 \newcommand{\newmthopar}
389   {\@ifstar{\@snewmthopar}{\@newmthopar}}
390 \newcommandx{\@newmthopar}[5][1=, 3=, 4=, 5=]
391   {\newmthpar[#1]{#2}[#3][#4][\argmid{#5}]}
392 \newcommandx{\@snewmthopar}[5][1=, 3=, 4=, 5=]
393   {\newmthpar*[#1]{#2}[#3][#4][\argmid{#5}]}

```

\newmthoparsty ... to do!

```

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

```

```

400 \newcommand{\mthsubsup}[2]
401   {\empchk{#1}_{#1}\empchk{#2}^{#2}}
402 %%*****%

```

- $\text{\textbackslash mth{Name}}_{\text{sub}}^{\text{sup}}[\text{Ext}] = \textit{Name}_{\text{sub}}^{\text{sup}}\textit{Ext}$
- $\text{\textbackslash mth{\bf Name}}_{\text{sub}}^{\text{sup}}[\text{Ext}] = \textbf{NAME}_{\text{sub}}^{\text{sup}}\textit{Ext}$
- $\text{\textbackslash mth{\mathtt Name}}_{\text{sub}}^{\text{sup}}[\text{Ext}] = \text{\textbackslash mathtt Name}_{\text{sub}}^{\text{sup}}\textit{Ext}$

- $\mathrm{\mtharg{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textit{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\big(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\big)\mathrm{Ext2}”}$
- $\mathrm{\mtharg{\mathbf{f}}{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textit{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\big(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\big)\mathrm{Ext2}”}$
- $\mathrm{\mtharg{\mathtt{t}}{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textit{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\big(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\big)\mathrm{Ext2}”}$
- $\mathrm{\mtharg*{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textit{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}”}$
- $\mathrm{\mtharg*{\mathbf{f}}{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textit{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}”}$
- $\mathrm{\mtharg*{\mathtt{t}}{Name}}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Ext1}]{\mathrm{Arg}^{\mathrm{Ex}}{\mathrm{Ex}}}{\mathrm{Ext2}} = \textit{“Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}”}$

```

5 \newcommand{\mtharg}
6   {\@ifstar{\newmthargsty*{\mthsty}}{\newmthargsty{\mthsty}}}

```

- $\backslash\mathrm{thoarg}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \textit{“Name}_{sub}^{sup}\left(\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}\right)\textit{”}$
- $\backslash\mathrm{thoarg}[\mathrm{mathbf}]{\mathrm{Name}}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \textit{“Name}_{sub}^{sup}\left(\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}\right)\textit{”}$
- $\backslash\mathrm{thoarg}[\mathrm{mathtt}]{\mathrm{Name}}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \textit{“Name}_{sub}^{sup}\left(\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}\right)\textit{”}$
- $\backslash\mathrm{thoarg}^*\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \textit{“Name}_{sub}^{sup}\left(\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}\right)\textit{”}$
- $\backslash\mathrm{thoarg}^*[\mathrm{mathbf}]{\mathrm{Name}}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \textit{“Name}_{sub}^{sup}\left(\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}\right)\textit{”}$
- $\backslash\mathrm{thoarg}^*[\mathrm{mathtt}]{\mathrm{Name}}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}] = \textit{“Name}_{sub}^{sup}\left(\mathrm{Arg}^{\mathrm{Ex}\mathrm{Ex}}\right)\textit{”}$

```

7 \newcommand{\thoarg}
8   {\@ifstar{\newthoargsty*{\mthsty}}{\newmthoargsty{\mthsty}}}

```

13

- $\backslash\mathit{mthpar}[\mathbf{mathtt}]{\text{Name}}[\text{sub}][\text{sup}][\text{Ext1}]{\text{Par}}^{\text{Ex}}{\text{Ex}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]\text{Ext2}$
- $\backslash\mathit{mthpar}[\mathbf{mathtt}]{\text{Name}}[\text{sub}][\text{sup}][\text{Ext1}]{\text{Par}}^{\text{Ex}}{\text{Ex}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]\text{Ext2}$
- $\backslash\mathit{mthpar}*\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]{\text{Par}}^{\text{Ex}}{\text{Ex}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]\text{Ext2}$
- $\backslash\mathit{mthpar}[\mathbf{matbf}]{\text{Name}}[\text{sub}][\text{sup}][\text{Ext1}]{\text{Par}}^{\text{Ex}}{\text{Ex}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]\text{Ext2}$
- $\backslash\mathit{mthpar}*\{\mathbf{mathtt}\}{\text{Name}}[\text{sub}][\text{sup}][\text{Ext1}]{\text{Par}}^{\text{Ex}}{\text{Ex}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]\text{Ext2}$

409 $\backslash\text{newcommand}\{\backslash\mathit{mthpar}\}$

410 $\{\backslash\text{ifstar}\{\backslash\text{newmthparsty}*\{\backslash\mathit{mthsty}\}\}\{\backslash\text{newmthparsty}\{\backslash\mathit{mthsty}\}\}\}$

$\backslash\mathit{mthopar}$... to do!

- $\backslash\mathit{mthopar}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}}^{\text{Ex}}{\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]$
- $\backslash\mathit{mthopar}[\mathbf{matbf}]{\text{Name}}[\text{sub}][\text{sup}][\text{Par}}^{\text{Ex}}{\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]$
- $\backslash\mathit{mthopar}[\mathbf{mathtt}]{\text{Name}}[\text{sub}][\text{sup}][\text{Par}}^{\text{Ex}}{\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]$
- $\backslash\mathit{mthopar}*\{\text{Name}\}[\text{sub}][\text{sup}][\text{Par}}^{\text{Ex}}{\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]$
- $\backslash\mathit{mthopar}[\mathbf{matbf}]{\text{Name}}[\text{sub}][\text{sup}][\text{Par}}^{\text{Ex}}{\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]$
- $\backslash\mathit{mthopar}*\{\mathbf{mathtt}\}{\text{Name}}[\text{sub}][\text{sup}][\text{Par}}^{\text{Ex}}{\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]$

411 $\backslash\text{newcommand}\{\backslash\mathit{mthopar}\}$

412 $\{\backslash\text{ifstar}\{\backslash\text{newmthoparsty}*\{\backslash\mathit{mthsty}\}\}\{\backslash\text{newmthoparsty}\{\backslash\mathit{mthsty}\}\}\}$

$\backslash\mathit{mthsty}$... to do!

413 $\backslash\text{newcommand}\{\backslash\mathit{mthsty}\}$

414 $\{\}$

415 $\%*****\%$

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

- $\backslash\text{cmdmth}\{\text{NewCmd}\}; \backslash\text{newcommand}\{\mathit{mthstyNewCmd}\}\{\backslash\mathbf{mathtt}\};$
 $\backslash\mathit{mthNewCmd}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext}$

416 $\backslash\text{newcommand}\{\backslash\text{cmdmth}\}[1]$

417 $\{\backslash\text{csdef}\{\mathit{mth}\#1\}\{\backslash\text{newmthsty}\{\mathit{mthsty}\#1\}\}\}$

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

- $\backslash\text{cmdmtharg}\{\text{NewCmd}\}; \backslash\text{newcommand}\{\mathit{mthstyNewCmd}\}\{\backslash\mathbf{mathtt}\};$
 $\backslash\mathit{mthargNewCmd}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]{\text{Arg}}^{\text{Ex}}{\text{Ex}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}\left(\text{Arg}^{\text{Ex}}{\text{Ex}}\right)\text{Ext2}$
 $\backslash\mathit{mthargNewCmd}*\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]{\text{Arg}}^{\text{Ex}}{\text{Ex}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}\left(\text{Arg}^{\text{Ex}}{\text{Ex}}\right)\text{Ext2}$

418 $\backslash\text{newcommand}\{\backslash\text{cmdmtharg}\}[1]$

419 $\{\backslash\text{csdef}\{\mathit{mtharg}\#1\}\%$

420 $\{\backslash\text{ifstar}\{\backslash\text{newmthargsty}*\{\mathit{mthsty}\#1\}\}\{\backslash\text{newmthargsty}\{\mathit{mthsty}\#1\}\}\}\}$

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

- $\backslash\text{cmdmthoarg}\{\text{NewCmd}\}; \backslash\text{newcommand}\{\mathit{mthstyNewCmd}\}\{\backslash\mathbf{mathtt}\};$
 $\backslash\mathit{mthoargNewCmd}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Arg}}^{\text{Ex}}{\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}\left(\text{Arg}^{\text{Ex}}{\text{Ex}}\right)$
 $\backslash\mathit{mthoargNewCmd}*\{\text{Name}\}[\text{sub}][\text{sup}][\text{Arg}}^{\text{Ex}}{\text{Ex}}] = \text{Name}_{\text{sub}}^{\text{sup}}\left(\text{Arg}^{\text{Ex}}{\text{Ex}}\right)$

421 $\backslash\text{newcommand}\{\backslash\text{cmdmthoarg}\}[1]$

422 $\{\backslash\text{csdef}\{\mathit{mthoarg}\#1\}\%$

423 $\{\backslash\text{ifstar}\{\backslash\text{newmthoargsty}*\{\mathit{mthsty}\#1\}\}\{\backslash\text{newmthoargsty}\{\mathit{mthsty}\#1\}\}\}\}$

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

- $\backslash\text{cmdmthpar}\{\text{NewCmd}\}; \backslash\text{newcommand}\{\mathit{mthstyNewCmd}\}\{\backslash\mathbf{mathtt}\};$
 $\backslash\mathit{mthparNewCmd}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]{\text{Par}}^{\text{Ex}}{\text{Ex}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]\text{Ext2}$
 $\backslash\mathit{mthparNewCmd}*\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]{\text{Par}}^{\text{Ex}}{\text{Ex}}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}\left[\text{Par}^{\text{Ex}}{\text{Ex}}\right]\text{Ext2}$

```

424 \newcommand{\cmdmthpar}[1]
425   {\csdef{mthpar#1}%
426     {\@ifstar{\newmthparsty*{mthsty#1}}{\newmthparsty{mthsty#1}}}}

\cmdmthpar ... to do!
  • \cmdmthpar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
    \mthparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = Name_{sub}^{sup}[Par^{Ex^{Ex}}]
    \mthparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = Name_{sub}^{sup}[Par^{Ex^{Ex}}]
427 \newcommand{\cmdmthpar}[1]
428   {\csdef{mthpar#1}%
429     {\@ifstar{\newmthparsty*{mthsty#1}}{\newmthparsty{mthsty#1}}}}

\cmdmthall ... to do!
  • \cmdmthall{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
    \mthNewCmd{Name}[sub][sup][Ext] = Name_{sub}^{sup}Ext
    \mthargNewCmd{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
    \mthargNewCmd*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
    \mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}] = Name_{sub}^{sup}(Arg^{Ex^{Ex}})
    \mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = Name_{sub}^{sup}(Arg^{Ex^{Ex}})
    \mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2
    \mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2
    \mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = Name_{sub}^{sup}[Par^{Ex^{Ex}}]
    \mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = Name_{sub}^{sup}[Par^{Ex^{Ex}}]
430 \newcommand{\cmdmthall}[1]
431   {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#1}}
432 %%*****

\usrmth ... to do!
  • \usrmth{cmdName}{Suf}{}; \cmdNameSuf = cmdName
    \usrmth{cmdName}{Suf}{arg};
    \cmdNameSuf{Arg^{Ex^{Ex}}} = cmdName(Arg^{Ex^{Ex}})
    \cmdNameSuf*{Arg^{Ex^{Ex}}} = cmdName(Arg^{Ex^{Ex}})
    \usrmth{cmdName}{Suf}{par};
    \cmdNameSuf{Par^{Ex^{Ex}}} = cmdName[Par^{Ex^{Ex}}]
    \cmdNameSuf*{Par^{Ex^{Ex}}} = cmdName[Par^{Ex^{Ex}}]
  • \usrmth{cmdName}{Suf}{}[newName]; \cmdNameSuf = newName
    \usrmth{cmdName}{Suf}{arg}[newName];
    \cmdNameSuf{Arg^{Ex^{Ex}}} = newName(Arg^{Ex^{Ex}})
    \cmdNameSuf*{Arg^{Ex^{Ex}}} = newName(Arg^{Ex^{Ex}})
    \usrmth{cmdName}{Suf}{par}[newName];
    \cmdNameSuf{Par^{Ex^{Ex}}} = newName[Par^{Ex^{Ex}}]
    \cmdNameSuf*{Par^{Ex^{Ex}}} = newName[Par^{Ex^{Ex}}]
433 \newcommandx{\usrmth}[4][4=]
434   {\csdef{#1#2}{%
435     \@ifstar%
436     {\csname mth#3\endcsname*{\defval{#4}{#1}}}%
437     {\csname mth#3\endcsname{\defval{#4}{#1}}}%
438   }}
439 %%*****

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

```

```

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

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

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

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

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

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

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

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

458 %%*****%
459 %%*****%
460 %%** Text Macro Generators *****%
461 %%*****%
462 \iftxtgen@

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

463 %% Style for Definitions
464 \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] =  $newName_{sub}^{sub}ext$ 

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

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467 \newcommandx{\cmdtxtargdef}[2][2=]
468   {\usrtxt{#1}{\argdef}[#2]}

\cmdtxttoargdef ... to do!
  • \cmdtxttoargdef{cmdName};
    \cmdName[sub][sub][arg] =  $cmdName_{sub}^{sub}(arg)$ 
  • \cmdtxttoargdef{cmdName}[newName];
    \cmdName[sub][sub][arg] =  $newName_{sub}^{sub}(arg)$ 
469 \newcommandx{\cmdtxttoargdef}[2][2=]
470   {\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] =  $newName_{sub}^{sub}ext1[par]ext2$ 
471 \newcommandx{\cmdtxtpardef}[2][2=]
472   {\usrtxt{#1}{\pardef}[#2]}

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

\txtabr, ... ... to do!
  • \txtabr{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
  • \txtargabr{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
  • \txtparabr{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
475 %% Style for Abbreviations
476 \cmdtxtall{abr}\newcommand{\txtstyabr}{\em}

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

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

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

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\cmdtxtparabr ... to do!
    • \cmdtxtparabr{cmdName};
      \cmdName[sub][sub][ext1]{par}[ext2] =  $\text{cmdName}_{\text{sub}}^{\text{sub}} \text{ext1}[\text{par}]\text{ext2}$ 
    • \cmdtxtparabr{cmdName}[newName];
      \cmdName[sub][sub][ext1]{par}[ext2] =  $\text{newName}_{\text{sub}}^{\text{sub}} \text{ext1}[\text{par}]\text{ext2}$ 
483 \newcommandx{\cmdtxtparabr}[2][2=]
484   {\usrtxt{#1}{-}{parabr}[#2]}

\cmdtxtoparabr ... to do!
    • \cmdtxtoparabr{cmdName};
      \cmdName[sub][sub][par] =  $\text{cmdName}_{\text{sub}}^{\text{sub}}[\text{par}]$ 
    • \cmdtxtoparabr{cmdName}[newName];
      \cmdName[sub][sub][par] =  $\text{newName}_{\text{sub}}^{\text{sub}}[\text{par}]$ 
485 \newcommandx{\cmdtxtoparabr}[2][2=]
486   {\usrtxt{#1}{-}{oparabr}[#2]}

487 %%*****%

\txtname, ... ... to do!
    • \txtname{Name}[sub][sup][Ext] =  $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$ 
    • \txtargname{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}(\text{ARG})\text{EXT2}$ 
    • \txtparname{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}[\text{PAR}]\text{EXT2}$ 
488 %% Style for Names
489 \cmdtxtall{name}\newcommand{\txtstyname}{\normalfont\mdseries\scshape\sffamily}

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

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

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

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

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\cmdtxtoparname ... to do!
    • \cmdtxtoparname{cmdName};
      \cmdName[sub][sub][par] = CMDNAMESUB[PAR]
    • \cmdtxtoparname{cmdName}[newName];
      \cmdName[sub][sub][par] = NEWNAMESUB[PAR]
498 \newcommandx{\cmdtxtoparname}[2][2=]
499   {\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
500 %% Style for Complexities
501 \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
502 \newcommandx{\cmdtxtcom}[2][2=]
503   {\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
504 \newcommandx{\cmdtxtargcom}[2][2=]
505   {\usrtxt{#1}{-}{argcom}{#2}}

\cmdtxtoargcom ... to do!
    • \cmdtxtoargcom{cmdName};
      \cmdName[sub][sub][arg] = CMDNAMESUB(ARG)
    • \cmdtxtoargcom{cmdName}[newName];
      \cmdName[sub][sub][arg] = NEWNAMESUB(ARG)
506 \newcommandx{\cmdtxtoargcom}[2][2=]
507   {\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
508 \newcommandx{\cmdtxtparcom}[2][2=]
509   {\usrtxt{#1}{-}{parcom}{#2}}

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

512 \fi
513 %%*****%

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514 %*****%
515 %** Math Macro Generators *****%
516 %*****%
517 \ifmthgen@

```

\mthname, ... to do!

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

518 % Style for Names

519 \cmdmthall{name}\newcommand{\mthstname}{\mathcal}

\Aname, ... to do!

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

520 \seqoflatupp{Name}{mthname}

\cmdmthname ... to do!

- \cmdmthname{CMDNAME};
\CMDNAMEName[sub][sub][ext] = $CMDNAME_{sub}^{sub}ext$
- \cmdmthname{cmdName}{NEWNAME};
\cmdNameName[sub][sub][ext] = $\mathcal{NEWNAME}_{sub}^{sub}ext$

521 \newcommandx{\cmdmthname}[2][2=]

522 {\usrmth{#1}{Name}{name}[#2]}

\cmdmthargname ... to do!

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

523 \newcommandx{\cmdmthargname}[2][2=]

524 {\usrmth{#1}{Name}{argname}[#2]}

\cmdmthoargname ... to do!

- \cmdmthoargname{CMDNAME};
\CMDNAMEName[sub][sub][arg] = $CMDNAME_{sub}^{sub}(arg)$
- \cmdmthoargname{cmdName}{NEWNAME};
\cmdNameName[sub][sub][arg] = $\mathcal{NEWNAME}_{sub}^{sub}(arg)$

525 \newcommandx{\cmdmthoargname}[2][2=]

526 {\usrmth{#1}{Name}{oargname}[#2]}

\cmdmthparname ... to do!

- \cmdmthparname{CMDNAME};
\CMDNAMEName[sub][sub][ext1]{par}[ext2] = $CMDNAME_{sub}^{sub}ext1[par]ext2$
- \cmdmthparname{cmdName}{NEWNAME};
\cmdNameName[sub][sub][ext1]{par}[ext2] = $\mathcal{NEWNAME}_{sub}^{sub}ext1[par]ext2$

527 \newcommandx{\cmdmthparname}[2][2=]

528 {\usrmth{#1}{Name}{parname}[#2]}

\cmdmthoparname ... to do!

- \cmdmthoparname{CMDNAME};
\CMDNAMEName[sub][sub][par] = $CMDNAME_{sub}^{sub}[par]$
- \cmdmthoparname{cmdName}{NEWNAME};
\cmdNameName[sub][sub][par] = $\mathcal{NEWNAME}_{sub}^{sub}[par]$

```

529 \newcommandx{\cmdmthoparname}[2][2=]
530   {\usrmth{#1}{Name}{oparname}[#2]}

\mthfam, ... ... to do!
  • \mthfam{NAME}[sub][sup][Ext] =  $\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sup}Ext$ 
  • \mthargfam{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
  • \mthargfam*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
  • \mthparfam{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
  • \mthparfam*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
531 %% Style for Families
532 \cmdmthall{fam}\newcommand{\mthstyfam}{\mathscr}

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

\cmdmthfam ... to do!
  • \cmdmthfam{CMDNAME};
    \CMDNAMEFam[sub][sub][ext] =  $\mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext$ 
  • \cmdmthfam{cmdName}{NEWNAME};
    \cmdNameFam[sub][sub][ext] =  $\mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext$ 
534 \newcommandx{\cmdmthfam}[2][2=]
535   {\usrmth{#1}{Fam}{fam}[#2]}

\cmdmthargfam ... to do!
  • \cmdmthargfam{CMDNAME};
    \CMDNAMEFam[sub][sub][ext1]{arg}[ext2] =  $\mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext1(arg)ext2$ 
  • \cmdmthargfam{cmdName}{NEWNAME};
    \cmdNameFam[sub][sub][ext1]{arg}[ext2] =  $\mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext1(arg)ext2$ 
536 \newcommandx{\cmdmthargfam}[2][2=]
537   {\usrmth{#1}{Fam}{argfam}[#2]}

\cmdmthoargfam ... to do!
  • \cmdmthoargfam{CMDNAME};
    \CMDNAMEFam[sub][sub][arg] =  $\mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}(arg)$ 
  • \cmdmthoargfam{cmdFam}{NEWNAME};
    \cmdFamFam[sub][sub][arg] =  $\mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}(arg)$ 
538 \newcommandx{\cmdmthoargfam}[2][2=]
539   {\usrmth{#1}{Fam}{oargfam}[#2]}

\cmdmthparfam ... to do!
  • \cmdmthparfam{CMDNAME};
    \CMDNAMEFam[sub][sub][ext1]{par}[ext2] =  $\mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext1[par]ext2$ 
  • \cmdmthparfam{cmdName}{NEWNAME};
    \cmdNameFam[sub][sub][ext1]{par}[ext2] =  $\mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}ext1[par]ext2$ 
540 \newcommandx{\cmdmthparfam}[2][2=]
541   {\usrmth{#1}{Fam}{parfam}[#2]}

\cmdmthoparfam ... to do!
  • \cmdmthoparfam{CMDNAME};
    \CMDNAMEFam[sub][sub][par] =  $\mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}[par]$ 
  • \cmdmthoparfam{cmdFam}{NEWNAME};
    \cmdFamFam[sub][sub][par] =  $\mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{sub}^{sub}[par]$ 
542 \newcommandx{\cmdmthoparfam}[2][2=]
543   {\usrmth{#1}{Fam}{oparfam}[#2]}

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\mthcls, ... ... to do!
    • \mthcls{NAME}[sub][sup][Ext] =  $\mathcal{NAME}_{sub}^{sup}Ext$ 
    • \mthargcls{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 
    • \mthargcls*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$ 
    • \mthparcls{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$ 
    • \mthparcls*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$ 
544 %% Style for Classes
545 \cmdmthall{cls}\newcommand{\mthstycls}{\matheus}

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

\cmdmthcls ... to do!
    • \cmdmthcls{CMDNAME};
      \CMDNAMECls[sub][sub][ext] =  $\mathcal{CMDNAME}_{sub}^{sub}ext$ 
    • \cmdmthcls{cmdName}[NEWNAME];
      \cmdNameCls[sub][sub][ext] =  $\mathcal{NEWNAME}_{sub}^{sub}ext$ 
547 \newcommandx{\cmdmthcls}[2][2=]
548   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}ext1(arg)ext2$ 
549 \newcommandx{\cmdmthargcls}[2][2=]
550   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}(arg)$ 
551 \newcommandx{\cmdmthoargcls}[2][2=]
552   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}ext1[par]ext2$ 
553 \newcommandx{\cmdmthparcls}[2][2=]
554   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}[par]$ 
555 \newcommandx{\cmdmthoparcls}[2][2=]
556   {\usrmth{#1}{Cls}{oparcls}[#2]}

\mthsig, ... ... to do!
    • \mthsig{Name}[sub][sup][Ext] =  $\mathcal{ame}_{sub}^{sup}Ext$ 

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

557 %% Style for Signatures

558 $\backslash\mathrm{cmdmthall}\{\mathrm{sig}\}\backslash\mathrm{newcommand}\{\mathrm{mthstysig}\}\{\mathrm{mathpzc}\}$

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

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

559 $\backslash\mathrm{seqoflatlet}\{\mathrm{Sig}\}\{\mathrm{mthsig}\}\backslash\mathrm{seqofgrklow}\{\mathrm{Sig}\}\{\mathrm{mthsig}\}$

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

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

560 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthsig}\}[2][2=]$

561 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{sig}\}\{\#2\}\}$

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

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

562 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthargsig}\}[2][2=]$

563 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{argsig}\}\{\#2\}\}$

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

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

564 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoargsig}\}[2][2=]$

565 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{oargsig}\}\{\#2\}\}$

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

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

566 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthparsig}\}[2][2=]$

567 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{parsig}\}\{\#2\}\}$

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

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

568 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoparsig}\}[2][2=]$

569 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sig}\}\{\mathrm{oparsig}\}\{\#2\}\}$

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

- $\backslash\mathrm{mthstr}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \mathcal{N}\mathrm{ame}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$
- $\backslash\mathrm{mthargstr}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{N}\mathrm{ame}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\left(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\right)\mathrm{Ext2}$

- $\backslash\mathrm{mthargstr}\{Name\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}\}[\mathrm{Ext2}] = \mathfrak{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
- $\backslash\mathrm{mthparstr}\{Name\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}}\{\mathrm{Ex}\}\}[\mathrm{Ext2}] = \mathfrak{Name}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
- $\backslash\mathrm{mthparstr}\{Name\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}}\{\mathrm{Ex}\}\}[\mathrm{Ext2}] = \mathfrak{Name}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$

570 %% Style for Structures

571 $\backslash\mathrm{cmdmthall}\{\mathrm{str}\}\backslash\mathrm{newcommand}\{\backslash\mathrm{mthstyststr}\}\{\mathrm{mathfrakak}\}$

$\backslash\mathrm{aStr}, \dots$... to do!

a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
 $\mathfrak{A}, \mathfrak{B}, \mathfrak{C}, \mathfrak{D}, \mathfrak{E}, \mathfrak{F}, \mathfrak{G}, \mathfrak{H}, \mathfrak{I}, \mathfrak{J}, \mathfrak{K}, \mathfrak{L}, \mathfrak{M}, \mathfrak{N}, \mathfrak{O}, \mathfrak{P}, \mathfrak{Q}, \mathfrak{R}, \mathfrak{S}, \mathfrak{T}, \mathfrak{U}, \mathfrak{V}, \mathfrak{W}, \mathfrak{X}, \mathfrak{Y}, \mathfrak{Z}$
 $\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$
572 $\backslash\mathrm{seqoflatlet}\{\mathrm{Str}\}\{\mathrm{mthstr}\}\backslash\mathrm{seqofgrklow}\{\mathrm{Str}\}\{\mathrm{mthstr}\}$

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

- $\backslash\mathrm{cmdmthstr}\{\mathrm{cmdName}\};$
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext}] = \mathrm{cmd}\mathfrak{Name}_{sub}^{sub}ext$
- $\backslash\mathrm{cmdmthstr}\{\mathrm{cmdName}\}[\mathrm{NewName}];$
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext}] = \mathfrak{New}\mathfrak{Name}_{sub}^{sub}ext$

573 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthstr}\}[2][2=]$

574 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Str}\}\{\mathrm{str}\}\{\#2\}\}$

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

- $\backslash\mathrm{cmdmthargstr}\{\mathrm{cmdName}\};$
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathrm{cmd}\mathfrak{Name}_{sub}^{sub}ext1(arg)ext2$
- $\backslash\mathrm{cmdmthargstr}\{\mathrm{cmdName}\}[\mathrm{NewName}];$
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathfrak{New}\mathfrak{Name}_{sub}^{sub}ext1(arg)ext2$

575 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthargstr}\}[2][2=]$

576 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Str}\}\{\mathrm{argstr}\}\{\#2\}\}$

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

- $\backslash\mathrm{cmdmthoargstr}\{\mathrm{cmdName}\};$
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathrm{cmd}\mathfrak{Name}_{sub}^{sub}(arg)$
- $\backslash\mathrm{cmdmthoargstr}\{\mathrm{cmdStr}\}[\mathrm{NewName}];$
 $\backslash\mathrm{cmdStrStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathfrak{New}\mathfrak{Name}_{sub}^{sub}(arg)$

577 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoargstr}\}[2][2=]$

578 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Str}\}\{\mathrm{oargstr}\}\{\#2\}\}$

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

- $\backslash\mathrm{cmdmthparstr}\{\mathrm{cmdName}\};$
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{par}\}[\mathrm{ext2}] = \mathrm{cmd}\mathfrak{Name}_{sub}^{sub}ext1[par]ext2$
- $\backslash\mathrm{cmdmthparstr}\{\mathrm{cmdName}\}[\mathrm{NewName}];$
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{par}\}[\mathrm{ext2}] = \mathfrak{New}\mathfrak{Name}_{sub}^{sub}ext1[par]ext2$

579 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthparstr}\}[2][2=]$

580 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Str}\}\{\mathrm{parstr}\}\{\#2\}\}$

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

- $\backslash\mathrm{cmdmthoparstr}\{\mathrm{cmdName}\};$
 $\backslash\mathrm{cmdNameStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathrm{cmd}\mathfrak{Name}_{sub}^{sub}[par]$
- $\backslash\mathrm{cmdmthoparstr}\{\mathrm{cmdStr}\}[\mathrm{NewName}];$
 $\backslash\mathrm{cmdStrStr}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathfrak{New}\mathfrak{Name}_{sub}^{sub}[par]$

581 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoparstr}\}[2][2=]$

582 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Str}\}\{\mathrm{oparstr}\}\{\#2\}\}$

$\backslash\mathrm{mthset}, \dots$... to do!

- $\backslash\mathrm{mthset}\{Name\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \mathrm{Name}_{sub}^{sup}Ext$
- $\backslash\mathrm{mthargset}\{Name\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}\}[\mathrm{Ext2}] = \mathrm{Name}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
- $\backslash\mathrm{mthargset}\{Name\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}}\{\mathrm{Ex}\}\}[\mathrm{Ext2}] = \mathrm{Name}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$

- $\backslash\mathrm{mthparset}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}\left[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\right]\mathrm{Ext2}$
- $\backslash\mathrm{mthparset}^*\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}]\mathrm{Ext2}$

583 %% Style for Sets

584 $\backslash\mathrm{cmdmthall}\{\mathrm{set}\}\backslash\mathrm{newcommand}\{\backslash\mathrm{mthstyset}\}\{\mathrm{mathrm}\}$

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

a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
 $\alpha, \beta, \gamma, \delta, \epsilon, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \varkappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$
 $\mathrm{A}, \mathrm{B}, \mathrm{I}, \Delta, \mathrm{E}, \mathrm{E}, \mathrm{Z}, \mathrm{H}, \Theta, \Theta, \mathrm{I}, \mathrm{K}, \mathrm{K}, \Lambda, \mathrm{M}, \mathrm{N}, \Xi, \mathrm{O}, \Pi, \mathrm{II}, \mathrm{P}, \mathrm{P}, \Sigma, \Sigma, \mathrm{T}, \Upsilon, \Phi, \Phi, \mathrm{X}, \Psi, \Omega$
585 $\backslash\mathrm{seqoflet}\{\mathrm{Set}\}\{\mathrm{mthset}\}$

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

• $\backslash\mathrm{cmdmthset}\{\mathrm{cmdName}\};$
 $\backslash\mathrm{cmdNameSet}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext}] = \mathrm{cmdName}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext}$
• $\backslash\mathrm{cmdmthset}\{\mathrm{cmdName}\}[\mathrm{NewName}];$
 $\backslash\mathrm{cmdNameSet}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext}] = \mathrm{NewName}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext}$
586 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthset}\}[2][2=]$
587 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{set}\}\{\#2\}\}$

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

• $\backslash\mathrm{cmdmthargset}\{\mathrm{cmdName}\};$
 $\backslash\mathrm{cmdNameSet}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathrm{cmdName}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}(\mathrm{arg})\mathrm{ext2}$
• $\backslash\mathrm{cmdmthargset}\{\mathrm{cmdName}\}[\mathrm{NewName}];$
 $\backslash\mathrm{cmdNameSet}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathrm{NewName}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}(\mathrm{arg})\mathrm{ext2}$
588 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthargset}\}[2][2=]$
589 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{argset}\}\{\#2\}\}$

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

• $\backslash\mathrm{cmdmthoargset}\{\mathrm{cmdName}\};$
 $\backslash\mathrm{cmdNameSet}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathrm{cmdName}_{\mathrm{sub}}^{\mathrm{sub}}(\mathrm{arg})$
• $\backslash\mathrm{cmdmthoargset}\{\mathrm{cmdSet}\}[\mathrm{NewName}];$
 $\backslash\mathrm{cmdSetSet}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathrm{NewName}_{\mathrm{sub}}^{\mathrm{sub}}(\mathrm{arg})$
590 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoargset}\}[2][2=]$
591 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{oargset}\}\{\#2\}\}$

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

• $\backslash\mathrm{cmdmthparset}\{\mathrm{cmdName}\};$
 $\backslash\mathrm{cmdNameSet}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{par}\}[\mathrm{ext2}] = \mathrm{cmdName}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}[\mathrm{par}]\mathrm{ext2}$
• $\backslash\mathrm{cmdmthparset}\{\mathrm{cmdName}\}[\mathrm{NewName}];$
 $\backslash\mathrm{cmdNameSet}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{par}\}[\mathrm{ext2}] = \mathrm{NewName}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}[\mathrm{par}]\mathrm{ext2}$
592 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthparset}\}[2][2=]$
593 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{parset}\}\{\#2\}\}$

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

• $\backslash\mathrm{cmdmthoparset}\{\mathrm{cmdName}\};$
 $\backslash\mathrm{cmdNameSet}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathrm{cmdName}_{\mathrm{sub}}^{\mathrm{sub}}[\mathrm{par}]$
• $\backslash\mathrm{cmdmthoparset}\{\mathrm{cmdSet}\}[\mathrm{NewName}];$
 $\backslash\mathrm{cmdSetSet}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathrm{NewName}_{\mathrm{sub}}^{\mathrm{sub}}[\mathrm{par}]$
594 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoparset}\}[2][2=]$
595 $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Set}\}\{\mathrm{oparset}\}\{\#2\}\}$

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

596 $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthsetext}\}[3][2=, 3=]$
597 $\{\backslash\mathrm{cmdmthset}\{\#1\}\{\#2\}\backslash\mathrm{caselower}[q]\{\#1\}\%$
598 $\backslash\mathrm{usrmthlet}\{\mathrm{thestring}\}\{\mathrm{Sym}\}\{\mathrm{sym}\}$
599 $[\backslash\mathrm{defval}\{\#3\}\{\backslash\mathrm{defval}\{\backslash\mathrm{empchk}\{\#2\}\{\backslash\mathrm{lowercase}\{\#2\}\}\}\{\mathrm{thestring}\}\}\%$
600 $\backslash\mathrm{usrmthlet}\{\mathrm{thestring}\}\{\mathrm{Elm}\}\{\mathrm{elm}\}$
601 $[\backslash\mathrm{defval}\{\#3\}\{\backslash\mathrm{defval}\{\backslash\mathrm{empchk}\{\#2\}\{\backslash\mathrm{lowercase}\{\#2\}\}\}\{\mathrm{thestring}\}\}\}$

```

\mthrel, ... ... to do!
    • \mthrel{Name}[sub][sup][Ext] = NamesubsubExt
    • \mthargrel{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
    • \mthargrel*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
    • \mthparrel{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
    • \mthparrel*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
602 %% Style for Relations
603 \cmdmthall{rel}\newcommand{\mthstyrel}{\mathit}

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

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

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

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

\cmdmthparrel ... to do!
    • \cmdmthparrel{cmdName};
      \cmdNameRel[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
    • \cmdmthparrel{cmdName}[NewName];
      \cmdNameRel[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
611 \newcommandx{\cmdmthparrel}[2][2=]
612   {\usrmth{#1}{Rel}{parrel}{#2}}

\cmdmthoparrel ... to do!
    • \cmdmthoparrel{cmdName};
      \cmdNameRel[sub][sub][par] = cmdNamesubsub[par]
    • \cmdmthoparrel{cmdRel}[NewName];
      \cmdRelRel[sub][sub][par] = NewNamesubsub[par]
613 \newcommandx{\cmdmthoparrel}[2][2=]
614   {\usrmth{#1}{Rel}{oparrel}{#2}}

```

```

\mthfun, ... ... to do!
    • \mthfun{Name}[sub][sup][Ext] = NamesubsupExt
    • \mthargfun{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsupExt1(ArgExEx)Ext2
    • \mthargfun*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsupExt1(ArgExEx)Ext2
    • \mthparfun{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsupExt1[ParExEx]Ext2
    • \mthparfun*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsupExt1[ParExEx]Ext2
615 %% Style for Functions
616 \cmdmthall{fun}\newcommand{\mthstyfun}{\mathsf}

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

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

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

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

\cmdmthparfun ... to do!
    • \cmdmthparfun{cmdName};
      \cmdNameFun[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
    • \cmdmthparfun{cmdName}[NewName];
      \cmdNameFun[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
624 \newcommandx{\cmdmthparfun}[2][2=]
625 {\usrmth{#1}{Fun}{parfun}{#2}}

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

```

```

\mthsym, ... ... to do!
    • \mthsym{Name}[sub][sup][Ext] = NamesubsubExt
    • \mthargsym{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
    • \mthargsym*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
    • \mthparsym{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
    • \mthparsym*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
628 %% Style for Symbols
629 \cmdmthall{sym}\newcommand{\mthstysym}{\mathtt}

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

\cmdmthsym ... to do!
    • \cmdmthsym{cmdName};
      \cmdNameSym[sub][sub][ext] = cmdNamesubsubext
    • \cmdmthsym{cmdName}[NewName];
      \cmdNameSym[sub][sub][ext] = NewNamesubsubext
631 \newcommandx{\cmdmthsym}[2][2=]
632   {\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
633 \newcommandx{\cmdmthargsym}[2][2=]
634   {\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)
635 \newcommandx{\cmdmthoargsym}[2][2=]
636   {\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
637 \newcommandx{\cmdmthparsym}[2][2=]
638   {\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]
639 \newcommandx{\cmdmthoparsym}[2][2=]
640   {\usrmth{#1}{Sym}{oparsym}{#2}}

```

```

\mthelm, ... ... to do!
    • \mthelm{Name}[sub][sup][Ext] = NamesubsubExt
    • \mthargelm{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
    • \mthargelm*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
    • \mthparelm{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
    • \mthparelm*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
641 %% Style for Elements
642 \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
α, β, γ, δ, ε, ζ, η, θ, ϑ, ι, κ, λ, μ, ν, ξ, ο, π, ϖ, ρ, ϑ, σ, ς, τ, υ, φ, ϕ, χ, ψ, ω
Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, ϒ, Φ, Ψ, Ω
643 \seqoflet{Elm}{mthelm}

\cmdmthelm ... to do!
    • \cmdmthelm{cmdName};
      \cmdNameElm[sub][sub][ext] = cmdNamesubsubext
    • \cmdmthelm{cmdName}[NewName];
      \cmdNameElm[sub][sub][ext] = NewNamesubsubext
644 \newcommandx{\cmdmthelm}[2][2=]
645 {\usrmth{#1}{Elm}{elm}[#2]}

\cmdmthargelm ... to do!
    • \cmdmthargelm{cmdName};
      \cmdNameElm[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
    • \cmdmthargelm{cmdName}[NewName];
      \cmdNameElm[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
646 \newcommandx{\cmdmthargelm}[2][2=]
647 {\usrmth{#1}{Elm}{argelm}[#2]}

\cmdmthoargelm ... to do!
    • \cmdmthoargelm{cmdName};
      \cmdNameElm[sub][sub][arg] = cmdNamesubsub(arg)
    • \cmdmthoargelm{cmdElm}[NewName];
      \cmdElmElm[sub][sub][arg] = NewNamesubsub(arg)
648 \newcommandx{\cmdmthoargelm}[2][2=]
649 {\usrmth{#1}{Elm}{oargelm}[#2]}

\cmdmthparelm ... to do!
    • \cmdmthparelm{cmdName};
      \cmdNameElm[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
    • \cmdmthparelm{cmdName}[NewName];
      \cmdNameElm[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
650 \newcommandx{\cmdmthparelm}[2][2=]
651 {\usrmth{#1}{Elm}{parelm}[#2]}

\cmdmthoparelm ... to do!
    • \cmdmthoparelm{cmdName};
      \cmdNameElm[sub][sub][par] = cmdNamesubsub[par]
    • \cmdmthoparelm{cmdElm}[NewName];
      \cmdElmElm[sub][sub][par] = NewNamesubsub[par]
652 \newcommandx{\cmdmthoparelm}[2][2=]
653 {\usrmth{#1}{Elm}{oparelm}[#2]}

```

654 %%*****%

\cmdmthsymelm ... to do!

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

655 \newcommandx{\cmdmthsymelm}[2][2=]
656 {\cmdmthsym{#1}[#2]}%
657 \cmdmthelm{#1}[#2]}

\cmdmthargsymelm ... to do!

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

658 \newcommandx{\cmdmthargsymelm}[2][2=]
659 {\cmdmthargsym{#1}[#2]}%
660 \cmdmthargelm{#1}[#2]}

\cmdmthoargsymelm ... to do!

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

661 \newcommandx{\cmdmthoargsymelm}[2][2=]
662 {\cmdmthoargsym{#1}[#2]}%
663 \cmdmthoargelm{#1}[#2]}

\cmdmthparsymelm ... to do!

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

664 \newcommandx{\cmdmthparsymelm}[2][2=]
665 {\cmdmthparsym{#1}[#2]}%
666 \cmdmthparelm{#1}[#2]}

\cmdmthoparsymelm ... to do!

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

667 \newcommandx{\cmdmthoparsymelm}[2][2=]
668 {\cmdmthoparsym{#1}[#2]}%
669 \cmdmthoparelm{#1}[#2]}

670 %%*****%

\mthluop, to do!

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

```
671 %% Style for \LaTeX Operators
672 \cmdmth{luop}\newcommand{\mthstyluop}[1]{\textstyle\mathop{\#1}}
673 \cmdmth{lbop}\newcommand{\mthstylbop}[1]{\textstyle\mathbin{\#1}}
```

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

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

```
674 \newcommandx{\cmdmthluop}[2][2=]
675   {\usrmth{\#1}\{UOp\}\{luop\}\{#2\}}
676 \newcommandx{\cmdmthlbop}[2][2=]
677   {\usrmth{\#1}\{BOp\}\{lbop\}\{#2\}}
```

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

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

```
678 %% Style for \LaTeX Relations
679 \cmdmth{lrel}\newcommand{\mthstylrel}{\mathrel}
```

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

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

```
680 \newcommandx{\cmdmthlrel}[2][2=]
681   {\usrmth{\#1}\{Rel\}\{lrel\}\{#2\}}
```

```
682 %%*****%
```

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

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

```
683 %% Style for Sentences
684 \cmdmth{all{snt}}\newcommand{\mthstysnt}{\mathsf}
```

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

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

```
685 \seqoflet{Snt}{mthsnt}
```

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

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

```

686 \newcommandx{\cmdmthsnt}[2][2=]
687   {\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
688 \newcommandx{\cmdmthargsnt}[2][2=]
689   {\usrmth{#1}{Snt}{argsnt}{#2}}

\cmdmthoargsnt ... to do!
  • \cmdmthoargsnt{cmdName};
    \cmdNameSnt[sub][sub][arg] = cmdNamesub(arg)
  • \cmdmthoargsnt{cmdName}[NewName];
    \cmdNameSnt[sub][sub][arg] = NewNamesub(arg)
690 \newcommandx{\cmdmthoargsnt}[2][2=]
691   {\usrmth{#1}{Snt}{oargsnt}{#2}}

\cmdmthparsnt ... to do!
  • \cmdmthparsnt{cmdName};
    \cmdNameSnt[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2
  • \cmdmthparsnt{cmdName}[NewName];
    \cmdNameSnt[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2
692 \newcommandx{\cmdmthparsnt}[2][2=]
693   {\usrmth{#1}{Snt}{parsnt}{#2}}

\cmdmthoparsnt ... to do!
  • \cmdmthoparsnt{cmdName};
    \cmdNameSnt[sub][sub][par] = cmdNamesub[par]
  • \cmdmthoparsnt{cmdName}[NewName];
    \cmdNameSnt[sub][sub][par] = NewNamesub[par]
694 \newcommandx{\cmdmthoparsnt}[2][2=]
695   {\usrmth{#1}{Snt}{oparsnt}{#2}}

\mthfrm, ... ... to do!
  • \mthfrm{Name}[sub][sup][Ext] = NamesupsubExt
  • \mthargfrm{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
  • \mthargfrm*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
  • \mthparfrm{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
  • \mthparfrm*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
696 %% Style for Formulae
697 \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, I, K, K, A, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω
698 \seqoflet{Frm}{mthfrm}

\cmdmthfrm ... to do!
  • \cmdmthfrm{cmdName};
    \cmdNameFrm[sub][sub][ext] = cmdNamesubsubext
  • \cmdmthfrm{cmdName}[NewName];
    \cmdNameFrm[sub][sub][ext] = NewNamesubsubext

```



```

699 \newcommandx{\cmdmthfrm}[2][2=]
700   {\usrmth{#1}{Frm}{frm}{#2}}

\cmdmthargfrm ... to do!
  • \cmdmthargfrm{cmdName};
    \cmdNameFrm[sub][sub][ext1]{arg}[ext2] =  $\text{cmdName}_{sub}^{sub}ext1(arg)ext2$ 
  • \cmdmthargfrm{cmdName}[NewName];
    \cmdNameFrm[sub][sub][ext1]{arg}[ext2] =  $\text{NewName}_{sub}^{sub}ext1(arg)ext2$ 
701 \newcommandx{\cmdmthargfrm}[2][2=]
702   {\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] =  $\text{NewName}_{sub}^{sub}(arg)$ 
703 \newcommandx{\cmdmthoargfrm}[2][2=]
704   {\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] =  $\text{NewName}_{sub}^{sub}ext1[par]ext2$ 
705 \newcommandx{\cmdmthparfrm}[2][2=]
706   {\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] =  $\text{NewName}_{sub}^{sub}[par]$ 
707 \newcommandx{\cmdmthoparfrm}[2][2=]
708   {\usrmth{#1}{Frm}{oparfrm}{#2}}

709 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\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] =  $\text{Name}_{sub}^{sup}Ext1\left[\text{Par}^{Ex^{Ex}}\right]Ext2$ 
710 %% Style for Matrices
711 \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, Γ, Δ, E, E, Z, H, Θ, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, T, Φ, Φ, X, Ψ, Ω
712 \seqoflet{Mat}{mthmat}

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

```

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

```
713 \newcommandx{\cmdmthmat}[2][2=]
714 {\usrmth{\#1}\Mat}\mat{\#2}}
```

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

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

```
715 \newcommandx{\cmdmthargmat}[2][2=]
716 {\usrmth{\#1}\Mat}\argmat{\#2}}
```

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

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

```
717 \newcommandx{\cmdmthoargmat}[2][2=]
718 {\usrmth{\#1}\Mat}\oargmat{\#2}}
```

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

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

```
719 \newcommandx{\cmdmthparmat}[2][2=]
720 {\usrmth{\#1}\Mat}\parmat{\#2}}
```

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

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

```
721 \newcommandx{\cmdmthoparmat}[2][2=]
722 {\usrmth{\#1}\Mat}\oparmat{\#2}}
```

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

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

```
723 %% Style for Vectors
```

```
724 \cmdmthall{\vec}\newcommand{\mthstyvec}[1]{\boldsymbol{\mathit{\#1}}}
```

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

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

```
725 \seqoflet{\Vec}\mthvec}
```

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

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

```

    • \cmdmthvec{cmdName}[NewName];
      \cmdNameVec[sub][sub][ext] = NewNamesubsubext
726 \newcommandx{\cmdmthvec}[2][2=]
727   {\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
728 \newcommandx{\cmdmthargvec}[2][2=]
729   {\usrmth{#1}{Vec}{argvec}[#2]}

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

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

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

736 \fi
737 %*****%
738 %*****%
739 %** Elementary Macros for Text *****%
740 %*****%
741 \iftxt@
742 %** Latin Abbreviations *****%

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

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

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

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

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

```

`\dedicto` • `\dedicto = de dicto`
748 `\cmdtxtabr{dedicto}[de dicto]`

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

`\viz` • `\viz = viz.`
764 `\cmdtxtabr{viz}[viz.]`
765 `%%*****%`

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

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

\backslash Aposteriori • \backslash Aposteriori = *A posteriori*
768 \cmdtxtabr{Aposteriori}[A posteriori]

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

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

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

\backslash Divideetimperā • \backslash Divideetimperā = *Divide et impera*
772 \cmdtxtabr{Divideetimperā}[Divide et impera]

\backslash Eg • \backslash Eg = *E.g.*
773 \cmdtxtabr{Eg}[E.g.]

\backslash Errata • \backslash Errata = *Errata*
774 \cmdtxtabr{Errata}

\backslash Erratum • \backslash Erratum = *Erratum*
775 \cmdtxtabr{Erratum}

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

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

\backslash Prima facie • \backslash Prima facie = *Prima facie*
778 \cmdtxtabr{Prima facie}[Prima facie]

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

780 %** Italian Abbreviations *****%
...
781 %*****%
...
782 %** French Abbreviations *****%

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

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

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

786 %*****%

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

788 %** English Abbreviations *****%

```

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

\contd    • \contd = contd.
790 \cmdtxtabr{contd}[contd.]

\iff      • \iff = iff
791 \cmdtxtabr{iff}

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

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

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

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

\wlogx    • \wlogx = w.l.o.g.
796 \cmdtxtabr{wlogx}[w.l.o.g.]
797 %%*****%%

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

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

800 \fi
801 %%*****%%
802 %%*****%%
803 %%** Elementary Macros for Math *****%%
804 %%*****%%
805 \ifmth@
806 %%** General Notation *****%%

\defeq, \seteq ...
807 \DeclareRobustCommand{\defeq}
808   {\@ifstar%
809     {\mthlbop{\stackrel{\text{\textup{def}}}{=}}}%
810     {\mthlbop{\triangleq}}}
811 \DeclareRobustCommand{\seteq}
812   {\@ifstar{\mthlbop{\Coloneqq}}{\mthlbop{\coloneqq}}}
813 %%*****%%

\implies, ... ...
814 \DeclareRobustCommand{\implies}
815   {\mthlrel{\Rightarrow}}
816 \DeclareRobustCommand{\notimplies}
817   {\mthlrel{\not\Rightarrow}}

\implied, ... ...
818 \DeclareRobustCommand{\implied}
819   {\mthlrel{\Leftarrow}}
820 \DeclareRobustCommand{\notimplied}
821   {\mthlrel{\not\Leftarrow}}

```

```

\coimplies, ... ...
822 \DeclareRobustCommand{\coimplies}
823   {\mthlrel{\Leftrightarrow}}
824 \DeclareRobustCommand{\notcoimplies}
825   {\mthlrel{\not\!\Leftrightarrow}}

826 %%*****%

\cmodels, ... ...
827 \DeclareRobustCommand{\cmodels}
828   {\mthlrel{\models}}
829 \DeclareRobustCommand{\notcmodels}
830   {\mthlrel{\not\models}}

\cequiv, ... ...
831 \DeclareRobustCommand{\cequiv}
832   {\mthlrel{\equiv}}
833 \DeclareRobustCommand{\notcequiv}
834   {\mthlrel{\not\equiv}}

835 %%*****%

\denot ...
836 \DeclareRobustCommand{\denot}
837   {\@ifstar{\@denot}{\@denot[\left][\right]}}
838 \DeclareRobustCommandx{\@denot}[3][1=, 2=]
839   {\mth{\argmid{\#1\llbracket}{\#3}{\#2\rrbracket}}}

840 %%*****%

\dual, \adj, ... ...
841 \DeclareRobustCommand{\dual}[1]
842   {\mth{\overline{\#1}}}
843 \DeclareRobustCommand{\adj}[1]
844   {\mth{\mathring{\#1}}}
845 \DeclareRobustCommand{\der}[1]
846   {\mth{\widehat{\#1}}}
847 \DeclareRobustCommand{\trn}[1]
848   {\mth{\widetilde{\#1}}}

\vec ...
849 \DeclareRobustCommand{\vec}
850   {\@ifstar{\@svec}{\@vec}}
851 \DeclareRobustCommand{\@vec}[1]
852   {\mth{\mathaccent"017E{\#1}}}
853 \DeclareRobustCommand{\@svec}[1]
854   {\mth{\overline{\#1}}}

855 %%*****%

\enumeration, ... ...
856 \varcmd{enumeration}{\mth}{\{,\}{}}
857 \varcmd{enumerationx}{\mth}{\{;\}{}}

\sequence, ... ...
858 \DeclareRobustCommand{\sequence}
859   {\@ifstar{\@ssequence}{\@sequence}}
860 \varcmd{@sequence}{\mth}{\left[\{,\}{\right]}}
861 \varcmd{@ssequence}{\mth}{\left[\{,\}{\right]}}
862 \DeclareRobustCommand{\sequence1}
863   {\@ifstar{\@ssequence1}{\@sequence1}}
864 \varcmd{@sequence1}{\mth}{\left[\{,\}{\right.}\{}}
865 \varcmd{@ssequence1}{\mth}{\left[\{,\}{\right.}\{}}

```

```

866 \DeclareRobustCommand{\sequencer}
867   {\@ifstar{\@ssequencer}{\@sequencer}}
868 \varcmd{\sequencer}{\mth}{\left.}{,}{\right]}{}
869 \varcmd{\ssequencer}{\mth}{,}{,}{}
870 \DeclareRobustCommand{\sequencex}
871   {\@ifstar{\@ssequencex}{\@sequencex}}
872 \varcmd{\sequencex}{\mth}{\left[}{;}{\right]}{}
873 \varcmd{\ssequencex}{\mth}{[}{;}{]}{}
874 \DeclareRobustCommand{\sequencexl}
875   {\@ifstar{\@ssequencexl}{\@sequencexl}}
876 \varcmd{\sequencexl}{\mth}{\left[}{;}{\right.]}{}
877 \varcmd{\ssequencexl}{\mth}{[}{;}{]}{}
878 \DeclareRobustCommand{\sequencexr}
879   {\@ifstar{\@ssequencexr}{\@sequencexr}}
880 \varcmd{\sequencexr}{\mth}{\left.}{;}{\right]}{}
881 \varcmd{\ssequencexr}{\mth}{,}{;}{]}{}

```

\tuple,

```

882 \DeclareRobustCommand{\tuple}
883   {\@ifstar{\@stuple}{\@tuple}}
884 \varcmd{\tuple}{\mth}{\left\langle}{,}{\right\rangle}{}
885 \varcmd{\stuple}{\mth}{\langle}{,}{\rangle}{}
886 \DeclareRobustCommand{\tuplel}
887   {\@ifstar{\@stupl}{\@tuplel}}
888 \varcmd{\tuplel}{\mth}{\left\langle}{,}{\right.]}{}
889 \varcmd{\stupl}{\mth}{\langle}{,}{]}{}
890 \DeclareRobustCommand{\tupler}
891   {\@ifstar{\@stupler}{\@tupler}}
892 \varcmd{\tupler}{\mth}{\left.}{,}{\right\rangle}{}
893 \varcmd{\stupler}{\mth}{,}{,}{\rangle}{}
894 \DeclareRobustCommand{\tuplex}
895   {\@ifstar{\@stuplex}{\@tuplex}}
896 \varcmd{\tuplex}{\mth}{\left\langle}{;}{\right\rangle}{}
897 \varcmd{\stuplex}{\mth}{\langle}{;}{\rangle}{}
898 \DeclareRobustCommand{\tuplexl}
899   {\@ifstar{\@stuplexl}{\@tuplexl}}
900 \varcmd{\tuplexl}{\mth}{\left\langle}{;}{\right.]}{}
901 \varcmd{\stuplexl}{\mth}{\langle}{;}{]}{}
902 \DeclareRobustCommand{\tuplexr}
903   {\@ifstar{\@stuplexr}{\@tuplexr}}
904 \varcmd{\tuplexr}{\mth}{\left.}{;}{\right\rangle}{}
905 \varcmd{\stuplexr}{\mth}{,}{;}{\rangle}{}

906 %** Sets *****%

```

\set,

```

907 \DeclareRobustCommand{\set}
908   {\@ifstar{\@set}{\@set[\left][\middle][\right]}}
909 \DeclareRobustCommandx{\@set}[5][1=, 2=, 3=]
910   {\mth{\argmid{#1\lbrace}{\argsep{#4}{\, #2\vert\,}{#5}}{#3\rbbrace}}}
911 \DeclareRobustCommand{\setl}
912   {\@ifstar{\@setl}{\@setl[\left][\right]}}
913 \DeclareRobustCommandx{\@setl}[3][1=, 2=]
914   {\mth{\argmid{#1\lbrace}{#3}{\, #2\vert\!}}}
915 \DeclareRobustCommand{\setr}
916   {\@ifstar{\@setr}{\@setr[\left.][\right]}}
917 \DeclareRobustCommandx{\@setr}[3][1=, 2=]
918   {\mth{\argmid{#1}{#3}{#2\rbbrace}}}

```

\card ...

```

919 \DeclareRobustCommand{\card}
920   {\@ifstar{\@card}{\@card[\left][\right]}}
921 \DeclareRobustCommandx{\@card}[3][1=, 2=]
922   {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}

```



```

\pow ...
923 \DeclareRobustCommand{\pow}[1]
924   {\mth{2^{\defval{#1}{\cdot}}}}

925 %%** Relations *****%%

\emptyrel ...
926 \DeclareRobustCommand{\emptyrel}
927   {\mth{\varnothing}}

928 %*****%%

\dom, \cod, ... ...
929 \usrmth{dom}{-}{argfun}
930 \usrmth{cod}{-}{argfun}
931 \usrmth{rng}{-}{argfun}
932 \usrmth{img}{-}{argfun}

933 %*****%%

\prj ...
934 \DeclareRobustCommand{\prj}
935   {\mthargfun{prj}}

\rst ...
936 \DeclareRobustCommand{\rst}
937   {\mthlbop{\upharpoonright}}

\cmp ...
938 \DeclareRobustCommand{\cmp}
939   {\mthlbop{\circ}}

940 %%** Functions *****%%

\emptyfun ...
941 \DeclareRobustCommand{\emptyfun}
942   {\mth{\varnothing}}

943 %*****%%

\pto, \pmapsto ...
944 \DeclareMathOperator{\pto}
945   {\ensuremath{\rightharpoonup}}
946 \DeclareMathOperator{\pmapsto}
947   {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize$\llcorner$}}}%
948     \kern-1.5ex\rightharpoonup}}

949 %*****%%

\fix, \ifp, ... ...
950 \usrmth{fix}{-}{fun}
951 \usrmth{ifp}{-}{fun}
952 \usrmth{lfp}{-}{fun}
953 \usrmth{gfp}{-}{fun}

954 %*****%%

\Aomega, \AOmega ...
955 \usrmth{Aomega}{-}{argset}[\omega]
956 \usrmth{AOmega}{-}{argset}[\Omega]

\Atheta, \ATheta ...
957 \usrmth{Atheta}{-}{argset}[\theta]
958 \usrmth{ATheta}{-}{argset}[\Theta]

```

```

\Aomicron, ... ...
959 \usrmth{Aomicron}{\argset}{\omicron}
960 \usrmth{A0micron}{\argset}{\0micron}

961 %%** Numbers *****%%

\SetB ...
962 \DeclareRobustCommand{\SetB}
963 {\mthset[mathbb]{B}}

\SetF ...
964 \DeclareRobustCommand{\SetF}
965 {\mthset[mathbb]{F}}

\SetN, ... ...
966 \DeclareRobustCommand{\SetN}
967 {\mthset[mathbb]{N}}
968 \DeclareRobustCommand{\SetNI}[1] []
969 {\SetN[\infty #1]}

\SetZ, ... ...
970 \DeclareRobustCommand{\SetZ}
971 {\mthset[mathbb]{Z}}
972 \DeclareRobustCommand{\SetZI}[1] []
973 {\SetZ[\pm\infty #1]}
974 \DeclareRobustCommand{\SetZPI}[1] []
975 {\SetZ[+\infty #1]}
976 \DeclareRobustCommand{\SetZNI}[1] []
977 {\SetZ[-\infty #1]}

\SetQ, ... ...
978 \DeclareRobustCommand{\SetQ}
979 {\mthset[mathbb]{Q}}
980 \DeclareRobustCommand{\SetQI}[1] []
981 {\SetQ[\pm\infty #1]}
982 \DeclareRobustCommand{\SetQPI}[1] []
983 {\SetQ[+\infty #1]}
984 \DeclareRobustCommand{\SetQNI}[1] []
985 {\SetQ[-\infty #1]}

\SetR, ... ...
986 \DeclareRobustCommand{\SetR}
987 {\mthset[mathbb]{R}}
988 \DeclareRobustCommand{\SetRI}[1] []
989 {\SetR[\pm\infty #1]}
990 \DeclareRobustCommand{\SetRPI}[1] []
991 {\SetR[+\infty #1]}
992 \DeclareRobustCommand{\SetRNI}[1] []
993 {\SetR[-\infty #1]}

\SetC, ... ...
994 \DeclareRobustCommand{\SetC}
995 {\mthset[mathbb]{C}}
996 \DeclareRobustCommand{\SetCI}[1] []
997 {\SetC[\infty #1]}

998 %*****%%

\num, ... ...
999 \DeclareRobustCommand{\num}[1]
1000 {\mth{[#1]}}
1001 \DeclareRobustCommand{\numcc}[2]
1002 {\mth{[\argsep{#1}{,}{#2}]}}

```

```

1003 \DeclareRobustCommand{\numco}[2]
1004   {\mth{\argsep{#1}{,}{#2}}}}
1005 \DeclareRobustCommand{\numoc}[2]
1006   {\mth{(\argsep{#1}{,}{#2})}}
1007 \DeclareRobustCommand{\numoo}[2]
1008   {\mth{(\argsep{#1}{,}{#2})}}

```

```

1009 %%*****%

```

\abs, \norm ...

```

1010 \DeclareRobustCommand{\abs}
1011   {\@ifstar{\@abs}{\@abs[\left][\right]}}
1012 \DeclareRobustCommandx{\@abs}[3][1=, 2=]
1013   {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}}
1014 \DeclareRobustCommand{\norm}
1015   {\@ifstar{\@norm}{\@norm[\left][\right]}}
1016 \DeclareRobustCommandx{\@norm}[3][1=, 2=]
1017   {\mth{\argmid{#1\lVert}{#3}{#2\rVert}}}}

```

\floor, \ceil ...

```

1018 \DeclareRobustCommand{\floor}
1019   {\@ifstar{\@floor}{\@floor[\left][\right]}}
1020 \DeclareRobustCommandx{\@floor}[3][1=, 2=]
1021   {\mth{\argmid{#1\lfloor}{#3}{#2\rfloor}}}}
1022 \DeclareRobustCommand{\ceil}
1023   {\@ifstar{\@ceil}{\@ceil[\left][\right]}}
1024 \DeclareRobustCommandx{\@ceil}[3][1=, 2=]
1025   {\mth{\argmid{#1\lceil}{#3}{#2\rceil}}}}

```

```

1026 %%*****%

```

\arg ...

```

1027 \usrmth{arg}{\fun}

```

\evn, \odd ...

```

1028 \usrmth{evn}{\fun}
1029 \usrmth{odd}{\fun}

```

\bst,

```

1030 \usrmth{bst}{\fun}
1031 \usrmth{argbst}{\fun}[arg\,bst]

```

\min, \max,

```

1032 \usrmth{min}{\fun}
1033 \usrmth{max}{\fun}
1034 \usrmth{argmin}{\fun}[arg\,min]
1035 \usrmth{argmax}{\fun}[arg\,max]

```

\inf, \sup ...

```

1036 \usrmth{inf}{\fun}
1037 \usrmth{sup}{\fun}

```

```

1038 %%** Sequences *****%

```

\emptyseq ...

```

1039 \DeclareRobustCommand{\emptyseq}
1040   {\mth{\varepsilon}}

```

\len ...

```

1041 \DeclareRobustCommand{\len}
1042   {\@ifstar{\@len}{\@len[\left][\right]}}
1043 \DeclareRobustCommandx{\@len}[3][1=, 2=]
1044   {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}}

```

```

\fst, \lst ...
1045 \usrmth{fst}{-}{argfun}
1046 \usrmth{lst}{-}{argfun}

1047 \fi
1048 %*****%
1049 %*****%
1050 %** Macros for Computational-Complexity Classes *****%
1051 %*****%
1052 \ifcom@

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

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

    • \defcomcls{CompClass}[NewClass];

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

1053 \newcommandx{\defcomcls}[2][2=]
1054   {\csdef{#1}{\txtoargcom{\defval{#2}{#1}}}}

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

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

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

      \NCompClass[sub][sup][arg] = NCOMPCLASSSUB(ARG)
      \CoNCompClass[sub][sup][arg] = CONCOMPCLASSSUB(ARG)
      \NCompClassE[sub][sup][arg] = NCOMPCLASS-EASYSUB(ARG)
      \CoNCompClassE[sub][sup][arg] = CONCOMPCLASS-EASYSUB(ARG)
      \NCompClassH[sub][sup][arg] = NCOMPCLASS-HARDSUB(ARG)
      \CoNCompClassH[sub][sup][arg] = CONCOMPCLASS-HARDSUB(ARG)
      \NCompClassC[sub][sup][arg] = NCOMPCLASS-COMPLETESUB(ARG)
      \CoNCompClassC[sub][sup][arg] = CONCOMPCLASS-COMPLETESUB(ARG)

      \UCompClass[sub][sup][arg] = UCOMPCLASSSUB(ARG)
      \CoUCompClass[sub][sup][arg] = COUCOMPCLASSSUB(ARG)
      \UCompClassE[sub][sup][arg] = UCOMPCLASS-EASYSUB(ARG)
      \CoUCompClassE[sub][sup][arg] = COUCOMPCLASS-EASYSUB(ARG)
      \UCompClassH[sub][sup][arg] = UCOMPCLASS-HARDSUB(ARG)
      \CoUCompClassH[sub][sup][arg] = COUCOMPCLASS-HARDSUB(ARG)
      \UCompClassC[sub][sup][arg] = UCOMPCLASS-COMPLETESUB(ARG)
      \CoUCompClassC[sub][sup][arg] = COUCOMPCLASS-COMPLETESUB(ARG)

      \ACompClass[sub][sup][arg] = ACOMPCLASSSUB(ARG)

```

```

\CoACompClass[sub][sup][arg] = CoACOMPCLASSSUB(ARG)
\ACompClassE[sub][sup][arg] = ACOMPCLASS-EASYSUB(ARG)
\CoACompClassE[sub][sup][arg] = CoACOMPCLASS-EASYSUB(ARG)
\ACompClassH[sub][sup][arg] = ACOMPCLASS-HARDSUB(ARG)
\CoACompClassH[sub][sup][arg] = CoACOMPCLASS-HARDSUB(ARG)
\ACompClassC[sub][sup][arg] = ACOMPCLASS-COMPLETESUB(ARG)
\CoACompClassC[sub][sup][arg] = CoACOMPCLASS-COMPLETESUB(ARG)
• \defcomclsgrp{CompClass}[NewClass];

\CompClass[sub][sup][arg] = NEWCLASSSUB(ARG)
\CoCompClass[sub][sup][arg] = CoNEWCLASSSUB(ARG)
\CompClassE[sub][sup][arg] = NEWCLASS-EASYSUB(ARG)
\CoCompClassE[sub][sup][arg] = CoNEWCLASS-EASYSUB(ARG)
\CompClassH[sub][sup][arg] = NEWCLASS-HARDSUB(ARG)
\CoCompClassH[sub][sup][arg] = CoNEWCLASS-HARDSUB(ARG)
\CompClassC[sub][sup][arg] = NEWCLASS-COMPLETESUB(ARG)
\CoCompClassC[sub][sup][arg] = CoNEWCLASS-COMPLETESUB(ARG)

\DCompClass[sub][sup][arg] = DNEWCLASSSUB(ARG)
\CoDCompClass[sub][sup][arg] = CoDNEWCLASSSUB(ARG)
\DCompClassE[sub][sup][arg] = DNEWCLASS-EASYSUB(ARG)
\CoDCompClassE[sub][sup][arg] = CoDNEWCLASS-EASYSUB(ARG)
\DCompClassH[sub][sup][arg] = DNEWCLASS-HARDSUB(ARG)
\CoDCompClassH[sub][sup][arg] = CoDNEWCLASS-HARDSUB(ARG)
\DCompClassC[sub][sup][arg] = DNEWCLASS-COMPLETESUB(ARG)
\CoDCompClassC[sub][sup][arg] = CoDNEWCLASS-COMPLETESUB(ARG)

\NCompClass[sub][sup][arg] = NNEWCLASSSUB(ARG)
\CoNCompClass[sub][sup][arg] = CoNNEWCLASSSUB(ARG)
\NCompClassE[sub][sup][arg] = NNEWCLASS-EASYSUB(ARG)
\CoNCompClassE[sub][sup][arg] = CoNNEWCLASS-EASYSUB(ARG)
\NCompClassH[sub][sup][arg] = NNEWCLASS-HARDSUB(ARG)
\CoNCompClassH[sub][sup][arg] = CoNNEWCLASS-HARDSUB(ARG)
\NCompClassC[sub][sup][arg] = NNEWCLASS-COMPLETESUB(ARG)
\CoNCompClassC[sub][sup][arg] = CoNNEWCLASS-COMPLETESUB(ARG)

\UCompClass[sub][sup][arg] = UNEWCLASSSUB(ARG)
\CoUCompClass[sub][sup][arg] = CoUNEWCLASSSUB(ARG)
\UCompClassE[sub][sup][arg] = UNEWCLASS-EASYSUB(ARG)
\CoUCompClassE[sub][sup][arg] = CoUNEWCLASS-EASYSUB(ARG)
\UCompClassH[sub][sup][arg] = UNEWCLASS-HARDSUB(ARG)
\CoUCompClassH[sub][sup][arg] = CoUNEWCLASS-HARDSUB(ARG)
\UCompClassC[sub][sup][arg] = UNEWCLASS-COMPLETESUB(ARG)
\CoUCompClassC[sub][sup][arg] = CoUNEWCLASS-COMPLETESUB(ARG)

\ACompClass[sub][sup][arg] = ANEWCLASSSUB(ARG)
\CoACompClass[sub][sup][arg] = CoANEWCLASSSUB(ARG)
\ACompClassE[sub][sup][arg] = ANEWCLASS-EASYSUB(ARG)
\CoACompClassE[sub][sup][arg] = CoANEWCLASS-EASYSUB(ARG)
\ACompClassH[sub][sup][arg] = ANEWCLASS-HARDSUB(ARG)
\CoACompClassH[sub][sup][arg] = CoANEWCLASS-HARDSUB(ARG)
\ACompClassC[sub][sup][arg] = ANEWCLASS-COMPLETESUB(ARG)
\CoACompClassC[sub][sup][arg] = CoANEWCLASS-COMPLETESUB(ARG)

1055 \newcommandx{\defcomclsgrp}[2][2=]
1056   {\defcomclsgrpsem{#1}{\defval{#2}{#1}}%
1057   \defcomclsgrpsem{#1}{\defval{#2}{#1}}[Co]}
1058 \newcommandx{\defcomclsgrpsem}[3][3=]
1059   {\defcomclsgrpred{#3#1}{#2}{#3}%
1060   \defcomclsgrpred{#3D#1}{#2}{#3D}%
1061   \defcomclsgrpred{#3N#1}{#2}{#3N}%
1062   \defcomclsgrpred{#3U#1}{#2}{#3U}%
1063   \defcomclsgrpred{#3A#1}{#2}{#3A}}
1064 \newcommandx{\defcomclsgrpred}[3][3=]
1065   {\defcomclsgrpcmd{#1}{#2}{#3}%

```

```

1066 \defcomclsgrpcmd{#1E}{#2}{#3}[-easy]%
1067 \defcomclsgrpcmd{#1H}{#2}{#3}[-hard]%
1068 \defcomclsgrpcmd{#1C}{#2}{#3}[-complete]]%
1069 \newcommandx{\defcomclsgrpcmd}[4][3=, 4=]
1070 {\csdef{#1}{\txttoargcom{#3#2#4}}}

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

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

    • \defcomhrc{CompHierarchy}[NewHierarchy];

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

1071 \newcommandx{\defcomhrc}[2][2=]
1072 {\csdef{#1}{\txttoparcom{\defval{#2}{#1}}}}

1073 %%*****%

```

\Easy, \Hard, ...

```

1074 \cmdtxtcom{Easy}
1075 \cmdtxtcom{Hard}
1076 \cmdtxtcom{Complete}

1077 %%*****%

\FPT    • \FPT[sub][sup][arg] = FPTSUB(ARG)
1078 \defcomcls{FPT}

1079 %%*****%

```

\Time, ...

```

    • \Time[sub][sup][arg] = TIMESUB(ARG)
      \TimeE[sub][sup][arg] = TIME-EASYSUB(ARG)
      \TimeH[sub][sup][arg] = TIME-HARDSUB(ARG)
      \TimeC[sub][sup][arg] = TIME-COMPLETESUB(ARG)

    • \DTime[sub][sup][arg] = DTIMESUB(ARG)
      \DTimeE[sub][sup][arg] = DTIME-EASYSUB(ARG)
      \DTimeH[sub][sup][arg] = DTIME-HARDSUB(ARG)
      \DTimeC[sub][sup][arg] = DTIME-COMPLETESUB(ARG)

    • \NTime[sub][sup][arg] = NTIMESUB(ARG)
      \NTimeE[sub][sup][arg] = NTIME-EASYSUB(ARG)
      \NTimeH[sub][sup][arg] = NTIME-HARDSUB(ARG)
      \NTimeC[sub][sup][arg] = NTIME-COMPLETESUB(ARG)

    • \UTime[sub][sup][arg] = UTIMESUB(ARG)
      \UTimeE[sub][sup][arg] = UTIME-EASYSUB(ARG)
      \UTimeH[sub][sup][arg] = UTIME-HARDSUB(ARG)
      \UTimeC[sub][sup][arg] = UTIME-COMPLETESUB(ARG)

    • \ATime[sub][sup][arg] = ATIMESUB(ARG)
      \ATimeE[sub][sup][arg] = ATIME-EASYSUB(ARG)
      \ATimeH[sub][sup][arg] = ATIME-HARDSUB(ARG)
      \ATimeC[sub][sup][arg] = ATIME-COMPLETESUB(ARG)

```

```

1080 \defcomclsgrp{Time}

```

\Space, ...

```

    • \Space[sub][sup][arg] = SPACESUB(ARG)
      \SpaceE[sub][sup][arg] = SPACE-EASYSUB(ARG)
      \SpaceH[sub][sup][arg] = SPACE-HARDSUB(ARG)
      \SpaceC[sub][sup][arg] = SPACE-COMPLETESUB(ARG)

    • \DSpace[sub][sup][arg] = DSPACESUB(ARG)
      \DSpaceE[sub][sup][arg] = DSPACE-EASYSUB(ARG)
      \DSpaceH[sub][sup][arg] = DSPACE-HARDSUB(ARG)
      \DSpaceC[sub][sup][arg] = DSPACE-COMPLETESUB(ARG)

```


\PTime, ...

- \PTime[sub][sup][arg] = PTIME_{SUB}^{SUP}(ARG)
- \PTimeE[sub][sup][arg] = PTIME-EASY_{SUB}^{SUP}(ARG)
- \PTimeH[sub][sup][arg] = PTIME-HARD_{SUB}^{SUP}(ARG)
- \PTimeC[sub][sup][arg] = PTIME-COMPLETE_{SUB}^{SUP}(ARG)
- \DPTIME[sub][sup][arg] = DPTIME_{SUB}^{SUP}(ARG)
- \DPTIMEE[sub][sup][arg] = DPTIME-EASY_{SUB}^{SUP}(ARG)
- \DPTIMEH[sub][sup][arg] = DPTIME-HARD_{SUB}^{SUP}(ARG)
- \DPTIMEC[sub][sup][arg] = DPTIME-COMPLETE_{SUB}^{SUP}(ARG)
- \NPTime[sub][sup][arg] = NPTime_{SUB}^{SUP}(ARG)
- \NPTimeE[sub][sup][arg] = NPTime-EASY_{SUB}^{SUP}(ARG)
- \NPTimeH[sub][sup][arg] = NPTime-HARD_{SUB}^{SUP}(ARG)
- \NPTimeC[sub][sup][arg] = NPTime-COMPLETE_{SUB}^{SUP}(ARG)
- \UPTIME[sub][sup][arg] = UPTIME_{SUB}^{SUP}(ARG)
- \UPTIMEE[sub][sup][arg] = UPTIME-EASY_{SUB}^{SUP}(ARG)
- \UPTIMEH[sub][sup][arg] = UPTIME-HARD_{SUB}^{SUP}(ARG)
- \UPTIMEC[sub][sup][arg] = UPTIME-COMPLETE_{SUB}^{SUP}(ARG)
- \APTime[sub][sup][arg] = APTime_{SUB}^{SUP}(ARG)
- \APTimeE[sub][sup][arg] = APTime-EASY_{SUB}^{SUP}(ARG)
- \APTimeH[sub][sup][arg] = APTime-HARD_{SUB}^{SUP}(ARG)
- \APTimeC[sub][sup][arg] = APTime-COMPLETE_{SUB}^{SUP}(ARG)

1084 \defcomclsggrp{PTime}

\PSpace, ...

- \PSpace[sub][sup][arg] = PSPACE_{SUB}^{SUP}(ARG)
- \PSpaceE[sub][sup][arg] = PSPACE-EASY_{SUB}^{SUP}(ARG)
- \PSpaceH[sub][sup][arg] = PSPACE-HARD_{SUB}^{SUP}(ARG)
- \PSpaceC[sub][sup][arg] = PSPACE-COMPLETE_{SUB}^{SUP}(ARG)
- \DPSpace[sub][sup][arg] = DPSpace_{SUB}^{SUP}(ARG)
- \DPSpaceE[sub][sup][arg] = DPSpace-EASY_{SUB}^{SUP}(ARG)
- \DPSpaceH[sub][sup][arg] = DPSpace-HARD_{SUB}^{SUP}(ARG)
- \DPSpaceC[sub][sup][arg] = DPSpace-COMPLETE_{SUB}^{SUP}(ARG)
- \NPSpace[sub][sup][arg] = NPSpace_{SUB}^{SUP}(ARG)
- \NPSpaceE[sub][sup][arg] = NPSpace-EASY_{SUB}^{SUP}(ARG)
- \NPSpaceH[sub][sup][arg] = NPSpace-HARD_{SUB}^{SUP}(ARG)
- \NPSpaceC[sub][sup][arg] = NPSpace-COMPLETE_{SUB}^{SUP}(ARG)
- \UPSpace[sub][sup][arg] = UPSpace_{SUB}^{SUP}(ARG)
- \UPSpaceE[sub][sup][arg] = UPSpace-EASY_{SUB}^{SUP}(ARG)
- \UPSpaceH[sub][sup][arg] = UPSpace-HARD_{SUB}^{SUP}(ARG)
- \UPSpaceC[sub][sup][arg] = UPSpace-COMPLETE_{SUB}^{SUP}(ARG)
- \APSpace[sub][sup][arg] = APSPACE_{SUB}^{SUP}(ARG)
- \APSpaceE[sub][sup][arg] = APSPACE-EASY_{SUB}^{SUP}(ARG)
- \APSpaceH[sub][sup][arg] = APSPACE-HARD_{SUB}^{SUP}(ARG)
- \APSpaceC[sub][sup][arg] = APSPACE-COMPLETE_{SUB}^{SUP}(ARG)

1085 \defcomclsggrp{PSpace}

\QPTIME, ...

- \QPTIME[sub][sup][arg] = QPTIME_{SUB}^{SUP}(ARG)
- \QPTIMEE[sub][sup][arg] = QPTIME-EASY_{SUB}^{SUP}(ARG)
- \QPTIMEH[sub][sup][arg] = QPTIME-HARD_{SUB}^{SUP}(ARG)
- \QPTIMEC[sub][sup][arg] = QPTIME-COMPLETE_{SUB}^{SUP}(ARG)
- \DQPTIME[sub][sup][arg] = DQPTIME_{SUB}^{SUP}(ARG)
- \DQPTIMEE[sub][sup][arg] = DQPTIME-EASY_{SUB}^{SUP}(ARG)
- \DQPTIMEH[sub][sup][arg] = DQPTIME-HARD_{SUB}^{SUP}(ARG)
- \DQPTIMEC[sub][sup][arg] = DQPTIME-COMPLETE_{SUB}^{SUP}(ARG)
- \NQPTIME[sub][sup][arg] = NQPTIME_{SUB}^{SUP}(ARG)
- \NQPTIMEE[sub][sup][arg] = NQPTIME-EASY_{SUB}^{SUP}(ARG)
- \NQPTIMEH[sub][sup][arg] = NQPTIME-HARD_{SUB}^{SUP}(ARG)
- \NQPTIMEC[sub][sup][arg] = NQPTIME-COMPLETE_{SUB}^{SUP}(ARG)
- \UQPTIME[sub][sup][arg] = UQPTIME_{SUB}^{SUP}(ARG)
- \UQPTIMEE[sub][sup][arg] = UQPTIME-EASY_{SUB}^{SUP}(ARG)
- \UQPTIMEH[sub][sup][arg] = UQPTIME-HARD_{SUB}^{SUP}(ARG)
- \UQPTIMEC[sub][sup][arg] = UQPTIME-COMPLETE_{SUB}^{SUP}(ARG)

- $\backslash\text{NExpSpace}[\text{sub}][\text{sup}][\text{arg}] = \text{NEXPSPACE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{NExpSpaceE}[\text{sub}][\text{sup}][\text{arg}] = \text{NEXPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{NExpSpaceH}[\text{sub}][\text{sup}][\text{arg}] = \text{NEXPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{NExpSpaceC}[\text{sub}][\text{sup}][\text{arg}] = \text{NEXPSPACE-COMplete}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{UExpSpace}[\text{sub}][\text{sup}][\text{arg}] = \text{UEXPSPACE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{UExpSpaceE}[\text{sub}][\text{sup}][\text{arg}] = \text{UEXPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{UExpSpaceH}[\text{sub}][\text{sup}][\text{arg}] = \text{UEXPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{UExpSpaceC}[\text{sub}][\text{sup}][\text{arg}] = \text{UEXPSPACE-COMplete}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{AExpSpace}[\text{sub}][\text{sup}][\text{arg}] = \text{AEXPSPACE}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{AExpSpaceE}[\text{sub}][\text{sup}][\text{arg}] = \text{AEXPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{AExpSpaceH}[\text{sub}][\text{sup}][\text{arg}] = \text{AEXPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$
- $\backslash\text{AExpSpaceC}[\text{sub}][\text{sup}][\text{arg}] = \text{AEXPSPACE-COMplete}_{\text{SUB}}^{\text{SUP}}(\text{ARG})$

```

1089 \defcomclsggrp{ExpSpace}

1090 %*****%

\PH      • \PH[sub][sup][par] = PH_{SUB}^{SUP}[PAR]
1091 \defcomhrc{PH}

\WH      • \WH[sub][sup][par] = W_{SUB}^{SUP}[PAR]
1092 \defcomhrc{WH}[W]

\AH      • \AH[sub][sup][par] = A_{SUB}^{SUP}[PAR]
1093 \defcomhrc{AH}[A]

\DLH, \DBH      • \DLH[sub][sup][par] = \Delta_{SUB}^{SUP}[PAR]
                  • \DBH[sub][sup][par] = \Delta_{SUB}^{SUP}[PAR]
1094 \defcomhrc{DLH}[\{\mth{\Delta}\}]
1095 \defcomhrc{DBH}[\{\mth[mathbf]{\Delta}\}]

\ELH, \EBH      • \ELH[sub][sup][par] = \Sigma_{SUB}^{SUP}[PAR]
                  • \EBH[sub][sup][par] = \Sigma_{SUB}^{SUP}[PAR]
1096 \defcomhrc{ELH}[\{\mth{\Sigma}\}]
1097 \defcomhrc{EBH}[\{\mth[mathbf]{\Sigma}\}]

\ULH, \UBH      • \ULH[sub][sup][par] = \Pi_{SUB}^{SUP}[PAR]
                  • \UBH[sub][sup][par] = \Pi_{SUB}^{SUP}[PAR]
1098 \defcomhrc{ULH}[\{\mth{\Pi}\}]
1099 \defcomhrc{UBH}[\{\mth[mathbf]{\Pi}\}]

1100 \fi
1101 %*****%
1102 %*****%
1103 %** Macros for Games *****%
1104 %*****%
1105 \ifgam@
1106 %** Logic Games *****%

\SATG, ... ...
1107 % Satisfiability Games
1108 \cmdtxtoparname{SATG}[Sat]
1109
1110 % Validity Games
1111 \cmdtxtoparname{VALG}[Val]
1112
1113 % Evaluation Games
1114 \cmdtxtoparname{EVLG}[Evl]
1115
1116 % Synthesis Games
1117 \cmdtxtoparname{SYNG}[Syn]

```

```

1118
1119 %% Model-Checking Games
1120 \cmdtxttoparname{MCG}[MC]
1121
1122 %% Ehrenfeucht-Fraisse Games
1123 \cmdtxttoparname{EFG}[EF]

1124 %** Syntax *****%

```

\PlrSym, \OppSym ...

```

1125 \newcommand{\plrsym}{E}
1126 \cmdmthsym{Plr}[\plrsym]
1127 \newcommand{\oppsym}{A}
1128 \cmdmthsym{Opp}[\oppsym]

```

\ArenaName,

```

1129 \newcommand{\arenaname}{A}
1130 \usrmthlatupp{Arena}{Name}{name}[\arenaname]

```

\PosSet,

```

1131 \newcommand{\possym}{v}
1132 \newcommand{\posset}{Ps}
1133 \cmdmthsetext{Pos}[\posset][\possym]
1134 \cmdmthsymelm{ipos}[\possym_{I}]
1135 \cmdmthsymelm{fpos}[\possym_{F}]
1136 \cmdmthset{PPos}[\posset_{\PlrSym}]
1137 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1138 \cmdmthset{OPos}[\posset_{\OppSym}]
1139 \cmdmthsymelm{opos}[\possym_{\OppSym}]

```

\PlrFun ...

```

1140 \newcommand{\plrfun}{pl}
1141 \cmdmthfun{plr}[\plrfun]

```

\MovRel ...

```

1142 \newcommand{\movrel}{Mv}
1143 \cmdmthrel{Mov}[\movrel]

```

\GameName,

```

1144 \newcommand{\gamename}{Game}
1145 \usrmthlatupp{Game}{Name}{name}[\gamename]

```

\WinSet ...

```

1146 \newcommand{\winset}{Wn}
1147 \cmdmthset{Win}[\winset]

```

\ObsSet, \obsFun ...

```

1148 \newcommand{\obsset}{Ob}
1149 \cmdmthset{Obs}[\obsset]
1150 \cmdmthfun{obs}

```

```

1151 %** Semantics *****%

```

\PthSet, \pthFun ...

```

1152 \newcommand{\pthsym}{pi}
1153 \newcommand{\pthset}{Pth}
1154 \cmdmthsetext{Pth}[\pthset][\pthsym]
1155 \cmdmthfun{pth}

```

\HstSet,

```

1156 \newcommand{\hstsym}{rho}
1157 \newcommand{\hstset}{Hst}
1158 \cmdmthsetext{Hst}[\hstset][\hstsym]

```

```

1159 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1160 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1161 \cmdmthset{OHst}[\hstset_{\OppSym}]
1162 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1163 \cmdmthfun{hst}

\PlaySet, \playFun ...
1164 \newcommand{\playsym}{\pi}
1165 \newcommand{\playset}{\Play}
1166 \cmdmthsetext{Play}[\playset][\playsym]
1167 \cmdmthfun{play}

\StrSet, ... ...
1168 \newcommand{\strsym}{\sigma}
1169 \newcommand{\strset}{\Str}
1170 \cmdmthsetext{Str}[\strset][\strsym]
1171 \cmdmthset{PStr}[\strset_{\PlrSym}]
1172 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1173 \cmdmthset{OStr}[\strset_{\OppSym}]
1174 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1175 \newcommand{\prfsym}{\xi}
1176 \newcommand{\prfset}{\Prf}
1177 \cmdmthsetext{Prf}[\prfset][\prfsym]

\preFun, \sucFun ...
1178 \newcommand{\prefun}{\pre}
1179 \cmdmthoargfun{pre}[\prefun]
1180 \newcommand{\sucfun}{\suc}
1181 \cmdmthoargfun{suc}[\sucfun]

\entFun, \escFun ...
1182 \newcommand{\entfun}{\ent}
1183 \cmdmthoargfun{ent}[\entfun]
1184 \newcommand{\escfun}{\esc}
1185 \cmdmthoargfun{esc}[\escfun]

\intFun, \outFun ...
1186 \newcommand{\intfun}{\int}
1187 \cmdmthoargfun{int}[\intfun]
1188 \newcommand{\outfun}{\out}
1189 \cmdmthoargfun{out}[\outfun]

\atrFun, \rchFun ...
1190 \newcommand{\atrfun}{\atr}
1191 \cmdmthoargfun{atr}[\atrfun]
1192 \newcommand{\rchfun}{\rch}
1193 \cmdmthoargfun{rch}[\rchfun]

\liftFun ...
1194 \newcommand{\liftfun}{\lift}
1195 \cmdmthoargfun{lift}[\liftfun]

\solFun ...
1196 \newcommand{\solfun}{\sol}
1197 \cmdmthoargfun{sol}[\solfun]

1198 %** Qualitative Games on Graph *****%

```

```

\BG, ... ...
1199 %% Buchi Games
1200 \cmdtxttoparname{BG}
1201
1202 %% Co-Buchi Games
1203 \cmdtxttoparname{CG}
1204
1205 %% Parity Games
1206 \cmdtxttoparname{PG}
1207
1208 %% Rabin Games
1209 \cmdtxttoparname{RG}
1210
1211 %% Streett Games
1212 \cmdtxttoparname{SG}
1213
1214 %% Muller Games
1215 \cmdtxttoparname{MG}

1216 %** Syntax *****%%

\EvnSym, \OddSym ...
1217 \newcommand{\evnsym}{0}
1218 \cmdmthsym{Evnsym}[\evnsym]
1219 \newcommand{\oddsym}{1}
1220 \cmdmthsym{Oddsym}[\oddsym]

\PrtSet, \prtFun ...
1221 \newcommand{\prtsym}{p}
1222 \newcommand{\prtset}{Pr}
1223 \cmdmthsetext{Prt}[\prtset][\prtsym]
1224 \cmdmthfun{prt}[pr]

1225 %** Semantics *****%%
...
1226 %** Quantitative Games on Graph *****%%

\EG, ... ...
1227 %% Energy Games
1228 \cmdtxttoparname{EG}
1229
1230 %% Mean-Payoff Games
1231 \cmdtxttoparname{MPG}
1232
1233 %% Discounted-Payoff Games
1234 \cmdtxttoparname{DPG}

1235 %** Syntax *****%%

\MaxSym, \MinSym ...
1236 \newcommand{\maxsym}{\oplus}
1237 \cmdmthsym{Max}[\maxsym]
1238 \newcommand{\minsym}{\boxminus}
1239 \cmdmthsym{Min}[\minsym]

\WghSet, \wghFun ...
1240 \newcommand{\wghsym}{w}
1241 \newcommand{\wghset}{Wg}
1242 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1243 \cmdmthfun{wgh}[wg]

1244 %** Semantics *****%%

```

```

...
1245 \fi
1246 %*****
1247 %*****
1248 %** Macros for Logics *****
1249 %*****
1250 \iflog@
1251 %** Propositional Logics *****

\BF, \QBF, ... ...
1252 % Boolean Formulae
1253 \cmdtxttoparname{BF}
1254
1255 % Quantified Boolean Formulae
1256 \DeclareRobustCommand{\QBF}
1257   {\txtname{Q}\BF}
1258 \DeclareRobustCommand{\EBF}
1259   {\ensuremath{\exists}\BF}
1260 \DeclareRobustCommand{\UBF}
1261   {\ensuremath{\forall}\BF}

1262 %** Syntax *****

\LogSig, ... ...
1263 \newcommand{\logsig}{L}
1264 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

\Tt, \Ff ...
1265 \newcommand{\ttsym}{\top}
1266 \usrmth{Tt}{\}{sym}[\ttsym]
1267 \newcommand{\ffsym}{\bot}
1268 \usrmth{Ff}{\}{sym}[\ffsym]

\LNeg, \LNot ...
1269 \newcommand{\lnegsym}{\neg}
1270 \usrmth{LNeg}{\}{luop}[\lnegsym]
1271 \newcommand{\lnotsym}{\sim}
1272 \usrmth{LNot}{\}{luop}[\lnotsym]

\LCon, \LDis ...
1273 \newcommand{\lconsym}{\land}
1274 \usrmth{LCon}{\}{lbop}[\lconsym]
1275 \newcommand{\ldissym}{\lor}
1276 \usrmth{LDis}{\}{lbop}[\ldissym]

\LImp, \LCoi ...
1277 \newcommand{\limpsym}{\rightarrow}
1278 \usrmth{LImp}{\}{lbop}[\limpsym]
1279 \newcommand{\lcoisym}{\leftrightarrow}
1280 \usrmth{LCoi}{\}{lbop}[\lcoisym]

\LExs, \LAll ...
1281 \newcommand{\lexssym}{\exists}
1282 \usrmth{LExs}{\}{luop}[\lexssym]
1283 \newcommand{\lallsym}{\forall}
1284 \usrmth{LAll}{\}{luop}[\lallsym]

\APSet, ... ...
1285 \newcommand{\apsym}{p}
1286 \newcommand{\apset}{AP}
1287 \cmdmthsetext{AP}[\apset] [\apsym]
1288 \cmdmthfun{ap}\usrmth{ap}{\}{argfun}

```

```

\sub ...
1289 \usrmth{sub}{-}{argfun}

\Cnt, \Qnt, \Sym ...
1290 \usrmth{Cnt}{-}{sym}[C]
1291 \usrmth{Qnt}{-}{sym}[Q]
1292 \usrmth{Sym}{-}{sym}[\odot]

\QAE, \QEA ...
1293 \usrmth{QAE}{-}{sym}[\forall\exists]
1294 \usrmth{QEA}{-}{sym}[\exists\forall]

\QntSet, ... ...
1295 \newcommand{\qntsym}{\wp}
1296 \newcommand{\qntset}{Qn}
1297 \cmdmthsetext{Qnt}[\qntset][\qntsym]

\free, \bound ...
1298 \usrmth{free}{-}{argfun}
1299 \usrmth{bound}{-}{argfun}

\dep, \alt ...
1300 \usrmth{dep}{-}{argfun}
1301 \usrmth{alt}{-}{argfun}

\cnf, \dnf, ... ...
1302 \cmdtxtabr{cnf}
1303 \cmdtxtabr{dnf}
1304 \cmdtxtabr{pnf}
1305 \cmdtxtabr{nnf}

1306 %** Semantics *****%

\LogStr, ... ...
1307 \newcommand{\logstr}{L}
1308 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet, ... ...
1309 \newcommand{\valsym}{\xi}
1310 \newcommand{\valset}{Val}
1311 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet, ... ...
1312 \newcommand{\asgsym}{\chi}
1313 \newcommand{\asgset}{Asg}
1314 \cmdmthsetext{Asg}[\asgset][\asgsym]

1315 %** First-Order Logics I *****%

\FOL, ... ...
1316 % First-Order Logic
1317 \cmdtxtoparname{FOL}[Fol]
1318 \cmdtxtoparname{FO}[FO]
1319
1320 % Monadic First-Order Logic
1321 \DeclareRobustCommand{\MFOL}
1322   {\{\txname{M}\}\FOL}
1323 \DeclareRobustCommand{\MFO}
1324   {\{\txname{M}\}\FO}

1325 %** Syntax *****%

```

```

\VarSig, ... ...
1326 \newcommand{\varsig}{V}
1327 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1328 \newcommand{\varsym}{x}
1329 \newcommand{\varset}{Vr}
1330 \cmdmthsetext{Var}[\varset][\varsym]
1331 \usrmth{var}{}{argfun}[vr]
1332 \cmdmthfun{dim}[dm]\usrmth{dim}{}{argfun}[dm]

\ConSig, ... ...
1333 \newcommand{\consig}{C}
1334 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1335 \newcommand{\consym}{c}
1336 \newcommand{\conset}{Cn}
1337 \cmdmthsetext{Con}[\conset][\consym]
1338 \usrmth{con}{}{argfun}[cn]

\FunSig, ... ...
1339 \newcommand{\funsig}{F}
1340 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1341 \newcommand{\funsym}{f}
1342 \newcommand{\funset}{Fn}
1343 \cmdmthsetext{Fun}[\funset][\funsym]
1344 \usrmth{fun}{}{argfun}[fn]
1345 \cmdmthfun{art}[ar]\usrmth{art}{}{argfun}[ar]

\TerSig, ... ...
1346 \newcommand{\tersig}{T}
1347 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1348 \newcommand{\tersym}{t}
1349 \newcommand{\terset}{Tr}
1350 \cmdmthsetext{Ter}[\terset][\tersym]
1351 \usrmth{ter}{}{argfun}

\RelSig, ... ...
1352 \newcommand{\relsig}{R}
1353 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1354 \newcommand{\relsym}{r}
1355 \newcommand{\relset}{Rl}
1356 \cmdmthsetext{Rel}[\relset][\relsym]
1357 \usrmth{rel}{}{argfun}[rl]

\skm ...
1358 \usrmth{skm}{}{argfun}

1359 %** Semantics *****%

\ConStr, ... ...
1360 \newcommand{\constr}{C}
1361 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr, ... ...
1362 \newcommand{\funstr}{F}
1363 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr, ... ...
1364 \newcommand{\terstr}{T}
1365 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr, ... ...
1366 \newcommand{\relstr}{R}
1367 \usrmthlatupp{Rel}{Str}{str}[\relstr]

```



```

1368 %** First-Order Logics II *****%%
\DF, \IF, ... ...
1369 % Dependence-Friendly Logic
1370 \cmdtxtoparname{DF}
1371
1372 % Independence-Friendly Logic
1373 \cmdtxtoparname{IF}
1374
1375 % Dependence/Independence-Friendly Logic
1376 \cmdtxtoparname{DIF}
1377
1378 % Dependence Logic
1379 \cmdtxtoparname{DL}
1380
1381 % Team Logic
1382 \cmdtxtoparname{TL}
1383
1384 % Alternating Dependence-Friendly Logic
1385 \cmdtxtoparname{ADF}
1386
1387 % Alternating Independence-Friendly Logic
1388 \cmdtxtoparname{AIF}
1389
1390 % Alternating Dependence/Independence-Friendly Logic
1391 \cmdtxtoparname{ADIF}
...
1392 %** Syntax *****%%

\LEExs, \LAA11 ...
1393 \newcommand{\leexssym}{\Sigma}
1394 \usrmth{LEExs}{\luop}{\leexssym}
1395 \newcommand{\laallsym}{\Pi}
1396 \usrmth{LAA11}{\luop}{\laallsym}

1397 %** Semantics *****%%
...
1398 %** Second-Order Logics I *****%%

\SOL, ... ...
1399 % Second-Order Logic
1400 \cmdtxtoparname{SOL}[Sol]
1401 \cmdtxtoparname{SO}
1402
1403 % Weak Second-Order Logic
1404 \DeclareRobustCommand{\WSOL}
1405   {\{\txtname{W}\}\SOL}
1406 \DeclareRobustCommand{\WSO}
1407   {\{\txtname{W}\}\SO}
1408
1409 % coWeak Second-Order Logic
1410 \DeclareRobustCommand{\coWSOL}
1411   {\{\txtname{coW}\}\SOL}
1412 \DeclareRobustCommand{\coWSO}
1413   {\{\txtname{coW}\}\SO}
1414
1415 % Monadic Second-Order Logic
1416 \DeclareRobustCommand{\MSOL}
1417   {\{\txtname{M}\}\SOL}
1418 \DeclareRobustCommand{\MSO}
1419   {\{\txtname{M}\}\SO}

```

```

1420
1421 % Weak Monadic Second-Order Logic
1422 \DeclareRobustCommand{\WMSOL}
1423   {\txtname{W}}\MSOL}
1424 \DeclareRobustCommand{\WMSO}
1425   {\txtname{W}}\MSO}
1426
1427 % coWeak Monadic Second-Order Logic
1428 \DeclareRobustCommand{\coWMSOL}
1429   {\txtname{coW}}\MSOL}
1430 \DeclareRobustCommand{\coWMSO}
1431   {\txtname{coW}}\MSO}
1432 %** Syntax *****%

\FVarSet, ... ...
1433 \newcommand{\fvarsym}{x}
1434 \newcommand{\fvarset}{FVr}
1435 \cmdmthsettext{FVar}[\fvarset][\fvarsym]

\SVarSet, ... ...
1436 \newcommand{\svarsym}{X}
1437 \newcommand{\svarset}{SVr}
1438 \cmdmthsettext{SVar}[\svarset][\svarsym]

1439 %** Semantics *****%
...
1440 %** Second-Order Logics II *****%

\TL, \PL, ... ...
1441 % Tree Logic
1442 \cmdtxttoparname{TL}
1443
1444 % Weak Tree Logic
1445 \DeclareRobustCommand{\WTL}
1446   {\txtname{W}}\TL}
1447
1448 % coWeak Tree Logic
1449 \DeclareRobustCommand{\coWTL}
1450   {\txtname{coW}}\TL}
1451
1452 % Monadic Tree Logic
1453 \DeclareRobustCommand{\MTL}
1454   {\txtname{M}}\TL}
1455
1456 % Weak Monadic Tree Logic
1457 \DeclareRobustCommand{\WMTL}
1458   {\txtname{W}}\MTL}
1459
1460 % coWeak Monadic Tree Logic
1461 \DeclareRobustCommand{\coWMTL}
1462   {\txtname{coW}}\MTL}
1463
1464 % Path Logic
1465 \cmdtxttoparname{PL}
1466
1467 % Weak Path Logic
1468 \DeclareRobustCommand{\WPL}
1469   {\txtname{W}}\PL}
1470
1471 % coWeak Path Logic
1472 \DeclareRobustCommand{\coWPL}
1473   {\txtname{coW}}\PL}

```

```

1474
1475 % Monadic Path Logic
1476 \DeclareRobustCommand{\MPL}
1477   {\txtname{M}}\PL}
1478
1479 % Weak Monadic Path Logic
1480 \DeclareRobustCommand{\WMPL}
1481   {\txtname{W}}\MPL}
1482
1483 % coWeak Monadic Path Logic
1484 \DeclareRobustCommand{\coWMPL}
1485   {\txtname{coW}}\MPL}
1486 %** Syntax *****%
...
1487 %** Semantics *****%
...
1488 %** Modal Logics I *****%

\ML, \GML, ... ...
1489 % Modal Logic
1490 \cmdtxttoparname{ML}
1491
1492 % Graded Modal Logic
1493 \DeclareRobustCommand{\GML}
1494   {\txtname{G}}\ML}
1495
1496 % Quantified Modal Logic
1497 \DeclareRobustCommand{\QML}
1498   {\txtname{Q}}\ML}
1499 \DeclareRobustCommand{\EML}
1500   {\ensuremath{\exists}\ML}
1501 \DeclareRobustCommand{\UML}
1502   {\ensuremath{\forall}\ML}
1503 %** Syntax *****%

\Opr ...
1504 \usrmth{Opr}{\sym}[Op]

\DMod, \BMod ...
1505 \usrmth{DMod}{\sym}[\Diamond]
1506 \usrmth{BMod}{\sym}[\Box]

\Exs, \All ...
1507 \DeclareRobustCommand{\Exs}[1]
1508   {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1509 \DeclareRobustCommand{\All}[1]
1510   {\mth{\defval{\argmid{\left[] {#1}{\right]}}{\BMod}}}
1511 %** Semantics *****%

\KrpStr, ... ...
1512 \newcommand{\krpstr}{K}
1513 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

\WrlSet, ... ...
1514 \newcommand{\wrlsym}{w}
1515 \newcommand{\wrlset}{W}
1516 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
1517 \cmdmthsymelm{iwrl}[\wrlsym_{I}]

```

```

\AccRel, \TrnRel ...
1518 \newcommand{\accsym}{R}
1519 \cmdmthrel{Acc}[\accsym]
1520 \cmdmthrel{Trn}[\accsym]

\labFun ...
1521 \newcommand{\labsym}{\lambda}
1522 \cmdmthfun{lab}[\labsym]

\PthSet, \pthFun ...
1523 \providecommand{\pthsym}{\pi}
1524 \providecommand{\pthset}{Pth}
1525 \cmdmthsetext{Pth}[\pthset][\pthsym]
1526 \cmdmthfun{pth}

1527 %** Modal Logics II *****%%

\MC, \GMC, ... ...
1528 % Mu Calculus
1529 \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]
1530
1531 % Graded Mu Calculus
1532 \DeclareRobustCommand{\GMC}
1533   {\{\textrm{G}\}\MC}
1534
1535 % Quantified Mu Calculus
1536 \DeclareRobustCommand{\QMC}
1537   {\{\textrm{Q}\}\MC}
1538 \DeclareRobustCommand{\EMC}
1539   {\ensuremath{\exists}\MC}
1540 \DeclareRobustCommand{\UMC}
1541   {\ensuremath{\forall}\MC}
1542
1543 % Alternation-Free Mu Calculus
1544 \DeclareRobustCommand{\AFMC}
1545   {\{\textrm{AF}\}\MC}
1546
1547 % Alternation-Free Graded Mu Calculus
1548 \DeclareRobustCommand{\AFGMC}
1549   {\{\textrm{AF}\}\GMC}
1550
1551 % Quantified Alternation-Free Mu Calculus
1552 \DeclareRobustCommand{\QAFMC}
1553   {\{\textrm{Q}\}\AFMC}
1554 \DeclareRobustCommand{\EAFMC}
1555   {\ensuremath{\exists}\AFMC}
1556 \DeclareRobustCommand{\UAFMC}
1557   {\ensuremath{\forall}\AFMC}
1558

1559 %** Syntax *****%%

...

1560 %** Semantics *****%%

...

1561 %** Temporal Logics I *****%%

\PTL, \LTL, ... ...
1562 % Propositional Temporal Logic
1563 \cmdtxtoparname{PTL}
1564
1565 % Quantified Propositional Temporal Logic

```

```

1566 \DeclareRobustCommand{\QPTL}
1567   {\textname{Q}}\PTL}
1568 \DeclareRobustCommand{\EPTL}
1569   {\ensuremath{\exists}\PTL}
1570 \DeclareRobustCommand{\UPTL}
1571   {\ensuremath{\forall}\PTL}
1572
1573 % Linear Temporal Logic
1574 \cmdtxttoparname{LTL}
1575
1576 % Quantified Linear Temporal Logic
1577 \DeclareRobustCommand{\QLTL}
1578   {\textname{Q}}\LTL}
1579 \DeclareRobustCommand{\ELTL}
1580   {\ensuremath{\exists}\LTL}
1581 \DeclareRobustCommand{\ULTL}
1582   {\ensuremath{\forall}\LTL}
1583 %** Syntax *****%

```

\X,

```

1584 \usrmth{X}{}{sym}[X\,]
1585 \usrmth{F}{}{sym}[F\,]
1586 \usrmth{G}{}{sym}[G\,]
1587 \usrmth{U}{}{sym}[\,U\,]
1588 \usrmth{R}{}{sym}[\,R\,]

```

\Y,

```

1589 \usrmth{Y}{}{sym}[G\,]
1590 \usrmth{P}{}{sym}[P\,]\let\SavePildcrow\P
1591 \usrmth{H}{}{sym}[H\,]\let\SaveDoubleAcute\H
1592 \usrmth{S}{}{sym}[\,S\,]\let\SaveSectionSymbol\S
1593 \usrmth{B}{}{sym}[\,B\,]

```

```

1594 %** Semantics *****%

```

...

```

1595 %** Temporal Logics II *****%

```

\PDL, \CTL,

```

1596
1597 % Propositional Dynamic Logic
1598 \cmdtxttoparname{PDL}
1599
1600 % Computation Tree Logic
1601 \cmdtxttoparname{CTL}
1602
1603 % Weak Computation Tree Logic
1604 \DeclareRobustCommand{\WCTL}
1605   {\textname{W}}\CTL}
1606
1607 % Quantified Computation Tree Logic
1608 \DeclareRobustCommand{\QCTL}
1609   {\textname{Q}}\CTL}
1610 \DeclareRobustCommand{\ECTL}
1611   {\ensuremath{\exists}\CTL}
1612 \DeclareRobustCommand{\UCTL}
1613   {\ensuremath{\forall}\CTL}
1614
1615 % Improved Computation Tree Logic
1616 \cmdtxttoparname{CTLP}[CTL$^{+}$]
1617
1618 % Weak Improved Computation Tree Logic
1619 \DeclareRobustCommand{\WCTLP}

```

```

1620  {\txtname{W}}\CTLP}
1621
1622 % Quantified Improved Computation Tree Logic
1623 \DeclareRobustCommand{\QCTLP}
1624  {\txtname{Q}}\CTLP}
1625 \DeclareRobustCommand{\ECTLP}
1626  {\ensuremath{\exists}\CTLP}
1627 \DeclareRobustCommand{\UCTLP}
1628  {\ensuremath{\forall}\CTLP}
1629
1630 % Full Computation Tree Logic
1631 \cmdtxttoparname{CTLS}[CTL*]
1632
1633 % Weak Full Computation Tree Logic
1634 \DeclareRobustCommand{\WCTLS}
1635  {\txtname{W}}\CTLS}
1636
1637 % Quantified Full Computation Tree Logic
1638 \DeclareRobustCommand{\QCTLS}
1639  {\txtname{Q}}\CTLS}
1640 \DeclareRobustCommand{\ECTLS}
1641  {\ensuremath{\exists}\CTLS}
1642 \DeclareRobustCommand{\UCTLS}
1643  {\ensuremath{\forall}\CTLS}
1644 %** Syntax *****%

\E, \A ...
1645 \usrmth{E}{\sym}
1646 \usrmth{A}{\sym}
1647 %** Semantics *****%
...
1648 %** Strategic Logics I *****%

\ATL, ... ...
1649 % Alternating Temporal Logic
1650 \cmdtxttoparname{ATL}
1651
1652 % Weak Alternating Tree Logic
1653 \DeclareRobustCommand{\WATL}
1654  {\txtname{W}}\ATL}
1655
1656 % Quantified Alternating Temporal Logic
1657 \DeclareRobustCommand{\QATL}
1658  {\txtname{Q}}\ATL}
1659 \DeclareRobustCommand{\EATL}
1660  {\ensuremath{\exists}\ATL}
1661 \DeclareRobustCommand{\UATL}
1662  {\ensuremath{\forall}\ATL}
1663
1664 % Improved Alternating Temporal Logic
1665 \cmdtxttoparname{ATLP}[ATL$^{+}$]
1666
1667 % Weak Improved Alternating Tree Logic
1668 \DeclareRobustCommand{\WATLP}
1669  {\txtname{W}}\ATLP}
1670
1671 % Quantified Improved Alternating Temporal Logic
1672 \DeclareRobustCommand{\QATLP}
1673  {\txtname{Q}}\ATLP}
1674 \DeclareRobustCommand{\EATLP}
1675  {\ensuremath{\exists}\ATLP}

```

```

1676 \DeclareRobustCommand{\UATLP}
1677   {\ensuremath{\forall}\ATLP}
1678
1679 % Full Alternating Temporal Logic
1680 \cmdtxttoparname{ATLS}[ATL*]
1681
1682 % Weak Full Alternating Tree Logic
1683 \DeclareRobustCommand{\WATLS}
1684   {\txtname{W}\ATLS}
1685
1686 % Quantified Full Alternating Temporal Logic
1687 \DeclareRobustCommand{\QATLS}
1688   {\txtname{Q}\ATLS}
1689 \DeclareRobustCommand{\EATLS}
1690   {\ensuremath{\exists}\ATLS}
1691 \DeclareRobustCommand{\UATLS}
1692   {\ensuremath{\forall}\ATLS}
1693 %** Syntax *****%

\EExs, \AA11 ...
1694 \DeclareRobustCommand{\EExs}[1]
1695   {\mth{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1696 \DeclareRobustCommand{\AA11}[1]
1697   {\mth{\argmid{\left[\left[\defval{#1}{\emptyset}]{\right]\right}}}}
1698 %** Semantics *****%

\CGS ...
1699 \cmdtxtname{CGS}

\CGSStr, ... ...
1700 \newcommand{\cgsstr}{G}
1701 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet, ... ...
1702 \newcommand{\agnsym}{a}
1703 \newcommand{\agnset}{Ag}
1704 \cmdmthsetext{Agn}[\agnset][\agnsym]

\PosSet, ... ...
1705 \providecommand{\possym}{v}
1706 \providecommand{\posset}{Ps}
1707 \cmdmthsetext{Pos}[\posset][\possym]
1708 \cmdmthsymelm{ipos}[\possym_{I}]
1709 \cmdmthsymelm{fpos}[\possym_{F}]
1710 \cmdmthset{PPos}[\posset_{PlrSym}]
1711 \cmdmthsymelm{ppos}[\possym_{PlrSym}]
1712 \cmdmthset{OPos}[\posset_{OppSym}]
1713 \cmdmthsymelm{opos}[\possym_{OppSym}]

\SttSet, ... ...
1714 \newcommand{\sttsym}{s}
1715 \newcommand{\sttset}{St}
1716 \cmdmthsetext{Stt}[\sttset][\sttsym]
1717 \cmdmthset{IStt}[\sttset_{I}]
1718 \cmdmthsymelm{istt}[\sttsym_{I}]
1719 \cmdmthset{FStt}[\sttset_{F}]
1720 \cmdmthsymelm{fstt}[\sttsym_{F}]

\ActSet, ... ...
1721 \newcommand{\actsym}{c}
1722 \newcommand{\actset}{Ac}
1723 \cmdmthsetext{Act}[\actset][\actsym]

```

```

\DecSet, ... ...
1724 \newcommand{\decsym}{d}
1725 \newcommand{\decset}{Dc}
1726 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ...
1727 \newcommand{\movsym}{\tau}
1728 \cmdmthfun{mov}[\movsym]

\HstSet, ... ...
1729 \providecommand{\hstsym}{\rho}
1730 \providecommand{\hstset}{Hst}
1731 \cmdmthsetext{Hst}[\hstset][\hstsym]
1732 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1733 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1734 \cmdmthset{OHst}[\hstset_{\OppSym}]
1735 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1736 \cmdmthfun{hst}

\PlaySet, \playFun ...
1737 \providecommand{\playsym}{\pi}
1738 \providecommand{\playset}{Play}
1739 \cmdmthsetext{Play}[\playset][\playsym]
1740 \cmdmthfun{play}

\StrSet, ... ...
1741 \providecommand{\strsym}{\sigma}
1742 \providecommand{\strset}{Str}
1743 \cmdmthsetext{Str}[\strset][\strsym]
1744 \cmdmthset{PStr}[\strset_{\PlrSym}]
1745 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1746 \cmdmthset{OStr}[\strset_{\OppSym}]
1747 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1748 \providecommand{\prfsym}{\xi}
1749 \providecommand{\prfset}{Prf}
1750 \cmdmthsetext{Prf}[\prfset][\prfsym]

1751 %** Strategic Logics II *****%%

\SL, ... ...
1752 % Strategy Logic
1753 \cmdtxttoparname{SL}
1754
1755 \DeclareRobustCommand{\ESL}
1756 {\ensuremath{\exists}\SL}
1757 \DeclareRobustCommand{\USL}
1758 {\ensuremath{\forall}\SL}
1759
1760 \DeclareRobustCommand{\FSL}
1761 {\{\textname{F}\}\SL}
1762
1763 \DeclareRobustCommand{\EFSL}
1764 {\ensuremath{\exists}\FSL}
1765 \DeclareRobustCommand{\UFSL}
1766 {\ensuremath{\forall}\FSL}
1767
1768 % One-Goal Strategy Logic
1769 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
1770 {\SL[#1][#2][1g\arglef{,}{#3}]}
1771
1772 \DeclareRobustCommand{\EOGSL}

```



```

1773 {\ensuremath{\exists}\OGSL}
1774 \DeclareRobustCommand{\UOGSL}
1775 {\ensuremath{\forall}\OGSL}
1776
1777 \DeclareRobustCommand{\FOGSL}
1778 {\{\textname{F}\}\OGSL}
1779
1780 \DeclareRobustCommand{\EFOGSL}
1781 {\ensuremath{\exists}\FOGSL}
1782 \DeclareRobustCommand{\UFOGSL}
1783 {\ensuremath{\forall}\FOGSL}
1784
1785 % Conjunctive-Goal Strategy Logic
1786 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
1787 {\SL[#1][#2][cg\arglef{,}{#3}]}
1788
1789 \DeclareRobustCommand{\ECGSL}
1790 {\ensuremath{\exists}\CGSL}
1791 \DeclareRobustCommand{\UCGSL}
1792 {\ensuremath{\forall}\CGSL}
1793
1794 \DeclareRobustCommand{\FCGSL}
1795 {\{\textname{F}\}\xGSL}
1796
1797 \DeclareRobustCommand{\EFCGSL}
1798 {\ensuremath{\exists}\FCGSL}
1799 \DeclareRobustCommand{\UFCGSL}
1800 {\ensuremath{\forall}\FCGSL}
1801
1802 % Disjunctive-Goal Strategy Logic
1803 \DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]
1804 {\SL[#1][#2][dg\arglef{,}{#3}]}
1805
1806 \DeclareRobustCommand{\EDGPL}
1807 {\ensuremath{\exists}\DGPL}
1808 \DeclareRobustCommand{\UDGPL}
1809 {\ensuremath{\forall}\DGPL}
1810
1811 \DeclareRobustCommand{\FDGPL}
1812 {\{\textname{F}\}\xGSL}
1813
1814 \DeclareRobustCommand{\EFDGPL}
1815 {\ensuremath{\exists}\FDGPL}
1816 \DeclareRobustCommand{\UFDGPL}
1817 {\ensuremath{\forall}\FDGPL}
1818
1819 % Alternating-Goal Strategy Logic
1820 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
1821 {\SL[#1][#2][ag\arglef{,}{#3}]}
1822
1823 \DeclareRobustCommand{\EAGSL}
1824 {\ensuremath{\exists}\AGSL}
1825 \DeclareRobustCommand{\UAGSL}
1826 {\ensuremath{\forall}\AGSL}
1827
1828 \DeclareRobustCommand{\FAGSL}
1829 {\{\textname{F}\}\xGSL}
1830
1831 \DeclareRobustCommand{\EFAGSL}
1832 {\ensuremath{\exists}\FAGSL}
1833 \DeclareRobustCommand{\UFAGSL}
1834 {\ensuremath{\forall}\FAGSL}
1835

```

```

1836 % Extended-Goal Strategy Logic
1837 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
1838   {\SL[#1][#2][eg\arglef{,}{#3}]}
1839
1840 \DeclareRobustCommand{\EEGSL}
1841   {\ensuremath{\exists}\EGSL}
1842 \DeclareRobustCommand{\UEGSL}
1843   {\ensuremath{\forall}\EGSL}
1844
1845 \DeclareRobustCommand{\FEGSL}
1846   {\{\textname{F}\}\xGSL}
1847
1848 \DeclareRobustCommand{\EFEGSL}
1849   {\ensuremath{\exists}\FEGSL}
1850 \DeclareRobustCommand{\UFEGSL}
1851   {\ensuremath{\forall}\FEGSL}
1852
1853 % Boolean-Goal Strategy Logic
1854 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
1855   {\SL[#1][#2][bg\arglef{,}{#3}]}
1856
1857 \DeclareRobustCommand{\EBGSL}
1858   {\ensuremath{\exists}\BGSL}
1859 \DeclareRobustCommand{\UBGSL}
1860   {\ensuremath{\forall}\BGSL}
1861
1862 \DeclareRobustCommand{\FBGSL}
1863   {\{\textname{F}\}\xGSL}
1864
1865 \DeclareRobustCommand{\EFBGSL}
1866   {\ensuremath{\exists}\FBGSL}
1867 \DeclareRobustCommand{\UFBGSL}
1868   {\ensuremath{\forall}\FBGSL}
1869
1870 % Nested-Goal Strategy Logic
1871 \DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
1872   {\SL[#1][#2][ng\arglef{,}{#3}]}
1873
1874 \DeclareRobustCommand{\ENGSL}
1875   {\ensuremath{\exists}\NGSL}
1876 \DeclareRobustCommand{\UNGSL}
1877   {\ensuremath{\forall}\NGSL}
1878
1879 \DeclareRobustCommand{\FNGSL}
1880   {\{\textname{F}\}\xGSL}
1881
1882 \DeclareRobustCommand{\EFNGSL}
1883   {\ensuremath{\exists}\FNGSL}
1884 \DeclareRobustCommand{\UFNGSL}
1885   {\ensuremath{\forall}\FNGSL}
1886
1887 % Undefined-Goal Strategy Logic
1888 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
1889   {\SL[#1][#2][xg\arglef{,}{#3}]}
1890
1891 \DeclareRobustCommand{\EXGSL}
1892   {\ensuremath{\exists}\XGSL}
1893 \DeclareRobustCommand{\UXGSL}
1894   {\ensuremath{\forall}\XGSL}
1895
1896 \DeclareRobustCommand{\FXGSL}
1897   {\{\textname{F}\}\xGSL}
1898

```

```

1899 \DeclareRobustCommand{\EFXGSL}
1900   {\ensuremath{\exists}\FXGSL}
1901 \DeclareRobustCommand{\UFXGSL}
1902   {\ensuremath{\forall}\FXGSL}

1903 %%** Syntax *****%%

\BndSet, ... ...
1904 \newcommand{\bndsym}{\flat}
1905 \newcommand{\bndset}{\Bn}
1906 \cmdmthsetext{Bnd}[\bndset][\bndsym]
1907 \usrmth{bnd}{-}{argfun}

\psn ...
1908 \usrmth{psn}{-}{argfun}

1909 %%** Semantics *****%%

\nxtFun ...
1910 \newcommand{\nxtfun}{nxt}
1911 \cmdmthfun{nxt}[\nxtfun]

1912 \fi
1913 %*****%%
1914 %*****%%
1915 %%** Macros for Automata *****%%
1916 %*****%%
1917 \ifaut@

1918 %%** Finite Word Automata *****%%

\DFA, ... ...
1919 \cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}
1920
1921 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
1922
1923 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
1924 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
1925 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
1926 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
1927 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
1928 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
1929 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

\GFG, \PD, ... ...
1930 \cmdtxtoparname{GFG}
1931
1932 \cmdtxtoparname{PD}
1933
1934 %% ...

1935 %%** Syntax *****%%

\AutName, ... ...
1936 \newcommand{\autname}{A}
1937 \usrmthlatupp{Aut}{Name}{name}[\autname]
1938 \newcommand{\autset}{Aut}
1939 \cmdmthset{Aut}[\autset]

\WAutSet ...
1940 \newcommand{\wautset}{WAut}
1941 \cmdmthset{WAut}[\wautset]

```

```

\SttSet, ... ...
1942 \def\sttsym{q}
1943 \def\sttset{Q}
1944 \cmdmthsetext{Stt}[\sttset][\sttsym]
1945 \cmdmthset{IStt}[\sttset_{I}]
1946 \cmdmthsymelm{istt}[\sttsym_{I}]
1947 \cmdmthset{FStt}[\sttset_{F}]
1948 \cmdmthsymelm{fstt}[\sttsym_{F}]

\SymSet, ... ...
1949 \newcommand{\symsym}{\sigma}
1950 \newcommand{\symset}{\Sigma}
1951 \cmdmthsetext{Sym}[\symset][\symsym]

\trnFun ...
1952 \newcommand{\trnsym}{\delta}
1953 \cmdmthfun{trn}[\trnsym]

1954 %** Semantics *****%

\LangFun ...
1955 \newcommand{\langfun}{L}
1956 \cmdmthfun{Lang}[\langfun]

\WrdSet, ... ...
1957 \newcommand{\wrdsym}{w}
1958 \newcommand{\wrddset}{W}
1959 \cmdmthsetext{Wrd}[\wrddset][\wrdsym]

1960 %** Finite Tree Automata *****%

\DTA, ... ...
1961 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
1962
1963 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
1964 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
1965 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
1966 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
1967 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
1968 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
1969 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}

1970 %** Syntax *****%

\TAutSet ...
1971 \newcommand{\tautset}{TAut}
1972 \cmdmthset{TAut}[\tautset]

\DirSet, ... ...
1973 \newcommand{\dirsym}{d}
1974 \newcommand{\dirset}{\Lambda}
1975 \cmdmthsetext{Dir}[\dirset][\dirsym]

1976 %** Semantics *****%

\TreeSet, ... ...
1977 \newcommand{\treesym}{T}
1978 \newcommand{\treeset}{Tr}
1979 \cmdmthsetext{Tree}[\treeset][\treesym]

\wotFun ...
1980 \newcommand{\wotfun}{wot}
1981 \cmdmthfun{wot}[\wotfun]

```

```

1982 \fi
1983 %%*****%
1984 %%*****%
1985 %%** Format Tricks *****%
1986 %%*****%
1987 \iffirm@

... ..

1988 %%...

1989 \fi
1990 %%*****%
1991 %%*****%
1992 %%** Figure Tricks *****%
1993 %%*****%
1994 \iffig@

1995 \RequirePackage{tikz}
1996 \usetikzlibrary{arrows,graphs,matrix,patterns,shapes}

1997 \tikzstyle{every node} =
1998   [draw = none, fill = none, black, thin]
1999 \tikzstyle{every edge} +=
2000   [black, thick]

2001 \tikzstyle{noall} =
2002   [draw = none, fill = none]
2003 \tikzstyle{nodraw} =
2004   [draw = none, fill = white]
2005 \tikzstyle{nofill} =
2006   [draw = black, fill = none]

2007 \ifwrpfig@
2008   % Wrapfig Package
2009   \RequirePackage{wrapfig}
2010 \fi

2011 \fi
2012 %%*****%
2013 %%*****%
2014 %%** Table Tricks *****%
2015 %%*****%
2016 \iftab@

... ..

2017 %%...

2018 \fi
2019 %%*****%
2020 %%*****%
2021 %%** Algorithm Tricks *****%
2022 %%*****%
2023 \ifalg@

2024 \RequirePackage[ruled,vlined]{algorithm2e}
2025 \DontPrintSemicolon
2026 \SetInd{0.25em}{0.5em}
2027 \setlength{\algomargin}{1.25em}

\Signature ...

2028 \SetKw{Signature}{signature}

\Macro, ... ..

2029 \SetKwFor{Macro}{macro}{}{}
2030 \SetKwFor{Function}{function}{}{}
2031 \SetKwFor{Procedure}{procedure}{}{}

```

```

\Let ...
2032 \SetKwFor{Let}{let}{in}{}

\True, \False ...
2033 \SetKw{True}{true}
2034 \SetKw{False}{false}

\From, ... ...
2035 \SetKw{From}{from}
2036 \SetKw{To}{to}
2037 \SetKw{DownTo}{downto}

\GoTo, ... ...
2038 \SetKw{GoTo}{goto}
2039 \SetKw{Break}{break}
2040 \SetKw{Continue}{continue}

\MIf, ... ...
2041 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
2042 \DeclareRobustCommand{\nlr}[1]
2043   {\addtocounter{AlgoLine}{1}%
2044   \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

2045 \fi
2046 %%*****%
2047 \endinput
2048 \</package>

```

2 Change History

v0.0	General: First public release 1	v0.2	General: Changes in ‘Auxiliary tricks’ 1
v0.1	General: Algorithm tricks 1	v0.3	General: Few problems solved 1
v0.10	General: Small refinements 1	v0.4	General: Refactoring, corrections, and extensions 1
v0.11	General: Few additions and corrections 1	v0.5	General: Figure tricks 1
v0.12	General: New starred variants 1	v0.6	General: Small refinements 1
v0.13	General: Further starred variants 1	v0.7	General: Refinements, corrections, and extensions 1
v0.14	General: Few additions and corrections 1	v0.8	General: Few refinements and corrections . . . 1
v0.15	General: Refactoring of dtx sources 1	v0.9	General: Small addition to ‘Algorithm tricks’ 1
v0.16	General: Small refinements and few additions 1		

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