

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 v0.23 of the fmocdmac package, last revised 2023/09/16.

```

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 graphs
83 \newif\ifgrp@ \grp@false
84 \DeclareOption{grp}{\grp@true\txtgen@true\mthgen@true}
85 \DeclareOption{nogrp}{\grp@false}
86
87 %% Macros for games
88 \newif\ifgam@ \gam@false
89 \DeclareOption{gam}{\gam@true\txtgen@true\mthgen@true}
90 \DeclareOption{nogam}{\gam@false}
91
92 %% Macros for logics
93 \newif\iflog@ \log@false
94 \DeclareOption{log}{\log@true\txtgen@true\mthgen@true}
95 \DeclareOption{nolog}{\log@false}
96
97 %% Macros for automata

```

```

98 \newif\ifaut@ \aut@false
99 \DeclareOption{aut}{\aut@true\txtgen@true\mthgen@true}
100 \DeclareOption{noaut}{\aut@false}
101
102
103 %% Format-related tricks
104 \newif\iffrm@ \frm@false
105 \DeclareOption{frm}{\frm@true}
106 \DeclareOption{nofrm}{\frm@false}
107
108
109 %% Figure-related tricks
110 \newif\iffig@ \fig@false
111 \DeclareOption{fig}{\fig@true}
112 \DeclareOption{nofig}{\fig@false}
113
114 %% Wrapfig package
115 \newif\ifwrpfig@ \wrpfig@true
116 \DeclareOption{nowrpfig}{\wrpfig@false}
117
118
119 %% Table-related tricks
120 \newif\iftab@ \tab@false
121 \DeclareOption{tab}{\tab@true}
122 \DeclareOption{notab}{\tab@false}
123
124
125 %% Algorithm-related tricks
126 \newif\ifalg@ \alg@false
127 \DeclareOption{alg}{\alg@true}
128 \DeclareOption{noalg}{\alg@false}
129

```

Option-processing code:

```

130
131 \DeclareOption*{\PackageWarning{fmocdmac}{Unknown~'\CurrentOption'}}%
132
133 \ExecuteOptions{aux,txtgen,mthgen,txt,mth,com,grp,gam,log,aut}%
134
135 \ProcessOptions\relax%
136
137 \ifcsdef{if@twocolumn}{\newif\if@twocolumn}
138

```

Package main body:

```

139
140 %%*****
141 %%** Auxiliary Alphabet Letters *****
142 %%*****

```

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

```
143 \csdef{omicron}{o}
```

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

```

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

```

```

148 %%*****
149 %%*****
150 %%** Tools *****
151 %%*****

```

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

- `\empchk{}{B} = ""`
- `\empchk{A}{B} = "B"`

```

152 \newcommand{\empchk}[2]
153   {\if&#1&\else#2\fi}

```

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

- `\defval{}{B} = "B"`
- `\defval{A}{B} = "A"`

```

154 \newcommand{\defval}[2]
155   {\if&#1&#2\else#1\fi}

```

156 %*****%

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

- `\arglef{A}{} = ""`
- `\arglef{A}{B} = "AB"`

```

157 \newcommand{\arglef}[2]
158   {\empchk{#2}{#1#2}}

```

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

- `\argrig{}{B} = ""`
- `\argrig{A}{B} = "AB"`

```

159 \newcommand{\argrig}[2]
160   {\empchk{#1}{#1#2}}

```

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

- `\argmid{A}{}{C} = ""`
- `\argmid{A}{B}{C} = "ABC"`

```

161 \newcommand{\argmid}[3]
162   {\empchk{#2}{#1#2#3}}

```

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

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

```

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

```

165 %*****%

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

```

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

```

```

174 %%*****%

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

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

183 %%*****%

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

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

\seqoflatlet Sequence of Latin letters: \seqoflatlet{<A>}{<B>} ... to do!
188 \newcommand{\seqoflatlet}[2]
189   {\seqoflatlow{#1}{#2}\seqoflatupp{#1}{#2}}

190 %%*****%

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

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

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

201 %%*****%

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

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

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

208 %%*****%

```

```

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

```

```

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

```

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

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

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

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

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

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

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

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

```
295 %*****%
```

```
296 %*****%
```

```
297 %** Text Meta Commands *****%
```

```
298 %*****%
```

\newtxt ... to do!

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

```
299 \newcommand{\newtxt}
```

```
300 {\@ifstar{\@snewtxt}{\@newtxt}}
```

```
301 \newcommandx{\@newtxt}[5][1=, 3=, 4=, 5=]
```

```
302 {\text{\#1\#2\txtsubsup[\#1]{\#3}{\#4}{\#5}\xspace}}
```

```
303 \newcommandx{\@snewtxt}[5][1=, 3=, 4=, 5=]
```

```
304 {\#1\#2\txtsubsup[\#1]{\#3}{\#4}{\#5}\normalfont\xspace}}
```

\newtxtsty ... to do!

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

```

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

```

\newtxtarg ... to do!

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

```

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

```

\newtxtargsty ... to do!

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

```

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

```

\newtxtoarg ... to do!

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

```

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

```

\newtxtoargsty ... to do!

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

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

```

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

```

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

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

```

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

```

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

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

```

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

```

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

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

```

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

```

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

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

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

```

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

```

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

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

```

359 \newcommand{\txtsubsup}[3][ ]
360   {\ensuremath{\empchk{#2}\_{\text{#1#2}}}\empchk{#3}\^{ \text{#1#3}}}}
361 %%*****%

```

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

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

```

362 \newcommand{\txt}
363   {\@ifstar{\newtxtsty*\{txtsty\}}{\newtxtsty\{txtsty\}}}

```

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

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

```

364 \newcommand{\txtarg}
365   {\@ifstar{\newtxtargsty*\{txtsty\}}{\newtxtargsty\{txtsty\}}}

```

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

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

```

366 \newcommand{\txtoarg}
367   {\@ifstar{\newtxtoargsty*\{txtsty\}}{\newtxtoargsty\{txtsty\}}}

```

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

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

```

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

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

\txtsty ... to do!
372 \newcommand{\txtsty}
373   {\mdseries\upshape\rmfamily}

374 %%*****%

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

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

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

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

```

```

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

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

\cmdtxtall ... to do!
    • \cmdtxtall{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
      \txtNewCmd{Name}[sub][sup][Ext] = NAMESUBExt
      \txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBExt1(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]

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

402 %%*****%

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

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

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

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

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

```

```

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

```

\newmthsty ... to do!

- \newmthsty{\mathrm}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”
- \newmthsty{\mathsf}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”
- \newmthsty{\mathtt}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”
- \newmthsty*{\mathrm}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”
- \newmthsty*{\mathsf}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”
- \newmthsty*{\mathtt}{Name}[sub][sup][Ext] = “Name^{sup}_{sub}Ext”

```

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

```

\newmtharg ... to do!

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

```

424 \newcommand{\newmtharg}
425   {\@ifstar{\@snewmtharg}{\@newmtharg}}
426 \newcommandx{\@newmtharg}[7][1=, 3=, 4=, 5=, 7=]
427   {\newmth{#1}{#2}{#3}{#4}[\argmid{#5}{\left}{\right}\arglef{!}{#7}]}
428 \newcommandx{\@snewmtharg}[7][1=, 3=, 4=, 5=, 7=]
429   {\newmth{#1}{#2}{#3}{#4}[\argmid{#5}{#6}{#7}]}

```

\newmthargsty ... to do!

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

```

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

```

\newmthoarg ... to do!

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

- ```

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

```

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

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

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

```

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

```

\newmthpar ... to do!

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

```

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

```

\newmthoparsty ... to do!

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

```

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

```

\mthsubsup ... to do!

```

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

```

```

474 %%*****

```

\mth ... to do!

- $\mth{Name}[\mathrm{sub}][\mathrm{sup}][Ext] = \text{"Name}_{sub}^{sup}Ext"$
- $\mth[\mathbf]{Name}[\mathrm{sub}][\mathrm{sup}][Ext] = \text{"Name}_{sub}^{sup}Ext"$
- $\mth[\mathtt]{Name}[\mathrm{sub}][\mathrm{sup}][Ext] = \text{"Name}_{sub}^{sup}Ext"$
- $\mth*{Name}[\mathrm{sub}][\mathrm{sup}][Ext] = \text{"Name}_{sub}^{sup}Ext"$
- $\mth*[\mathbf]{Name}[\mathrm{sub}][\mathrm{sup}][Ext] = \text{"Name}_{sub}^{sup}Ext"$
- $\mth*[\mathtt]{Name}[\mathrm{sub}][\mathrm{sup}][Ext] = \text{"Name}_{sub}^{sup}Ext"$

```

475 \newcommand{\mth}
476 {\@ifstar{\newmthsty*{\mthsty}}{\newmthsty{\mthsty}}}

```

\mtharg ... to do!





```

• \cmdmth{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthNewCmd{Name}[sub][sup][Ext] = NamesubsubExt
\mthNewCmd*{Name}[sub][sup][Ext] = NamesubsubExt
488 \newcommand{\cmdmth}[1]
489 {\csdef{mth#1}%
490 {\@ifstar{\newmthsty*{mthsty#1}}{\newmthsty{mthsty#1}}}}

\cmdmtharg ... to do!
• \cmdmtharg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthargNewCmd{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
\mthargNewCmd*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
491 \newcommand{\cmdmtharg}[1]
492 {\csdef{mtharg#1}%
493 {\@ifstar{\newmthargsty*{mthsty#1}}{\newmthargsty{mthsty#1}}}}

\cmdmthoarg ... to do!
• \cmdmthoarg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExEx)
\mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExEx)
494 \newcommand{\cmdmthoarg}[1]
495 {\csdef{mthoarg#1}%
496 {\@ifstar{\newmthoargsty*{mthsty#1}}{\newmthoargsty{mthsty#1}}}}

\cmdmthpar ... to do!
• \cmdmthpar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
\mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
497 \newcommand{\cmdmthpar}[1]
498 {\csdef{mthpar#1}%
499 {\@ifstar{\newmthparsty*{mthsty#1}}{\newmthparsty{mthsty#1}}}}

\cmdmthopar ... to do!
• \cmdmthopar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExEx]
\mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExEx]
500 \newcommand{\cmdmthopar}[1]
501 {\csdef{mthopar#1}%
502 {\@ifstar{\newmthoparsty*{mthsty#1}}{\newmthoparsty{mthsty#1}}}}

\cmdmthall ... to do!
• \cmdmthall{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
\mthNewCmd{Name}[sub][sup][Ext] = NamesubsubExt
\mthargNewCmd{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
\mthargNewCmd*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = NamesubsubExt1(ArgExEx)Ext2
\mthoargNewCmd{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExEx)
\mthoargNewCmd*{Name}[sub][sup][Arg^{Ex^{Ex}}] = Namesubsub(ArgExEx)
\mthparNewCmd{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
\mthparNewCmd*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = NamesubsubExt1[ParExEx]Ext2
\mthoparNewCmd{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExEx]
\mthoparNewCmd*{Name}[sub][sup][Par^{Ex^{Ex}}] = Namesubsub[ParExEx]
503 \newcommand{\cmdmthall}[1]
504 {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#1}}
505 %%*****%

```

\usrmth ... to do!

- \usrmth{cmdName}{Suf}{};  
\cmdNameSuf = cmdName  
\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  
\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( $Par^{Ex^{Ex}}$ )

```

506 \newcommandx{\usrmth}[4][4=]
507 {\csdef{#1#2}{%
508 \@ifstar%
509 {\csname mth#3\endcsname*{\defval{#4}{#1}}}%
510 {\csname mth#3\endcsname{\defval{#4}{#1}}}%
511 }%*****%
```

\usrmthlatlow ... to do!

```

512 \newcommandx{\usrmthlatlow}[4][4=]
513 {\usrmth{#1}{#2}{#3}[#4]\seqoflatlow{#1#2}{mth#3}}
```

\usrmthlatupp ... to do!

```

514 \newcommandx{\usrmthlatupp}[4][4=]
515 {\usrmth{#1}{#2}{#3}[#4]\seqoflatupp{#1#2}{mth#3}}
```

\usrmthlatlet ... to do!

```

516 \newcommandx{\usrmthlatlet}[4][4=]
517 {\usrmth{#1}{#2}{#3}[#4]\seqoflatlet{#1#2}{mth#3}}
```

\usrmthgrklow ... to do!

```

518 \newcommandx{\usrmthgrklow}[4][4=]
519 {\usrmth{#1}{#2}{#3}[#4]\seqofgrklow{#1#2}{mth#3}}
```

\usrmthgrkupp ... to do!

```

520 \newcommandx{\usrmthgrkupp}[4][4=]
521 {\usrmth{#1}{#2}{#3}[#4]\seqofgrkupp{#1#2}{mth#3}}
```

\usrmthgrklet ... to do!

```

522 \newcommandx{\usrmthgrklet}[4][4=]
523 {\usrmth{#1}{#2}{#3}[#4]\seqofgrklet{#1#2}{mth#3}}
```

\usrmthlow ... to do!

```

524 \newcommandx{\usrmthlow}[4][4=]
525 {\usrmth{#1}{#2}{#3}[#4]\seqoflow{#1#2}{mth#3}}
```

\usrmthupp ... to do!

```

526 \newcommandx{\usrmthupp}[4][4=]
527 {\usrmth{#1}{#2}{#3}[#4]\seqofupp{#1#2}{mth#3}}
```

```

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

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

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

535 %% Style for Definitions
536 \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] = $newName_{sub}^{sub}ext$

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

539 \newcommandx{\cmdtxtargdef}[2][2=]
540 {\usrtxt{#1}{-}{argdef}[#2]}

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

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

543 \newcommandx{\cmdtxtpardef}[2][2=]
544 {\usrtxt{#1}{-}{pardef}[#2]}

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

545 \newcommandx{\cmdtxtopardef}[2][2=]
546 {\usrtxt{#1}{-}{opardef}[#2]}

\txtabr, to do!

```

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

547 %% Style for Abbreviations

548 \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] =  $newName_{sub}^{sub}ext$

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

550 {\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] =  $newName_{sub}^{sub}ext1(arg)ext2$

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

552 {\usrtxt{#1}{-}{argabr}{#2}}

\cmdtxtoargabr ... to do!

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

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

554 {\usrtxt{#1}{-}{oargabr}{#2}}

\cmdtxtparabr ... to do!

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

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

556 {\usrtxt{#1}{-}{parabr}{#2}}

\cmdtxtoparabr ... to do!

- \cmdtxtoparabr{cmdName};  
  \cmdName[sub][sub][par] =  $cmdName_{sub}^{sub}[par]$
- \cmdtxtoparabr{cmdName}[newName];  
  \cmdName[sub][sub][par] =  $newName_{sub}^{sub}[par]$

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

558 {\usrtxt{#1}{-}{oparabr}{#2}}

559 %\*\*\*\*\*%

\txtname, ... to do!

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

560 %% Style for Names

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

\cmdtxtname ... to do!

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

562 `\newcommandx{\cmdtxtname}[2][2=]`  
563 `{\usrtxt{#1}{-}{name}[#2]}`

`\cmdtxtargname` ... to do!

- `\cmdtxtargname{cmdName};`  
`\cmdName[sub][sub][ext1]{arg}[ext2] = CMDNAMESUBEXT1(ARG)EXT2`
- `\cmdtxtargname{cmdName}[newName];`  
`\cmdName[sub][sub][ext1]{arg}[ext2] = NEWNAMESUBEXT1(ARG)EXT2`

564 `\newcommandx{\cmdtxtargname}[2][2=]`  
565 `{\usrtxt{#1}{-}{argname}[#2]}`

`\cmdtxtoargname` ... to do!

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

566 `\newcommandx{\cmdtxtoargname}[2][2=]`  
567 `{\usrtxt{#1}{-}{oargname}[#2]}`

`\cmdtxtparname` ... to do!

- `\cmdtxtparname{cmdName};`  
`\cmdName[sub][sub][ext1]{par}[ext2] = CMDNAMESUBEXT1[PAR]EXT2`
- `\cmdtxtparname{cmdName}[newName];`  
`\cmdName[sub][sub][ext1]{par}[ext2] = NEWNAMESUBEXT1[PAR]EXT2`

568 `\newcommandx{\cmdtxtparname}[2][2=]`  
569 `{\usrtxt{#1}{-}{parname}[#2]}`

`\cmdtxtoparname` ... to do!

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

570 `\newcommandx{\cmdtxtoparname}[2][2=]`  
571 `{\usrtxt{#1}{-}{oparname}[#2]}`

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

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

572 `%% Style for Complexities`  
573 `\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`

574 `\newcommandx{\cmdtxtcom}[2][2=]`  
575 `{\usrtxt{#1}{-}{com}[#2]}`

`\cmdtxtargcom` ... to do!

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

```

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

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

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

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

584 \fi
585 %*****%
586 %*****%
587 %** Math Macro Generators *****%
588 %*****%
589 \ifmthgen@

\mthname, to do!
 • \mthname{NAME}[sub][sup][Ext] = $\mathcal{NAME}_{sub}^{sup}Ext$
 • \mthargname{NAME}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargname*(NAME)[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthparname{NAME}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparname*(NAME)[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = $\mathcal{NAME}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
590 %% Style for Names
591 \cmdmthall{name}\newcommand{\mthstynme}{\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
592 \seqoflatupp{Name}{mthname}

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

```

```

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

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

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

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

\mthfam, to do!
 • \mthfam{NAME}[sub][sup][Ext] = $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext$
 • \mthargfam{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargfam*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthparfam{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparfam*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}\mathcal{E}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
603 %% Style for Families
604 \cmdmthall{fam}\newcommand{\mthstyfam}{\mathscr}

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

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

\cmdmthargfam ... to do!

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 • \cmdmthargfam{CMDNAME};
 \CMDNAMEFam[sub][sub][ext1]{arg}[ext2] = $\mathcal{CMDNAME}^{\text{sub}}_{\text{sub}}\text{ext1}(arg)\text{ext2}$
 • \cmdmthargfam{cmdName}[NEWNAME];
 \cmdNameFam[sub][sub][ext1]{arg}[ext2] = $\mathcal{NEWNAME}^{\text{sub}}_{\text{sub}}\text{ext1}(arg)\text{ext2}$
608 \newcommandx{\cmdmthargfam}[2][2=]
609 {\usrmth{#1}{Fam}{argfam}{#2}}

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

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

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

\mthcls, to do!
 • \mthcls{NAME}[sub][sup][Ext] = $\mathcal{NAME}^{\text{sup}}_{\text{sub}}\text{Ext}$
 • \mthargcls{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}^{\text{sup}}_{\text{sub}}\text{Ext1}\left(\text{Arg}^{\text{Ex}^{\text{Ex}}}\right)\text{Ext2}$
 • \mthargcls*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}^{\text{sup}}_{\text{sub}}\text{Ext1}\left(\text{Arg}^{\text{Ex}^{\text{Ex}}}\right)\text{Ext2}$
 • \mthparcls{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}^{\text{sup}}_{\text{sub}}\text{Ext1}\left[\text{Par}^{\text{Ex}^{\text{Ex}}}\right]\text{Ext2}$
 • \mthparcls*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{NAME}^{\text{sup}}_{\text{sub}}\text{Ext1}\left[\text{Par}^{\text{Ex}^{\text{Ex}}}\right]\text{Ext2}$
616 %% Style for Classes
617 \cmdmthall{cls}\newcommand{\mthstcls}{\matheus}

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

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

\cmdmthargcls ... to do!
 • \cmdmthargcls{CMDNAME};
 \CMDNAMECls[sub][sub][ext1]{arg}[ext2] = $\mathcal{CMDNAME}^{\text{sub}}_{\text{sub}}\text{ext1}(arg)\text{ext2}$

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 • \cmdmthargcls{cmdName}[NEWNAME];
 \cmdNameCls[sub][sub][ext1]{arg}[ext2] = $\mathcal{NEWNAME}_{sub}^{sub}ext1(arg)ext2$
621 \newcommandx{\cmdmthargcls}[2][2=]
622 {\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] = $\mathcal{NEWNAME}_{sub}^{sub}(arg)$
623 \newcommandx{\cmdmthoargcls}[2][2=]
624 {\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] = $\mathcal{NEWNAME}_{sub}^{sub}ext1[par]ext2$
625 \newcommandx{\cmdmthparcls}[2][2=]
626 {\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] = $\mathcal{NEWNAME}_{sub}^{sub}[par]$
627 \newcommandx{\cmdmthoparcls}[2][2=]
628 {\usrmth{#1}{Cls}{oparcls}[#2]}

\mthsig, to do!
 • \mthsig{Name}[sub][sup][Ext] = $\mathcal{ame}_{sub}^{sup}Ext$
 • \mthargsig{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{ame}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargsig*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{ame}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$
 • \mthparsig{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{ame}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparsig*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{ame}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$
629 %% Style for Signatures
630 \cmdmthall{sig}\newcommand{\mthstysig}{\mathpzc}

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

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

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

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 • \cmdmthargsig{cmdName}[NewName];
 \cmdNameSig[sub][sub][ext1]{arg}[ext2] = $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}ext1(arg)ext2$
634 \newcommandx{\cmdmthargsig}[2][2=]
635 {\usrmth{#1}{Sig}{argsig}[#2]}

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

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

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

\mthstr, to do!
 • \mthstr{Name}[sub][sup][Ext] = $\mathcal{N}ame_{sub}^{sup}Ext$
 • \mthargstr{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{N}ame_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthargstr*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $\mathcal{N}ame_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$
 • \mthparstr{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{N}ame_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
 • \mthparstr*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $\mathcal{N}ame_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2$
642 %% Style for Structures
643 \cmdmthall{str}\newcommand{\mthstyststr}{\mathfrak{str}}

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

\cmdmthstr ... to do!
 • \cmdmthstr{cmdName};
 \cmdNameStr[sub][sub][ext] = $cmd\mathcal{N}ame_{sub}^{sub}ext$
 • \cmdmthstr{cmdName}[NewName];
 \cmdNameStr[sub][sub][ext] = $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}ext$
645 \newcommandx{\cmdmthstr}[2][2=]
646 {\usrmth{#1}{Str}{str}[#2]}

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

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

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

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

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

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

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

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

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

 • \mthargset{Name}[sub][sup][Ext1]{ArgEx{ExEx}}[Ext2] = NamesupExt1(ArgExExt1Ex)Ext2

 • \mthargset*{Name}[sub][sup][Ext1]{ArgEx{ExEx}}[Ext2] = NamesupExt1(ArgExExt1Ex)Ext2

 • \mthparset{Name}[sub][sup][Ext1]{ParEx{ExEx}}[Ext2] = NamesupExt1[ParExExt1Ex]Ext2

 • \mthparset*{Name}[sub][sup][Ext1]{ParEx{ExEx}}[Ext2] = NamesupExt1[ParExExt1Ex]Ext2
655 %% Style for Sets
656 \cmdmthall{set}\newcommand{\mthstyset}{\mathrm}

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

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

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

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

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 • \cmdmthargset{cmdName}[NewName];
 \cmdNameSet[sub][sub][ext1]{arg}[ext2] = NewNamesubext1(arg)ext2
660 \newcommandx{\cmdmthargset}[2][2=]
661 {\usrmth{#1}{Set}{argset}[#2]}

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

 • \cmdmthoargset{cmdSet}[NewName];
 \cmdSetSet[sub][sub][arg] = NewNamesub(arg)

662 \newcommandx{\cmdmthoargset}[2][2=]
663 {\usrmth{#1}{Set}{oargset}[#2]}

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

 • \cmdmthparset{cmdSet}[NewName];
 \cmdNameSet[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2

664 \newcommandx{\cmdmthparset}[2][2=]
665 {\usrmth{#1}{Set}{parset}[#2]}

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

 • \cmdmthoparset{cmdSet}[NewName];
 \cmdSetSet[sub][sub][par] = NewNamesub[par]

666 \newcommandx{\cmdmthoparset}[2][2=]
667 {\usrmth{#1}{Set}{oparset}[#2]}

\cmdmthsetext ... to do!
668 \newcommandx{\cmdmthsetext}[3][2=, 3=]
669 {\cmdmthset{#1}[#2]\caselower[q]{#1}%
670 \usrmthlet{\thestring}{Sym}{sym}
671 [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}}%
672 \usrmthlet{\thestring}{Elm}{elm}
673 [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}]}

\mthrel, to do!
 • \mthrel{Name}[sub][sup][Ext] = NamesupsubExt

 • \mthargrel{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2

 • \mthargrel*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2

 • \mthparrel{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExEx]Ext2

 • \mthparrel*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExEx]Ext2

674 %% Style for Relations
675 \cmdmthall{rel}\newcommand{\mthstyrel}{\mathit}

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

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

```

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

```
677 \newcommandx{\cmdmthrel}[2][2=]
678 {\usrmth{\#1}\Rel}\rel{\#2}}
```

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

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

```
679 \newcommandx{\cmdmthargrel}[2][2=]
680 {\usrmth{\#1}\Rel}\argrel{\#2}}
```

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

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

```
681 \newcommandx{\cmdmthoargrel}[2][2=]
682 {\usrmth{\#1}\Rel}\oargrel{\#2}}
```

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

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

```
683 \newcommandx{\cmdmthparrel}[2][2=]
684 {\usrmth{\#1}\Rel}\parrel{\#2}}
```

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

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

```
685 \newcommandx{\cmdmthoparrel}[2][2=]
686 {\usrmth{\#1}\Rel}\oparrel{\#2}}
```

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

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

```
687 %% Style for Functions
688 \cmdmthall{\fun}\newcommand{\mthstyfun}\mathsf}
```

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

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

```
689 \seqoflet{\Fun}\mthfun}
```

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

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

- `\cmdmthfun{cmdName}[NewName];`  
`\cmdNameFun[sub][sub][ext] = NewNamesubext`

```
690 \newcommandx{\cmdmthfun}[2][2=]
691 {\usrmth{#1}{Fun}{fun}[#2]}
```

`\cmdmthargfun ... to do!`

- `\cmdmthargfun{cmdName};`  
`\cmdNameFun[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2`
- `\cmdmthargfun{cmdName}[NewName];`  
`\cmdNameFun[sub][sub][ext1]{arg}[ext2] = NewNamesubext1(arg)ext2`

```
692 \newcommandx{\cmdmthargfun}[2][2=]
693 {\usrmth{#1}{Fun}{argfun}[#2]}
```

`\cmdmthoargfun ... to do!`

- `\cmdmthoargfun{cmdName};`  
`\cmdNameFun[sub][sub][arg] = cmdNamesub(arg)`
- `\cmdmthoargfun{cmdFun}[NewName];`  
`\cmdFunFun[sub][sub][arg] = NewNamesub(arg)`

```
694 \newcommandx{\cmdmthoargfun}[2][2=]
695 {\usrmth{#1}{Fun}{oargfun}[#2]}
```

`\cmdmthparfun ... to do!`

- `\cmdmthparfun{cmdName};`  
`\cmdNameFun[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2`
- `\cmdmthparfun{cmdName}[NewName];`  
`\cmdNameFun[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2`

```
696 \newcommandx{\cmdmthparfun}[2][2=]
697 {\usrmth{#1}{Fun}{parfun}[#2]}
```

`\cmdmthoparfun ... to do!`

- `\cmdmthoparfun{cmdName};`  
`\cmdNameFun[sub][sub][par] = cmdNamesub[par]`
- `\cmdmthoparfun{cmdFun}[NewName];`  
`\cmdFunFun[sub][sub][par] = NewNamesub[par]`

```
698 \newcommandx{\cmdmthoparfun}[2][2=]
699 {\usrmth{#1}{Fun}{oparfun}[#2]}
```

`\mthsym, ... ... to do!`

- `\mthsym{Name}[sub][sup][Ext] = NamesupExt`
- `\mthargsym{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupExt1(ArgExExt)Ext2`
- `\mthargsym*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupExt1(ArgExExt)Ext2`
- `\mthparsym{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupExt1[ParExExt]Ext2`
- `\mthparsym*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupExt1[ParExExt]Ext2`

```
700 %% Style for Symbols
701 \cmdmthall{sym}\newcommand{\mthstysym}{\mathhtt{}}
```

`\aSym, ... ... to do!`

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

```
702 \seqoflet{Sym}{mthsym}
```

`\cmdmthsym ... to do!`

- `\cmdmthsym{cmdName};`  
`\cmdNameSym[sub][sub][ext] = cmdNamesubext`

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

```

703 \newcommandx{\cmdmthsym}[2][2=]
704 {\usrmth{\#1}\{Sym\}\{sym\}[\#2]}

```

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

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

```

705 \newcommandx{\cmdmthargsym}[2][2=]
706 {\usrmth{\#1}\{Sym\}\{argsym\}[\#2]}

```

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

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

```

707 \newcommandx{\cmdmthoargsym}[2][2=]
708 {\usrmth{\#1}\{Sym\}\{oargsym\}[\#2]}

```

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

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

```

709 \newcommandx{\cmdmthparsym}[2][2=]
710 {\usrmth{\#1}\{Sym\}\{parsym\}[\#2]}

```

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

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

```

711 \newcommandx{\cmdmthoparsym}[2][2=]
712 {\usrmth{\#1}\{Sym\}\{oparsym\}[\#2]}

```

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

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

```

713 %% Style for Elements
714 \cmdmthall{elm}\newcommand{\mthstyelm}{\mathnormal}

```

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

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

```

715 \seqoflet{Elm}{mthelm}

```

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

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

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

```

716 \newcommandx{\cmdmthelm}[2][2=]
717 {\usrmth{#1}{Elm}{elm}[#2]}

```

\cmdmthargelm ... to do!

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

```

718 \newcommandx{\cmdmthargelm}[2][2=]
719 {\usrmth{#1}{Elm}{argelm}[#2]}

```

\cmdmthoargelm ... to do!

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

```

720 \newcommandx{\cmdmthoargelm}[2][2=]
721 {\usrmth{#1}{Elm}{oargelm}[#2]}

```

\cmdmthparelm ... to do!

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

```

722 \newcommandx{\cmdmthparelm}[2][2=]
723 {\usrmth{#1}{Elm}{parelm}[#2]}

```

\cmdmthoparelm ... to do!

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

```

724 \newcommandx{\cmdmthoparelm}[2][2=]
725 {\usrmth{#1}{Elm}{oparelm}[#2]}

```

```

726 %%%

```

\cmdmthsymelm ... to do!

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

```

727 \newcommandx{\cmdmthsymelm}[2][2=]
728 {\cmdmthsym{#1}[#2]}
729 \cmdmthelm{#1}[#2]}

```

\cmdmthargsymelm ... to do!

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



```

730 \newcommandx{\cmdmthargsymelm}[2][2=]
731 {\cmdmthargsym{\#1}[\#2]}
732 \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];  
 $\text{cmdNameSym}[\text{sub}][\text{sub}][\text{arg}] = \text{NewName}_{\text{sub}}^{\text{sub}}(\text{arg})$   
 $\text{cmdNameElm}[\text{sub}][\text{sub}][\text{arg}] = \text{NewName}_{\text{sub}}^{\text{sub}}(\text{arg})$

```

733 \newcommandx{\cmdmthoargsymelm}[2][2=]
734 {\cmdmthoargsym{\#1}[\#2]}
735 \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];  
 $\text{cmdNameSym}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \text{NewName}_{\text{sub}}^{\text{sub}}\text{ext1}[\text{par}]\text{ext2}$   
 $\text{cmdNameElm}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \text{NewName}_{\text{sub}}^{\text{sub}}\text{ext1}[\text{par}]\text{ext2}$

```

736 \newcommandx{\cmdmthparsymelm}[2][2=]
737 {\cmdmthparsym{\#1}[\#2]}
738 \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];  
 $\text{cmdNameSym}[\text{sub}][\text{sub}][\text{par}] = \text{NewName}_{\text{sub}}^{\text{sub}}[\text{par}]$   
 $\text{cmdNameElm}[\text{sub}][\text{sub}][\text{par}] = \text{NewName}_{\text{sub}}^{\text{sub}}[\text{par}]$

```

739 \newcommandx{\cmdmthoparsymelm}[2][2=]
740 {\cmdmthoparsym{\#1}[\#2]}
741 \cmdmthoparelm{\#1}[\#2]}

```

```

742 %%*****%

```

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

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

```

743 %% Style for \LaTeX Operators

```

```

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

```

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

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

```

746 \newcommandx{\cmdmthluop}[2][2=]
747 {\usrmth{\#1}\{UOp\}\{luop\}[\#2]}
748 \newcommandx{\cmdmthlbop}[2][2=]
749 {\usrmth{\#1}\{BOp\}\{lbop\}[\#2]}

```

```

\mthlrel ... to do!
 • \mthlrel{\preceq}[sub][sup][Ext] = $\preceq_{sub}^{sup} Ext$
750 %% Style for \LaTeX Relations
751 \cmdmth{lrel}\newcommand{\mthstylrel}{\mathrel}

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

754 %%*****%

\mthsnt, ... to do!
 • \mthsnt{Name}[sub][sup][Ext] = $Name_{sub}^{sup} Ext$
 • \mthargsnt{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup} Ext1 (Arg^{Ex^{Ex}}) Ext2$
 • \mthargsnt*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup} Ext1 (Arg^{Ex^{Ex}}) Ext2$
 • \mthparsnt{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup} Ext1 [Par^{Ex^{Ex}}] Ext2$
 • \mthparsnt*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = $Name_{sub}^{sup} Ext1 [Par^{Ex^{Ex}}] Ext2$
755 %% Style for Sentences
756 \cmdmthall{snt}\newcommand{\mthstysnt}{\mathsf}

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

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

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

\cmdmthoargsnt ... to do!
 • \cmdmthoargsnt{cmdName};
 \cmdNameSnt[sub][sub][arg] = $cmdName_{sub}^{sub} (arg)$
 • \cmdmthoargsnt{cmdName}[NewName];
 \cmdNameSnt[sub][sub][arg] = $NewName_{sub}^{sub} (arg)$
762 \newcommandx{\cmdmthoargsnt}[2][2=]
763 {\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`

764 `\newcommandx{\cmdmthparsnt}[2][2=]`  
765 `{\usrmth{#1}{Snt}{parsnt}{#2}}`

`\cmdmthoparsnt` ... to do!

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

766 `\newcommandx{\cmdmthoparsnt}[2][2=]`  
767 `{\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`

768 `%% Style for Formulae`  
769 `\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, ϱ, σ, ς, τ, υ, φ, ϕ, χ, ψ, ω*  
*A, B, Γ, Δ, E, E, Z, H, Θ, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω*

770 `\seqoflet{Frm}{mthfrm}`

`\cmdmthfrm` ... to do!

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

771 `\newcommandx{\cmdmthfrm}[2][2=]`  
772 `{\usrmth{#1}{Frm}{frm}{#2}}`

`\cmdmthargfrm` ... to do!

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

773 `\newcommandx{\cmdmthargfrm}[2][2=]`  
774 `{\usrmth{#1}{Frm}{argfrm}{#2}}`

`\cmdmthoargfrm` ... to do!

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

775 `\newcommandx{\cmdmthoargfrm}[2][2=]`  
776 `{\usrmth{#1}{Frm}{oargfrm}{#2}}`

`\cmdmthparfrm` ... to do!

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

```

777 \newcommandx{\cmdmthparfrm}[2][2=]
778 {\usrmth{\#1}\Frm}\parfrm{\#2}}

\cmdmthoparfrm ... to do!

- \cmdmthoparfrm{cmdName};

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

 $\text{cmdNameFrm}[\text{sub}][\text{sub}][\text{par}] = \text{NewName}_{sub}^{sub}[\text{par}]$


```

779 \newcommandx{\cmdmthoparfrm}[2][2=]
780   {\usrmth{\#1}\Frm}\oparfrm{\#2}}

781 %%*****
```


```

```

\mthmat, to do!

- \mthmat{Name}[sub][sup][Ext] = Name_{sub}^{sup}Ext
- \mthargmat{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
- \mthargmat*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
- \mthparmat{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2
- \mthparmat*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = Name_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2


```

782 %% Style for Matrices
783 \cmdmthall{mat}\newcommand{\mthstymat}[1]{\boldsymbol{\mathsf{\#1}}}
```


```

```

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

784 \seqoflet{Mat}{mthmat}
```

```

\cmdmthmat ... to do!

- \cmdmthmat{cmdName};

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

 $\text{cmdNameMat}[\text{sub}][\text{sub}][\text{ext}] = \text{NewName}_{sub}^{sub} \text{ext}$


```

785 \newcommandx{\cmdmthmat}[2][2=]
786   {\usrmth{\#1}\Mat}\mat{\#2}}
```


```

```

\cmdmthargmat ... to do!

- \cmdmthargmat{cmdName};

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

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


```

787 \newcommandx{\cmdmthargmat}[2][2=]
788   {\usrmth{\#1}\Mat}\argmat{\#2}}
```


```

```

\cmdmthoargmat ... to do!

- \cmdmthoargmat{cmdName};

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

 $\text{cmdNameMat}[\text{sub}][\text{sub}][\text{arg}] = \text{NewName}_{sub}^{sub}(\text{arg})$


```

789 \newcommandx{\cmdmthoargmat}[2][2=]
790   {\usrmth{\#1}\Mat}\oargmat{\#2}}
```


```

```

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

\cmdmthoparmat ... to do!
 • \cmdmthoparmat{cmdName};
 \cmdNameMat[sub][sub][par] = cmdNamesubpar
 • \cmdmthoparmat{cmdName}[NewName];
 \cmdNameMat[sub][sub][par] = NewNamesubpar
793 \newcommandx{\cmdmthoparmat}[2][2=]
794 {\usrmth{#1}{Mat}{oparmat}{#2}}

\mthvec, to do!
 • \mthvec{Name}[sub][sup][Ext] = NamesubExt
 • \mthargvec{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubExt1(ArgEx{Ex})Ext2
 • \mthargvec*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesubExt1(ArgEx{Ex})Ext2
 • \mthparvec{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubExt1[ParEx{Ex}]Ext2
 • \mthparvec*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesubExt1[ParEx{Ex}]Ext2
795 %% Style for Vectors
796 \cmdmthall{vec}\newcommand{\mthstyvec}[1]{\boldsymbol{\mathit{#1}}}

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

\cmdmthvec ... to do!
 • \cmdmthvec{cmdName};
 \cmdNameVec[sub][sub][ext] = cmdNamesubext
 • \cmdmthvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][ext] = NewNamesubext
798 \newcommandx{\cmdmthvec}[2][2=]
799 {\usrmth{#1}{Vec}{vec}{#2}}

\cmdmthargvec ... to do!
 • \cmdmthargvec{cmdName};
 \cmdNameVec[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2
 • \cmdmthargvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][ext1]{arg}[ext2] = NewNamesubext1(arg)ext2
800 \newcommandx{\cmdmthargvec}[2][2=]
801 {\usrmth{#1}{Vec}{argvec}{#2}}

\cmdmthoargvec ... to do!
 • \cmdmthoargvec{cmdName};
 \cmdNameVec[sub][sub][arg] = cmdNamesub(arg)
 • \cmdmthoargvec{cmdName}[NewName];
 \cmdNameVec[sub][sub][arg] = NewNamesub(arg)
802 \newcommandx{\cmdmthoargvec}[2][2=]
803 {\usrmth{#1}{Vec}{oargvec}{#2}}

```

```

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

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

808 \fi
809 %*****
810 %*****
811 %** Elementary Macros for Text *****
812 %*****
813 \iftxt@
814 %** Latin Abbreviations *****

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

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

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

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

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

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

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

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

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

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

\ergo • \ergo = ergo
825 \cmdtxtabr{ergo}

\errata • \errata = errata
826 \cmdtxtabr{errata}

```

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

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

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

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

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

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

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

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

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

`\viz`      • `\viz = viz.`  
836 `\cmdtxtabr{viz}[viz.\@]`  
837 `%%*****%`

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

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

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

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

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

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

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

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

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

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

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

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

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

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

852 %\*\* Italian Abbreviations \*\*\*\*\*%  
...  
853 %\*\*\*\*\*%  
...  
854 %\*\* French Abbreviations \*\*\*\*\*%

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

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

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

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

859 %\*\*\*\*\*%

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

861 %\*\* English Abbreviations \*\*\*\*\*%

$\backslash$ aka      •  $\backslash$ aka = *a.k.a.*  
862  $\backslash$ cmdtxtabr{aka}[a.k.a.\@]

$\backslash$ contd      •  $\backslash$ contd = *contd.*  
863  $\backslash$ cmdtxtabr{contd}[contd.\@]

$\backslash$ iff      •  $\backslash$ iff = *iff*  
864  $\backslash$ cmdtxtabr{iff}

$\backslash$ iht      •  $\backslash$ iht = *i.h.t.*  
865  $\backslash$ cmdtxtabr{iht}[i.h.t.\@]

$\backslash$ stx      •  $\backslash$ stx = *s.t.*  
866  $\backslash$ cmdtxtabr{stx}[s.t.\@]

$\backslash$ resp      •  $\backslash$ resp = *resp.*  
867  $\backslash$ cmdtxtabr{resp}[resp.\@]



```

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

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

870 %%*****

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

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

873 \fi
874 %%*****

875 %%*****
876 %** Elementary Macros for Math *****
877 %*****
878 \ifmth@
879 %** General Notation *****

\defeq, \seteq ...
880 \DeclareRobustCommand{\defeq}
881 {\@ifstar%
882 {\mthlbop{\stackrel{\text{\textup{def}}}{=}}}%
883 {\mthlbop{\triangleq}}}
884 \DeclareRobustCommand{\seteq}
885 {\@ifstar{\mthlbop{\Coloneqq}}{\mthlbop{\coloneqq}}}

886 %%*****

\limp,
887 \DeclareRobustCommand{\limp}
888 {\mthlbop{\rightarrow}}

\lcoimp,
889 \DeclareRobustCommand{\lcoimp}
890 {\mthlbop{\leftrightharpoonup}}

891 %%*****

\implies,
892 \DeclareRobustCommand{\implies}
893 {\mthlrel{\rightarrow}}
894 \DeclareRobustCommand{\notimplies}
895 {\mthlrel{\not\rightarrow}}

\implied,
896 \DeclareRobustCommand{\implied}
897 {\mthlrel{\Leftarrow}}
898 \DeclareRobustCommand{\notimplied}
899 {\mthlrel{\not\Leftarrow}}

\coimplies,
900 \DeclareRobustCommand{\coimplies}
901 {\mthlrel{\Leftrightarrow}}
902 \DeclareRobustCommand{\notcoimplies}
903 {\mthlrel{\not\Leftrightarrow}}

904 %%*****

```

```

\cmodels,
 905 \DeclareRobustCommand{\cmodels}
 906 {\mthlrel{\models}}
 907 \DeclareRobustCommand{\notcmodels}
 908 {\mthlrel{\not\models}}

\cequiv,
 909 \DeclareRobustCommand{\cequiv}
 910 {\mthlrel{\equiv}}
 911 \DeclareRobustCommand{\notcequiv}
 912 {\mthlrel{\not\equiv}}

 913 %%*****%

\denot ...
 914 \DeclareRobustCommand{\denot}
 915 {\@ifstar{\@sdenot}{\@denot}}
 916 \DeclareRobustCommand{\@denot}[1]
 917 {\mth{\argmid{\left\llbracket}{\#1}{\right\rrbracket}}}
 918 \DeclareRobustCommand{\@sdenot}[1]
 919 {\mth*{\argmid{\llbracket}{\#1}{\rrbracket}}}

 920 %%*****%

\dual, \adj,
 921 \DeclareRobustCommand{\dual}[1]
 922 {\mth{\overline{\#1}}}
 923 \DeclareRobustCommand{\adj}[1]
 924 {\mth{\mathring{\#1}}}
 925 \DeclareRobustCommand{\der}[1]
 926 {\mth{\widehat{\#1}}}
 927 \DeclareRobustCommand{\trn}[1]
 928 {\mth{\widetilde{\#1}}}

\vec ...
 929 \DeclareRobustCommand{\vec}
 930 {\@ifstar{\@svec}{\@vec}}
 931 \DeclareRobustCommand{\@vec}[1]
 932 {\mth{\mathaccent"017E{\#1}}}
 933 \DeclareRobustCommand{\@svec}[1]
 934 {\mth{\overline{\#1}}}

 935 %%*****%

\enumeration,
 936 \varcmd{enumeration}{\mth*}{\{,\}{}}
 937 \varcmd{enumerationx}{\mth*}{\{;\}{}}

\sequence,
 938 \DeclareRobustCommand{\sequence}
 939 {\@ifstar{\@ssequence}{\@sequence}}
 940 \varcmd{@sequence}{\mth}{\left[\{,\}{\right]}}
 941 \varcmd{@ssequence}{\mth*}{[\{,\}]}
 942 \DeclareRobustCommand{\sequencel}
 943 {\@ifstar{\@ssequencel}{\@sequencel}}
 944 \varcmd{@sequencel}{\mth}{\left[\{,\}{\right.]}
 945 \varcmd{@ssequencel}{\mth*}{[\{,\}]}
 946 \DeclareRobustCommand{\sequencer}
 947 {\@ifstar{\@ssequencer}{\@sequencer}}
 948 \varcmd{@sequencer}{\mth}{\left.\{,\}{\right]}}
 949 \varcmd{@ssequencer}{\mth*}{\{,\}]}
 950 \DeclareRobustCommand{\sequencex}
 951 {\@ifstar{\@ssequencex}{\@sequencex}}

```

```

952 \varcmd{@sequencex}{\mth}{\left[]{};\{\right[]{}{}
953 \varcmd{@ssequencex}{\mth*}{[]{};\{\right[]{}{}
954 \DeclareRobustCommand{\sequencexl}
955 {\@ifstar{\@ssequencexl}{\@sequencexl}}
956 \varcmd{@sequencexl}{\mth}{\left[]{};\{\right.}{}
957 \varcmd{@ssequencexl}{\mth*}{[]{};\{\right.}{}
958 \DeclareRobustCommand{\sequencexr}
959 {\@ifstar{\@ssequencexr}{\@sequencexr}}
960 \varcmd{@sequencexr}{\mth}{\left.}{};\{\right[]{}{}
961 \varcmd{@ssequencexr}{\mth*}{[]{};\{\right[]{}{}

```

\tuple, ... ..

```

962 \DeclareRobustCommand{\tuple}
963 {\@ifstar{\@stuple}{\@tuple}}
964 \varcmd{@tuple}{\mth}{\left\langle{}{};\{\right\rangle{}{}
965 \varcmd{@stuple}{\mth*}{\langle{}{};\{\rangle{}{}
966 \DeclareRobustCommand{\tuplel}
967 {\@ifstar{\@stupl}{\@tuplel}}
968 \varcmd{@tuplel}{\mth}{\left\langle{}{};\{\right.}{}
969 \varcmd{@stupl}{\mth*}{\langle{}{};\{\right.}{}
970 \DeclareRobustCommand{\tupler}
971 {\@ifstar{\@stupler}{\@tupler}}
972 \varcmd{@tupler}{\mth}{\left.}{};\{\right\rangle{}{}
973 \varcmd{@stupler}{\mth*}{\langle{}{};\{\rangle{}{}
974 \DeclareRobustCommand{\tuplex}
975 {\@ifstar{\@stuplex}{\@tuplex}}
976 \varcmd{@tuplex}{\mth}{\left\langle{}{};\{\right\rangle{}{}
977 \varcmd{@stuplex}{\mth*}{\langle{}{};\{\rangle{}{}
978 \DeclareRobustCommand{\tuplexl}
979 {\@ifstar{\@stuplexl}{\@tuplexl}}
980 \varcmd{@tuplexl}{\mth}{\left\langle{}{};\{\right.}{}
981 \varcmd{@stuplexl}{\mth*}{\langle{}{};\{\right.}{}
982 \DeclareRobustCommand{\tuplexr}
983 {\@ifstar{\@stuplexr}{\@tuplexr}}
984 \varcmd{@tuplexr}{\mth}{\left.}{};\{\right\rangle{}{}
985 \varcmd{@stuplexr}{\mth*}{\langle{}{};\{\rangle{}{}

986 %** Sets *****%

```

\set, ... ..

```

987 \DeclareRobustCommand{\set}
988 {\@ifstar{\@sset{\vert}}{\@set{\vert}}}
989 \DeclareRobustCommand{\setx}
990 {\@ifstar{\@sset{:}}{\@set{.!\:}}}
991 \DeclareRobustCommand{\@set}[3]
992 {\mth{\argmid{\left\lbrace}{\argsep{#2}{\,\middle#1\,}{#3}}{\right\rbrace}}}
993 \DeclareRobustCommand{\@sset}[3]
994 {\mth*{\argmid{\lbrace}{\argsep{#2}{\,\#1\,}{#3}}{\rbrace}}}
995 \DeclareRobustCommand{\setl}
996 {\@ifstar{\@ssetl{\vert}}{\@setl{\vert}}}
997 \DeclareRobustCommand{\setlx}
998 {\@ifstar{\@ssetl{:}}{\@setl{.!\:!\:}}}
999 \DeclareRobustCommand{\@setl}[2]
1000 {\mth{\argmid{\left\lbrace}{#2}{\,\right#1!}}}
1001 \DeclareRobustCommand{\@ssetl}[2]
1002 {\mth*{\argmid{\lbrace}{#2}{\,\#1!}}}
1003 \DeclareRobustCommand{\setr}
1004 {\@ifstar{\@ssetr}{\@setr}}
1005 \DeclareRobustCommand{\setrx}
1006 {\@ifstar{\@ssetr}{\@setr}}
1007 \DeclareRobustCommand{\@setr}[1]
1008 {\mth{\argmid{\left.}{}{#1}{\right\rbrace}}}
1009 \DeclareRobustCommand{\@ssetr}[1]
1010 {\mth*{\argmid{}{}{#1}{\rbrace}}}

```

```

\card ...
1011 \DeclareRobustCommand{\card}
1012 {\@ifstar{\@scard}{\@card}}
1013 \DeclareRobustCommand{\@card}[1]
1014 {\mth{\argmid{\left\lvert}{\right\lvert}}{#1}{\right\lvert}}}
1015 \DeclareRobustCommand{\@scard}[1]
1016 {\mth*{\argmid{\left\lvert}{\right\lvert}}{#1}{\right\lvert}}}

\pow ...
1017 \DeclareRobustCommand{\pow}[1]
1018 {\mth{2^{\defval{#1}{\cdot}}}}

1019 %%** Relations *****%%

\emptyrel ...
1020 \DeclareRobustCommand{\emptyrel}
1021 {\mth{\varnothing}}

1022 %%*****%%

\dom, \cod,
1023 \usrmth{\dom}{\}{argfun}
1024 \usrmth{\cod}{\}{argfun}
1025 \usrmth{\rng}{\}{argfun}
1026 \usrmth{\img}{\}{argfun}

1027 %%*****%%

\prj ...
1028 \DeclareRobustCommand{\prj}
1029 {\mthlbop{\downarrow}}

\rst ...
1030 \DeclareRobustCommand{\rst}
1031 {\mthlbop{\upharpoonright}}

\cmp ...
1032 \DeclareRobustCommand{\cmp}
1033 {\mthlbop{\circ}}

1034 %%** Functions *****%%

\emptyfun ...
1035 \DeclareRobustCommand{\emptyfun}
1036 {\mth{\varnothing}}

1037 %%*****%%

\pto, \pmapsto ...
1038 \DeclareMathOperator{\pto}
1039 {\ensuremath{\rightharpoonup}}
1040 \DeclareMathOperator{\pmapsto}
1041 {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize\llcorner}}}%
1042 \kern-1.5ex\rightharpoonup}}

1043 %%*****%%

\fix, \ifp,
1044 \usrmth{\fix}{\}{fun}
1045 \usrmth{\ifp}{\}{fun}
1046 \usrmth{\lfp}{\}{fun}
1047 \usrmth{\gfp}{\}{fun}

1048 %%*****%%

```

```

\Aomega, \AOmega ...
1049 \usrmth{Aomega}{-}{argset}[\omega]
1050 \usrmth{AOmega}{-}{argset}[\Omega]

\Atheta, \ATheta ...
1051 \usrmth{Atheta}{-}{argset}[\theta]
1052 \usrmth{ATheta}{-}{argset}[\Theta]

\Aomicron,
1053 \usrmth{Aomicron}{-}{argset}[\omicron]
1054 \usrmth{AOmicron}{-}{argset}[\Omicron]

1055 %%** Numbers *****%%

\SetB ...
1056 \DeclareRobustCommand{\SetB}
1057 {\mthset[mathbb]{B}}

\SetF ...
1058 \DeclareRobustCommand{\SetF}
1059 {\mthset[mathbb]{F}}

\SetN,
1060 \DeclareRobustCommand{\SetN}
1061 {\mthset[mathbb]{N}}
1062 \DeclareRobustCommand{\SetNI}[1] []
1063 {\SetN[\infty #1]}

\SetZ,
1064 \DeclareRobustCommand{\SetZ}
1065 {\mthset[mathbb]{Z}}
1066 \DeclareRobustCommand{\SetZI}[1] []
1067 {\SetZ[\pm\infty #1]}
1068 \DeclareRobustCommand{\SetZPI}[1] []
1069 {\SetZ[+\infty #1]}
1070 \DeclareRobustCommand{\SetZNI}[1] []
1071 {\SetZ[-\infty #1]}

\SetQ,
1072 \DeclareRobustCommand{\SetQ}
1073 {\mthset[mathbb]{Q}}
1074 \DeclareRobustCommand{\SetQI}[1] []
1075 {\SetQ[\pm\infty #1]}
1076 \DeclareRobustCommand{\SetQPI}[1] []
1077 {\SetQ[+\infty #1]}
1078 \DeclareRobustCommand{\SetQNI}[1] []
1079 {\SetQ[-\infty #1]}

\SetR,
1080 \DeclareRobustCommand{\SetR}
1081 {\mthset[mathbb]{R}}
1082 \DeclareRobustCommand{\SetRI}[1] []
1083 {\SetR[\pm\infty #1]}
1084 \DeclareRobustCommand{\SetRPI}[1] []
1085 {\SetR[+\infty #1]}
1086 \DeclareRobustCommand{\SetRNI}[1] []
1087 {\SetR[-\infty #1]}

\SetC,
1088 \DeclareRobustCommand{\SetC}
1089 {\mthset[mathbb]{C}}
1090 \DeclareRobustCommand{\SetCI}[1] []
1091 {\SetC[\infty #1]}

```

1092 %%\*\*\*\*\*%

\num, ... ..

```
1093 \DeclareRobustCommand{\num}[1]
1094 {\mth{[#1]}}
1095 \DeclareRobustCommand{\numcc}[2]
1096 {\mth{[\argsep{#1}{,}{#2}]}}
1097 \DeclareRobustCommand{\numco}[2]
1098 {\mth{[\argsep{#1}{,}{#2})]}}
1099 \DeclareRobustCommand{\numoc}[2]
1100 {\mth{(\argsep{#1}{,}{#2})]}}
1101 \DeclareRobustCommand{\numoo}[2]
1102 {\mth{(\argsep{#1}{,}{#2})}}}
```

1103 %%\*\*\*\*\*%

\abs, \norm ...

```
1104 \DeclareRobustCommand{\abs}
1105 {\@ifstar{\@sabs}{\@abs}}
1106 \DeclareRobustCommand{\@abs}[1]
1107 {\mth{\argmid{\left\lvert}{#1}{\right\rvert}}}
1108 \DeclareRobustCommand{\@sabs}[1]
1109 {\mth*{\argmid{\lvert}{#1}{\rvert}}}
1110 \DeclareRobustCommand{\norm}
1111 {\@ifstar{\@snorm}{\@norm}}
1112 \DeclareRobustCommand{\@norm}[1]
1113 {\mth{\argmid{\left\lVert}{#1}{\right\rVert}}}
1114 \DeclareRobustCommand{\@snorm}[1]
1115 {\mth*{\argmid{\lVert}{#1}{\rVert}}}
```

\floor, \ceil ...

```
1116 \DeclareRobustCommand{\floor}
1117 {\@ifstar{\@sfloor}{\@ffloor}}
1118 \DeclareRobustCommand{\@ffloor}[1]
1119 {\mth{\argmid{\left\lfloor}{#1}{\right\rfloor}}}
1120 \DeclareRobustCommand{\@sfloor}[1]
1121 {\mth*{\argmid{\lfloor}{#1}{\rfloor}}}
1122 \DeclareRobustCommand{\ceil}
1123 {\@ifstar{\@sceil}{\@ceiling}}
1124 \DeclareRobustCommand{\@ceiling}[1]
1125 {\mth{\argmid{\left\lceil}{#1}{\right\rceil}}}
1126 \DeclareRobustCommand{\@sceil}[1]
1127 {\mth*{\argmid{\lceil}{#1}{\rceil}}}
```

1128 %%\*\*\*\*\*%

\arg ...

```
1129 \usrmth{arg}{\fun}
```

\evn, \odd ...

```
1130 \usrmth{evn}{\fun}
1131 \usrmth{odd}{\fun}
```

\bst, ... ..

```
1132 \usrmth{bst}{\fun}
1133 \usrmth{argbst}{\fun}[arg\,bst]
```

\min, \max, ... ..

```
1134 \usrmth{min}{\fun}
1135 \usrmth{max}{\fun}
1136 \usrmth{argmin}{\fun}[arg\,min]
1137 \usrmth{argmax}{\fun}[arg\,max]
```

```

\inf, \sup ...
1138 \usrmth{inf}{-}{fun}
1139 \usrmth{sup}{-}{fun}

1140 %%** Sequences *****%

\emptyseq ...
1141 \DeclareRobustCommand{\emptyseq}
1142 {\mth{\varepsilon}}

\len ...
1143 \DeclareRobustCommand{\len}
1144 {\@ifstar{\@slen}{\@len}}
1145 \DeclareRobustCommandx{\@len}[3][1=, 2=]
1146 {\mth{\argmid{\#1\lvert}{\#3}{\#2\rvert}}}
1147 \DeclareRobustCommand{\@len}[1]
1148 {\mth{\argmid{\left\lvert}{\#1}{\right\rvert}}}
1149 \DeclareRobustCommand{\@slen}[1]
1150 {\mth*{\argmid{\lvert}{\#1}{\rvert}}}

\fst, \lst ...
1151 \usrmth{fst}{-}{argfun}
1152 \usrmth{lst}{-}{argfun}

1153 \fi
1154 %*****%
1155 %*****%
1156 %%** Macros for Computational-Complexity Classes *****%
1157 %*****%
1158 \ifcom@

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

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

 • \defcomcls{CompClass}[NewClass];

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

1159 \newcommandx{\defcomcls}[2][2=]
1160 {\csdef{\#1}{\txtoargcom{\defval{\#2}{\#1}}}}

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

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

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

```

```

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

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

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

• \defcomclsggrp{CompClass}[NewClass];

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

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

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

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

```



```

\ACompClass[sub][sup][arg] = 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)

1161 \newcommandx{\defcomclsggrp}[2][2=]
1162 {\defcomclsggrpsem{#1}{\defval{#2}{#1}}}%
1163 \defcomclsggrpsem{#1}{\defval{#2}{#1}}[Co]}
1164 \newcommandx{\defcomclsgrpsem}[3][3=]
1165 {\defcomclsgrpred{#3#1}{#2}{#3}%
1166 \defcomclsgrpred{#3D#1}{#2}{#3D}%
1167 \defcomclsgrpred{#3N#1}{#2}{#3N}%
1168 \defcomclsgrpred{#3U#1}{#2}{#3U}%
1169 \defcomclsgrpred{#3A#1}{#2}{#3A}}
1170 \newcommandx{\defcomclsgrpred}[3][3=]
1171 {\defcomclsgrpcmd{#1}{#2}{#3}%
1172 \defcomclsgrpcmd{#1E}{#2}{#3}[-easy]%
1173 \defcomclsgrpcmd{#1H}{#2}{#3}[-hard]%
1174 \defcomclsgrpcmd{#1C}{#2}{#3}[-complete]}%
1175 \newcommandx{\defcomclsgrpcmd}[4][3=, 4=]
1176 {\csdef{#1}{\txttoargcom{#3#2#4}}}%

```

\defcomhrc ... to do!

- \defcomhrc{CompHierarchy};  
CompHierarchy[sub][sup][par] = COMPHIERARCHY<sup>SUB</sup>[PAR]
- \defcomhrc{CompHierarchy}[NewHierarchy];  
CompHierarchy[sub][sup][par] = NEWHIERARCHY<sup>SUB</sup>[PAR]

```

1177 \newcommandx{\defcomhrc}[2][2=]
1178 {\csdef{#1}{\txttoparcom{\defval{#2}{#1}}}}
1179 %%%

```

\Easy, \Hard, ...

```

1180 \cmdtxtcom{Easy}
1181 \cmdtxtcom{Hard}
1182 \cmdtxtcom{Complete}
1183 %%%

```

\FPT, ...

```

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

1184 \defcomcls{FPT}
1185 \defcomcls{FPLin}[FPL]
1186 \defcomcls{FPQdr}[FPQ]
1187 \defcomcls{FPCub}[FPC]
1188 %%%

```

\Time, ...

- \Time[sub][sup][arg] = TIME<sup>SUB</sup>(ARG)
- \TimeE[sub][sup][arg] = TIME-EASY<sup>SUB</sup>(ARG)
- \TimeH[sub][sup][arg] = TIME-HARD<sup>SUB</sup>(ARG)
- \TimeC[sub][sup][arg] = TIME-COMPLETE<sup>SUB</sup>(ARG)



\LogSpace, ...

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

1192 \defcomclsgrp{LogSpace}

\PTime, ...

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

1193 \defcomclsgrp{PTime}

\PSpace, ...

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





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

```

1207 \defcomhrc{ULH}{\mth{\Pi}}
1208 \defcomhrc{UBH}{\mth[mathbf]{\Pi}}

1209 \fi
1210 %%*****%
1211 %%*****%
1212 %** Macros for Graphs *****%
1213 %%*****%
1214 \ifgrp@
1215 %** Syntax *****%

```

\GrpName, ... ..

```

1216 \newcommand{\grpname}{G}
1217 \usrmthlatupp{Grp}{Name}{name}[\grpname]

```

\VerSet, ... ..

```

1218 \newcommand{\versym}{v}
1219 \newcommand{\verset}{V}
1220 \cmdmthsetext{Ver}[\verset][\versym]
1221 \cmdmthsymelm{iver}[\versym_{I}]
1222 \cmdmthsymelm{fver}[\versym_{F}]

```

\EdgRel ... ..

```

1223 \newcommand{\edgrel}{E}
1224 \cmdmthrel{Edg}[\edgrel]

```

```

1225 %** Semantics *****%

```

\PthSet, \pthFun ... ..

```

1226 \newcommand{\pthsym}{\pi}
1227 \newcommand{\pthset}{Pth}
1228 \cmdmthsetext{Pth}[\pthset][\pthsym]
1229 \usrmth{path}{-}{argfun}

```

\pre, \suc ... ..

```

1230 \usrmth{pre}{-}{oargfun}
1231 \usrmth{suc}{-}{oargfun}

```

```

1232 \fi
1233 %%*****%
1234 %%*****%
1235 %** Macros for Games *****%
1236 %%*****%
1237 \ifgam@
1238 %** Logic Games *****%

```

\SATG, ... ..

```

1239 %% Satisfiability Games
1240 \cmdtxttoparname{SATG}[Sat]
1241
1242 %% Validity Games
1243 \cmdtxttoparname{VALG}[Val]
1244
1245 %% Evaluation Games
1246 \cmdtxttoparname{EVLG}[Evl]
1247
1248 %% Synthesis Games
1249 \cmdtxttoparname{SYNG}[Syn]
1250
1251 %% Model-Checking Games

```

```

1252 \cmdtxttoparname{MCG}[MC]
1253
1254 %% Ehrenfeucht-Fraisse Games
1255 \cmdtxttoparname{EFG}[EF]

1256 %** Syntax *****%
```

\PlrSym, \OppSym ...

```

1257 \newcommand{\plrSym}{E}
1258 \cmdmthSym{Plr}[\plrSym]
1259 \newcommand{\oppSym}{A}
1260 \cmdmthSym{Opp}[\oppSym]
```

\ArenaName, ...

```

1261 \newcommand{\arenaName}{A}
1262 \usrmthlatupp{Arena}{Name}{name}[\arenaName]
```

\PosSet, ...

```

1263 \newcommand{\posSym}{v}
1264 \newcommand{\posSet}{Ps}
1265 \cmdmthSetText{Pos}[\posSet][\posSym]
1266 \cmdmthSymelm{ipos}[\posSym_{I}]
1267 \cmdmthSymelm{fpos}[\posSym_{F}]
1268 \cmdmthSet{PPos}[\posSet_{\PlrSym}]
1269 \cmdmthSymelm{ppos}[\posSym_{\PlrSym}]
1270 \cmdmthSet{OPos}[\posSet_{\OppSym}]
1271 \cmdmthSymelm{opos}[\posSym_{\OppSym}]
```

\PlrFun ...

```

1272 \newcommand{\plrFun}{pl}
1273 \cmdmthFun{plr}[\plrFun]
```

\MovRel ...

```

1274 \newcommand{\movRel}{Mv}
1275 \cmdmthRel{Mov}[\movRel]
```

\GameName, ...

```

1276 \newcommand{\gameName}{\Game}
1277 \usrmthlatupp{Game}{Name}{name}[\gameName]
```

\WinSet ...

```

1278 \newcommand{\winSet}{Wn}
1279 \cmdmthSet{Win}[\winSet]
```

\ObsSet, \obsFun ...

```

1280 \newcommand{\obsSet}{Ob}
1281 \cmdmthSet{Obs}[\obsSet]
1282 \cmdmthFun{obs}
```

```

1283 %** Semantics *****%
```

\HstSet, ...

```

1284 \newcommand{\hstSym}{\varpi}
1285 \newcommand{\hstSet}{Hst}
1286 \cmdmthSetText{Hst}[\hstSet][\hstSym]
1287 \cmdmthSet{PHst}[\hstSet_{\PlrSym}]
1288 \cmdmthSymelm{phst}[\hstSym_{\PlrSym}]
1289 \cmdmthSet{OHst}[\hstSet_{\OppSym}]
1290 \cmdmthSymelm{ohst}[\hstSym_{\OppSym}]
1291 \usrmth{play}{\argFun}
```

```

\PlaySet, \playFun ...
1292 \newcommand{\playsym}{\pi}
1293 \newcommand{\playset}{Play}
1294 \cmdmthsetext{Play}[\playset][\playsym]
1295 \usrmth{hst}{-}{oargfun}

\StrSet,
1296 \newcommand{\strsym}{\sigma}
1297 \newcommand{\strset}{Str}
1298 \cmdmthsetext{Str}[\strset][\strsym]
1299 \cmdmthset{PStr}[\strset_{\PlrSym}]
1300 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1301 \cmdmthset{OStr}[\strset_{\OppSym}]
1302 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1303 \newcommand{\prfsym}{\xi}
1304 \newcommand{\prfset}{Prf}
1305 \cmdmthsetext{Prf}[\prfset][\prfsym]

\ent, \esc ...
1306 \usrmth{ent}{-}{oargfun}
1307 \usrmth{esc}{-}{oargfun}

\int, \out ...
1308 \usrmth{int}{-}{oargfun}
1309 \usrmth{out}{-}{oargfun}

\atr, \rch ...
1310 \usrmth{atr}{-}{oargfun}
1311 \usrmth{rch}{-}{oargfun}

\lift ...
1312 \usrmth{lift}{-}{oargfun}

\sol ...
1313 \usrmth{sol}{-}{oargfun}

1314 %%** Qualitative Games on Graph *****%%

\BG,
1315 %% Buchi Games
1316 \cmdtxttoparname{BG}
1317
1318 %% Co-Buchi Games
1319 \cmdtxttoparname{CG}
1320
1321 %% Parity Games
1322 \cmdtxttoparname{PG}
1323
1324 %% Rabin Games
1325 \cmdtxttoparname{RG}
1326
1327 %% Streett Games
1328 \cmdtxttoparname{SG}
1329
1330 %% Muller Games
1331 \cmdtxttoparname{MG}

1332 %%** Syntax *****%%

```



```

\Evnsym, \Oddsym ...
1333 \newcommand{\evnsym}{0}
1334 \cmdmthsym{Evn}[\evnsym]
1335 \newcommand{\oddsym}{1}
1336 \cmdmthsym{Odd}[\oddsym]

\PrtSet, \prtFun ...
1337 \newcommand{\prtsym}{p}
1338 \newcommand{\prtset}{Pr}
1339 \cmdmthsetext{Prt}[\prtset][\prtsym]
1340 \cmdmthfun{prt}{pr}

1341 %** Semantics *****%%
...
1342 %** Quantitative Games on Graph *****%%

\EG,
1343 % Energy Games
1344 \cmdtxtoparname{EG}
1345
1346 % Mean-Payoff Games
1347 \cmdtxtoparname{MPG}
1348
1349 % Discounted-Payoff Games
1350 \cmdtxtoparname{DPG}

1351 %** Syntax *****%%

\MaxSym, \MinSym ...
1352 \newcommand{\maxsym}{\oplus}
1353 \cmdmthsym{Max}[\maxsym]
1354 \newcommand{\minsym}{\boxminus}
1355 \cmdmthsym{Min}[\minsym]

\WghSet, \wghFun ...
1356 \newcommand{\wghsym}{w}
1357 \newcommand{\wghset}{Wg}
1358 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1359 \cmdmthfun{wgh}{wg}

1360 %** Semantics *****%%
...
1361 \fi
1362 %*****%%
1363 %*****%%
1364 %** Macros for Logics *****%%
1365 %*****%%
1366 \iflog@
1367 %** Propositional Logics *****%%

\BF, \QBF,
1368 % Boolean Formulae
1369 \cmdtxtoparname{BF}
1370
1371 % Quantified Boolean Formulae
1372 \DeclareRobustCommand{\QBF}
1373 {\textname{Q}\BF}
1374 \DeclareRobustCommand{\EBF}
1375 {\ensuremath{\exists}\BF}
1376 \DeclareRobustCommand{\UBF}
1377 {\ensuremath{\forall}\BF}

```

1378 %\*\* Syntax \*\*\*\*%

```

\LogSig,
1379 \newcommand{\logsig}{L}
1380 \usrmth{Log}{Sig}{sig}[\logsig]

\Tt, \Ff ...
1381 \newcommand{\ttsym}{\top}
1382 \usrmth{Tt}{}{sym}[\ttsym]
1383 \newcommand{\ffsym}{\bot}
1384 \usrmth{Ff}{}{sym}[\ffsym]

\LNeg, \LNot ...
1385 \newcommand{\lnegsym}{\neg}
1386 \usrmth{LNeg}{}{luop}[\lnegsym]
1387 \newcommand{\lnotsym}{\sim}
1388 \usrmth{LNot}{}{luop}[\lnotsym]

\LCon, \LDis ...
1389 \newcommand{\lconsym}{\land}
1390 \usrmth{LCon}{}{lbop}[\lconsym]
1391 \newcommand{\ldissym}{\lor}
1392 \usrmth{LDis}{}{lbop}[\ldissym]

\LImp, \LCoi ...
1393 \newcommand{\limpsym}{\rightarrow}
1394 \usrmth{LImp}{}{lbop}[\limpsym]
1395 \newcommand{\lcoisym}{\leftrightarrow}
1396 \usrmth{LCoi}{}{lbop}[\lcoisym]

\LExs, \LAll ...
1397 \newcommand{\lexssym}{\exists}
1398 \usrmth{LExs}{}{luop}[\lexssym]
1399 \newcommand{\lallsym}{\forall}
1400 \usrmth{LAll}{}{luop}[\lallsym]

\APSet,
1401 \newcommand{\apsym}{p}
1402 \newcommand{\apset}{AP}
1403 \cmdmthsetext{AP}[\apset][\apsym]
1404 \usrmth{ap}{}{argfun}

\sub ...
1405 \usrmth{sub}{}{argfun}

\Cnt, \Qnt, \Sym ...
1406 \usrmth{Cnt}{}{sym}[C]
1407 \usrmth{Qnt}{}{sym}[Q]
1408 \usrmth{Sym}{}{sym}[\odot]

\QAE, \QEA ...
1409 \usrmth{QAE}{}{sym}[\forall\exists]
1410 \usrmth{QEA}{}{sym}[\exists\forall]

\QntSet,
1411 \newcommand{\qntsym}{\wp}
1412 \newcommand{\qntset}{Qn}
1413 \cmdmthsetext{Qnt}[\qntset][\qntsym]

\free, \bound ...
1414 \usrmth{free}{}{argfun}
1415 \usrmth{bound}{}{argfun}

```

```

\dep, \alt ...
1416 \usrmth{dep}{-}{argfun}
1417 \usrmth{alt}{-}{argfun}

\cnf, \dnf,
1418 \cmdtxtabr{cnf}
1419 \cmdtxtabr{dnf}
1420 \cmdtxtabr{pnf}
1421 \cmdtxtabr{nnf}

1422 %** Semantics *****%%

\LogStr,
1423 \newcommand{\logstr}{L}
1424 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet,
1425 \newcommand{\valsym}{\xi}
1426 \newcommand{\valset}{Val}
1427 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet,
1428 \newcommand{\asgsym}{\chi}
1429 \newcommand{\asgset}{Asg}
1430 \cmdmthsetext{Asg}[\asgset][\asgsym]

1431 %** First-Order Logics I *****%%

\FOL,
1432 % First-Order Logic
1433 \cmdtxtoparname{FOL}[Fol]
1434 \cmdtxtoparname{FO}[FO]
1435
1436 % Monadic First-Order Logic
1437 \DeclareRobustCommand{\MFOL}
1438 {\{\txtrname{M}\}\FOL}
1439 \DeclareRobustCommand{\MFO}
1440 {\{\txtrname{M}\}\FO}

1441 %** Syntax *****%%

\VarSig,
1442 \newcommand{\varsig}{V}
1443 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1444 \newcommand{\varsym}{x}
1445 \newcommand{\varset}{Vr}
1446 \cmdmthsetext{Var}[\varset][\varsym]
1447 \usrmth{var}{-}{argfun}[vr]
1448 \usrmth{dim}{-}{argfun}[dm]

\ConSig,
1449 \newcommand{\consig}{C}
1450 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1451 \newcommand{\consym}{c}
1452 \newcommand{\conset}{Cn}
1453 \cmdmthsetext{Con}[\conset][\consym]
1454 \usrmth{con}{-}{argfun}[cn]

\FunSig,
1455 \newcommand{\funsig}{F}
1456 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1457 \newcommand{\funsym}{f}
1458 \newcommand{\funset}{Fn}

```

```

1459 \cmdmthsetext{Fun}[\funset][\funsym]
1460 \usrmth{fun}{-}{argfun}[fn]
1461 \usrmth{art}{-}{argfun}[ar]

\TerSig,
1462 \newcommand{\tersig}{T}
1463 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1464 \newcommand{\tersym}{t}
1465 \newcommand{\terset}{Tr}
1466 \cmdmthsetext{Ter}[\terset][\tersym]
1467 \usrmth{ter}{-}{argfun}

\RelSig,
1468 \newcommand{\relsig}{R}
1469 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1470 \newcommand{\relsym}{r}
1471 \newcommand{\relset}{Rl}
1472 \cmdmthsetext{Rel}[\relset][\relsym]
1473 \usrmth{rel}{-}{argfun}[rl]

\skm ...
1474 \usrmth{skm}{-}{argfun}

1475 %** Semantics *****%

\ConStr,
1476 \newcommand{\constr}{C}
1477 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr,
1478 \newcommand{\funstr}{F}
1479 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr,
1480 \newcommand{\terstr}{T}
1481 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr,
1482 \newcommand{\relstr}{R}
1483 \usrmthlatupp{Rel}{Str}{str}[\relstr]

1484 %** First-Order Logics II *****%

\DF, \IF,
1485 % Dependence-Friendly Logic
1486 \cmdtxtoparname{DF}
1487
1488 % Independence-Friendly Logic
1489 \cmdtxtoparname{IF}
1490
1491 % Dependence/Independence-Friendly Logic
1492 \cmdtxtoparname{DIF}
1493
1494 % Dependence Logic
1495 \cmdtxtoparname{DL}
1496
1497 % Team Logic
1498 \cmdtxtoparname{TL}
1499
1500 % Alternating Dependence-Friendly Logic
1501 \cmdtxtoparname{ADF}
1502
1503 % Alternating Independence-Friendly Logic

```

```

1504 \cmdtxtoparname{AIF}
1505
1506 % Alternating Dependence/Independence-Friendly Logic
1507 \cmdtxtoparname{ADIF}

...

1508 %%** Syntax *****%%

\LEExs, \LAA11 ...
1509 \newcommand{\leexssym}{\Sigma}
1510 \usrmth{LEExs}{\luop}{\leexssym}
1511 \newcommand{\laallsym}{\Pi}
1512 \usrmth{LAA11}{\luop}{\laallsym}

1513 %%** Semantics *****%%

...

1514 %%** Second-Order Logics I *****%%

\SOL,
1515 % Second-Order Logic
1516 \cmdtxtoparname{SOL}[Sol]
1517 \cmdtxtoparname{SO}
1518
1519 % Weak Second-Order Logic
1520 \DeclareRobustCommand{\WSOL}
1521 {\{\txtrname{W}\}\SOL}
1522 \DeclareRobustCommand{\WSO}
1523 {\{\txtrname{W}\}\SO}
1524
1525 % coWeak Second-Order Logic
1526 \DeclareRobustCommand{\coWSOL}
1527 {\{\txtrname{coW}\}\SOL}
1528 \DeclareRobustCommand{\coWSO}
1529 {\{\txtrname{coW}\}\SO}
1530
1531 % Monadic Second-Order Logic
1532 \DeclareRobustCommand{\MSOL}
1533 {\{\txtrname{M}\}\SOL}
1534 \DeclareRobustCommand{\MSO}
1535 {\{\txtrname{M}\}\SO}
1536
1537 % Weak Monadic Second-Order Logic
1538 \DeclareRobustCommand{\WMSOL}
1539 {\{\txtrname{W}\}\MSOL}
1540 \DeclareRobustCommand{\WMSO}
1541 {\{\txtrname{W}\}\MSO}
1542
1543 % coWeak Monadic Second-Order Logic
1544 \DeclareRobustCommand{\coWMSOL}
1545 {\{\txtrname{coW}\}\MSOL}
1546 \DeclareRobustCommand{\coWMSO}
1547 {\{\txtrname{coW}\}\MSO}

1548 %%** Syntax *****%%

\FVarSet,
1549 \newcommand{\fvarsym}{x}
1550 \newcommand{\fvarset}{FVr}
1551 \cmdmthsetext{FVar}[\fvarset][\fvarsym]

\SVarSet,
1552 \newcommand{\svarsym}{X}
1553 \newcommand{\svarset}{SVr}
1554 \cmdmthsetext{SVar}[\svarset][\svarsym]

```

```

1555 %%** Semantics *****%%
...
1556 %%** Second-Order Logics II *****%%

\TL, \PL,
1557 % Tree Logic
1558 \cmdtxttoparname{TL}
1559
1560 % Weak Tree Logic
1561 \DeclareRobustCommand{\WTL}
1562 {\txtname{W}}\TL}
1563
1564 % coWeak Tree Logic
1565 \DeclareRobustCommand{\coWTL}
1566 {\txtname{coW}}\TL}
1567
1568 % Monadic Tree Logic
1569 \DeclareRobustCommand{\MTL}
1570 {\txtname{M}}\TL}
1571
1572 % Weak Monadic Tree Logic
1573 \DeclareRobustCommand{\WMTL}
1574 {\txtname{W}}\MTL}
1575
1576 % coWeak Monadic Tree Logic
1577 \DeclareRobustCommand{\coWMTL}
1578 {\txtname{coW}}\MTL}
1579
1580 % Path Logic
1581 \cmdtxttoparname{PL}
1582
1583 % Weak Path Logic
1584 \DeclareRobustCommand{\WPL}
1585 {\txtname{W}}\PL}
1586
1587 % coWeak Path Logic
1588 \DeclareRobustCommand{\coWPL}
1589 {\txtname{coW}}\PL}
1590
1591 % Monadic Path Logic
1592 \DeclareRobustCommand{\MPL}
1593 {\txtname{M}}\PL}
1594
1595 % Weak Monadic Path Logic
1596 \DeclareRobustCommand{\WMPL}
1597 {\txtname{W}}\MPL}
1598
1599 % coWeak Monadic Path Logic
1600 \DeclareRobustCommand{\coWMPL}
1601 {\txtname{coW}}\MPL}

1602 %%** Syntax *****%%
...
1603 %%** Semantics *****%%
...
1604 %%** Modal Logics I *****%%

\ML, \GML,
1605 % Modal Logic
1606 \cmdtxttoparname{ML}
1607

```

```

1608 % Graded Modal Logic
1609 \DeclareRobustCommand{\GML}
1610 {\textname{G}}\ML}
1611
1612 % Quantified Modal Logic
1613 \DeclareRobustCommand{\QML}
1614 {\textname{Q}}\ML}
1615 \DeclareRobustCommand{\EML}
1616 {\ensuremath{\exists}\ML}
1617 \DeclareRobustCommand{\UML}
1618 {\ensuremath{\forall}\ML}

1619 %** Syntax ****

```

\Opr ...

```
1620 \usrmth{Opr}{\sym}[Op]
```

\DMod, \BMod ...

```
1621 \usrmth{DMod}{\sym}[\Diamond]
```

```
1622 \usrmth{BMod}{\sym}[\Box]
```

\Exs, \All ...

```

1623 \DeclareRobustCommand{\Exs}
1624 {\@ifstar{\@sexs}{\@exs}}
1625 \DeclareRobustCommand{\@sexs}[1]
1626 {\mth{DMod}[#1]}
1627 \DeclareRobustCommand{\@exs}[1]
1628 {\mth{defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1629 \DeclareRobustCommand{\All}
1630 {\@ifstar{\@sall}{\@all}}
1631 \DeclareRobustCommand{\@sall}[1]
1632 {\mth{BMod}[#1]}
1633 \DeclareRobustCommand{\@all}[1]
1634 {\mth{defval{\argmid{\left}[#1]{\right}}{\BMod}}}

```

```
1635 %** Semantics ****
```

\KrpStr, ...

```

1636 \newcommand{\krpstr}{K}
1637 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

```

\WrlSet, ...

```

1638 \newcommand{\wrlsym}{w}
1639 \newcommand{\wrlset}{W}
1640 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
1641 \cmdmthsymelm{iwrl}[\wrlsym_I]

```

\AccRel, \TrnRel ...

```

1642 \newcommand{\accsym}{R}
1643 \cmdmthrel{Acc}[\accsym]
1644 \cmdmthrel{Trn}[\accsym]

```

\labFun ...

```

1645 \newcommand{\labsym}{\lambda}
1646 \cmdmthfun{lab}[\labsym]

```

\PthSet, ...

```

1647 \providecommand{\pthsym}{\pi}
1648 \providecommand{\pthset}{Pth}
1649 \cmdmthsetext{Pth}[\pthset][\pthsym]
1650 \usrmth{path}{\argfun}

```

```
1651 %** Modal Logics II ****
```

\MC, \GMC, ... ..

```
1652 % Mu Calculus
1653 \cmdtxttoparname{MC}[\ensuremath{\mu}-Calculus]
1654
1655 % Graded Mu Calculus
1656 \DeclareRobustCommand{\GMC}
1657 {\txtname{G}}\MC}
1658
1659 % Quantified Mu Calculus
1660 \DeclareRobustCommand{\QMC}
1661 {\txtname{Q}}\MC}
1662 \DeclareRobustCommand{\EMC}
1663 {\ensuremath{\exists}\MC}
1664 \DeclareRobustCommand{\UMC}
1665 {\ensuremath{\forall}\MC}
1666
1667 % Alternation-Free Mu Calculus
1668 \DeclareRobustCommand{\AFMC}
1669 {\txtname{AF}}\MC}
1670
1671 % Alternation-Free Graded Mu Calculus
1672 \DeclareRobustCommand{\AFGMC}
1673 {\txtname{AF}}\GMC}
1674
1675 % Quantified Alternation-Free Mu Calculus
1676 \DeclareRobustCommand{\QAFMC}
1677 {\txtname{Q}}\AFMC}
1678 \DeclareRobustCommand{\EAFMC}
1679 {\ensuremath{\exists}\AFMC}
1680 \DeclareRobustCommand{\UAFMC}
1681 {\ensuremath{\forall}\AFMC}
1682
1683 %** Syntax *****%
...
1684 %** Semantics *****%
...
1685 %** Temporal Logics I *****%
```

\PTL, \LTL, ... ..

```
1686 % Propositional Temporal Logic
1687 \cmdtxttoparname{PTL}
1688
1689 % Quantified Propositional Temporal Logic
1690 \DeclareRobustCommand{\QPTL}
1691 {\txtname{Q}}\PTL}
1692 \DeclareRobustCommand{\EPTL}
1693 {\ensuremath{\exists}\PTL}
1694 \DeclareRobustCommand{\UPTL}
1695 {\ensuremath{\forall}\PTL}
1696
1697 % Linear Temporal Logic
1698 \cmdtxttoparname{LTL}
1699
1700 % Quantified Linear Temporal Logic
1701 \DeclareRobustCommand{\QLTL}
1702 {\txtname{Q}}\LTL}
1703 \DeclareRobustCommand{\ELTL}
1704 {\ensuremath{\exists}\LTL}
1705 \DeclareRobustCommand{\ULTL}
1706 {\ensuremath{\forall}\LTL}
```



1707 %%\*\* Syntax \*\*\*\*\*%

\X, ... ..

1708 \usrmth{X}{-}{sym}[X\,]  
 1709 \usrmth{F}{-}{sym}[F\,]  
 1710 \usrmth{G}{-}{sym}[G\,]  
 1711 \usrmth{U}{-}{sym}[\,U\,]  
 1712 \usrmth{R}{-}{sym}[\,R\,]

\Y, ... ..

1713 \usrmth{Y}{-}{sym}[G\,]  
 1714 \usrmth{P}{-}{sym}[P\,]\let\SavePilcrow\P  
 1715 \usrmth{H}{-}{sym}[H\,]\let\SaveDoubleAcute\H  
 1716 \usrmth{S}{-}{sym}[\,S\,]\let\SaveSectionSymbol\S  
 1717 \usrmth{B}{-}{sym}[\,B\,]

1718 %%\*\* Semantics \*\*\*\*\*%

...

1719 %%\*\* Temporal Logics II \*\*\*\*\*%

\PDL, \CTL, ... ..

1720  
 1721 % Propositional Dynamic Logic  
 1722 \cmdtxtopname{PDL}  
 1723  
 1724 % Computation Tree Logic  
 1725 \cmdtxtopname{CTL}  
 1726  
 1727 % Weak Computation Tree Logic  
 1728 \DeclareRobustCommand{\WCTL}  
 1729 {\{\txtname{W}\}\CTL}  
 1730  
 1731 % Quantified Computation Tree Logic  
 1732 \DeclareRobustCommand{\QCTL}  
 1733 {\{\txtname{Q}\}\CTL}  
 1734 \DeclareRobustCommand{\ECTL}  
 1735 {\ensuremath{\exists}\CTL}  
 1736 \DeclareRobustCommand{\UCTL}  
 1737 {\ensuremath{\forall}\CTL}  
 1738  
 1739 % Improved Computation Tree Logic  
 1740 \cmdtxtopname{CTLP}[CTL\$~{+}\$]  
 1741  
 1742 % Weak Improved Computation Tree Logic  
 1743 \DeclareRobustCommand{\WCTLP}  
 1744 {\{\txtname{W}\}\CTLP}  
 1745  
 1746 % Quantified Improved Computation Tree Logic  
 1747 \DeclareRobustCommand{\QCTLP}  
 1748 {\{\txtname{Q}\}\CTLP}  
 1749 \DeclareRobustCommand{\ECTLP}  
 1750 {\ensuremath{\exists}\CTLP}  
 1751 \DeclareRobustCommand{\UCTLP}  
 1752 {\ensuremath{\forall}\CTLP}  
 1753  
 1754 % Full Computation Tree Logic  
 1755 \cmdtxtopname{CTLS}[CTL\*]  
 1756  
 1757 % Weak Full Computation Tree Logic  
 1758 \DeclareRobustCommand{\WCTLS}  
 1759 {\{\txtname{W}\}\CTLS}  
 1760  
 1761 % Quantified Full Computation Tree Logic

```

1762 \DeclareRobustCommand{\QCTLs}
1763 {\textname{Q}}\CTLs}
1764 \DeclareRobustCommand{\ECTLs}
1765 {\ensuremath{\exists}\CTLs}
1766 \DeclareRobustCommand{\UCTLs}
1767 {\ensuremath{\forall}\CTLs}

1768 %** Syntax *****%%

\E, \A ...
1769 \usrmth{E}{\sym}
1770 \usrmth{A}{\sym}

1771 %** Semantics *****%%
...
1772 %** Game Logics I *****%%

\ATL,
1773 % Alternating Temporal Logic
1774 \cmdtxtopname{ATL}
1775
1776 % Weak Alternating Tree Logic
1777 \DeclareRobustCommand{\WATL}
1778 {\textname{W}}\ATL}
1779
1780 % Quantified Alternating Temporal Logic
1781 \DeclareRobustCommand{\QATL}
1782 {\textname{Q}}\ATL}
1783 \DeclareRobustCommand{\EATL}
1784 {\ensuremath{\exists}\ATL}
1785 \DeclareRobustCommand{\UATL}
1786 {\ensuremath{\forall}\ATL}
1787
1788 % Improved Alternating Temporal Logic
1789 \cmdtxtopname{ATLP}[ATL$^{+}$]
1790
1791 % Weak Improved Alternating Tree Logic
1792 \DeclareRobustCommand{\WATLP}
1793 {\textname{W}}\ATLP}
1794
1795 % Quantified Improved Alternating Temporal Logic
1796 \DeclareRobustCommand{\QATLP}
1797 {\textname{Q}}\ATLP}
1798 \DeclareRobustCommand{\EATLP}
1799 {\ensuremath{\exists}\ATLP}
1800 \DeclareRobustCommand{\UATLP}
1801 {\ensuremath{\forall}\ATLP}
1802
1803 % Full Alternating Temporal Logic
1804 \cmdtxtopname{ATLS}[ATL*]
1805
1806 % Weak Full Alternating Tree Logic
1807 \DeclareRobustCommand{\WATLS}
1808 {\textname{W}}\ATLS}
1809
1810 % Quantified Full Alternating Temporal Logic
1811 \DeclareRobustCommand{\QATLS}
1812 {\textname{Q}}\ATLS}
1813 \DeclareRobustCommand{\EATLS}
1814 {\ensuremath{\exists}\ATLS}
1815 \DeclareRobustCommand{\UATLS}
1816 {\ensuremath{\forall}\ATLS}

```

```

1817 %** Syntax ****
\EExs, \AA11 ...
1818 \DeclareRobustCommand{\EExs}[1]
1819 {\mth{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1820 \DeclareRobustCommand{\AA11}[1]
1821 {\mth{\argmid{\left[\left[\defval{#1}{\emptyset}]{\right]\right]}}}

1822 %** Semantics ****

\CGS ...
1823 \cmdtxtname{CGS}

\CGSStr,
1824 \newcommand{\cgsstr}{G}
1825 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet,
1826 \newcommand{\agnsym}{a}
1827 \newcommand{\agnset}{Ag}
1828 \cmdmthsettext{Agn}[\agnset][\agnsym]

\ActSet,
1829 \newcommand{\actsym}{c}
1830 \newcommand{\actset}{Ac}
1831 \cmdmthsettext{Act}[\actset][\actsym]

\PosSet,
1832 \providecommand{\possym}{v}
1833 \providecommand{\posset}{Ps}
1834 \cmdmthsettext{Pos}[\posset][\possym]
1835 \cmdmthsymelm{ipos}[\possym_{I}]
1836 \cmdmthsymelm{fpos}[\possym_{F}]
1837 \cmdmthset{PPos}[\posset_{PlrSym}]
1838 \cmdmthsymelm{ppos}[\possym_{PlrSym}]
1839 \cmdmthset{OPos}[\posset_{OppSym}]
1840 \cmdmthsymelm{opos}[\possym_{OppSym}]

\SttSet,
1841 \newcommand{\sttsym}{s}
1842 \newcommand{\sttset}{St}
1843 \cmdmthsettext{Stt}[\sttset][\sttsym]
1844 \cmdmthset{IStt}[\sttset_{I}]
1845 \cmdmthsymelm{istt}[\sttsym_{I}]
1846 \cmdmthset{FStt}[\sttset_{F}]
1847 \cmdmthsymelm{fstt}[\sttsym_{F}]

\DecSet,
1848 \newcommand{\decsym}{d}
1849 \newcommand{\decset}{Dc}
1850 \cmdmthsettext{Dec}[\decset][\decsym]

\movFun, \movRel ...
1851 \newcommand{\movsym}{\tau}
1852 \cmdmthfun{mov}[\movsym]
1853 \cmdmthrel{mov}[\movsym]

\trnFun, \trnRel ...
1854 \newcommand{\trnsym}{\delta}
1855 \cmdmthfun{trn}[\trnsym]
1856 \cmdmthrel{trn}[\trnsym]

```

```

\PrfSet ...
1857 \providecommand{\prfsym}{\xi}
1858 \providecommand{\prfset}{\Prf}
1859 \cmdmthsettext{\Prf}[\prfset][\prfsym]

\HstSet,
1860 \providecommand{\hstsym}{\varpi}
1861 \providecommand{\hstset}{\Hst}
1862 \cmdmthsettext{\Hst}[\hstset][\hstsym]
1863 \cmdmthset{\PHst}[\hstset_{\PlrSym}]
1864 \cmdmthsymelm{\phst}[\hstsym_{\PlrSym}]
1865 \cmdmthset{\OHst}[\hstset_{\OppSym}]
1866 \cmdmthsymelm{\ohst}[\hstsym_{\OppSym}]
1867 \usrmth{\hst}{\}{argfun}

\PlaySet,
1868 \providecommand{\playsym}{\pi}
1869 \providecommand{\playset}{\Play}
1870 \cmdmthsettext{\Play}[\playset][\playsym]
1871 \usrmth{\play}{\}{argfun}

\PlnSet,
1872 \providecommand{\plnsym}{\rho}
1873 \providecommand{\plnset}{\Pln}
1874 \cmdmthsettext{\Pln}[\plnset][\plnsym]
1875 \cmdmthset{\PPln}[\plnset_{\PlrSym}]
1876 \cmdmthsymelm{\pPln}[\plnsym_{\PlrSym}]
1877 \cmdmthset{\OPln}[\plnset_{\OppSym}]
1878 \cmdmthsymelm{\oPln}[\plnsym_{\OppSym}]

\StrSet,
1879 \providecommand{\strsym}{\sigma}
1880 \providecommand{\strset}{\Str}
1881 \cmdmthsettext{\Str}[\strset][\strsym]
1882 \cmdmthset{\PStr}[\strset_{\PlrSym}]
1883 \cmdmthsymelm{\pstr}[\strsym_{\PlrSym}]
1884 \cmdmthset{\OStr}[\strset_{\OppSym}]
1885 \cmdmthsymelm{\ostr}[\strsym_{\OppSym}]

1886 %** Game Logics II *****%

\PL,
1887 % Plan Logic
1888 \cmdtxttoparname{\PL}
1889
1890 \DeclareRobustCommand{\EPL}
1891 {\ensuremath{\exists}\PL}
1892 \DeclareRobustCommand{\UPL}
1893 {\ensuremath{\forall}\PL}
1894
1895 \DeclareRobustCommand{\FPL}
1896 {\{\textname{F}\}\PL}
1897
1898 \DeclareRobustCommand{\EFPL}
1899 {\ensuremath{\exists}\FPL}
1900 \DeclareRobustCommand{\UFPL}
1901 {\ensuremath{\forall}\FPL}
1902
1903 % One-Goal Plan Logic
1904 \DeclareRobustCommandx{\OGPL}[3][1=, 2=, 3=]
1905 {\PL[#1][#2][1g\arglef{,}{#3}]}
1906
1907 \DeclareRobustCommand{\EOGPL}

```

```

1908 {\ensuremath{\exists}\OGPL}
1909 \DeclareRobustCommand{\UOGPL}
1910 {\ensuremath{\forall}\OGPL}
1911
1912 \DeclareRobustCommand{\FOGPL}
1913 {\{\textname{F}\}\OGPL}
1914
1915 \DeclareRobustCommand{\EFOGPL}
1916 {\ensuremath{\exists}\FOGPL}
1917 \DeclareRobustCommand{\UFOGPL}
1918 {\ensuremath{\forall}\FOGPL}
1919
1920 % Conjunctive-Goal Plan Logic
1921 \DeclareRobustCommandx{\CGPL}[3][1=, 2=, 3=]
1922 {\PL[#1][#2][cg\arglef{,}{#3}]}
1923
1924 \DeclareRobustCommand{\ECGPL}
1925 {\ensuremath{\exists}\CGPL}
1926 \DeclareRobustCommand{\UCGPL}
1927 {\ensuremath{\forall}\CGPL}
1928
1929 \DeclareRobustCommand{\FCGPL}
1930 {\{\textname{F}\}\CGPL}
1931
1932 \DeclareRobustCommand{\EFCGPL}
1933 {\ensuremath{\exists}\FCGPL}
1934 \DeclareRobustCommand{\UFCGPL}
1935 {\ensuremath{\forall}\FCGPL}
1936
1937 % Disjunctive-Goal Plan Logic
1938 \DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]
1939 {\PL[#1][#2][dg\arglef{,}{#3}]}
1940
1941 \DeclareRobustCommand{\EDGPL}
1942 {\ensuremath{\exists}\DGPL}
1943 \DeclareRobustCommand{\UDGPL}
1944 {\ensuremath{\forall}\DGPL}
1945
1946 \DeclareRobustCommand{\FDGPL}
1947 {\{\textname{F}\}\DGPL}
1948
1949 \DeclareRobustCommand{\EFDGPL}
1950 {\ensuremath{\exists}\FDGPL}
1951 \DeclareRobustCommand{\UFDGPL}
1952 {\ensuremath{\forall}\FDGPL}
1953
1954 % Alternating-Goal Plan Logic
1955 \DeclareRobustCommandx{\AGPL}[3][1=, 2=, 3=]
1956 {\PL[#1][#2][ag\arglef{,}{#3}]}
1957
1958 \DeclareRobustCommand{\EAGPL}
1959 {\ensuremath{\exists}\AGPL}
1960 \DeclareRobustCommand{\UAGPL}
1961 {\ensuremath{\forall}\AGPL}
1962
1963 \DeclareRobustCommand{\FAGPL}
1964 {\{\textname{F}\}\AGPL}
1965
1966 \DeclareRobustCommand{\EFAGPL}
1967 {\ensuremath{\exists}\FAGPL}
1968 \DeclareRobustCommand{\UFAGPL}
1969 {\ensuremath{\forall}\FAGPL}
1970

```

```

1971 % Extended-Goal Plan Logic
1972 \DeclareRobustCommandx{\EGPL}[3][1=, 2=, 3=]
1973 {\PL[#1][#2][eg\arglef{,}{#3}]}
1974
1975 \DeclareRobustCommand{\EEGPL}
1976 {\ensuremath{\exists}\EGPL}
1977 \DeclareRobustCommand{\UEGPL}
1978 {\ensuremath{\forall}\EGPL}
1979
1980 \DeclareRobustCommand{\FEGPL}
1981 {\{\textrm{F}\}\EGPL}
1982
1983 \DeclareRobustCommand{\EFEGPL}
1984 {\ensuremath{\exists}\FEGPL}
1985 \DeclareRobustCommand{\UFEGPL}
1986 {\ensuremath{\forall}\FEGPL}
1987
1988 % Boolean-Goal Plan Logic
1989 \DeclareRobustCommandx{\BGPL}[3][1=, 2=, 3=]
1990 {\PL[#1][#2][bg\arglef{,}{#3}]}
1991
1992 \DeclareRobustCommand{\EBGPL}
1993 {\ensuremath{\exists}\BGPL}
1994 \DeclareRobustCommand{\UBGPL}
1995 {\ensuremath{\forall}\BGPL}
1996
1997 \DeclareRobustCommand{\FBGPL}
1998 {\{\textrm{F}\}\BGPL}
1999
2000 \DeclareRobustCommand{\EFBGPL}
2001 {\ensuremath{\exists}\FBGPL}
2002 \DeclareRobustCommand{\UFBGPL}
2003 {\ensuremath{\forall}\FBGPL}
2004
2005 % Undefined-Goal Plan Logic
2006 \DeclareRobustCommandx{\XGPL}[3][1=, 2=, 3=]
2007 {\PL[#1][#2][xg\arglef{,}{#3}]}
2008
2009 \DeclareRobustCommand{\EXGPL}
2010 {\ensuremath{\exists}\XGPL}
2011 \DeclareRobustCommand{\UXGPL}
2012 {\ensuremath{\forall}\XGPL}
2013
2014 \DeclareRobustCommand{\FXGPL}
2015 {\{\textrm{F}\}\XGPL}
2016
2017 \DeclareRobustCommand{\EFXGPL}
2018 {\ensuremath{\exists}\FXGPL}
2019 \DeclareRobustCommand{\UFXGPL}
2020 {\ensuremath{\forall}\FXGPL}

```

\SL, ... ..

```

2021 % Strategy Logic
2022 \cmdtxttoparname{SL}
2023
2024 \DeclareRobustCommand{\ESL}
2025 {\ensuremath{\exists}\SL}
2026 \DeclareRobustCommand{\USL}
2027 {\ensuremath{\forall}\SL}
2028
2029 \DeclareRobustCommand{\FSL}
2030 {\{\textrm{F}\}\SL}
2031
2032 \DeclareRobustCommand{\EFSL}

```

```

2033 {\ensuremath{\exists}\FSL}
2034 \DeclareRobustCommand{\UFSL}
2035 {\ensuremath{\forall}\FSL}
2036
2037 % One-Goal Strategy Logic
2038 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
2039 {\SL[#1][#2][1g\arglef{,}{#3}]}
2040
2041 \DeclareRobustCommand{\EOGSL}
2042 {\ensuremath{\exists}\OGSL}
2043 \DeclareRobustCommand{\UOGSL}
2044 {\ensuremath{\forall}\OGSL}
2045
2046 \DeclareRobustCommand{\FOGSL}
2047 {\{\textrm{F}\}\OGSL}
2048
2049 \DeclareRobustCommand{\EFOGSL}
2050 {\ensuremath{\exists}\FOGSL}
2051 \DeclareRobustCommand{\UFOGSL}
2052 {\ensuremath{\forall}\FOGSL}
2053
2054 % Conjunctive-Goal Strategy Logic
2055 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
2056 {\SL[#1][#2][cg\arglef{,}{#3}]}
2057
2058 \DeclareRobustCommand{\ECGSL}
2059 {\ensuremath{\exists}\CGSL}
2060 \DeclareRobustCommand{\UCGSL}
2061 {\ensuremath{\forall}\CGSL}
2062
2063 \DeclareRobustCommand{\FCGSL}
2064 {\{\textrm{F}\}\CGSL}
2065
2066 \DeclareRobustCommand{\EFCGSL}
2067 {\ensuremath{\exists}\FCGSL}
2068 \DeclareRobustCommand{\UFCGSL}
2069 {\ensuremath{\forall}\FCGSL}
2070
2071 % Disjunctive-Goal Strategy Logic
2072 \DeclareRobustCommandx{\DGSL}[3][1=, 2=, 3=]
2073 {\SL[#1][#2][dg\arglef{,}{#3}]}
2074
2075 \DeclareRobustCommand{\EDGSL}
2076 {\ensuremath{\exists}\DGSL}
2077 \DeclareRobustCommand{\UDGSL}
2078 {\ensuremath{\forall}\DGSL}
2079
2080 \DeclareRobustCommand{\FDGSL}
2081 {\{\textrm{F}\}\DGSL}
2082
2083 \DeclareRobustCommand{\EFDGSL}
2084 {\ensuremath{\exists}\FDGSL}
2085 \DeclareRobustCommand{\UFDGSL}
2086 {\ensuremath{\forall}\FDGSL}
2087
2088 % Alternating-Goal Strategy Logic
2089 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
2090 {\SL[#1][#2][ag\arglef{,}{#3}]}
2091
2092 \DeclareRobustCommand{\EAGSL}
2093 {\ensuremath{\exists}\AGSL}
2094 \DeclareRobustCommand{\UAGSL}
2095 {\ensuremath{\forall}\AGSL}

```

```

2096
2097 \DeclareRobustCommand{\FAGSL}
2098 {\texname{F}}\AGSL}
2099
2100 \DeclareRobustCommand{\EFAGSL}
2101 {\ensuremath{\exists}\FAGSL}
2102 \DeclareRobustCommand{\UFAGSL}
2103 {\ensuremath{\forall}\FAGSL}
2104
2105 % Extended-Goal Strategy Logic
2106 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
2107 {\SL[#1][#2][eg\arglef{,}{#3}]}
2108
2109 \DeclareRobustCommand{\EEGSL}
2110 {\ensuremath{\exists}\EGSL}
2111 \DeclareRobustCommand{\UEGSL}
2112 {\ensuremath{\forall}\EGSL}
2113
2114 \DeclareRobustCommand{\FEGSL}
2115 {\texname{F}}\EGSL}
2116
2117 \DeclareRobustCommand{\EFEGSL}
2118 {\ensuremath{\exists}\FEGSL}
2119 \DeclareRobustCommand{\UFEGSL}
2120 {\ensuremath{\forall}\FEGSL}
2121
2122 % Boolean-Goal Strategy Logic
2123 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
2124 {\SL[#1][#2][bg\arglef{,}{#3}]}
2125
2126 \DeclareRobustCommand{\EBGSL}
2127 {\ensuremath{\exists}\BGSL}
2128 \DeclareRobustCommand{\UBGSL}
2129 {\ensuremath{\forall}\BGSL}
2130
2131 \DeclareRobustCommand{\FBGSL}
2132 {\texname{F}}\BGSL}
2133
2134 \DeclareRobustCommand{\EFBGSL}
2135 {\ensuremath{\exists}\FBGSL}
2136 \DeclareRobustCommand{\UFBGSL}
2137 {\ensuremath{\forall}\FBGSL}
2138
2139 % Nested-Goal Strategy Logic
2140 \DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
2141 {\SL[#1][#2][ng\arglef{,}{#3}]}
2142
2143 \DeclareRobustCommand{\ENGSL}
2144 {\ensuremath{\exists}\NGSL}
2145 \DeclareRobustCommand{\UNGSL}
2146 {\ensuremath{\forall}\NGSL}
2147
2148 \DeclareRobustCommand{\FNGSL}
2149 {\texname{F}}\NGSL}
2150
2151 \DeclareRobustCommand{\EFNGSL}
2152 {\ensuremath{\exists}\FNGSL}
2153 \DeclareRobustCommand{\UFNGSL}
2154 {\ensuremath{\forall}\FNGSL}
2155
2156 % Undefined-Goal Strategy Logic
2157 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
2158 {\SL[#1][#2][xg\arglef{,}{#3}]}

```



```

2159
2160 \DeclareRobustCommand{\EXGSL}
2161 {\ensuremath{\exists}\XGSL}
2162 \DeclareRobustCommand{\UXGSL}
2163 {\ensuremath{\forall}\XGSL}
2164
2165 \DeclareRobustCommand{\FXGSL}
2166 {\{\textname{F}\}\XGSL}
2167
2168 \DeclareRobustCommand{\EFXGSL}
2169 {\ensuremath{\exists}\FXGSL}
2170 \DeclareRobustCommand{\UFXGSL}
2171 {\ensuremath{\forall}\FXGSL}

2172 %** Syntax *****%

\BndSet,
2173 \newcommand{\bndsym}{\flat}
2174 \newcommand{\bndset}{Bn}
2175 \cmdtmthsetext{Bnd}[\bndset][\bndsym]
2176 \usrmth{bnd}{\}{argfun}

\psn ...
2177 \usrmth{psn}{\}{argfun}

2178 %** Semantics *****%

\nxt ...
2179 \usrmth{nxt}{\}{argfun}

2180 \fi
2181 %*****%
2182 %*****%
2183 %** Macros for Automata *****%
2184 %*****%
2185 \ifaut@

2186 %** Finite Word Automata *****%

\DFA,
2187 \cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}
2188
2189 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
2190
2191 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
2192 \cmdtxtoparname{DWW}\cmdtxtoparname{NWW}\cmdtxtoparname{UWW}\cmdtxtoparname{AWW}
2193 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
2194 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
2195 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
2196 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
2197 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
2198 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

\GFG,
2199 \cmdtxtoparname{GFG}
2200
2201 \cmdtxtoparname{PD}
2202 \cmdtxtoparname{PN}
2203
2204 \cmdtxtoparname{LD}
2205 \cmdtxtoparname{LN}

2206 %** Syntax *****%

```

```

\AutName,
2207 \newcommand{\autname}{A}
2208 \usrmthlatupp{Aut}{Name}{name}[\autname]
2209 \newcommand{\autset}{Aut}
2210 \cmdmthset{Aut}[\autset]

\WAutSet ...
2211 \newcommand{\wautset}{WAut}
2212 \cmdmthset{WAut}[\wautset]

\SymSet,
2213 \newcommand{\symsym}{\sigma}
2214 \newcommand{\symset}{\Sigma}
2215 \cmdmthsetext{Sym}[\symset][\symsym]

\SttSet,
2216 \def\sttsym{q}
2217 \def\sttset{Q}
2218 \cmdmthsetext{Stt}[\sttset][\sttsym]
2219 \cmdmthset{IStt}[\sttset_{I}]
2220 \cmdmthsymelm{istt}[\sttsym_{I}]
2221 \cmdmthset{FStt}[\sttset_{F}]
2222 \cmdmthsymelm{fstt}[\sttsym_{F}]

\trnFun, \trnRel ...
2223 \def\trnsym{\delta}
2224 \cmdmthfun{trn}[\trnsym]
2225 \cmdmthrel{trn}[\trnsym]

2226 %%** Semantics *****%%

\WrdSet,
2227 \newcommand{\wrdsym}{w}
2228 \newcommand{\wrdset}{Wr}
2229 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

\Lang ...
2230 \usrmth{Lang}{\}{argfun}[L]

2231 %%** Finite Tree Automata *****%%

\DTA,
2232 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
2233
2234 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
2235 \cmdtxtoparname{DWT}\cmdtxtoparname{NWT}\cmdtxtoparname{UWT}\cmdtxtoparname{AWT}
2236 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
2237 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
2238 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
2239 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
2240 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
2241 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}

2242 %%** Syntax *****%%

\TAutSet ...
2243 \newcommand{\tautset}{TAut}
2244 \cmdmthset{TAut}[\tautset]

\DirSet,
2245 \newcommand{\dirsym}{d}
2246 \newcommand{\dirset}{\Lambda}
2247 \cmdmthsetext{Dir}[\dirset][\dirsym]

```

```

2248 %** Semantics *****%%
\TreeSet,
2249 \newcommand{\treesym}{T}
2250 \newcommand{\treeset}{Tr}
2251 \cmdmthsetext{Tree}[\treeset][\treesym]

\wot ...
2252 \usrmth{wot}{-}{argfun}

2253 \fi
2254 %*****%%
2255 %*****%%
2256 %** Format Tricks *****%%
2257 %*****%%
2258 \iffirm@

... ..
2259 %...

2260 \fi
2261 %*****%%
2262 %*****%%
2263 %** Figure Tricks *****%%
2264 %*****%%
2265 \iffig@

2266 \RequirePackage{tikz}
2267 \usetikzlibrary{arrows,shapes,patterns,graphs,matrix}

2268 \tikzstyle{every node} =
2269 [draw = none, fill = none, black, thin]
2270 \tikzstyle{every edge} +=
2271 [black, thick]

2272 \tikzstyle{noall} =
2273 [draw = none, fill = none]
2274 \tikzstyle{nodraw} =
2275 [draw = none, fill = white]
2276 \tikzstyle{nofill} =
2277 [draw = black, fill = none]

2278 \ifwrpfig@
2279 % Wrapfig Package
2280 \RequirePackage{wrapfig}
2281 \fi

2282 \fi
2283 %*****%%
2284 %*****%%
2285 %** Table Tricks *****%%
2286 %*****%%
2287 \iftab@

... ..
2288 %...

2289 \fi
2290 %*****%%
2291 %*****%%
2292 %** Algorithm Tricks *****%%
2293 %*****%%
2294 \ifalg@

```

```

2295 \RequirePackage[ruled,vlined]{algorithm2e}
2296 \DontPrintSemicolon
2297 \SetInd{0.25em}{0.5em}
2298 \setlength{\algomargin}{1.25em}

\Signature ...
2299 \SetKw{Signature}{signature}

\Macro,
2300 \SetKwFor{Macro}{macro}{}{}
2301 \SetKwFor{Function}{function}{}{}
2302 \SetKwFor{Procedure}{procedure}{}{}

\Let ...
2303 \SetKwFor{Let}{let}{in}{}

\True, \False ...
2304 \SetKw{True}{true}
2305 \SetKw{False}{false}

\From,
2306 \SetKw{From}{from}
2307 \SetKw{To}{to}
2308 \SetKw{DownTo}{downto}

\GoTo,
2309 \SetKw{GoTo}{goto}
2310 \SetKw{Break}{break}
2311 \SetKw{Continue}{continue}

\MIf,
2312 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
2313 \DeclareRobustCommand{\nlr}[1]
2314 {\addtocounter{AlgoLine}{1}%
2315 \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

2316 \fi
2317 %%%
2318 \endinput
2319 \end{package}

```

## 2 Change History

|       |                                                |   |       |                                                                   |   |
|-------|------------------------------------------------|---|-------|-------------------------------------------------------------------|---|
| v0.0  | General: First public release . . . . .        | 1 | v0.20 | General: New binary operators . . . . .                           | 1 |
| v0.1  | General: Algorithm tricks . . . . .            | 1 | v0.21 | General: Refactoring of function macros . . . .                   | 1 |
| v0.10 | General: Small refinements . . . . .           | 1 | v0.22 | General: Few additions . . . . .                                  | 1 |
| v0.11 | General: Few additions and corrections . . . . | 1 | v0.23 | General: New ‘Graphs’ section and small<br>improvements . . . . . | 1 |
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| <code>\cmdmthoargname</code> . . . . .               | 597                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 56, 77, 79                                                                                                                                                                                                                                                                                                                                                                            |
| <code>\cmdmthoargrel</code> . . . . .                | 681                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 78                                                                                                                                                                                                                                                                                                                                                                                    |
| <code>\cmdmthoargset</code> . . . . .                | 662                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1452, 1453                                                                                                                                                                                                                                                                                                                                                                            |
| <code>\cmdmthoargsig</code> . . . . .                | 636                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1449, 1450                                                                                                                                                                                                                                                                                                                                                                            |
| <code>\cmdmthoargsnt</code> . . . . .                | 762                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1449                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>\cmdmthoargstr</code> . . . . .                | 649                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1476, 1477                                                                                                                                                                                                                                                                                                                                                                            |
| <code>\cmdmthoargsym</code> . . . . .                | 707, 734                                                                                                                                                                                                                                                                                                                    | . . . . .                                                                    | 1476                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>\cmdmthoargsymelm</code> . . . . .             | 733                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1451, 1453                                                                                                                                                                                                                                                                                                                                                                            |
| <code>\cmdmthoargvec</code> . . . . .                | 802                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 871                                                                                                                                                                                                                                                                                                                                                                                   |
| <code>\cmdmthopar</code> . . . . .                   | 500, 504                                                                                                                                                                                                                                                                                                                    | . . . . .                                                                    | 863                                                                                                                                                                                                                                                                                                                                                                                   |
| <code>\cmdmthoparcls</code> . . . . .                | 627                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1600                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>\cmdmthoparelm</code> . . . . .                | 724, 741                                                                                                                                                                                                                                                                                                                    | . . . . .                                                                    | 1546                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>\cmdmthoparfam</code> . . . . .                | 614                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1544                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>\cmdmthoparfrm</code> . . . . .                | 779                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1577                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>\cmdmthoparfun</code> . . . . .                | 698                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1588                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>\cmdmthoparmat</code> . . . . .                | 793                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1528                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>\cmdmthoparname</code> . . . . .               | 601                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1526                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>\cmdmthoparrel</code> . . . . .                | 685                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1565                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>\cmdmthoparset</code> . . . . .                | 666                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 40                                                                                                                                                                                                                                                                                                                                                                                    |
| <code>\cmdmthoparsig</code> . . . . .                | 640                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 41                                                                                                                                                                                                                                                                                                                                                                                    |
| <code>\cmdmthoparsnt</code> . . . . .                | 766                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 143, 144, 145, 146, 147,<br>376, 381, 386, 391, 396,<br>404, 489, 492, 495, 498,<br>501, 507, 1160, 1176, 1178                                                                                                                                                                                                                                                                        |
| <code>\cmdmthoparstr</code> . . . . .                | 653                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 177, 181                                                                                                                                                                                                                                                                                                                                                                              |
| <code>\cmdmthoparsym</code> . . . . .                | 711, 740                                                                                                                                                                                                                                                                                                                    | . . . . .                                                                    | 167, 168, 169, 170,<br>171, 172, 173, 178, 182,<br>378, 379, 383, 384, 388,<br>389, 393, 394, 398, 399,<br>406, 407, 415, 417, 509, 510                                                                                                                                                                                                                                               |
| <code>\cmdmthoparsymelm</code> . . . . .             | 739                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1744, 1748, 1750, 1752                                                                                                                                                                                                                                                                                                                                                                |
| <code>\cmdmthoparvec</code> . . . . .                | 806                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    | 1759, 1763, 1765, 1767                                                                                                                                                                                                                                                                                                                                                                |
| <code>\cmdmthpar</code> . . . . .                    | 497, 504                                                                                                                                                                                                                                                                                                                    | . . . . .                                                                    | 131                                                                                                                                                                                                                                                                                                                                                                                   |
| <code>\cmdmthparcls</code> . . . . .                 | 625                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparelm</code> . . . . .                 | 722, 738                                                                                                                                                                                                                                                                                                                    | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparfam</code> . . . . .                 | 612                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparfrm</code> . . . . .                 | 777                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparfun</code> . . . . .                 | 696                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparmat</code> . . . . .                 | 791                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparname</code> . . . . .                | 599                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparrel</code> . . . . .                 | 683                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparset</code> . . . . .                 | 664                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparsig</code> . . . . .                 | 638                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparsnt</code> . . . . .                 | 764                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparstr</code> . . . . .                 | 651                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparsym</code> . . . . .                 | 709, 737                                                                                                                                                                                                                                                                                                                    | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparsymelm</code> . . . . .              | 736                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthparvec</code> . . . . .                 | 804                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthrel</code> . . . . .                    | 677, 1224, 1275, 1643,<br>1644, 1853, 1856, 2225                                                                                                                                                                                                                                                                            | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthset</code> . . . . .                    | 658,<br>669, 1268, 1270, 1279,<br>1281, 1287, 1289, 1299,<br>1301, 1837, 1839, 1844,                                                                                                                                                                                                                                        | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthsetext</code> . . . . .                 |                                                                                                                                                                                                                                                                                                                             | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthsig</code> . . . . .                    | 632                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthsnr</code> . . . . .                    | 758                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthstr</code> . . . . .                    | 645                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthsym</code> . . . . .                    |                                                                                                                                                                                                                                                                                                                             | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthsymelm</code> . . . . .                 | 727, 1221,<br>1222, 1266, 1267, 1269,<br>1271, 1288, 1290, 1300,<br>1302, 1641, 1835, 1836,<br>1838, 1840, 1845, 1847,<br>1864, 1866, 1876, 1878,<br>1883, 1885, 2220, 2222                                                                                                                                                 | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdmthvec</code> . . . . .                    | 798                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxt</code> . . . . .                       | 375, 401                                                                                                                                                                                                                                                                                                                    | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtabr</code> . . . . .                    | 549,<br>815, 816, 817, 818, 819,<br>820, 821, 822, 823, 824,<br>825, 826, 827, 828, 829,<br>830, 831, 832, 833, 834,<br>835, 836, 838, 839, 840,<br>841, 842, 843, 844, 845,<br>846, 847, 848, 849, 850,<br>851, 855, 856, 857, 858,<br>860, 862, 863, 864, 865,<br>866, 867, 868, 869, 871,<br>872, 1418, 1419, 1420, 1421 | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtall</code> . . . . .                    | 400, 536, 548, 561, 573                                                                                                                                                                                                                                                                                                     | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtarg</code> . . . . .                    | 380, 401                                                                                                                                                                                                                                                                                                                    | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtargabr</code> . . . . .                 | 551                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtargcom</code> . . . . .                 | 576                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtargdef</code> . . . . .                 | 539                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtargname</code> . . . . .                | 564                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtcom</code> . . . . .                    | 574, 1180, 1181, 1182                                                                                                                                                                                                                                                                                                       | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtdef</code> . . . . .                    | 537                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtname</code> . . . . .                   | 562, 1823                                                                                                                                                                                                                                                                                                                   | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtoarg</code> . . . . .                   | 385, 401                                                                                                                                                                                                                                                                                                                    | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtoargabr</code> . . . . .                | 553                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtoargcom</code> . . . . .                | 578                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtoargdef</code> . . . . .                | 541                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtoargname</code> . . . . .               | 566                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtopar</code> . . . . .                   | 395, 401                                                                                                                                                                                                                                                                                                                    | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtoparabr</code> . . . . .                | 557                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtoparcom</code> . . . . .                | 582                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtopardef</code> . . . . .                | 545                                                                                                                                                                                                                                                                                                                         | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\cmdtxtoparname</code> . . . . .               |                                                                                                                                                                                                                                                                                                                             | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\DeclareMathAlphabet</code> . . . . .          |                                                                                                                                                                                                                                                                                                                             | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>\DeclareMathOperator</code> . . . . .          |                                                                                                                                                                                                                                                                                                                             | . . . . .                                                                    |                                                                                                                                                                                                                                                                                                                                                                                       |

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| <code>\DeclareOption</code>            | 12, 13, 17, 21,<br>25, 29, 33, 37, 41, 45,<br>49, 54, 55, 60, 61, 67,<br>68, 72, 73, 78, 79, 84,<br>85, 89, 90, 94, 95, 99,<br>100, 105, 106, 111, 112,<br>116, 121, 122, 127, 128, 131                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2068, 2075, 2077, 2080,<br>2083, 2085, 2092, 2094,<br>2097, 2100, 2102, 2109,<br>2111, 2114, 2117, 2119,<br>2126, 2128, 2131, 2134,<br>2136, 2143, 2145, 2148,<br>2151, 2153, 2160, 2162,<br>2165, 2168, 2170, 2313                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <code>\DMod</code> ..... 1626, 1628<br><code>\DMod,□\BMod</code> ..... 1621<br><code>\do</code> ..... 176, 180<br><code>\dom,□\cod,□...</code> ..... 1023<br><code>\DontPrintSemicolon</code> .... 2296<br><code>\downarrow</code> ..... 1029<br><code>\DTA,□...</code> ..... 2232<br><code>\dual,□\adj,□...</code> ..... 921                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <code>\DeclareRobustCommand</code> ... | ..... 880, 884,<br>887, 889, 892, 894, 896,<br>898, 900, 902, 905, 907,<br>909, 911, 914, 916, 918,<br>921, 923, 925, 927, 929,<br>931, 933, 938, 942, 946,<br>950, 954, 958, 962, 966,<br>970, 974, 978, 982, 987,<br>989, 991, 993, 995, 997,<br>999, 1001, 1003, 1005,<br>1007, 1009, 1011, 1013,<br>1015, 1017, 1020, 1028,<br>1030, 1032, 1035, 1056,<br>1058, 1060, 1062, 1064,<br>1066, 1068, 1070, 1072,<br>1074, 1076, 1078, 1080,<br>1082, 1084, 1086, 1088,<br>1090, 1093, 1095, 1097,<br>1099, 1101, 1104, 1106,<br>1108, 1110, 1112, 1114,<br>1116, 1118, 1120, 1122,<br>1124, 1126, 1141, 1143,<br>1147, 1149, 1372, 1374,<br>1376, 1437, 1439, 1520,<br>1522, 1526, 1528, 1532,<br>1534, 1538, 1540, 1544,<br>1546, 1561, 1565, 1569,<br>1573, 1577, 1584, 1588,<br>1592, 1596, 1600, 1609,<br>1613, 1615, 1617, 1623,<br>1625, 1627, 1629, 1631,<br>1633, 1656, 1660, 1662,<br>1664, 1668, 1672, 1676,<br>1678, 1680, 1690, 1692,<br>1694, 1701, 1703, 1705,<br>1728, 1732, 1734, 1736,<br>1743, 1747, 1749, 1751,<br>1758, 1762, 1764, 1766,<br>1777, 1781, 1783, 1785,<br>1792, 1796, 1798, 1800,<br>1807, 1811, 1813, 1815,<br>1818, 1820, 1890, 1892,<br>1895, 1898, 1900, 1907,<br>1909, 1912, 1915, 1917,<br>1924, 1926, 1929, 1932,<br>1934, 1941, 1943, 1946,<br>1949, 1951, 1958, 1960,<br>1963, 1966, 1968, 1975,<br>1977, 1980, 1983, 1985,<br>1992, 1994, 1997, 2000,<br>2002, 2009, 2011, 2014,<br>2017, 2019, 2024, 2026,<br>2029, 2032, 2034, 2041,<br>2043, 2046, 2049, 2051,<br>2058, 2060, 2063, 2066, | <code>\DeclareRobustCommandx</code> ..<br>1145, 1904, 1921, 1938,<br>1955, 1972, 1989, 2006,<br>2038, 2055, 2072, 2089,<br>2106, 2123, 2140, 2157<br><code>\decset</code> ..... 1849, 1850<br><code>\DecSet,□...</code> ..... 1848<br><code>\decsym</code> ..... 1848, 1850<br><code>\Dedicto</code> ..... 841<br><code>\dedicto</code> ..... 820<br><code>\def</code> ..... 2216, 2217, 2223<br><code>\Defacto</code> ..... 842<br><code>\defacto</code> ..... 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