

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

*This document describes version v0.5 of the fmocdmac package, last revised 2021/05/15.

```

37 \DeclareOption{nofnttts}{\fnttts@false}
38
39 %% Camera-ready version
40 \newif\ifcrv@ \crv@false
41 \DeclareOption{crv}{\crv@true}
42
43 %% Change bars
44 \newif\ifchgbar@ \chgbar@false
45 \DeclareOption{chgbar}{\chgbar@true}
46
47 %% Line numbers
48 \newif\iflinnum@ \linnum@false
49 \DeclareOption{linnum}{\linnum@true}
50
51
52 %% Text macro generation
53 \newif\iftxtgen@ \txtgen@false
54 \DeclareOption{txtgen}{\txtgen@true}
55 \DeclareOption{notxtgen}
56   {\txtgen@false\text@false\com@false\gam@false\log@false\aut@false}
57
58 %% Math macro generation
59 \newif\ifmthgen@ \mthgen@false
60 \DeclareOption{mthgen}{\mthgen@true}
61 \DeclareOption{nomthgen}
62   {\mthgen@false\math@false\gam@false\log@false\aut@false}
63
64
65 %% Elementary macros for text
66 \newif\iftext@ \text@false
67 \DeclareOption{text}{\text@true\txtgen@true}
68 \DeclareOption{notext}{\text@false}
69
70 %% Elementary macros for math
71 \newif\ifmath@ \math@false
72 \DeclareOption{math}{\math@true\mthgen@true}
73 \DeclareOption{nomath}{\math@false}
74
75
76 %% Macros for computational-complexity classes
77 \newif\ifcom@ \com@false
78 \DeclareOption{com}{\com@true\txtgen@true}
79 \DeclareOption{nocom}{\com@false}
80
81
82 %% Macros for games
83 \newif\ifgam@ \gam@false
84 \DeclareOption{gam}{\gam@true\txtgen@true\mthgen@true}
85 \DeclareOption{nogam}{\gam@false}
86
87 %% Macros for logics
88 \newif\iflog@ \log@false
89 \DeclareOption{log}{\log@true\txtgen@true\mthgen@true}
90 \DeclareOption{nolog}{\log@false}
91
92 %% Macros for automata
93 \newif\ifaut@ \aut@false
94 \DeclareOption{aut}{\aut@true\txtgen@true\mthgen@true}
95 \DeclareOption{noaut}{\aut@false}
96
97
98 %% Format-related tricks
99 \newif\iffrm@ \frm@false

```

```

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

```

Option-processing code:

```

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

```

```

162 % Hyper References
163 \RequirePackage{hyperref}
164 \fi
165
166 \iffnttts@
167 % Font Tools
168 \RequirePackage[final]{microtype}
169 \fi
170
171 \ifcrv@
172 % Camera-Ready Version
173
174 %...
175
176 \else
177 % Draft Version
178
179 %...
180
181 \ifchgbar@
182 % Change Bars
183 \RequirePackage{changebar}
184 \fi
185
186 \iflinnum@
187 % Line Numbers
188 \if@twocolumn
189 \RequirePackage[switch, columnwise, mathlines]{lineno}\linenumbers
190 \else
191 \RequirePackage[columnwise, mathlines]{lineno}\linenumbers
192 \fi
193 \fi
194
195 %...
196
197 \fi
198
199 \fi
200 %%*****%
201 %%*****%
202 %%** Auxiliary Font Declarations *****%
203 %%*****%

\mathbbo Bbo Math Font: ... to do!
204 \ifdef{\mathbbo}{\DeclareMathAlphabet{\mathbbo}{U}{bbold}{m}{n}}

\matheus Eus Math Font: ... to do!
205 \ifdef{\matheus}{\DeclareMathAlphabet{\matheus}{U}{eus}{m}{n}}

\mathpzc Pzc Math Font: ... to do!
206 \ifdef{\mathpzc}{\DeclareMathAlphabet{\mathpzc}{T1}{pzc}{m}{it}}

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

208 %%*****%
209 %%*****%
210 %%** Auxiliary Alphabet Letters *****%
211 %%*****%

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

```

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

```

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

217 %*****%
218 %*****%
219 %** Tools *****%
220 %*****%
```

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

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

```

221 \newcommand{\empchk}[2]
222   {\if&#1&\else#2\fi}
```

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

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

```

223 \newcommand{\defval}[2]
224   {\if&#1&#2\else#1\fi}
```

```

225 %*****%
```

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

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

```

226 \newcommand{\arglef}[2]
227   {\empchk{#2}{#1\allowbreak#2}}
```

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

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

```

228 \newcommand{\argrig}[2]
229   {\empchk{#1}{#1\allowbreak#2}}
```

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

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

```

230 \newcommand{\argmid}[3]
231   {\empchk{#2}{#1\allowbreak#2\allowbreak#3}}
```

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

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

```

232 \newcommand{\argsep}[3]
233   {\if&#1&#3\else#1\allowbreak\arglef{#2}{#3}\fi}
```

```

234 %%*****%

\varcmd Variadic commands: \varcmd{⟨A⟩}{⟨B⟩}{⟨C⟩}{⟨D⟩}{⟨E⟩}{⟨F⟩} ... to do!
235 \newcommand{\varcmd}[6]
236   {\expandafter\newcommand\csname gobble#1arg\endcsname[2]
237     {\csname check#1arg\endcsname{\argsep{##1}{#4}{##2}}}%
238   \expandafter\newcommand\csname check#1arg\endcsname[1]
239     {\csname @ifnextchar\endcsname%
240       \bgroup{\csname gobble#1arg\endcsname{##1}}{#2{##1#5}#6}}%
241   \expandafter\newcommand\csname#1\endcsname[1]
242     {\csname check#1arg\endcsname{#3##1}}}%

243 %%*****%

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

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

252 %%*****%

\seqoflatlow Sequence of Latin lowercase letters: \seqoflatlow{⟨A⟩}{⟨B⟩} ... to do!
253 \newcommand{\seqoflatlow}
254   {\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!
255 \newcommand{\seqoflatupp}
256   {\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!
257 \newcommand{\seqoflatlet}[2]
258   {\seqoflatlow{#1}{#2}\seqoflatupp{#1}{#2}}

259 %%*****%

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

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

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

270 %%*****%

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

```

```

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

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

277 %*****%
278 %*****%
279 %** Text Meta Commands *****%
280 %*****%

\newtxt ... to do!


- \newtxt[\rmfamily]{Name}[sub][sup][Ext] = “NamesubExt”
- \newtxt[\sffamily]{Name}[sub][sup][Ext] = “NamesubExt”
- \newtxt[\ttfamily]{Name}[sub][sup][Ext] = “NamesubExt”


281 \newcommandx{\newtxt}[5][1=, 3=, 4=, 5=]
282   {\text{#1#2\txtsubsup{#1}{#3}{#4}{#5}\xspace}}

\newtxtsty ... to do!


- \newtxtsty[\rmfamily]{Name}[sub][sup][Ext] = “NamesubExt”
- \newtxtsty[\rmfamily][\sffamily]{Name}[sub][sup][Ext] = “NamesubExt”
- \newtxtsty[\rmfamily][\ttfamily]{Name}[sub][sup][Ext] = “NamesubExt”


283 \newcommandx{\newtxtsty}[2][2=]
284   {\newtxt[\defval{#2}{#1}]}

\newxtarg ... to do!


- \newxtarg[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
- \newxtarg[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
- \newxtarg[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”


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

\newxtargsty ... to do!


- \newxtargsty[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
- \newxtargsty[\rmfamily][\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
- \newxtargsty[\rmfamily][\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”


287 \newcommandx{\newxtargsty}[2][2=]
288   {\newxtarg[\defval{#2}{#1}]}

\newtxtoarg ... to do!


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


289 \newcommandx{\newtxtoarg}[5][1=, 3=, 4=, 5=]
290   {\newxtarg{#1}{#2}{#3}{#4}[]{}{#5}[]{}{}}

\newtxtoargsty ... to do!


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


291 \newcommandx{\newtxtoargsty}[2][2=]
292   {\newtxtoarg[\defval{#2}{#1}]}

\newtxtpar ... to do!

```

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

293 $\backslash\text{newcommandx}\{\text{newtxtpar}\}[7][1=, 3=, 4=, 5=, 7=]$

294 $\{\backslash\text{newtxt}\{\#1\}\{\#2\}\{\#3\}\{\#4\}\{\#5\}\text{argmid}\{\}\{\#6\}\{\}\{\#7\}\}$

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

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

295 $\backslash\text{newcommandx}\{\text{newtxtparsty}\}[2][2=]$

296 $\{\backslash\text{newtxtpar}[\backslash\text{defval}\{\#2\}\{\#1\}]\}$

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

- $\backslash\text{newxtopar}[\backslash\text{rmfamily}]{\text{Name}}[\text{sub}][\text{sup}][\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\backslash\text{newxtopar}[\backslash\text{sffamily}]{\text{Name}}[\text{sub}][\text{sup}][\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\backslash\text{newxtopar}[\backslash\text{ttfamily}]{\text{Name}}[\text{sub}][\text{sup}][\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$

297 $\backslash\text{newcommandx}\{\text{newxtopar}\}[5][1=, 3=, 4=, 5=]$

298 $\{\backslash\text{newtxtpar}\{\#1\}\{\#2\}\{\#3\}\{\#4\}\{\}\{\#5\}\{\}\}$

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

- $\backslash\text{newxtoparsty}\{\backslash\text{rmfamily}\}{\text{Name}}[\text{sub}][\text{sup}][\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\backslash\text{newxtoparsty}\{\backslash\text{rmfamily}\}[\backslash\text{sffamily}]{\text{Name}}[\text{sub}][\text{sup}][\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$
- $\backslash\text{newxtoparsty}\{\backslash\text{rmfamily}\}[\backslash\text{ttfamily}]{\text{Name}}[\text{sub}][\text{sup}][\text{Par}] = \text{Name}_{\text{sub}}^{\text{sup}}[\text{Par}]$

299 $\backslash\text{newcommandx}\{\text{newxtoparsty}\}[2][2=]$

300 $\{\backslash\text{newxtopar}[\backslash\text{defval}\{\#2\}\{\#1\}]\}$

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

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

301 $\backslash\text{newcommand}\{\text{txtsubsup}\}[3][\]$

302 $\{\backslash\text{ensuremath}\{\backslash\text{empchk}\{\#2\}\{_\{\text{text}\{\#1\}\#2\}\}\}\backslash\text{empchk}\{\#3\}\{\^{\text{“}}\{\text{text}\{\#1\}\#3\}\}\}\}$

303 $\%\text{*****}\%$

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

- $\backslash\text{txt}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext}$
- $\backslash\text{txt}[\backslash\text{scshape}]{\text{Name}}[\text{sub}][\text{sup}][\text{Ext}] = \text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash\text{txt}[\backslash\text{bfseries}]{\text{Name}}[\text{sub}][\text{sup}][\text{Ext}] = \text{NAME}_{\text{sub}}^{\text{sup}}\text{Ext}$

304 $\backslash\text{newcommand}\{\text{txt}\}$

305 $\{\backslash\text{newtxsty}\{\text{txtsty}\}\}$

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

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

306 $\backslash\text{newcommand}\{\text{txtarg}\}$

307 $\{\backslash\text{newtxtargsty}\{\text{txtsty}\}\}$

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

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


```

308 \newcommand{\txtoarg}
309   {\newtxtoargsty{\txtsty}}

\txtpar ... to do!


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


310 \newcommand{\txtpar}
311   {\newtxtparsty{\txtsty}}

\txtopar ... to do!


- $\text{\txtopar{Name}[sub][sup][Par]} = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{Par}]”$
- $\text{\txtopar[scshape]{Name}[sub][sup][Par]} = \text{“NAME}_{\text{SUB}}^{\text{sup}}[\text{PAR}]”$
- $\text{\txtopar[bfseries]{Name}[sub][sup][Par]} = \text{“Name}_{\text{sub}}^{\text{sup}}[\text{PAR}]”$


312 \newcommand{\txtopar}
313   {\newtxtoparsty{\txtsty}}

\txtsty ... to do!
314 \newcommand{\txtsty}
315   {\mdseries\upshape\rmfamily}

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

\cmdtxt ... to do!


- $\text{\cmdtxt{NewCmd}; \newcommand{\txtstyNewCmd}{\scshape\ttfamily};}$   

 $\text{\txtNewCmd{Name}[sub][sup][Ext]} = \text{NAME}_{\text{SUB}}^{\text{sup}}\text{EXT}$


317 \newcommand{\cmdtxt}[1]
318   {\csdef{\txt#1}{\newtxtsty{\csname txtsty#1\endcsname}}}}

\cmdtxtarg ... to do!


- $\text{\cmdtxtarg{NewCmd}; \newcommand{\txtstyNewCmd}{\scshape\ttfamily};}$   

 $\text{\txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2]} = \text{NAME}_{\text{SUB}}^{\text{sup}}\text{EXT1(ARG)EXT2}$


319 \newcommand{\cmdtxtarg}[1]
320   {\csdef{\txtarg#1}{\newtxtargsty{\csname txtsty#1\endcsname}}}}

\cmdtxtoarg ... to do!


- $\text{\cmdtxtoarg{NewCmd}; \newcommand{\txtstyNewCmd}{\scshape\ttfamily};}$   

 $\text{\txtoargNewCmd{Name}[sub][sup][Arg]} = \text{NAME}_{\text{SUB}}^{\text{sup}}(\text{ARG})$


321 \newcommand{\cmdtxtoarg}[1]
322   {\csdef{\txtoarg#1}{\newtxtoargsty{\csname txtsty#1\endcsname}}}}

\cmdtxtpar ... to do!


- $\text{\cmdtxtpar{NewCmd}; \newcommand{\txtstyNewCmd}{\scshape\ttfamily};}$   

 $\text{\txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2]} = \text{NAME}_{\text{SUB}}^{\text{sup}}\text{EXT1[PAR]EXT2}$


323 \newcommand{\cmdtxtpar}[1]
324   {\csdef{\txtpar#1}{\newtxtparsty{\csname txtsty#1\endcsname}}}}

\cmdtxtopar ... to do!


- $\text{\cmdtxtopar{NewCmd}; \newcommand{\txtstyNewCmd}{\scshape\ttfamily};}$   

 $\text{\txtoparNewCmd{Name}[sub][sup][Par]} = \text{NAME}_{\text{SUB}}^{\text{sup}}[\text{PAR}]$


325 \newcommand{\cmdtxtopar}[1]
326   {\csdef{\txtopar#1}{\newtxtoparsty{\csname txtsty#1\endcsname}}}}

\cmdtxtall ... to do!


- $\text{\cmdtxtall{NewCmd}; \newcommand{\txtstyNewCmd}{\scshape\ttfamily};}$   

 $\text{\txtNewCmd{Name}[sub][sup][Ext]} = \text{NAME}_{\text{SUB}}^{\text{sup}}\text{EXT}$   

 $\text{\txtargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2]} = \text{NAME}_{\text{SUB}}^{\text{sup}}\text{EXT1(ARG)EXT2}$   

 $\text{\txtoargNewCmd{Name}[sub][sup][Arg]} = \text{NAME}_{\text{SUB}}^{\text{sup}}(\text{ARG})$   

 $\text{\txtparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2]} = \text{NAME}_{\text{SUB}}^{\text{sup}}\text{EXT1[PAR]EXT2}$   

 $\text{\txtoparNewCmd{Name}[sub][sup][Par]} = \text{NAME}_{\text{SUB}}^{\text{sup}}[\text{PAR}]$

```

```

327 \newcommand{\cmdtxtall}[1]
328   {\cmdtxt{#1}\cmdtxtarg{#1}\cmdtxtoarg{#1}\cmdtxtpar{#1}\cmdtxtopar{#1}}

329 %*****%

\usrtxt ... to do!


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


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

332 %*****%
333 %*****%
334 %** Math Meta Commands *****%
335 %*****%

```

```

\newmth ... to do!


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


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

```

```

\newmthsty ... to do!


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


338 \newcommandx{\newmthsty}[2][2=]
339   {\newmth{\defval{#2}{#1}}}

```

```

\newmtharg ... to do!


- \newmtharg[mathrm]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesupsubExt1(Arg)Ext2”
- \newmtharg[mathsf]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesupsubExt1(Arg)Ext2”
- \newmtharg[mathtt]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesupsubExt1(Arg)Ext2”


340 \newcommandx{\newmtharg}[7][1=, 3=, 4=, 5=, 7=]
341   {\newmth{#1}{#2}{#3}{#4}{#5}\argmid{\!\left(\!{#6}{\right)}\arglef{\!}{#7}}}}

```

```

\newmthargsty ... to do!


- \newmthargsty{mathrm}{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesupsubExt1(Arg)Ext2”
- \newmthargsty{mathrm}{mathsf}{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesupsubExt1(Arg)Ext2”
- \newmthargsty{mathrm}{mathtt}{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesupsubExt1(Arg)Ext2”


342 \newcommandx{\newmthargsty}[2][2=]
343   {\newmtharg{\defval{#2}{#1}}}

```

```

\newmthoarg ... to do!


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


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

```

```

\newmthoargsty ... to do!


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

```

- $\backslash\mathrm{newmthoargsty}\{\mathrm{mathrm}\}\{\mathrm{mathsf}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}(\mathrm{Arg})$
- $\backslash\mathrm{newmthoargsty}\{\mathrm{mathrm}\}\{\mathrm{mathtt}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}(\mathrm{Arg})$

```
346 \newcommandx{\newmthoargsty}[2][2=]
347 {\newmthoarg[\defval{\#2}{\#1}]}
```

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

- $\backslash\mathrm{newmthpar}\{\mathrm{mathrm}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}]\mathrm{Ext2}$
- $\backslash\mathrm{newmthpar}\{\mathrm{mathsf}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}]\mathrm{Ext2}$
- $\backslash\mathrm{newmthpar}\{\mathrm{mathtt}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}]\mathrm{Ext2}$

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

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

- $\backslash\mathrm{newmthparsty}\{\mathrm{mathrm}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}]\mathrm{Ext2}$
- $\backslash\mathrm{newmthparsty}\{\mathrm{mathsf}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}]\mathrm{Ext2}$
- $\backslash\mathrm{newmthparsty}\{\mathrm{mathtt}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}]\mathrm{Ext2}$

```
350 \newcommandx{\newmthparsty}[2][2=]
351 {\newmthpar[\defval{\#2}{\#1}]}
```

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

- $\backslash\mathrm{newmthopar}\{\mathrm{mathrm}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Par}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}]$
- $\backslash\mathrm{newmthopar}\{\mathrm{mathsf}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Par}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}]$
- $\backslash\mathrm{newmthopar}\{\mathrm{mathtt}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Par}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}]$

```
352 \newcommandx{\newmthopar}[5][1=, 3=, 4=, 5=]
353 {\newmthpar[\#1]{\#2}[\#3][\#4][\#5]}
```

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

- $\backslash\mathrm{newmthoparsty}\{\mathrm{mathrm}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Par}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}]$
- $\backslash\mathrm{newmthoparsty}\{\mathrm{mathsf}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Par}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}]$
- $\backslash\mathrm{newmthoparsty}\{\mathrm{mathtt}\}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Par}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}[\mathrm{Par}]$

```
354 \newcommandx{\newmthoparsty}[2][2=]
355 {\newmthopar[\defval{\#2}{\#1}]}
```

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

```
356 \newcommand{\mthsubsup}[2]
357 {\empchk{\#1}{_{\#1}}\empchk{\#2}{^{\#2}}}
```

```
358 %%*****%
```

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

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

```
359 \newcommand{\mth}
360 {\newmthsty{\mthsty}}
```

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

- $\backslash\mathrm{mtharg}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg})\mathrm{Ext2}$
- $\backslash\mathrm{mtharg}[\mathrm{mathbf}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg})\mathrm{Ext2}$
- $\backslash\mathrm{mtharg}[\mathrm{mathtt}]\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg})\mathrm{Ext2}$

```
361 \newcommand{\mtharg}
362 {\newmthargsty{\mthsty}}
```

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

- $\backslash\mathrm{mthoarg}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Arg}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}(\mathrm{Arg})$

- $\text{\mthoarg}\{\text{\mathbf}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Arg] = \text{"Name"}_{\text{sub}}^{\text{sup}}(Arg)$
- $\text{\mthoarg}\{\text{\mathtt}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Arg] = \text{"Name"}_{\text{sub}}^{\text{sup}}(Arg)$

```

363 \newcommand{\mthoarg}
364   {\newmthoargsty{\mthsty}}

\mthpar ... to do!


- $\text{\mthpar}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Ext1]\{\text{Par}\}\text{\}[Ext2] = \text{"Name"}_{\text{sub}}^{\text{sup}}Ext1[Par]Ext2$
- $\text{\mthpar}\{\text{\mathbf}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Ext1]\{\text{Par}\}\text{\}[Ext2] = \text{"Name"}_{\text{sub}}^{\text{sup}}Ext1[Par]Ext2$
- $\text{\mthpar}\{\text{\mathtt}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Ext1]\{\text{Par}\}\text{\}[Ext2] = \text{"Name"}_{\text{sub}}^{\text{sup}}Ext1[Par]Ext2$



```

365 \newcommand{\mthpar}
366 {\newmthparsty{\mthsty}}

\mthopar ... to do!

- $\text{\mthopar}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Par] = \text{"Name"}_{\text{sub}}^{\text{sup}}[Par]$
- $\text{\mthopar}\{\text{\mathbf}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Par] = \text{"Name"}_{\text{sub}}^{\text{sup}}[Par]$
- $\text{\mthopar}\{\text{\mathtt}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Par] = \text{"Name"}_{\text{sub}}^{\text{sup}}[Par]$


```

367 \newcommand{\mthopar}
368   {\newmthoparsty{\mthsty}}

\mthsty ... to do!


```

369 \newcommand{\mthsty}
370 {}

371 %%*****%

\cmdmth ... to do!

- $\text{\cmdmth}\{\text{NewCmd}\}; \text{\newcommand}\{\text{mthstyNewCmd}\}\{\text{\mathtt}\};$

 $\text{\mthNewCmd}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Ext] = \text{Name}_{\text{sub}}^{\text{sup}}Ext$


```

372 \newcommand{\cmdmth}[1]
373   {\csdef{mth#1}\newmthsty{mthsty#1}}

\cmdmtharg ... to do!


- $\text{\cmdmtharg}\{\text{NewCmd}\}; \text{\newcommand}\{\text{mthstyNewCmd}\}\{\text{\mathtt}\};$   

 $\text{\mthargNewCmd}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Ext1]\{\text{Arg}\}\text{\}[Ext2] = \text{Name}_{\text{sub}}^{\text{sup}}Ext1(Arg)Ext2$



```

374 \newcommand{\cmdmtharg}[1]
375 {\csdef{mtharg#1}\newmthargsty{mthsty#1}}

\cmdmthoarg ... to do!

- $\text{\cmdmthoarg}\{\text{NewCmd}\}; \text{\newcommand}\{\text{mthstyNewCmd}\}\{\text{\mathtt}\};$

 $\text{\mthoargNewCmd}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Arg] = \text{Name}_{\text{sub}}^{\text{sup}}(Arg)$


```

376 \newcommand{\cmdmthoarg}[1]
377   {\csdef{mthoarg#1}\newmthoargsty{mthsty#1}}

\cmdmthpar ... to do!


- $\text{\cmdmthpar}\{\text{NewCmd}\}; \text{\newcommand}\{\text{mthstyNewCmd}\}\{\text{\mathtt}\};$   

 $\text{\mthparNewCmd}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Ext1]\{\text{Par}\}\text{\}[Ext2] = \text{Name}_{\text{sub}}^{\text{sup}}Ext1[Par]Ext2$



```

378 \newcommand{\cmdmthpar}[1]
379 {\csdef{mthpar#1}\newmthparsty{mthsty#1}}

\cmdmthopar ... to do!

- $\text{\cmdmthopar}\{\text{NewCmd}\}; \text{\newcommand}\{\text{mthstyNewCmd}\}\{\text{\mathtt}\};$

 $\text{\mthoparNewCmd}\{\text{Name}\}\text{\sub}\text{\sup}\text{\}[Par] = \text{Name}_{\text{sub}}^{\text{sup}}[Par]$


```

380 \newcommand{\cmdmthopar}[1]
381   {\csdef{mthopar#1}\newmthoparsty{mthsty#1}}

\cmdmthall ... to do!

```


```


```


```


```


```


```


```


```

- `\cmdmthall{NewCmd}; \newcommand{mthstyNewCmd}{\mathhtt{t};`
`\mthNewCmd{Name}[sub][sup][Ext] = NamesubExt`
`\mthargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesubExt1(Arg)Ext2`
`\mthoargNewCmd{Name}[sub][sup][Arg] = Namesub(Arg)`
`\mthparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesubExt1[Par]Ext2`
`\mthoparNewCmd{Name}[sub][sup][Par] = Namesub[Par]`

```

382 \newcommand{\cmdmthall}[1]
383   {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#1}}

384 %%*****%

\usrmth ... to do!



- \usrmth{cmdName}{Suf}{}; \cmdNameSuf = cmdName  

\usrmth{cmdName}{Suf}{arg}; \cmdNameSuf{Arg} = cmdName(Arg)  

\usrmth{cmdName}{Suf}{par}; \cmdNameSuf{Par} = cmdName[Par]
- \usrmth{cmdName}{Suf}{newName}; \cmdNameSuf = newName  

\usrmth{cmdName}{Suf}{arg}[newName]; \cmdNameSuf{Arg} = newName(Arg)  

\usrmth{cmdName}{Suf}{par}[newName]; \cmdNameSuf{Par} = newName[Par]


385 \newcommandx{\usrmth}[4][4=]
386   {\csdef{#1#2}{\csname mth#3\endcsname{\defval{#4}{#1}}}}

387 %%*****%

\usrmthlatlow ... to do!

388 \newcommandx{\usrmthlatlow}[4][4=]
389   {\usrmth{#1}{#2}{#3}[#4]\seqoflatlow{#1#2}{mth#3}}

\usrmthlatupp ... to do!

390 \newcommandx{\usrmthlatupp}[4][4=]
391   {\usrmth{#1}{#2}{#3}[#4]\seqoflatupp{#1#2}{mth#3}}

\usrmthlatlet ... to do!

392 \newcommandx{\usrmthlatlet}[4][4=]
393   {\usrmth{#1}{#2}{#3}[#4]\seqoflatlet{#1#2}{mth#3}}

\usrmthgrklow ... to do!

394 \newcommandx{\usrmthgrklow}[4][4=]
395   {\usrmth{#1}{#2}{#3}[#4]\seqofgrklow{#1#2}{mth#3}}

\usrmthgrkupp ... to do!

396 \newcommandx{\usrmthgrkupp}[4][4=]
397   {\usrmth{#1}{#2}{#3}[#4]\seqofgrkupp{#1#2}{mth#3}}

\usrmthgrklet ... to do!

398 \newcommandx{\usrmthgrklet}[4][4=]
399   {\usrmth{#1}{#2}{#3}[#4]\seqofgrklet{#1#2}{mth#3}}

\usrmthlow ... to do!

400 \newcommandx{\usrmthlow}[4][4=]
401   {\usrmth{#1}{#2}{#3}[#4]\seqoflow{#1#2}{mth#3}}

\usrmthupp ... to do!

402 \newcommandx{\usrmthupp}[4][4=]
403   {\usrmth{#1}{#2}{#3}[#4]\seqofupp{#1#2}{mth#3}}

\usrmthlet ... to do!

404 \newcommandx{\usrmthlet}[4][4=]
405   {\usrmth{#1}{#2}{#3}[#4]\seqoflet{#1#2}{mth#3}}

406 %%*****%

```

```

407 %*****%
408 %** Text Macro Generators *****%
409 %*****%
410 \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] = $Name_{sub}^{sup}Ext1[Par]Ext2$

411 %% Style for Definitions

412 \cmdtxtall{def}\newcommand{\txtstydef}{\bfseries\em}

\cmdtxtdef ... to do!

- \cmdtxtdef{cmdName};
 \cmdName[sub][sub][ext] = $cmdName_{sub}^{sub}ext$
- \cmdtxtdef{cmdName}[newName];
 \cmdName[sub][sub][ext] = $newName_{sub}^{sub}ext$

413 \newcommandx{\cmdtxtdef}[2][2=]

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

415 \newcommandx{\cmdtxtargdef}[2][2=]

416 {\usrtxt{#1}{-}{argdef}[#2]}

\cmdtxtoargdef ... to do!

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

417 \newcommandx{\cmdtxtoargdef}[2][2=]

418 {\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] = $newName_{sub}^{sub}ext1[par]ext2$

419 \newcommandx{\cmdtxtpardef}[2][2=]

420 {\usrtxt{#1}{-}{pardef}[#2]}

\cmdtxtopardef ... to do!

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

421 \newcommandx{\cmdtxtopardef}[2][2=]

422 {\usrtxt{#1}{-}{opardef}[#2]}

\txtabr, ... to do!

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

```

423 %% Style for Abbreviations
424 \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] =  $newName_{sub}^{sub}ext$ 
425 \newcommandx{\cmdtxtabr}[2][2=]
426   {\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] =  $newName_{sub}^{sub}ext1(arg)ext2$ 
427 \newcommandx{\cmdtxtargabr}[2][2=]
428   {\usrtxt{#1}{\}{argabr}{#2}}

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

\cmdtxtoparabr ... to do!
    • \cmdtxtoparabr{cmdName};
      \cmdName[sub][sub][par] =  $cmdName_{sub}^{sub}[par]$ 
    • \cmdtxtoparabr{cmdName}[newName];
      \cmdName[sub][sub][par] =  $newName_{sub}^{sub}[par]$ 
433 \newcommandx{\cmdtxtoparabr}[2][2=]
434   {\usrtxt{#1}{\}{oparabr}{#2}}

435 %%*****%

\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] =  $NAME_{SUB}^{SUP}EXT1[PAR]EXT2$ 
436 %% Style for Names
437 \cmdtxtall{name}\newcommand{\txtstyname}{\mdseries\scshape\sffamily}

\cmdtxtname ... to do!
    • \cmdtxtname{cmdName};
      \cmdName[sub][sub][ext] =  $CMDNAME_{SUB}^{SUB}EXT$ 
    • \cmdtxtname{cmdName}[newName];
      \cmdName[sub][sub][ext] =  $NEWNAME_{SUB}^{SUB}EXT$ 

```

```

438 \newcommandx{\cmdtxtname}[2][2=]
439   {\usrtxt{#1}{-}{name}[#2]}

```

\cmdtxtargname ... to do!

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

```

440 \newcommandx{\cmdtxtargname}[2][2=]
441   {\usrtxt{#1}{-}{argname}[#2]}

```

\cmdtxtoargname ... to do!

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

```

442 \newcommandx{\cmdtxtoargname}[2][2=]
443   {\usrtxt{#1}{-}{oargname}[#2]}

```

\cmdtxtparname ... to do!

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

```

444 \newcommandx{\cmdtxtparname}[2][2=]
445   {\usrtxt{#1}{-}{parname}[#2]}

```

\cmdtxtoparname ... to do!

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

```

446 \newcommandx{\cmdtxtoparname}[2][2=]
447   {\usrtxt{#1}{-}{oparname}[#2]}

```

\txtcom, to do!

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

```

448 %% Style for Complexities

```

```

449 \cmdtxtall{com}\newcommand{\txtstycom}{\mdseries\scshape\rmfamily}

```

\cmdtxtcom ... to do!

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

```

450 \newcommandx{\cmdtxtcom}[2][2=]
451   {\usrtxt{#1}{-}{com}[#2]}

```

\cmdtxtargcom ... to do!

- \cmdtxtargcom{cmdName};
\cmdName[sub][sub][ext1]{arg}[ext2] = CMDNAME_{SUB}^{SUB}EXT1(ARG)EXT2
- \cmdtxtargcom{cmdName}[newName];
\cmdName[sub][sub][ext1]{arg}[ext2] = NEWNAME_{SUB}^{SUB}EXT1(ARG)EXT2

```

452 \newcommandx{\cmdtxtargcom}[2][2=]
453   {\usrtxt{#1}{-}{argcom}[#2]}

```



```

\cmdtxtoargcom ... to do!
    • \cmdtxtoargcom{cmdName};
      \cmdName[sub][sub][arg] = CMDNAMESUBSUB(ARG)
    • \cmdtxtoargcom{cmdName}[newName];
      \cmdName[sub][sub][arg] = NEWNAMESUBSUB(ARG)
454 \newcommandx{\cmdtxtoargcom}[2][2=]
455   {\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
456 \newcommandx{\cmdtxtparcom}[2][2=]
457   {\usrtxt{#1}{-}{parcom}{#2}}

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

460 \fi
461 %*****%
462 %*****%
463 %** Math Macro Generators *****%
464 %*****%
465 \ifmthgen@

\mthname, ... ... to do!
    • \mthname{NAME}[sub][sup][Ext] =  $\mathcal{NAME}_{sub}^{sup}Ext$ 
    • \mthargname{NAME}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparname{NAME}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1[Par]Ext2$ 
466 %% Style for Names
467 \cmdmthall{name}\newcommand{\mthstname}{\mathcal}

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

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

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

```

```

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

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

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

\mthfam, ... ... to do!
    • \mthfam{NAME}[sub][sup][Ext] =  $\mathcal{NAME}_{sub}^{sup}Ext$ 
    • \mthargfam{NAME}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparfam{NAME}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1[Par]Ext2$ 
479 %% Style for Families
480 \cmdmthall{fam}\newcommand{\mthstyfam}{\mathscr}

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

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

\cmdmthargfam ... to do!
    • \cmdmthargfam{CMDNAME};
      \CMDNAMEFam[sub][sub][ext1]{arg}[ext2] =  $\mathcal{CMDNAME}_{sub}^{sub}ext1(arg)ext2$ 
    • \cmdmthargfam{cmdName}{NEWNAME};
      \cmdNameFam[sub][sub][ext1]{arg}[ext2] =  $\mathcal{NEWNAME}_{sub}^{sub}ext1(arg)ext2$ 
484 \newcommandx{\cmdmthargfam}[2][2=]
485   {\usrmth{#1}{Fam}{argfam}[#2]}

\cmdmthoargfam ... to do!
    • \cmdmthoargfam{CMDNAME};
      \CMDNAMEFam[sub][sub][arg] =  $\mathcal{CMDNAME}_{sub}^{sub}(arg)$ 
    • \cmdmthoargfam{cmdFam}{NEWNAME};
      \cmdFamFam[sub][sub][arg] =  $\mathcal{NEWNAME}_{sub}^{sub}(arg)$ 

```

```

486 \newcommandx{\cmdmthoargfam}[2][2=]
487   {\usrmth{#1}{Fam}{oargfam}[#2]}

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

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

\mthcls, ... ... to do!
  • \mthcls{NAME}[sub][sup][Ext] =  $\mathcal{NAME}_{sub}^{sup}Ext$ 
  • \mthargcls{NAME}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1(Arg)Ext2$ 
  • \mthparcls{NAME}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1[Par]Ext2$ 
492 %% Style for Classes
493 \cmdmthall{cls}\newcommand{\mthstycls}{\matheus}

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

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

\cmdmthargcls ... to do!
  • \cmdmthargcls{CMDNAME};
    \CMDNAMECls[sub][sub][ext1]{arg}[ext2] =  $\mathcal{CMDNAME}_{sub}^{sub}ext1(arg)ext2$ 
  • \cmdmthargcls{cmdName}[NEWNAME];
    \cmdNameCls[sub][sub][ext1]{arg}[ext2] =  $\mathcal{NEWNAME}_{sub}^{sub}ext1(arg)ext2$ 
497 \newcommandx{\cmdmthargcls}[2][2=]
498   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}(arg)$ 
499 \newcommandx{\cmdmthoargcls}[2][2=]
500   {\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] = \NEWNAME\mathcal{E}_{sub}^{sub}ext1[par]ext2
501 \newcommandx{\cmdmthparcls}[2][2=]
502   {\usrmth{#1}{Cls}{parcls}[#2]}

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

\mthsig, ... ... to do!
    • \mthsig{Name}[sub][sup][Ext] = \Name_{sub}^{sup}Ext
    • \mthargsig{Name}[sub][sup][Ext1]{Arg}[Ext2] = \Name_{sub}^{sup}Ext1(Arg)Ext2
    • \mthparsig{Name}[sub][sup][Ext1]{Par}[Ext2] = \Name_{sub}^{sup}Ext1[Par]Ext2
505 %% Style for Signatures
506 \cmdmthall{sig}\newcommand{\mthstysig}{\mathpzc}

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

\cmdmthsig ... to do!
    • \cmdmthsig{cmdName};
      \cmdNameSig[sub][sub][ext] = \cmdName_{sub}^{sub}ext
    • \cmdmthsig{cmdName}[NewName];
      \cmdNameSig[sub][sub][ext] = \NewName_{sub}^{sub}ext
508 \newcommandx{\cmdmthsig}[2][2=]
509   {\usrmth{#1}{Sig}{sig}[#2]}

\cmdmthargsig ... to do!
    • \cmdmthargsig{cmdName};
      \cmdNameSig[sub][sub][ext1]{arg}[ext2] = \cmdName_{sub}^{sub}ext1(arg)ext2
    • \cmdmthargsig{cmdName}[NewName];
      \cmdNameSig[sub][sub][ext1]{arg}[ext2] = \NewName_{sub}^{sub}ext1(arg)ext2
510 \newcommandx{\cmdmthargsig}[2][2=]
511   {\usrmth{#1}{Sig}{argsig}[#2]}

\cmdmthoargsig ... to do!
    • \cmdmthoargsig{cmdName};
      \cmdNameSig[sub][sub][arg] = \cmdName_{sub}^{sub}(arg)
    • \cmdmthoargsig{cmdSig}[NewName];
      \cmdSigSig[sub][sub][arg] = \NewName_{sub}^{sub}(arg)
512 \newcommandx{\cmdmthoargsig}[2][2=]
513   {\usrmth{#1}{Sig}{oargsig}[#2]}

\cmdmthparsig ... to do!
    • \cmdmthparsig{cmdName};
      \cmdNameSig[sub][sub][ext1]{par}[ext2] = \cmdName_{sub}^{sub}ext1[par]ext2
    • \cmdmthparsig{cmdName}[NewName];
      \cmdNameSig[sub][sub][ext1]{par}[ext2] = \NewName_{sub}^{sub}ext1[par]ext2
514 \newcommandx{\cmdmthparsig}[2][2=]
515   {\usrmth{#1}{Sig}{parsig}[#2]}

```

```

\cmdmthoparsig ... to do!
    • \cmdmthoparsig{cmdName};
      \cmdNameSig[sub][sub][par] = cmd\Namesub[par]
    • \cmdmthoparsig{cmdSig}[NewName];
      \cmdSigSig[sub][sub][par] = New\Namesub[par]
516 \newcommandx{\cmdmthoparsig}[2][2=]
517   {\usrmth{#1}{Sig}{oparsig}{#2}}

\mthstr, ... ... to do!
    • \mthstr{Name}[sub][sup][Ext] = \NamesupsubExt
    • \mthargstr{Name}[sub][sup][Ext1]{Arg}[Ext2] = \NamesupsubExt1(Arg)Ext2
    • \mthparstr{Name}[sub][sup][Ext1]{Par}[Ext2] = \NamesupsubExt1[Par]Ext2
518 %% Style for Structures
519 \cmdmthall{str}\newcommand{\mthstyst}{\mathfrak}

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

\cmdmthstr ... to do!
    • \cmdmthstr{cmdName};
      \cmdNameStr[sub][sub][ext] = cmd\Namesubsubext
    • \cmdmthstr{cmdName}[NewName];
      \cmdNameStr[sub][sub][ext] = New\Namesubsubext
521 \newcommandx{\cmdmthstr}[2][2=]
522   {\usrmth{#1}{Str}{str}{#2}}

\cmdmthargstr ... to do!
    • \cmdmthargstr{cmdName};
      \cmdNameStr[sub][sub][ext1]{arg}[ext2] = cmd\Namesubsubext1(arg)ext2
    • \cmdmthargstr{cmdName}[NewName];
      \cmdNameStr[sub][sub][ext1]{arg}[ext2] = New\Namesubsubext1(arg)ext2
523 \newcommandx{\cmdmthargstr}[2][2=]
524   {\usrmth{#1}{Str}{argstr}{#2}}

\cmdmthoargstr ... to do!
    • \cmdmthoargstr{cmdName};
      \cmdNameStr[sub][sub][arg] = cmd\Namesubsub(arg)
    • \cmdmthoargstr{cmdStr}[NewName];
      \cmdStrStr[sub][sub][arg] = New\Namesubsub(arg)
525 \newcommandx{\cmdmthoargstr}[2][2=]
526   {\usrmth{#1}{Str}{oargstr}{#2}}

\cmdmthparstr ... to do!
    • \cmdmthparstr{cmdName};
      \cmdNameStr[sub][sub][ext1]{par}[ext2] = cmd\Namesubsubext1[par]ext2
    • \cmdmthparstr{cmdName}[NewName];
      \cmdNameStr[sub][sub][ext1]{par}[ext2] = New\Namesubsubext1[par]ext2
527 \newcommandx{\cmdmthparstr}[2][2=]
528   {\usrmth{#1}{Str}{parstr}{#2}}

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

```

```

    • \cmdmthoparstr{cmdStr}[NewName];
      \cmdStrStr[sub][sub][par] = \NewNamesub[par]
529 \newcommandx{\cmdmthoparstr}[2][2=]
530   {\usrmth{#1}{Str}{oparstr}{#2}}

\mthset, ... ... to do!
    • \mthset{Name}[sub][sup][Ext] = NamesubExt
    • \mthargset{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesubExt1(Arg)Ext2
    • \mthparset{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesubExt1[Par]Ext2
531 %% Style for Sets
532 \cmdmthall{set}\newcommand{\mthstyset}{\mathrm}

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

\cmdmthset ... to do!
    • \cmdmthset{cmdName};
      \cmdNameSet[sub][sub][ext] = cmdNamesubext
    • \cmdmthset{cmdName}[NewName];
      \cmdNameSet[sub][sub][ext] = NewNamesubext
534 \newcommandx{\cmdmthset}[2][2=]
535   {\usrmth{#1}{Set}{set}{#2}}

\cmdmthargset ... to do!
    • \cmdmthargset{cmdName};
      \cmdNameSet[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2
    • \cmdmthargset{cmdName}[NewName];
      \cmdNameSet[sub][sub][ext1]{arg}[ext2] = NewNamesubext1(arg)ext2
536 \newcommandx{\cmdmthargset}[2][2=]
537   {\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)
538 \newcommandx{\cmdmthoargset}[2][2=]
539   {\usrmth{#1}{Set}{oargset}{#2}}

\cmdmthparset ... to do!
    • \cmdmthparset{cmdName};
      \cmdNameSet[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2
    • \cmdmthparset{cmdName}[NewName];
      \cmdNameSet[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2
540 \newcommandx{\cmdmthparset}[2][2=]
541   {\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]
542 \newcommandx{\cmdmthoparset}[2][2=]
543   {\usrmth{#1}{Set}{oparset}{#2}}

```

```

\cmdmthsetext ... to do!
544 \newcommandx{\cmdmthsetext}[3][2=, 3=]
545   {\cmdmthset{#1}[#2]\caselower[q]{#1}%
546   \usrmthlet{\thestring}{Sym}{sym}
547   [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}}%
548   \usrmthlet{\thestring}{Elm}{elm}
549   [\defval{#3}{\defval{\empchk{#2}{\lowercase{#2}}}{\thestring}}]}

\mthrel, ... ... to do!
• \mthrel{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
• \mthargrel{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
• \mthparrel{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
550 %% Style for Relations
551 \cmdmthall{rel}\newcommand{\mthstyrel}{\mathit}

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

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

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

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

\cmdmthparrel ... to do!
• \cmdmthparrel{cmdName};
  \cmdNameRel[sub][sub][ext1]{par}[ext2] =  $cmdName_{sub}^{sub}ext1[par]ext2$ 
• \cmdmthparrel{cmdName}[NewName];
  \cmdNameRel[sub][sub][ext1]{par}[ext2] =  $NewName_{sub}^{sub}ext1[par]ext2$ 
559 \newcommandx{\cmdmthparrel}[2][2=]
560   {\usrmth{#1}{Rel}{parrel}[#2]}

\cmdmthoparrel ... to do!
• \cmdmthoparrel{cmdName};
  \cmdNameRel[sub][sub][par] =  $cmdName_{sub}^{sub}[par]$ 

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    • \cmdmthoparrel{cmdRel}[NewName];
      \cmdRelRel[sub][sub][par] =  $NewName_{sub}^{sub}[par]$ 
561 \newcommandx{\cmdmthoparrel}[2][2=]
562   {\usrmth{#1}{Rel}{oparrel}{#2}}

\mthfun, ... ... to do!
    • \mthfun{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
    • \mthargfun{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparfun{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
563 %% Style for Functions
564 \cmdmthall{fun}\newcommand{\mthstyfun}{\mathsf}

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

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

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

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

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

\cmdmthoparfun ... to do!
    • \cmdmthoparfun{cmdName};
      \cmdNameFun[sub][sub][par] =  $cmdName_{sub}^{sub}[par]$ 
    • \cmdmthoparfun{cmdFun}[NewName];
      \cmdFunFun[sub][sub][par] =  $NewName_{sub}^{sub}[par]$ 
574 \newcommandx{\cmdmthoparfun}[2][2=]
575   {\usrmth{#1}{Fun}{oparfun}{#2}}

```



```

\mthsym, ... ... to do!
    • \mthsym{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargsym{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
    • \mthparsym{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
576 %% Style for Symbols
577 \cmdmthall{sym}\newcommand{\mthstysym}{\mathtt}

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

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

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

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

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

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

\mthelm, ... ... to do!
    • \mthelm{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargelm{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2

```

- $\text{\mthparelm}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$

589 %% Style for Elements

590 \cmdmthall{\elm}\newcommand{\mthstyel}{\mathnormal}

\aElm, ... to do!

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

591 \seqoflet{\Elm}{\mthelm}

\cmdmthelm ... to do!

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

592 \newcommandx{\cmdmthelm}[2][2=]

593 {\usrmth{\#1}\Elm}\elm{\#2}

\cmdmthargelm ... to do!

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

594 \newcommandx{\cmdmthargelm}[2][2=]

595 {\usrmth{\#1}\Elm}\argelm{\#2}

\cmdmthoargelm ... to do!

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

596 \newcommandx{\cmdmthoargelm}[2][2=]

597 {\usrmth{\#1}\Elm}\oargelm{\#2}

\cmdmthparelm ... to do!

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

598 \newcommandx{\cmdmthparelm}[2][2=]

599 {\usrmth{\#1}\Elm}\parelm{\#2}

\cmdmthoparelm ... to do!

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

600 \newcommandx{\cmdmthoparelm}[2][2=]

601 {\usrmth{\#1}\Elm}\oparelm{\#2}

602 %%*****

\cmdmthsymelm ... to do!

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

```

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

603 \newcommandx{\cmdmthsymelm}[2][2=]
604   {\cmdmthsym{#1}[#2]}%
605   \cmdmthelm{#1}[#2]}

\cmdmthargsymelm ... to do!

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

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

606 \newcommandx{\cmdmthargsymelm}[2][2=]
607   {\cmdmthargsym{#1}[#2]}%
608   \cmdmthargelm{#1}[#2]}

\cmdmthoargsymelm ... to do!

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

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

609 \newcommandx{\cmdmthoargsymelm}[2][2=]
610   {\cmdmthoargsym{#1}[#2]}%
611   \cmdmthoargelm{#1}[#2]}

\cmdmthparsymelm ... to do!

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

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

612 \newcommandx{\cmdmthparsymelm}[2][2=]
613   {\cmdmthparsym{#1}[#2]}%
614   \cmdmthparelm{#1}[#2]}

\cmdmthoparsymelm ... to do!

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

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

615 \newcommandx{\cmdmthoparsymelm}[2][2=]
616   {\cmdmthoparsym{#1}[#2]}%
617   \cmdmthoparelm{#1}[#2]}

618 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\mthlopr, ... ... to do!

    • \mthlopr{\oplus}[sub][sup][Ext] =  $\oplus_{sub}^{sup}Ext$ 

619 %% Style for Sentences
620 \cmdmth{lopr}\newcommand{\mthstylopr}[1]{\textstyle\mathop{#1}}

\cmdmthlopr ... to do!

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```

    • \cmdmthlopr{cmdName};
      \cmdNameOpr[sub][sub][ext] =  $\text{cmdName}_{sub}^{sub} \text{ext}$ 

    • \cmdmthlopr{cmdName}[\oplus];
      \cmdNameOpr[sub][sub][ext] =  $\oplus_{sub}^{sub} \text{ext}$ 

621 \newcommandx{\cmdmthlopr}[2][2=]
622   {\usrmth{#1}{Opr}{lopr}{#2}}

\mthlrel, ... ... to do!

    • \mthlrel{\preceq}[sub][sup][Ext] =  $\preceq_{sub}^{sup} \text{Ext}$ 

623 %% Style for Sentences
624 \cmdmth{lrel}\newcommand{\mthstylrel}{\mathrel}

\cmdmthlrel ... to do!

    • \cmdmthlrel{cmdName};
      \cmdNameRel[sub][sub][ext] =  $\text{cmdName}_{sub}^{sub} \text{ext}$ 

    • \cmdmthlrel{cmdName}[\preceq];
      \cmdNameRel[sub][sub][ext] =  $\preceq_{sub}^{sub} \text{ext}$ 

625 \newcommandx{\cmdmthlrel}[2][2=]
626   {\usrmth{#1}{Rel}{lrel}{#2}}

627 %%*****%

\mthsnt, ... ... to do!

    • \mthsnt{Name}[sub][sup][Ext] =  $\text{Name}_{sub}^{sup} \text{Ext}$ 

    • \mthargsnt{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\text{Name}_{sub}^{sup} \text{Ext1}(\text{Arg})\text{Ext2}$ 

    • \mthparsnt{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\text{Name}_{sub}^{sup} \text{Ext1}[\text{Par}]\text{Ext2}$ 

628 %% Style for Sentences
629 \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,  $\Gamma, \Delta, E, Z, H, \Theta, \varnothing, I, K, \Lambda, M, N, \Xi, O, \Pi, \text{II}, P, \Sigma, \varSigma, T, \Upsilon, \Phi, \varPhi, X, \Psi, \Omega$ 

630 \seqoflet{Snt}{mthsnt}

\cmdmthsnt ... to do!

    • \cmdmthsnt{cmdName};
      \cmdNameSnt[sub][sub][ext] =  $\text{cmdName}_{sub}^{sub} \text{ext}$ 

    • \cmdmthsnt{cmdName}[NewName];
      \cmdNameSnt[sub][sub][ext] =  $\text{NewName}_{sub}^{sub} \text{ext}$ 

631 \newcommandx{\cmdmthsnt}[2][2=]
632   {\usrmth{#1}{Snt}{snt}{#2}}

\cmdmthargsnt ... to do!

    • \cmdmthargsnt{cmdName};
      \cmdNameSnt[sub][sub][ext1]{arg}[ext2] =  $\text{cmdName}_{sub}^{sub} \text{ext1}(\text{arg})\text{ext2}$ 

    • \cmdmthargsnt{cmdName}[NewName];
      \cmdNameSnt[sub][sub][ext1]{arg}[ext2] =  $\text{NewName}_{sub}^{sub} \text{ext1}(\text{arg})\text{ext2}$ 

633 \newcommandx{\cmdmthargsnt}[2][2=]
634   {\usrmth{#1}{Snt}{argsnt}{#2}}

\cmdmthoargsnt ... to do!

    • \cmdmthoargsnt{cmdName};
      \cmdNameSnt[sub][sub][arg] =  $\text{cmdName}_{sub}^{sub}(\text{arg})$ 

    • \cmdmthoargsnt{cmdName}[NewName];
      \cmdNameSnt[sub][sub][arg] =  $\text{NewName}_{sub}^{sub}(\text{arg})$ 

```

```

635 \newcommandx{\cmdmthoargsnt}[2][2=]
636   {\usrmth{#1}{Snt}{oargsnt}{#2}}

\cmdmthparsnt ... to do!
  • \cmdmthparsnt{cmdName};
    \cmdNameSnt[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
  • \cmdmthparsnt{cmdName}[NewName];
    \cmdNameSnt[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
637 \newcommandx{\cmdmthparsnt}[2][2=]
638   {\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]
639 \newcommandx{\cmdmthoparsnt}[2][2=]
640   {\usrmth{#1}{Snt}{oparsnt}{#2}}

\mthfrm, ... ... to do!
  • \mthfrm{Name}[sub][sup][Ext] = NamesupsubExt
  • \mthargfrm{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
  • \mthparfrm{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
641 %% Style for Formulae
642 \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
643 \seqoflet{Frm}{mthfrm}

\cmdmthfrm ... to do!
  • \cmdmthfrm{cmdName};
    \cmdNameFrm[sub][sub][ext] = cmdNamesubsubext
  • \cmdmthfrm{cmdName}[NewName];
    \cmdNameFrm[sub][sub][ext] = NewNamesubsubext
644 \newcommandx{\cmdmthfrm}[2][2=]
645   {\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
646 \newcommandx{\cmdmthargfrm}[2][2=]
647   {\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)
648 \newcommandx{\cmdmthoargfrm}[2][2=]
649   {\usrmth{#1}{Frm}{oargfrm}{#2}}

\cmdmthparfrm ... to do!

```

```

    • \cmdmthparfrm{cmdName};
      \cmdNameFrm[sub][sub][ext1]{par}[ext2] =  $\text{cmdName}_{sub}^{sub}ext1[par]ext2$ 
    • \cmdmthparfrm{cmdName}[NewName];
      \cmdNameFrm[sub][sub][ext1]{par}[ext2] =  $\text{NewName}_{sub}^{sub}ext1[par]ext2$ 
650 \newcommandx{\cmdmthparfrm}[2][2=]
651   {\usrmth{#1}{Frm}{parfrm}{#2}}

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

654 %%*****%

\mthmat, ... ... to do!
    • \mthmat{Name}[sub][sup][Ext] =  $\text{Name}_{sub}^{sup}Ext$ 
    • \mthargmat{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparmat{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1[Par]Ext2$ 
655 %% Style for Matrices
656 \cmdmthall{mat}\newcommand{\mthstymat}[1]{\boldsymbol{\mathsf{#1}}}

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

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

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

\cmdmthoargmat ... to do!
    • \cmdmthoargmat{cmdName};
      \cmdNameMat[sub][sub][arg] =  $\text{cmdName}_{sub}^{sub}(arg)$ 
    • \cmdmthoargmat{cmdName}[NewName];
      \cmdNameMat[sub][sub][arg] =  $\text{NewName}_{sub}^{sub}(arg)$ 
662 \newcommandx{\cmdmthoargmat}[2][2=]
663   {\usrmth{#1}{Mat}{oargmat}{#2}}

\cmdmthparmat ... to do!
    • \cmdmthparmat{cmdName};
      \cmdNameMat[sub][sub][ext1]{par}[ext2] =  $\text{cmdName}_{sub}^{sub}ext1[par]ext2$ 

```

```

    • \cmdmthparmat{cmdName}[NewName];
    \cmdNameMat[sub][sub][ext1]{par}[ext2] = NewName $_{sub}^{sub}ext1[par]ext2$ 
664 \newcommandx{\cmdmthparmat}[2][2=]
665   {\usrmth{#1}{Mat}{parmat}[#2]}

\cmdmthoparmat ... to do!
    • \cmdmthoparmat{cmdName};
    \cmdNameMat[sub][sub][par] = cmdName $_{sub}^{sub}[par]$ 
    • \cmdmthoparmat{cmdName}[NewName];
    \cmdNameMat[sub][sub][par] = NewName $_{sub}^{sub}[par]$ 
666 \newcommandx{\cmdmthoparmat}[2][2=]
667   {\usrmth{#1}{Mat}{oparmat}[#2]}

\mthvec, ... ... to do!
    • \mthvec{Name}[sub][sup][Ext] = Name $_{sub}^{sup}Ext$ 
    • \mthargvec{Name}[sub][sup][Ext1]{Arg}[Ext2] = Name $_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparvec{Name}[sub][sup][Ext1]{Par}[Ext2] = Name $_{sub}^{sup}Ext1[Par]Ext2$ 
668 %% Style for Vectors
669 \cmdmthall{vec}\newcommand{\mthstyvec}[1]{\boldsymbol{\mathit{#1}}}

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

\cmdmthvec ... to do!
    • \cmdmthvec{cmdName};
    \cmdNameVec[sub][sub][ext] = cmdName $_{sub}^{sub}ext$ 
    • \cmdmthvec{cmdName}[NewName];
    \cmdNameVec[sub][sub][ext] = NewName $_{sub}^{sub}ext$ 
671 \newcommandx{\cmdmthvec}[2][2=]
672   {\usrmth{#1}{Vec}{vec}[#2]}

\cmdmthargvec ... to do!
    • \cmdmthargvec{cmdName};
    \cmdNameVec[sub][sub][ext1]{arg}[ext2] = cmdName $_{sub}^{sub}ext1(arg)ext2$ 
    • \cmdmthargvec{cmdName}[NewName];
    \cmdNameVec[sub][sub][ext1]{arg}[ext2] = NewName $_{sub}^{sub}ext1(arg)ext2$ 
673 \newcommandx{\cmdmthargvec}[2][2=]
674   {\usrmth{#1}{Vec}{argvec}[#2]}

\cmdmthoargvec ... to do!
    • \cmdmthoargvec{cmdName};
    \cmdNameVec[sub][sub][arg] = cmdName $_{sub}^{sub}(arg)$ 
    • \cmdmthoargvec{cmdName}[NewName];
    \cmdNameVec[sub][sub][arg] = NewName $_{sub}^{sub}(arg)$ 
675 \newcommandx{\cmdmthoargvec}[2][2=]
676   {\usrmth{#1}{Vec}{oargvec}[#2]}

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

```

```

\cmdmthoparvec ... to do!
    • \cmdmthoparvec{cmdName};
      \cmdNameVec[sub][sub][par] = cmdNamesub[par]
    • \cmdmthoparvec{cmdName}[NewName];
      \cmdNameVec[sub][sub][par] = NewNamesub[par]
679 \newcommandx{\cmdmthoparvec}[2][2=]
680   {\usrmth{#1}{Vec}{oparvec}{#2}}

681 \fi
682 %*****
683 %*****
684 %** Elementary Macros for Text *****
685 %*****
686 \iftext@
687 %** Latin Abbreviations *****

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

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

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

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

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

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

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

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

\divideetimperā • \divideetimperā = divide et impera
696 \cmdtxtabr{divideetimperā}[divide et impera]

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

\ergo       • \ergo = ergo
698 \cmdtxtabr{ergo}

\errata     • \errata = errata
699 \cmdtxtabr{errata}

\erratum    • \erratum = erratum
700 \cmdtxtabr{erratum}

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

```


`\etc` • `\etc` = *etc.*
702 `\cmdtxtabr{etc}[etc.]`

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

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

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

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

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

`\vs` • `\vs` = *vs.*
708 `\cmdtxtabr{vs}[vs.]`

`\viz` • `\viz` = *viz.*
709 `\cmdtxtabr{viz}[viz.]`
710 `%%*****`

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

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

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

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

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

`\Errata` • `\Errata` = *Errata*
716 `\cmdtxtabr{Errata}`

`\Erratum` • `\Erratum` = *Erratum*
717 `\cmdtxtabr{Erratum}`

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

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

`\Viceversa` • `\Viceversa` = *Vice versa*
720 `\cmdtxtabr{Viceversa}[Vice versa]`
721 `%%** Italian Abbreviations *****`
...
722 `%%*****`

```

...
723 %** French Abbreviations *****%
\role      • \role = rôle
724 \cmdtxtabr{role}[r{o}le]
725 %*****%
\Role      • \Role = Rôle
726 \cmdtxtabr{Role}[R{o}le]
727 %** English Abbreviations *****%
\aka       • \aka = a.k.a.
728 \cmdtxtabr{aka}[a.k.a.]
\contd     • \contd = contd.
729 \cmdtxtabr{contd}[contd.]
\iff       • \iff = iff
730 \cmdtxtabr{iff}
\stx       • \stx = s.t.
731 \cmdtxtabr{stx}[s.t.]
\resp      • \resp = resp.
732 \cmdtxtabr{resp}[resp.]
\wrt       • \wrt = w.r.t.
733 \cmdtxtabr{wrt}[w.r.t.]
\wlogx     • \wlogx = w.l.o.g.
734 \cmdtxtabr{wlogx}[w.l.o.g.]
735 %*****%
\Contd     • \Contd = Contd.
736 \cmdtxtabr{Contd}[Contd.]
\Wlogx     • \Wlogx = W.l.o.g.
737 \cmdtxtabr{Wlogx}[W.l.o.g.]
738 \fi
739 %*****%
740 %*****%
741 %** Elementary Macros for Math *****%
742 %*****%
743 \ifmath@
744 %** General Notation *****%
\defeq, \seteq ...
745 \DeclareRobustCommand{\defeq}
746   {\mthlopr{\triangleq}}
747 \DeclareRobustCommand{\seteq}
748   {\mthlopr{:=}}
749 %*****%

```

```

\implies, ... ...
750 \DeclareRobustCommand{\implies}
751   {\mthlrel{\Rightarrow}}
752 \DeclareRobustCommand{\notimplies}
753   {\mthlrel{\not\Rightarrow}}

\coimplies, ... ...
754 \DeclareRobustCommand{\coimplies}
755   {\mthlrel{\Leftrightarrow}}
756 \DeclareRobustCommand{\notcoimplies}
757   {\mthlrel{\not\!\Leftrightarrow}}

758 %%*****%

\cmodels, ... ...
759 \DeclareRobustCommand{\cmodels}
760   {\mthlrel{\models}}
761 \DeclareRobustCommand{\notcmodels}
762   {\mthlrel{\not\models}}

\cequiv, ... ...
763 \DeclareRobustCommand{\cequiv}
764   {\mthlrel{\equiv}}
765 \DeclareRobustCommand{\notcequiv}
766   {\mthlrel{\not\equiv}}

767 %%*****%

\dual, \adj, ... ...
768 \DeclareRobustCommand{\dual}[1]
769   {\mth{\overline{#1}}}
770 \DeclareRobustCommand{\adj}[1]
771   {\mth{\mathring{#1}}}
772 \DeclareRobustCommand{\der}[1]
773   {\mth{\widehat{#1}}}
774 \DeclareRobustCommand{\trn}[1]
775   {\mth{\widetilde{#1}}}

\vec ...
776 \DeclareRobustCommand{\vec}[1]
777   {\mth{\mathaccent"017E{#1}}}

778 %%*****%

\enumeration, ... ...
779 \varcmd{enumeration}{\mth}{\{,\}\{\}}
780 \varcmd{enumerationx}{\mth}{\{;\}\{\}}

\sequence, ... ...
781 \varcmd{sequence}{\mth}{\left[\{,\}\right]\{\}}
782 \varcmd{sequencel}{\mth}{\left[\{,\}\right.]\{\}}
783 \varcmd{sequencer}{\mth}{\left.\{,\}\right]\{\}}
784 \varcmd{sequencex}{\mth}{\left[\{;\}\right]\{\}}
785 \varcmd{sequencexl}{\mth}{\left[\{;\}\right.]\{\}}
786 \varcmd{sequencexr}{\mth}{\left.\{;\}\right]\{\}}

\tuple, ... ...
787 \varcmd{tuple}{\mth}{\left\langle\{,\}\right\rangle\{\}}
788 \varcmd{tuplel}{\mth}{\left\langle\{,\}\right.}\{\}}
789 \varcmd{tupler}{\mth}{\left.\{,\}\right\rangle\{\}}
790 \varcmd{tuplex}{\mth}{\left\langle\{;\}\right\rangle\{\}}
791 \varcmd{tuplexl}{\mth}{\left\langle\{;\}\right.}\{\}}
792 \varcmd{tuplexr}{\mth}{\left.\{;\}\right\rangle\{\}}

```

```

793 %%** Sets *****%%

\set ...
794 \DeclareRobustCommand{\set}[2]
795   {\argmid{\}{\argsep{#1}{\mid}{#2}}{\}}}

\card ...
796 \DeclareRobustCommand{\card}[1]
797   {\mth{\argmid{\lvert}{#1}{\rvert}}{}}

\pow ...
798 \DeclareRobustCommand{\pow}[1]
799   {\mth{2^{\defval{#1}{\cdot}}{}}}

\denot ...
800 \DeclareRobustCommand{\denot}[1]
801   {\mth{\argmid{\lVert}{#1}{\rVert}}{}}

802 %%** Relations *****%%

\emptyrel ...
803 \DeclareRobustCommand{\emptyrel}
804   {\mth{\varnothing}}

805 %%*****%%

\dom, \cod, ... ...
806 \DeclareRobustCommand{\dom}
807   {\mthargfun{\dom}}
808 \DeclareRobustCommand{\cod}
809   {\mthargfun{\cod}}
810 \DeclareRobustCommand{\rng}
811   {\mthargfun{\rng}}
812 \DeclareRobustCommand{\img}
813   {\mthargfun{\img}}

814 %%*****%%

\prj ...
815 \DeclareRobustCommand{\prj}
816   {\mthargfun{\prj}}

\rst ...
817 \DeclareRobustCommand{\rst}
818   {\mthlopr{\upharpoonright}}

\cmp ...
819 \DeclareRobustCommand{\cmp}
820   {\mthlopr{\circ}}

821 %%** Functions *****%%

\emptyfun ...
822 \DeclareRobustCommand{\emptyfun}
823   {\mth{\varnothing}}

824 %%*****%%

\pto, \pmapsto ...
825 \DeclareMathOperator{\pto}
826   {\ensuremath{\rightharpoonup}}
827 \DeclareMathOperator{\pmapsto}
828   {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize$\llcorner$}}}%
829     \kern-1.5ex\rightharpoonup}}

```

830 %%*****%

\Aomega, \AOmega ...

```
831 \DeclareRobustCommand{\Aomega}
832   {\mthargset{\omega}}
833 \DeclareRobustCommand{\AOmega}
834   {\mthargset{\Omega}}
```

\Atheta, \ATheta ...

```
835 \DeclareRobustCommand{\Atheta}
836   {\mthargset{\theta}}
837 \DeclareRobustCommand{\ATheta}
838   {\mthargset{\Theta}}
```

\Aomicron,

```
839 \DeclareRobustCommand{\Aomicron}
840   {\mthargset{\omicron}}
841 \DeclareRobustCommand{\AOmigron}
842   {\mthargset{\Omicron}}
```

843 %%** Numbers *****%

\SetB ...

```
844 \DeclareRobustCommand{\SetB}
845   {\mthset[mathbb]{B}}
```

\SetF ...

```
846 \DeclareRobustCommand{\SetF}
847   {\mthset[mathbb]{F}}
```

\SetN,

```
848 \DeclareRobustCommand{\SetN}
849   {\mthset[mathbb]{N}}
850 \DeclareRobustCommand{\SetNI}[1] []
851   {\SetN[\infty #1]}
```

\SetZ,

```
852 \DeclareRobustCommand{\SetZ}
853   {\mthset[mathbb]{Z}}
854 \DeclareRobustCommand{\SetZI}[1] []
855   {\SetZ[\pm\infty #1]}
856 \DeclareRobustCommand{\SetZPI}[1] []
857   {\SetZ[+\infty #1]}
858 \DeclareRobustCommand{\SetZNI}[1] []
859   {\SetZ[-\infty #1]}
```

\SetQ,

```
860 \DeclareRobustCommand{\SetQ}
861   {\mthset[mathbb]{Q}}
862 \DeclareRobustCommand{\SetQI}[1] []
863   {\SetQ[\pm\infty #1]}
864 \DeclareRobustCommand{\SetQPI}[1] []
865   {\SetQ[+\infty #1]}
866 \DeclareRobustCommand{\SetQNI}[1] []
867   {\SetQ[-\infty #1]}
```

\SetR,

```
868 \DeclareRobustCommand{\SetR}
869   {\mthset[mathbb]{R}}
870 \DeclareRobustCommand{\SetRI}[1] []
871   {\SetR[\pm\infty #1]}
872 \DeclareRobustCommand{\SetRPI}[1] []
873   {\SetR[+\infty #1]}
874 \DeclareRobustCommand{\SetRNI}[1] []
875   {\SetR[-\infty #1]}
```

```

\SetC, ... ...
876 \DeclareRobustCommand{\SetC}
877   {\mthset[\mathbb]{C}}
878 \DeclareRobustCommand{\SetCI}[1] []
879   {\SetC[\infty #1]}

880 %%*****%

\num, ... ...
881 \DeclareRobustCommand{\num}[1]
882   {\mth{[#1]}}
883 \DeclareRobustCommand{\numcc}[2]
884   {\mth{[\argsep{#1}{,}{#2}]}}
885 \DeclareRobustCommand{\numco}[2]
886   {\mth{[\argsep{#1}{,}{#2})}}
887 \DeclareRobustCommand{\numoc}[2]
888   {\mth{(\argsep{#1}{,}{#2}]}}
889 \DeclareRobustCommand{\numoo}[2]
890   {\mth{(\argsep{#1}{,}{#2})}}

891 %%*****%

\floor, \ceil ...
892 \DeclareRobustCommand{\floor}[1]
893   {\mth{\argmid{\left\lfloor}{#1}{\right\rfloor}}}
894 \DeclareRobustCommand{\ceil}[1]
895   {\mth{\argmid{\left\lceil}{#1}{\right\rceil}}}

896 %%*****%

\arg ...
897 \DeclareRobustCommand{\arg}
898   {\mthfun{arg}}

\evn, \odd ...
899 \DeclareRobustCommand{\evn}
900   {\mthfun{evn}}
901 \DeclareRobustCommand{\odd}
902   {\mthfun{odd}}

\bst, ... ...
903 \DeclareRobustCommand{\bst}
904   {\mthfun{bst}}
905 \DeclareRobustCommand{\argbst}
906   {\mthfun{arg bst}}

\min, \max, ... ...
907 \DeclareRobustCommand{\min}
908   {\mthfun{min}}
909 \DeclareRobustCommand{\max}
910   {\mthfun{max}}
911 \DeclareRobustCommand{\argmin}
912   {\mthfun{arg min}}
913 \DeclareRobustCommand{\argmax}
914   {\mthfun{arg max}}

\inf, \sup ...
915 \DeclareRobustCommand{\inf}
916   {\mthfun{inf}}
917 \DeclareRobustCommand{\sup}
918   {\mthfun{sup}}

919 %** Sequences *****%

```

```

\emptyseq ...
920 \DeclareRobustCommand{\emptyseq}
921   {\mth{\varepsilon}}

\fst, \lst ...
922 \DeclareRobustCommand{\fst}
923   {\mthargfun{fst}}
924 \DeclareRobustCommand{\lst}
925   {\mthargfun{lst}}

926 \fi
927 %%*****%
928 %%*****%
929 %%** Macros for Computational-Complexity Classes *****%
930 %%*****%
931 \ifcom@

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

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

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

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

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

    • \defcomcls{CompClass}[NewClass];

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

```

```

\CompClassC[sub][sup][ext] = NEWCLASS-COMPLETESUBEXTSUP;
\CoCompClassC[sub][sup][ext] = CONEWCLASS-COMPLETESUBEXTSUP

\NCompClass[sub][sup][ext] = NNEWCLASSSUPEXT;
\CoNCompClass[sub][sup][ext] = CONNEWCLASSSUPEXT
\NCompClassE[sub][sup][ext] = NNEWCLASS-EASYSUPEXT;
\CoNCompClassE[sub][sup][ext] = CONNEWCLASS-EASYSUPEXT
\NCompClassH[sub][sup][ext] = NNEWCLASS-HARDSUPEXT;
\CoNCompClassH[sub][sup][ext] = CONNEWCLASS-HARDSUPEXT
\NCompClassC[sub][sup][ext] = NNEWCLASS-COMPLETESUBEXTSUP;
\CoNCompClassC[sub][sup][ext] = CONNEWCLASS-COMPLETESUBEXTSUP

\UCompClass[sub][sup][ext] = UNEWCLASSSUPEXT;
\CoUCompClass[sub][sup][ext] = COUNEWCLASSSUPEXT
\UCompClassE[sub][sup][ext] = UNEWCLASS-EASYSUPEXT;
\CoUCompClassE[sub][sup][ext] = COUNEWCLASS-EASYSUPEXT
\UCompClassH[sub][sup][ext] = UNEWCLASS-HARDSUPEXT;
\CoUCompClassH[sub][sup][ext] = COUNEWCLASS-HARDSUPEXT
\UCompClassC[sub][sup][ext] = UNEWCLASS-COMPLETESUBEXTSUP;
\CoUCompClassC[sub][sup][ext] = COUNEWCLASS-COMPLETESUBEXTSUP

\ACompClass[sub][sup][ext] = ANEWCLASSSUPEXT;
\CoACompClass[sub][sup][ext] = COANEWCLASSSUPEXT
\ACompClassE[sub][sup][ext] = ANEWCLASS-EASYSUPEXT;
\CoACompClassE[sub][sup][ext] = COANEWCLASS-EASYSUPEXT
\ACompClassH[sub][sup][ext] = ANEWCLASS-HARDSUPEXT;
\CoACompClassH[sub][sup][ext] = COANEWCLASS-HARDSUPEXT
\ACompClassC[sub][sup][ext] = ANEWCLASS-COMPLETESUBEXTSUP;
\CoACompClassC[sub][sup][ext] = COANEWCLASS-COMPLETESUBEXTSUP

```

```

932 \newcommandx{\defcomcls}[2][2=]
933   {\defcomclssem{#1}{\defval{#2}{#1}}}%
934   \defcomclssem{#1}{\defval{#2}{#1}}[Co]}
935 \newcommandx{\defcomclssem}[3][3=]
936   {\defcomclsred{#3#1}{#2}{#3}%
937   \defcomclsred{#3N#1}{#2}{#3N}%
938   \defcomclsred{#3U#1}{#2}{#3U}%
939   \defcomclsred{#3A#1}{#2}{#3A}}
940 \newcommandx{\defcomclsred}[3][3=]
941   {\defcomclscmd{#1}{#2}{#3}%
942   \defcomclscmd{#1E}{#2}{#3}[-easy]%
943   \defcomclscmd{#1H}{#2}{#3}[-hard]%
944   \defcomclscmd{#1C}{#2}{#3}[-complete]]}%
945 \newcommandx{\defcomclscmd}[4][3=, 4=]
946   {\csdef{#1}{\txtcom{#3#2#4}}}

947 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

```

\Time, ...
• \Time[sub][sup][ext] = TIMESUPEXT
  \TimeE[sub][sup][ext] = TIME-EASYSUPEXT
  \TimeH[sub][sup][ext] = TIME-HARDSUPEXT
  \TimeC[sub][sup][ext] = TIME-COMPLETESUBEXTSUP

• \NTime[sub][sup][ext] = NTIMESUPEXT
  \NTimeE[sub][sup][ext] = NTIME-EASYSUPEXT
  \NTimeH[sub][sup][ext] = NTIME-HARDSUPEXT
  \NTimeC[sub][sup][ext] = NTIME-COMPLETESUBEXTSUP

• \UTime[sub][sup][ext] = UTIMESUPEXT
  \UTimeE[sub][sup][ext] = UTIME-EASYSUPEXT
  \UTimeH[sub][sup][ext] = UTIME-HARDSUPEXT
  \UTimeC[sub][sup][ext] = UTIME-COMPLETESUBEXTSUP

• \ATime[sub][sup][ext] = ATIMESUPEXT
  \ATimeE[sub][sup][ext] = ATIME-EASYSUPEXT
  \ATimeH[sub][sup][ext] = ATIME-HARDSUPEXT
  \ATimeC[sub][sup][ext] = ATIME-COMPLETESUBEXTSUP

```


948 \defcomcls{Time}

\Space, ...

- \Space[sub][sup][ext] = SPACE_{SUB}^{SUP}EXT
- \SpaceE[sub][sup][ext] = SPACE-EASY_{SUB}^{SUP}EXT
- \SpaceH[sub][sup][ext] = SPACE-HARD_{SUB}^{SUP}EXT
- \SpaceC[sub][sup][ext] = SPACE-COMPLETE_{SUB}^{SUP}EXT
- \NSpace[sub][sup][ext] = NSPACE_{SUB}^{SUP}EXT
- \NSpaceE[sub][sup][ext] = NSPACE-EASY_{SUB}^{SUP}EXT
- \NSpaceH[sub][sup][ext] = NSPACE-HARD_{SUB}^{SUP}EXT
- \NSpaceC[sub][sup][ext] = NSPACE-COMPLETE_{SUB}^{SUP}EXT
- \USpace[sub][sup][ext] = USPACE_{SUB}^{SUP}EXT
- \USpaceE[sub][sup][ext] = USPACE-EASY_{SUB}^{SUP}EXT
- \USpaceH[sub][sup][ext] = USPACE-HARD_{SUB}^{SUP}EXT
- \USpaceC[sub][sup][ext] = USPACE-COMPLETE_{SUB}^{SUP}EXT
- \ASpace[sub][sup][ext] = ASPACE_{SUB}^{SUP}EXT
- \ASpaceE[sub][sup][ext] = ASPACE-EASY_{SUB}^{SUP}EXT
- \ASpaceH[sub][sup][ext] = ASPACE-HARD_{SUB}^{SUP}EXT
- \ASpaceC[sub][sup][ext] = ASPACE-COMPLETE_{SUB}^{SUP}EXT

949 \defcomcls{Space}

\LogTime, ...

- \LogTime[sub][sup][ext] = LOGTIME_{SUB}^{SUP}EXT
- \LogTimeE[sub][sup][ext] = LOGTIME-EASY_{SUB}^{SUP}EXT
- \LogTimeH[sub][sup][ext] = LOGTIME-HARD_{SUB}^{SUP}EXT
- \LogTimeC[sub][sup][ext] = LOGTIME-COMPLETE_{SUB}^{SUP}EXT
- \NLogTime[sub][sup][ext] = NLOGTIME_{SUB}^{SUP}EXT
- \NLogTimeE[sub][sup][ext] = NLOGTIME-EASY_{SUB}^{SUP}EXT
- \NLogTimeH[sub][sup][ext] = NLOGTIME-HARD_{SUB}^{SUP}EXT
- \NLogTimeC[sub][sup][ext] = NLOGTIME-COMPLETE_{SUB}^{SUP}EXT
- \ULogTime[sub][sup][ext] = ULOGTIME_{SUB}^{SUP}EXT
- \ULogTimeE[sub][sup][ext] = ULOGTIME-EASY_{SUB}^{SUP}EXT
- \ULogTimeH[sub][sup][ext] = ULOGTIME-HARD_{SUB}^{SUP}EXT
- \ULogTimeC[sub][sup][ext] = ULOGTIME-COMPLETE_{SUB}^{SUP}EXT
- \ALogTime[sub][sup][ext] = ALOGTIME_{SUB}^{SUP}EXT
- \ALogTimeE[sub][sup][ext] = ALOGTIME-EASY_{SUB}^{SUP}EXT
- \ALogTimeH[sub][sup][ext] = ALOGTIME-HARD_{SUB}^{SUP}EXT
- \ALogTimeC[sub][sup][ext] = ALOGTIME-COMPLETE_{SUB}^{SUP}EXT

950 \defcomcls{LogTime}

\LogSpace, ...

- \LogSpace[sub][sup][ext] = LOGSPACE_{SUB}^{SUP}EXT
- \LogSpaceE[sub][sup][ext] = LOGSPACE-EASY_{SUB}^{SUP}EXT
- \LogSpaceH[sub][sup][ext] = LOGSPACE-HARD_{SUB}^{SUP}EXT
- \LogSpaceC[sub][sup][ext] = LOGSPACE-COMPLETE_{SUB}^{SUP}EXT
- \NLogSpace[sub][sup][ext] = NLOGSPACE_{SUB}^{SUP}EXT
- \NLogSpaceE[sub][sup][ext] = NLOGSPACE-EASY_{SUB}^{SUP}EXT
- \NLogSpaceH[sub][sup][ext] = NLOGSPACE-HARD_{SUB}^{SUP}EXT
- \NLogSpaceC[sub][sup][ext] = NLOGSPACE-COMPLETE_{SUB}^{SUP}EXT
- \ULogSpace[sub][sup][ext] = ULOGSPACE_{SUB}^{SUP}EXT
- \ULogSpaceE[sub][sup][ext] = ULOGSPACE-EASY_{SUB}^{SUP}EXT
- \ULogSpaceH[sub][sup][ext] = ULOGSPACE-HARD_{SUB}^{SUP}EXT
- \ULogSpaceC[sub][sup][ext] = ULOGSPACE-COMPLETE_{SUB}^{SUP}EXT
- \ALogSpace[sub][sup][ext] = ALOGSPACE_{SUB}^{SUP}EXT
- \ALogSpaceE[sub][sup][ext] = ALOGSPACE-EASY_{SUB}^{SUP}EXT
- \ALogSpaceH[sub][sup][ext] = ALOGSPACE-HARD_{SUB}^{SUP}EXT
- \ALogSpaceC[sub][sup][ext] = ALOGSPACE-COMPLETE_{SUB}^{SUP}EXT

951 \defcomcls{LogSpace}

\PTime, ...

- \PTime[sub][sup][ext] = PTIME_{SUB}^{SUP}EXT
- \PTimeE[sub][sup][ext] = PTIME-EASY_{SUB}^{SUP}EXT
- \PTimeH[sub][sup][ext] = PTIME-HARD_{SUB}^{SUP}EXT
- \PTimeC[sub][sup][ext] = PTIME-COMPLETE_{SUB}^{SUP}EXT

- $\backslash\text{UQPSPACE}[\text{sub}][\text{sup}][\text{ext}] = \text{UQPSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{UQPSPACEE}[\text{sub}][\text{sup}][\text{ext}] = \text{UQPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{UQPSPACEH}[\text{sub}][\text{sup}][\text{ext}] = \text{UQPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{UQPSPACEC}[\text{sub}][\text{sup}][\text{ext}] = \text{UQPSPACE-COMLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash\text{AQPSpace}[\text{sub}][\text{sup}][\text{ext}] = \text{AQPSpace}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{AQPSpaceE}[\text{sub}][\text{sup}][\text{ext}] = \text{AQPSpace-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{AQPSpaceH}[\text{sub}][\text{sup}][\text{ext}] = \text{AQPSpace-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{AQPSpaceC}[\text{sub}][\text{sup}][\text{ext}] = \text{AQPSpace-COMLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

955 \defcomcls{QPSpace}

\ExpTime, ...

- $\backslash\text{ExpTime}[\text{sub}][\text{sup}][\text{ext}] = \text{EXPTime}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{ExpTimeE}[\text{sub}][\text{sup}][\text{ext}] = \text{EXPTime-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{ExpTimeH}[\text{sub}][\text{sup}][\text{ext}] = \text{EXPTime-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{ExpTimeC}[\text{sub}][\text{sup}][\text{ext}] = \text{EXPTime-COMLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash\text{NExpTime}[\text{sub}][\text{sup}][\text{ext}] = \text{NEXPTime}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{NExpTimeE}[\text{sub}][\text{sup}][\text{ext}] = \text{NEXPTime-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{NExpTimeH}[\text{sub}][\text{sup}][\text{ext}] = \text{NEXPTime-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{NExpTimeC}[\text{sub}][\text{sup}][\text{ext}] = \text{NEXPTime-COMLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash\text{UExpTime}[\text{sub}][\text{sup}][\text{ext}] = \text{UEXPTime}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{UExpTimeE}[\text{sub}][\text{sup}][\text{ext}] = \text{UEXPTime-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{UExpTimeH}[\text{sub}][\text{sup}][\text{ext}] = \text{UEXPTime-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{UExpTimeC}[\text{sub}][\text{sup}][\text{ext}] = \text{UEXPTime-COMLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash\text{AExpTime}[\text{sub}][\text{sup}][\text{ext}] = \text{AEXPTime}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{AExpTimeE}[\text{sub}][\text{sup}][\text{ext}] = \text{AEXPTime-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{AExpTimeH}[\text{sub}][\text{sup}][\text{ext}] = \text{AEXPTime-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{AExpTimeC}[\text{sub}][\text{sup}][\text{ext}] = \text{AEXPTime-COMLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

956 \defcomcls{ExpTime}

\ExpSpace, ...

- $\backslash\text{ExpSpace}[\text{sub}][\text{sup}][\text{ext}] = \text{EXPSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{ExpSpaceE}[\text{sub}][\text{sup}][\text{ext}] = \text{EXPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{ExpSpaceH}[\text{sub}][\text{sup}][\text{ext}] = \text{EXPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{ExpSpaceC}[\text{sub}][\text{sup}][\text{ext}] = \text{EXPSPACE-COMLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash\text{NExpSpace}[\text{sub}][\text{sup}][\text{ext}] = \text{NEXPSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{NExpSpaceE}[\text{sub}][\text{sup}][\text{ext}] = \text{NEXPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{NExpSpaceH}[\text{sub}][\text{sup}][\text{ext}] = \text{NEXPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{NExpSpaceC}[\text{sub}][\text{sup}][\text{ext}] = \text{NEXPSPACE-COMLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash\text{UExpSpace}[\text{sub}][\text{sup}][\text{ext}] = \text{UEXPSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{UExpSpaceE}[\text{sub}][\text{sup}][\text{ext}] = \text{UEXPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{UExpSpaceH}[\text{sub}][\text{sup}][\text{ext}] = \text{UEXPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{UExpSpaceC}[\text{sub}][\text{sup}][\text{ext}] = \text{UEXPSPACE-COMLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash\text{AExpSpace}[\text{sub}][\text{sup}][\text{ext}] = \text{AEXPSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{AExpSpaceE}[\text{sub}][\text{sup}][\text{ext}] = \text{AEXPSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{AExpSpaceH}[\text{sub}][\text{sup}][\text{ext}] = \text{AEXPSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
 $\backslash\text{AExpSpaceC}[\text{sub}][\text{sup}][\text{ext}] = \text{AEXPSPACE-COMLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

957 \defcomcls{ExpSpace}

958 %*****%

...

959 \fi

960 %*****%

961 %*****%

962 %** Macros for Games *****%

963 %*****%

964 \ifgam@

965 %** Logic Games *****%

\SATG, ...

966 % Satisfiability Games

967 \cmdtxttoparname{SATG}[Sat]

```

968
969 %% Validity Games
970 \cmdtxttoparname{VALG}[Val]
971
972 %% Evaluation Games
973 \cmdtxttoparname{EVLG}[Evl]
974
975 %% Synthesis Games
976 \cmdtxttoparname{SYNG}[Syn]
977
978 %% Model-Checking Games
979 \cmdtxttoparname{MCG}[MC]
980
981 %% Ehrenfeucht-Fraisse Games
982 \cmdtxttoparname{EFG}[EF]

983 %** Syntax *****%
```

\PlrSym, \OppSym ...

```

984 \newcommand{\plrsym}{E}
985 \cmdmthsym{Plr}[\plrsym]
986 \newcommand{\oppsym}{A}
987 \cmdmthsym{Opp}[\oppsym]
```

\ArenaName,

```

988 \newcommand{\arenaname}{A}
989 \usrmthlatupp{Arena}{Name}{name}[\arenaname]
```

\PosSet,

```

990 \newcommand{\possym}{v}
991 \newcommand{\posset}{Ps}
992 \cmdmthsetext{Pos}[\posset][\possym]
993 \cmdmthsymelm{ipos}[\possym_{I}]
994 \cmdmthsymelm{fpos}[\possym_{F}]
995 \cmdmthset{PPos}[\posset_{\PlrSym}]
996 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
997 \cmdmthset{OPos}[\posset_{\OppSym}]
998 \cmdmthsymelm{opos}[\possym_{\OppSym}]
```

\MovRel ...

```

999 \newcommand{\movrel}{Mv}
1000 \cmdmthrel{Mov}[\movrel]
```

\GameName,

```

1001 \newcommand{\gamename}{\Game}
1002 \usrmthlatupp{Game}{Name}{name}[\gamename]
```

\WinSet ...

```

1003 \newcommand{\winset}{Wn}
1004 \cmdmthset{Win}[\winset]
```

\ObsSet, \obsFun ...

```

1005 \newcommand{\obsset}{Ob}
1006 \cmdmthset{Obs}[\obsset]
1007 \cmdmthfun{obs}
```

```

1008 %** Semantics *****%
```

\PthSet, \pthFun ...

```

1009 \newcommand{\pthsym}{\pi}
1010 \newcommand{\pthset}{Pth}
1011 \cmdmthsetext{Pth}[\pthset][\pthsym]
1012 \cmdmthfun{pth}
```

```

\HstSet, ... ...
1013 \newcommand{\hstsym}{\rho}
1014 \newcommand{\hstset}{Hst}
1015 \cmdmthsetext{Hst}[\hstset][\hstsym]
1016 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1017 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1018 \cmdmthset{OHst}[\hstset_{\OppSym}]
1019 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1020 \cmdmthfun{hst}

\PlaySet, \playFun ...
1021 \newcommand{\playsym}{\pi}
1022 \newcommand{\playset}{Play}
1023 \cmdmthsetext{Play}[\playset][\playsym]
1024 \cmdmthfun{play}

\StrSet, ... ...
1025 \newcommand{\strsym}{\sigma}
1026 \newcommand{\strset}{Str}
1027 \cmdmthsetext{Str}[\strset][\strsym]
1028 \cmdmthset{PStr}[\strset_{\PlrSym}]
1029 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1030 \cmdmthset{OStr}[\strset_{\OppSym}]
1031 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1032 \newcommand{\prfsym}{\xi}
1033 \newcommand{\prfset}{Prf}
1034 \cmdmthsetext{Prf}[\prfset][\prfsym]

\preFun, \sucFun ...
1035 \newcommand{\prefun}{pre}
1036 \cmdmthoargfun{pre}[\prefun]
1037 \newcommand{\sucfun}{suc}
1038 \cmdmthoargfun{suc}[\sucfun]

\entFun, \escFun ...
1039 \newcommand{\entfun}{ent}
1040 \cmdmthoargfun{ent}[\entfun]
1041 \newcommand{\escfun}{esc}
1042 \cmdmthoargfun{esc}[\escfun]

\intFun, \outFun ...
1043 \newcommand{\intfun}{int}
1044 \cmdmthoargfun{int}[\intfun]
1045 \newcommand{\outfun}{out}
1046 \cmdmthoargfun{out}[\outfun]

\atrFun, \rchFun ...
1047 \newcommand{\atrfun}{atr}
1048 \cmdmthoargfun{atr}[\atrfun]
1049 \newcommand{\rchfun}{rch}
1050 \cmdmthoargfun{rch}[\rchfun]

\solFun ...
1051 \newcommand{\solfun}{sol}
1052 \cmdmthoargfun{sol}[\solfun]

1053 %** Qualitative Games on Graph *****%

```

```

\BG, ... ...
1054 %% Buchi Games
1055 \cmdtxttoparname{BG}
1056
1057 %% Co-Buchi Games
1058 \cmdtxttoparname{CG}
1059
1060 %% Parity Games
1061 \cmdtxttoparname{PG}
1062
1063 %% Rabin Games
1064 \cmdtxttoparname{RG}
1065
1066 %% Streett Games
1067 \cmdtxttoparname{SG}
1068
1069 %% Muller Games
1070 \cmdtxttoparname{MG}

1071 %** Syntax *****%%

\PrtSet, \prtFun ...
1072 \newcommand{\prtsym}{p}
1073 \newcommand{\prtset}{Pr}
1074 \cmdmthsetext{Prt}[\prtset][\prtsym]
1075 \cmdmthfun{prt}[pr]

1076 %** Semantics *****%%
...
1077 %** Quantitative Games on Graph *****%%

\EG, ... ...
1078 %% Energy Games
1079 \cmdtxttoparname{EG}
1080
1081 %% Mean-Payoff Games
1082 \cmdtxttoparname{MPG}
1083
1084 %% Discounted-Payoff Games
1085 \cmdtxttoparname{DPG}

1086 %** Syntax *****%%

\WghSet, \wghFun ...
1087 \newcommand{\wghsym}{w}
1088 \newcommand{\wghset}{Wg}
1089 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1090 \cmdmthfun{wgh}[wg]

1091 %** Semantics *****%%
...
1092 \fi
1093 %*****%%
1094 %*****%%
1095 %** Macros for Logics *****%%
1096 %*****%%
1097 \iflog@
1098 %** Propositional Logics *****%%

```

```

\BF, \QBF, ... ...
1099 % Boolean Formulae
1100 \cmdtxttoparname{BF}
1101
1102 % Quantified Boolean Formulae
1103 \DeclareRobustCommand{\QBF}
1104   {\txtname{Q}\BF}
1105 \DeclareRobustCommand{\EBF}
1106   {\ensuremath{\exists}\BF}
1107 \DeclareRobustCommand{\UBF}
1108   {\ensuremath{\forall}\BF}

1109 %** Syntax *****%%

\LogSig, ... ...
1110 \newcommand{\logsig}{L}
1111 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

\Tt, \Ff ...
1112 \newcommand{\ttsym}{\top}
1113 \usrmth{Tt}{\}{sym}[\ttsym]
1114 \newcommand{\ffsym}{\bot}
1115 \usrmth{Ff}{\}{sym}[\ffsym]

\APSet, ... ...
1116 \newcommand{\apsym}{p}
1117 \newcommand{\apset}{AP}
1118 \cmdmthsetext{AP}[\apset][\apsym]
1119 \cmdmthfun{ap}\usrmth{ap}{\}{argfun}

\sub ...
1120 \usrmth{sub}{\}{argfun}

\Cnt, \Qnt ...
1121 \usrmth{Cnt}{\}{sym}[Cn]
1122 \usrmth{Qnt}{\}{sym}[Qn]

\QAE, \QEA ...
1123 \usrmth{QAE}{\}{sym}[\forall\exists]
1124 \usrmth{QEA}{\}{sym}[\exists\forall]

\QntSet, ... ...
1125 \newcommand{\qntsym}{\wp}
1126 \newcommand{\qntset}{Qn}
1127 \cmdmthsetext{Qnt}[\qntset][\qntsym]

\free ...
1128 \usrmth{free}{\}{argfun}

\dep, \alt ...
1129 \usrmth{dep}{\}{argfun}
1130 \usrmth{alt}{\}{argfun}

\pnf, \nnf ...
1131 \cmdtxtabr{pnf}
1132 \cmdtxtabr{nnf}

1133 %** Semantics *****%%

\LogStr, ... ...
1134 \newcommand{\logstr}{L}
1135 \usrmthlatupp{Log}{Str}{str}[\logstr]

```

```

\ValSet, ... ...
1136 \newcommand{\valsym}{\xi}
1137 \newcommand{\valset}{Val}
1138 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet, ... ...
1139 \newcommand{\asgsym}{\chi}
1140 \newcommand{\asgset}{Asg}
1141 \cmdmthsetext{Asg}[\asgset][\asgsym]

1142 %** First-Order Logics I *****%%

\FOL, ... ...
1143 % First-Order Logic
1144 \cmdtxttoparname{FOL}[Fol]
1145
1146 % Monadic First-Order Logic
1147 \DeclareRobustCommand{\MFOL}
1148 {\{\txtname{M}\}\FOL}

1149 %** Syntax *****%%

\VarSig, ... ...
1150 \newcommand{\varsig}{V}
1151 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1152 \newcommand{\varsym}{x}
1153 \newcommand{\varset}{Vr}
1154 \cmdmthsetext{Var}[\varset][\varsym]
1155 \usrmth{var}{\}{argfun}[vr]
1156 \cmdmthfun{dim}[dm]\usrmth{dim}{\}{argfun}[dm]

\ConSig, ... ...
1157 \newcommand{\consig}{C}
1158 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1159 \newcommand{\consym}{c}
1160 \newcommand{\conset}{Cn}
1161 \cmdmthsetext{Con}[\conset][\consym]
1162 \usrmth{con}{\}{argfun}[cn]

\FunSig, ... ...
1163 \newcommand{\funsig}{F}
1164 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1165 \newcommand{\funsym}{f}
1166 \newcommand{\funset}{Fn}
1167 \cmdmthsetext{Fun}[\funset][\funsym]
1168 \usrmth{fun}{\}{argfun}[fn]
1169 \cmdmthfun{art}[ar]\usrmth{art}{\}{argfun}[ar]

\TerSig, ... ...
1170 \newcommand{\tersig}{T}
1171 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1172 \newcommand{\tersym}{t}
1173 \newcommand{\terset}{Tr}
1174 \cmdmthsetext{Ter}[\terset][\tersym]
1175 \usrmth{ter}{\}{argfun}

\RelSig, ... ...
1176 \newcommand{\relsig}{R}
1177 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1178 \newcommand{\relsym}{r}
1179 \newcommand{\relset}{Rl}
1180 \cmdmthsetext{Rel}[\relset][\relsym]
1181 \usrmth{rel}{\}{argfun}[rl]

```



```

\skm ...
1182 \usrmth{skm}{\}{argfun}

1183 %** Semantics *****%%

\ConStr, ... ...
1184 \newcommand{\constr}{C}
1185 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr, ... ...
1186 \newcommand{\funstr}{F}
1187 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr, ... ...
1188 \newcommand{\terstr}{T}
1189 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr, ... ...
1190 \newcommand{\relstr}{R}
1191 \usrmthlatupp{Rel}{Str}{str}[\relstr]

1192 %** First-Order Logics II *****%%

\IF, ... ...
1193 % Independence-Friendly Logic
1194 \cmdtxtopname{IF}

...

1195 %** Syntax *****%%

...

1196 %** Semantics *****%%

...

1197 %** Second-Order Logics I *****%%

\SOL, ... ...
1198 % Second-Order Logic
1199 \cmdtxtopname{SOL}[Sol]
1200
1201 % Monadic Second-Order Logic
1202 \DeclareRobustCommand{\MSOL}
1203 {\{\txtname{M}\}\SOL}

1204 %** Syntax *****%%

\FVarSet, ... ...
1205 \newcommand{\fvarsym}{x}
1206 \newcommand{\fvarset}{FVr}
1207 \cmdmthsetext{FVar}[\fvarset][\fvarsym]

\SVarSet, ... ...
1208 \newcommand{\svarsym}{X}
1209 \newcommand{\svarset}{SVr}
1210 \cmdmthsetext{SVar}[\svarset][\svarsym]

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

...

1212 %** Second-Order Logics II *****%%

```

```

\TL, \PL, ... ...
1213 % Tree Logic
1214 \cmdtxttoparname{TL}
1215
1216 % Monadic Tree Logic
1217 \DeclareRobustCommand{\MTL}
1218   {\txtname{M}}\TL}
1219
1220 % Path Logic
1221 \cmdtxttoparname{PL}
1222
1223 % Monadic Path Logic
1224 \DeclareRobustCommand{\MPL}
1225   {\txtname{M}}\PL}

1226 %** Syntax *****%

...

1227 %** Semantics *****%

...

1228 %** Modal Logics I *****%

\ML, \QML, ... ...
1229 % Modal Logic
1230 \cmdtxttoparname{ML}
1231
1232 % Quantified Modal Logic
1233 \DeclareRobustCommand{\QML}
1234   {\txtname{Q}}\ML}
1235 \DeclareRobustCommand{\EML}
1236   {\ensuremath{\exists}\ML}
1237 \DeclareRobustCommand{\UML}
1238   {\ensuremath{\forall}\ML}

1239 %** Syntax *****%

\Opr ...
1240 \usrmth{Opr}{\sym}[Op]

\DMod, \BMod ...
1241 \usrmth{DMod}{\sym}[\Diamond]
1242 \usrmth{BMod}{\sym}[\Box]

\Exs, \All ...
1243 \DeclareRobustCommand{\Exs}[1]
1244   {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1245 \DeclareRobustCommand{\All}[1]
1246   {\mth{\defval{\argmid{\left[]{\#1}{\right]}}{\BMod}}}

1247 %** Semantics *****%

\KrpStr, ... ...
1248 \newcommand{\krpstr}{K}
1249 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

\WrlSet, ... ...
1250 \newcommand{\wrlsym}{w}
1251 \newcommand{\wrlset}{W}
1252 \cmdmthsetext{Wrl}{\wrlset}[\wrlsym]
1253 \cmdmthsymelm{iwrl}{\wrlsym_{I}}

```

```

\AccRel, \TrnRel ...
1254 \newcommand{\accsym}{R}
1255 \cmdmthrel{Acc}[\accsym]
1256 \cmdmthrel{Trn}[\accsym]

\labFun ...
1257 \newcommand{\labsym}{\lambda}
1258 \cmdmthfun{lab}[\labsym]

\PthSet, \pthFun ...
1259 \providecommand{\pthsym}{\pi}
1260 \providecommand{\pthset}{Pth}
1261 \cmdmthsetext{Pth}[\pthset][\pthsym]
1262 \cmdmthfun{pth}

1263 %** Modal Logics II *****%%

\MC, \QMC, ... ...
1264 % Mu Calculus
1265 \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]
1266
1267 % Quantified Modal Logic
1268 \DeclareRobustCommand{\QMC}
1269   {\{\textrm{Q}\}\MC}
1270 \DeclareRobustCommand{\EMC}
1271   {\ensuremath{\exists}\MC}
1272 \DeclareRobustCommand{\UMC}
1273   {\ensuremath{\forall}\MC}

1274 %** Syntax *****%%

...

1275 %** Semantics *****%%

...

1276 %** Temporal Logics I *****%%

\PTL, \LTL, ... ...
1277 % Propositional Temporal Logic
1278 \cmdtxtoparname{PTL}
1279
1280 % Quantified Propositional Temporal Logic
1281 \DeclareRobustCommand{\QPTL}
1282   {\{\textrm{Q}\}\PTL}
1283 \DeclareRobustCommand{\EPTL}
1284   {\ensuremath{\exists}\PTL}
1285 \DeclareRobustCommand{\UPTL}
1286   {\ensuremath{\forall}\PTL}
1287
1288 % Linear Temporal Logic
1289 \cmdtxtoparname{LTL}
1290
1291 % Quantified Linear Temporal Logic
1292 \DeclareRobustCommand{\QLTL}
1293   {\{\textrm{Q}\}\LTL}
1294 \DeclareRobustCommand{\ELTL}
1295   {\ensuremath{\exists}\LTL}
1296 \DeclareRobustCommand{\ULTL}
1297   {\ensuremath{\forall}\LTL}

1298 %** Syntax *****%%

```

```

\X, ... ...
1299 \usrmth{X}{-}{sym}[X\,]
1300 \usrmth{F}{-}{sym}[F\,]
1301 \usrmth{G}{-}{sym}[G\,]
1302 \usrmth{U}{-}{sym}[\,U\,]
1303 \usrmth{R}{-}{sym}[\,R\,]

\Y, ... ...
1304 \usrmth{Y}{-}{sym}[G\,]
1305 \usrmth{P}{-}{sym}[P\,]\let\SavePildcrow\P
1306 \usrmth{H}{-}{sym}[H\,]\let\SaveDoubleAcute\H
1307 \usrmth{S}{-}{sym}[\,S\,]\let\SaveSectionSymbol\S
1308 \usrmth{B}{-}{sym}[\,B\,]

1309 %** Semantics *****%

...

1310 %** Temporal Logics II *****%

\PDL, \CTL, ... ...
1311
1312 % Propositional Dynamic Logic
1313 \cmdtxtopname{PDL}
1314
1315 % Computation Tree Logic
1316 \cmdtxtopname{CTL}
1317
1318 % Quantified Computation Tree Logic
1319 \DeclareRobustCommand{\QCTL}
1320   {\{\txname{Q}\}\CTL}
1321 \DeclareRobustCommand{\ECTL}
1322   {\ensuremath{\exists}\CTL}
1323 \DeclareRobustCommand{\UCTL}
1324   {\ensuremath{\forall}\CTL}
1325
1326 % Improved Computation Tree Logic
1327 \cmdtxtopname{CTLP}[CTL$^{+}$]
1328
1329 % Quantified Improved Computation Tree Logic
1330 \DeclareRobustCommand{\QCTLP}
1331   {\{\txname{Q}\}\CTLP}
1332 \DeclareRobustCommand{\ECTLP}
1333   {\ensuremath{\exists}\CTLP}
1334 \DeclareRobustCommand{\UCTLP}
1335   {\ensuremath{\forall}\CTLP}
1336
1337 % Full Computation Tree Logic
1338 \cmdtxtopname{CTLS}[CTL*]
1339
1340 % Quantified Full Computation Tree Logic
1341 \DeclareRobustCommand{\QCTLS}
1342   {\{\txname{Q}\}\CTLS}
1343 \DeclareRobustCommand{\ECTLS}
1344   {\ensuremath{\exists}\CTLS}
1345 \DeclareRobustCommand{\UCTLS}
1346   {\ensuremath{\forall}\CTLS}

1347 %** Syntax *****%

\E, \A ...
1348 \usrmth{E}{-}{sym}
1349 \usrmth{A}{-}{sym}

1350 %** Semantics *****%

```

```

...
1351 %** Strategic Logics I *****%%
\ATL, ... ...
1352 % Alternating Temporal Logic
1353 \cmdtxtopname{ATL}
1354
1355 % Quantified Alternating Temporal Logic
1356 \DeclareRobustCommand{\QATL}
1357   {\txtname{Q}\ATL}
1358 \DeclareRobustCommand{\EATL}
1359   {\ensuremath{\exists}\ATL}
1360 \DeclareRobustCommand{\UATL}
1361   {\ensuremath{\forall}\ATL}
1362
1363 % Improved Alternating Temporal Logic
1364 \cmdtxtopname{ATLP}[ATL$^{+}$]
1365
1366 % Quantified Improved Alternating Temporal Logic
1367 \DeclareRobustCommand{\QATLP}
1368   {\txtname{Q}\ATLP}
1369 \DeclareRobustCommand{\EATLP}
1370   {\ensuremath{\exists}\ATLP}
1371 \DeclareRobustCommand{\UATLP}
1372   {\ensuremath{\forall}\ATLP}
1373
1374 % Full Alternating Temporal Logic
1375 \cmdtxtopname{ATLS}[ATL*]
1376
1377 % Quantified Full Alternating Temporal Logic
1378 \DeclareRobustCommand{\QATLS}
1379   {\txtname{Q}\ATLS}
1380 \DeclareRobustCommand{\EATLS}
1381   {\ensuremath{\exists}\ATLS}
1382 \DeclareRobustCommand{\UATLS}
1383   {\ensuremath{\forall}\ATLS}
1384 %** Syntax *****%%
\EExs, \AA11 ...
1385 \DeclareRobustCommand{\EExs}[1]
1386   {\mth{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1387 \DeclareRobustCommand{\AA11}[1]
1388   {\mth{\argmid{\left[\left[\defval{#1}{\emptyset}]{\right]\right}}}}
1389 %** Semantics *****%%
\CGS ...
1390 \cmdtxtname{CGS}
\CGSStr, ... ...
1391 \newcommand{\cgsstr}{G}
1392 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]
\AgnSet, ... ...
1393 \newcommand{\agnsym}{a}
1394 \newcommand{\agnset}{Ag}
1395 \cmdmthsetext{Agn}[\agnset][\agnsym]
\PosSet, ... ...
1396 \providecommand{\possym}{v}
1397 \providecommand{\posset}{Ps}
1398 \cmdmthsetext{Pos}[\posset][\possym]

```

```

1399 \cmdmthsymelm{ipos}[\possym_{I}]
1400 \cmdmthsymelm{fpos}[\possym_{F}]
1401 \cmdmthset{PPos}[\posset_{\PlrSym}]
1402 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1403 \cmdmthset{OPos}[\posset_{\OppSym}]
1404 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet, ... ...
1405 \newcommand{\sttsym}{s}
1406 \newcommand{\sttset}{St}
1407 \cmdmthsetext{Stt}[\sttset][\sttsym]
1408 \cmdmthset{IStt}[\sttset_{I}]
1409 \cmdmthsymelm{istt}[\sttsym_{I}]
1410 \cmdmthset{FStt}[\sttset_{F}]
1411 \cmdmthsymelm{fstt}[\sttsym_{F}]

\ActSet, ... ...
1412 \newcommand{\actsym}{c}
1413 \newcommand{\actset}{Ac}
1414 \cmdmthsetext{Act}[\actset][\actsym]

\DecSet, ... ...
1415 \newcommand{\decsym}{d}
1416 \newcommand{\decset}{Dc}
1417 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ... ...
1418 \newcommand{\movsym}{\tau}
1419 \cmdmthfun{mov}[\movsym]

\HstSet, ... ...
1420 \providecommand{\hstsym}{\rho}
1421 \providecommand{\hstset}{Hst}
1422 \cmdmthsetext{Hst}[\hstset][\hstsym]
1423 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1424 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1425 \cmdmthset{OHst}[\hstset_{\OppSym}]
1426 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1427 \cmdmthfun{hst}

\PlaySet, \playFun ... ...
1428 \providecommand{\playsym}{\pi}
1429 \providecommand{\playset}{Play}
1430 \cmdmthsetext{Play}[\playset][\playsym]
1431 \cmdmthfun{play}

\StrSet, ... ...
1432 \providecommand{\strsym}{\sigma}
1433 \providecommand{\strset}{Str}
1434 \cmdmthsetext{Str}[\strset][\strsym]
1435 \cmdmthset{PStr}[\strset_{\PlrSym}]
1436 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1437 \cmdmthset{OStr}[\strset_{\OppSym}]
1438 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ... ...
1439 \providecommand{\prfsym}{\xi}
1440 \providecommand{\prfset}{Prf}
1441 \cmdmthsetext{Prf}[\prfset][\prfsym]

1442 %** Strategic Logics II *****%

```

```

\SL, ... ...

1443 % Strategy Logic
1444 \cmdtxttoparname{SL}
1445
1446 \DeclareRobustCommand{\ESL}
1447   {\ensuremath{\exists}\SL}
1448 \DeclareRobustCommand{\USL}
1449   {\ensuremath{\forall}\SL}
1450
1451 \DeclareRobustCommand{\FSL}
1452   {\{\textname{F}\}\SL}
1453
1454 \DeclareRobustCommand{\EFSL}
1455   {\ensuremath{\exists}\FSL}
1456 \DeclareRobustCommand{\UFSL}
1457   {\ensuremath{\forall}\FSL}
1458
1459 % One-Goal Strategy Logic
1460 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
1461   {\SL[#1][#2][lg\arglef{,}{#3}]}
1462
1463 \DeclareRobustCommand{\EOGSL}
1464   {\ensuremath{\exists}\OGSL}
1465 \DeclareRobustCommand{\UOGSL}
1466   {\ensuremath{\forall}\OGSL}
1467
1468 \DeclareRobustCommand{\FOGSL}
1469   {\{\textname{F}\}\OGSL}
1470
1471 \DeclareRobustCommand{\EFOGSL}
1472   {\ensuremath{\exists}\FOGSL}
1473 \DeclareRobustCommand{\UFOGSL}
1474   {\ensuremath{\forall}\FOGSL}
1475
1476 % Conjunctive-Goal Strategy Logic
1477 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
1478   {\SL[#1][#2][cg\arglef{,}{#3}]}
1479
1480 \DeclareRobustCommand{\ECGSL}
1481   {\ensuremath{\exists}\CGSL}
1482 \DeclareRobustCommand{\UCGSL}
1483   {\ensuremath{\forall}\CGSL}
1484
1485 \DeclareRobustCommand{\FCGSL}
1486   {\{\textname{F}\}\CGSL}
1487
1488 \DeclareRobustCommand{\EFCGSL}
1489   {\ensuremath{\exists}\FCGSL}
1490 \DeclareRobustCommand{\UFCGSL}
1491   {\ensuremath{\forall}\FCGSL}
1492
1493 % Disjunctive-Goal Strategy Logic
1494 \DeclareRobustCommandx{\DGSL}[3][1=, 2=, 3=]
1495   {\SL[#1][#2][dg\arglef{,}{#3}]}
1496
1497 \DeclareRobustCommand{\EDGSL}
1498   {\ensuremath{\exists}\DGSL}
1499 \DeclareRobustCommand{\UDGSL}
1500   {\ensuremath{\forall}\DGSL}
1501
1502 \DeclareRobustCommand{\FDGSL}
1503   {\{\textname{F}\}\DGSL}
1504

```

```

1505 \DeclareRobustCommand{\EFDGSL}
1506   {\ensuremath{\exists}\FDGSL}
1507 \DeclareRobustCommand{\UFDGSL}
1508   {\ensuremath{\forall}\FDGSL}
1509
1510 % Alternating-Goal Strategy Logic
1511 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
1512   {\SL[#1][#2][ag\arglef{,}{#3}]}
1513
1514 \DeclareRobustCommand{\EAGSL}
1515   {\ensuremath{\exists}\AGSL}
1516 \DeclareRobustCommand{\UAGSL}
1517   {\ensuremath{\forall}\AGSL}
1518
1519 \DeclareRobustCommand{\FAGSL}
1520   {\{\txtname{F}\}\xGSL}
1521
1522 \DeclareRobustCommand{\EFAGSL}
1523   {\ensuremath{\exists}\FAGSL}
1524 \DeclareRobustCommand{\UFAGSL}
1525   {\ensuremath{\forall}\FAGSL}
1526
1527 % Extended-Goal Strategy Logic
1528 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
1529   {\SL[#1][#2][eg\arglef{,}{#3}]}
1530
1531 \DeclareRobustCommand{\EEGSL}
1532   {\ensuremath{\exists}\EGSL}
1533 \DeclareRobustCommand{\UEGSL}
1534   {\ensuremath{\forall}\EGSL}
1535
1536 \DeclareRobustCommand{\FEGSL}
1537   {\{\txtname{F}\}\xGSL}
1538
1539 \DeclareRobustCommand{\EFEGSL}
1540   {\ensuremath{\exists}\FEGSL}
1541 \DeclareRobustCommand{\UFEGSL}
1542   {\ensuremath{\forall}\FEGSL}
1543
1544 % Boolean-Goal Strategy Logic
1545 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
1546   {\SL[#1][#2][bg\arglef{,}{#3}]}
1547
1548 \DeclareRobustCommand{\EBGSL}
1549   {\ensuremath{\exists}\BGSL}
1550 \DeclareRobustCommand{\UBGSL}
1551   {\ensuremath{\forall}\BGSL}
1552
1553 \DeclareRobustCommand{\FBGSL}
1554   {\{\txtname{F}\}\xGSL}
1555
1556 \DeclareRobustCommand{\EFBGSL}
1557   {\ensuremath{\exists}\FBGSL}
1558 \DeclareRobustCommand{\UFBGSL}
1559   {\ensuremath{\forall}\FBGSL}
1560
1561 % Nested-Goal Strategy Logic
1562 \DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
1563   {\SL[#1][#2][ng\arglef{,}{#3}]}
1564
1565 \DeclareRobustCommand{\ENGSL}
1566   {\ensuremath{\exists}\NGSL}
1567 \DeclareRobustCommand{\UNGSL}

```



```

1568 {\ensuremath{\forall}\text{forall}}\NGSL}
1569
1570 \DeclareRobustCommand{\FNGSL}
1571 {\{\textname{F}\}\xGSL}
1572
1573 \DeclareRobustCommand{\EFNGSL}
1574 {\ensuremath{\exists}\text{exists}}\FNGSL}
1575 \DeclareRobustCommand{\UFNGSL}
1576 {\ensuremath{\forall}\text{forall}}\FNGSL}
1577
1578 % Undefined-Goal Strategy Logic
1579 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
1580 {\SL[#1][#2][xg\argleft{,}{#3}]}
1581
1582 \DeclareRobustCommand{\EXGSL}
1583 {\ensuremath{\exists}\text{exists}}\XGSL}
1584 \DeclareRobustCommand{\UXGSL}
1585 {\ensuremath{\forall}\text{forall}}\XGSL}
1586
1587 \DeclareRobustCommand{\FXGSL}
1588 {\{\textname{F}\}\xGSL}
1589
1590 \DeclareRobustCommand{\EFXGSL}
1591 {\ensuremath{\exists}\text{exists}}\FXGSL}
1592 \DeclareRobustCommand{\UFXGSL}
1593 {\ensuremath{\forall}\text{forall}}\FXGSL}

1594 %** Syntax *****%%

\BndSet, ... ...
1595 \newcommand{\bndsym}{\flat}
1596 \newcommand{\bndset}{\Bn}
1597 \cmdmthsetext{\Bnd}{\bndset}{\bndsym}
1598 \usrmth{\bnd}{-}{argfun}

\psn ...
1599 \usrmth{\psn}{-}{argfun}

1600 %** Semantics *****%%

\nxtFun ...
1601 \newcommand{\nxtfun}{\nxt}
1602 \cmdmthfun{\nxt}{\nxtfun}

1603 \fi
1604 %*****%%

1605 %*****%%
1606 %** Macros for Automata *****%%
1607 %*****%%
1608 \ifaut@

1609 %** Finite Word Automata *****%%

\DWA, ... ...
1610 \cmdtxtopname{\DWA}{\cmdtxtopname{\NWA}{\cmdtxtopname{\UWA}{\cmdtxtopname{\AWA}}
1611
1612 \cmdtxtopname{\DFW}{\cmdtxtopname{\NFW}{\cmdtxtopname{\UFW}{\cmdtxtopname{\AFW}}
1613 \cmdtxtopname{\DBW}{\cmdtxtopname{\NBW}{\cmdtxtopname{\UBW}{\cmdtxtopname{\ABW}}
1614 \cmdtxtopname{\DCW}{\cmdtxtopname{\NCW}{\cmdtxtopname{\UCW}{\cmdtxtopname{\ACW}}
1615 \cmdtxtopname{\DPW}{\cmdtxtopname{\NPW}{\cmdtxtopname{\UPW}{\cmdtxtopname{\APW}}
1616 \cmdtxtopname{\DRW}{\cmdtxtopname{\NRW}{\cmdtxtopname{\URW}{\cmdtxtopname{\ARW}}
1617 \cmdtxtopname{\DSW}{\cmdtxtopname{\NSW}{\cmdtxtopname{\USW}{\cmdtxtopname{\ASW}}
1618 \cmdtxtopname{\DMW}{\cmdtxtopname{\NMW}{\cmdtxtopname{\UMW}{\cmdtxtopname{\AMW}}

```

```

\GFG, \PD, ... ...
1619 \cmdttxtoparname{GFG}
1620
1621 \cmdttxtoparname{PD}
1622
1623 %% ...

1624 %** Syntax *****%

\AutName, ... ...
1625 \newcommand{\autname}{A}
1626 \usrmthlatupp{Aut}{Name}{name}[\autname]
1627 \newcommand{\autset}{Aut}
1628 \cmdmthset{Aut}[\autset]

\WAutSet ...
1629 \newcommand{\wautset}{WAut}
1630 \cmdmthset{WAut}[\wautset]

\SttSet, ... ...
1631 \def\sttsym{q}
1632 \def\sttset{Q}
1633 \cmdmthsetext{Stt}[\sttset][\sttsym]
1634 \cmdmthset{IStt}[\sttset_{I}]
1635 \cmdmthsymelm{istt}[\sttsym_{I}]
1636 \cmdmthset{FStt}[\sttset_{F}]
1637 \cmdmthsymelm{fstt}[\sttsym_{F}]

\SymSet, ... ...
1638 \newcommand{\symsym}{\sigma}
1639 \newcommand{\symset}{\Sigma}
1640 \cmdmthsetext{Sym}[\symset][\symsym]

\trnFun ...
1641 \newcommand{\trnsym}{\delta}
1642 \cmdmthfun{trn}[\trnsym]

1643 %** Semantics *****%

\LangFun ...
1644 \newcommand{\langfun}{L}
1645 \cmdmthfun{Lang}[\langfun]

\WrdSet, ... ...
1646 \newcommand{\wrdsym}{w}
1647 \newcommand{\wrdset}{Wr}
1648 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

1649 %** Finite Tree Automata *****%

\DTA, ... ...
1650 \cmdttxtoparname{DTA}\cmdttxtoparname{NTA}\cmdttxtoparname{UTA}\cmdttxtoparname{ATA}
1651
1652 \cmdttxtoparname{DFT}\cmdttxtoparname{NFT}\cmdttxtoparname{UFT}\cmdttxtoparname{AFT}
1653 \cmdttxtoparname{DBT}\cmdttxtoparname{NBT}\cmdttxtoparname{UBT}\cmdttxtoparname{ABT}
1654 \cmdttxtoparname{DCT}\cmdttxtoparname{NCT}\cmdttxtoparname{UCT}\cmdttxtoparname{ACT}
1655 \cmdttxtoparname{DPT}\cmdttxtoparname{NPT}\cmdttxtoparname{UPT}\cmdttxtoparname{APT}
1656 \cmdttxtoparname{DRT}\cmdttxtoparname{NRT}\cmdttxtoparname{URT}\cmdttxtoparname{ART}
1657 \cmdttxtoparname{DST}\cmdttxtoparname{NST}\cmdttxtoparname{UST}\cmdttxtoparname{AST}
1658 \cmdttxtoparname{DMT}\cmdttxtoparname{NMT}\cmdttxtoparname{UMT}\cmdttxtoparname{AMT}

1659 %** Syntax *****%

```

```

\TAutSet ...
1660 \newcommand{\tautset}{TAut}
1661 \cmdmthset{TAut}[\tautset]

\DirSet, ... ...
1662 \newcommand{\dirsym}{d}
1663 \newcommand{\dirset}{\Lambda}
1664 \cmdmthsettext{Dir}[\dirset][\dirsym]

1665 %** Semantics *****%%

\TreeSet, ... ...
1666 \newcommand{\treesym}{T}
1667 \newcommand{\treeset}{Tr}
1668 \cmdmthsettext{Tree}[\treeset][\treesym]

\wotFun ...
1669 \newcommand{\wotfun}{wot}
1670 \cmdmthfun{wot}[\wotfun]

1671 \fi
1672 %*****%%

1673 %*****%%
1674 %** Format Tricks *****%%
1675 %*****%%
1676 \iffirm@

... ...
1677 %...

1678 \fi
1679 %*****%%

1680 %*****%%
1681 %** Figure Tricks *****%%
1682 %*****%%
1683 \iffig@

1684 \RequirePackage{tikz}
1685 \usetikzlibrary{arrows,shapes}

1686 \tikzstyle{every node} =
1687   [draw = none, fill = none, black, thin]
1688 \tikzstyle{every edge} +=
1689   [black, thick]

1690 \tikzstyle{noall} =
1691   [draw = none, fill = none]
1692 \tikzstyle{nodraw} =
1693   [draw = none, fill = white]
1694 \tikzstyle{nofill} =
1695   [draw = black, fill = none]

1696 \ifwrpfig@
1697   % Wrapfig Package
1698   \RequirePackage{wrapfig}
1699 \fi

1700 \fi
1701 %*****%%

1702 %*****%%
1703 %** Table Tricks *****%%
1704 %*****%%
1705 \iftab@

... ...
1706 %...

```

```

1707 \fi
1708 %%*****%
1709 %%*****%
1710 %%** Algorithm Tricks *****%
1711 %%*****%
1712 \ifalg@

1713 \RequirePackage[ruled,vlined]{algorithm2e}
1714 \setlength{\algomargin}{1.25em}
1715 \DontPrintSemicolon
1716 \SetInd{0.25em}{0.5em}

\Signature ...
1717 \SetKw{Signature}{signature}

\Macro, ... ...
1718 \SetKwFor{Macro}{macro}{}{}
1719 \SetKwFor{Function}{function}{}{}
1720 \SetKwFor{Procedure}{procedure}{}{}

\Let ...
1721 \SetKwFor{Let}{let}{in}{}

\True, \False ...
1722 \SetKw{True}{true}
1723 \SetKw{False}{false}

\GoTo, ... ...
1724 \SetKw{GoTo}{goto}
1725 \SetKw{Break}{break}
1726 \SetKw{Continue}{continue}

\MIf, ... ...
1727 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
1728 \DeclareRobustCommand{\nlr}[1]
1729 {\addtocounter{AlgoLine}{1}%
1730 \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{1}\arabic{AlgoLine}}}

1731 \fi
1732 %%*****%
1733 \endinput
1734 \</package>

```

2 Change History

v0.0		v0.3
General: First public release	1	General: Few problems solved 1
v0.1		v0.4
General: Algorithm tricks	1	General: Refactoring, corrections, and extensions 1
v0.2		v0.5
General: Changes in auxiliary tricks	1	General: Figure tricks 1

3 Index

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