

# fmocdmac — FM's OCD L<sup>A</sup>T<sub>E</sub>X Macro\*

Fabio Mogavero  
fm@fabiomogavero.com

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## Abstract

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

## 1 Implementation & Usage

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

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\*This document describes version v0.13 of the fmocdmac package, last revised 2023/02/01.

```

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

```

```

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

```

#### Option-processing code:

```

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

```

```

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

```

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

```
215 \ifdef{\mathbbo}{-}{\DeclareMathAlphabet{\mathbbo}{U}{bbold}{m}{n}}
```

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

```
216 \ifdef{\matheus}{-}{\DeclareMathAlphabet{\matheus}{U}{eus}{m}{n}}
```

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

```
217 \ifdef{\mathpzc}{-}{\DeclareMathAlphabet{\mathpzc}{T1}{pzc}{m}{it}}
```

```

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

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

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

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

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

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


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


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

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


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


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

236 %*****%

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


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


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

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


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


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

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


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


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

```

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

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

```

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

245 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

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

```

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

254 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

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

```

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

```

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

```

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

263 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

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

```

264 \newcommand{\seqoflatlow}
265   {\seqoftag{a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z}}

```

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

```

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

```

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

```

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

270 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

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

```

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

```

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

```

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

```

```

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

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

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

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

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

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

\newtxt ... to do!


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


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

\newtxtsty ... to do!


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


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

\newxtarg ... to do!


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


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

\newxtargsty ... to do!


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


298 \newcommandx{\newxtargsty}[2][2=]
299   {\newxtarg[\defval{#2}{#1}]}

\newtxtoarg ... to do!


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


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

```

```

\newtxtoargsty ... to do!
    • \newtxtoargsty{\rmfamily}{Name}[sub][sup][Arg] = “Namesupsub(Arg)”
    • \newtxtoargsty{\rmfamily}{\sffamily}{Name}[sub][sup][Arg] = “Namesupsub(Arg)”
    • \newtxtoargsty{\rmfamily}{\ttfamily}{Name}[sub][sup][Arg] = “Namesupsub(Arg)”
302 \newcommandx{\newtxtoargsty}[2][2=]
303   {\newtxtoarg[\defval{#2}{#1}]}

\newtxtpar ... to do!
    • \newtxtpar[\rmfamily]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”
    • \newtxtpar[\sffamily]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”
    • \newtxtpar[\ttfamily]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”
304 \newcommandx{\newtxtpar}[7][1=, 3=, 4=, 5=, 7=]
305   {\newtxt{#1}{#2}{#3}{#4}[\argmid{#5}]{#6}{#7}}

\newtxtparsty ... to do!
    • \newtxtparsty{\rmfamily}{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”
    • \newtxtparsty{\rmfamily}{\sffamily}{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”
    • \newtxtparsty{\rmfamily}{\ttfamily}{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesupsubExt1[Par]Ext2”
306 \newcommandx{\newtxtparsty}[2][2=]
307   {\newtxtpar[\defval{#2}{#1}]}

\newtxtopar ... to do!
    • \newtxtopar[\rmfamily]{Name}[sub][sup][Par] = “Namesupsub[Par]”
    • \newtxtopar[\sffamily]{Name}[sub][sup][Par] = “Namesupsub[Par]”
    • \newtxtopar[\ttfamily]{Name}[sub][sup][Par] = “Namesupsub[Par]”
308 \newcommandx{\newtxtopar}[5][1=, 3=, 4=, 5=]
309   {\newtxtpar{#1}{#2}{#3}{#4}[] {#5} []}

\newtxtoparsty ... to do!
    • \newtxtoparsty{\rmfamily}{Name}[sub][sup][Par] = “Namesupsub[Par]”
    • \newtxtoparsty{\rmfamily}{\sffamily}{Name}[sub][sup][Par] = “Namesupsub[Par]”
    • \newtxtoparsty{\rmfamily}{\ttfamily}{Name}[sub][sup][Par] = “Namesupsub[Par]”
310 \newcommandx{\newtxtoparsty}[2][2=]
311   {\newtxtopar[\defval{#2}{#1}]}

\txtsubsup ... to do!
    • \txtsubsup{sub}{} = “sub”; \txtsubsup{}{sup} = “sup”; \txtsubsup{sub}{sup} = “supsub”
    • \txtsubsup[\sffamily]{Aa}{Bb} = “AaBb”
    • \txtsubsup[\ttfamily]{Aa}{Bb} = “AaBb”
312 \newcommand{\txtsubsup}[3] []
313   {\ensuremath{\empchk{#2}{_}{\text{#1#2}}}\empchk{#3}{^{\text{#1#3}}}}

314 %%*****%

\txt ... to do!
    • \txt{Name}[sub][sup][Ext] = “NamesupsubExt”
    • \txt[\scshape]{Name}[sub][sup][Ext] = “NAMEsupSUBEXT”
    • \txt[\bfseries]{Name}[sub][sup][Ext] = “NamesupsubExt”
315 \newcommand{\txt}
316   {\newtxtsty{\txtsty}}

\txtarget ... to do!
    • \txtarget{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesupsubExt1(Arg)Ext2”
    • \txtarget[\scshape]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NAMEsupSUBEXT1(ARG)EXT2”

```



```

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

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

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

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

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

327 %*****%

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

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

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

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

\cmdtxtopar ... to do!

```

```

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

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

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

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

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

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

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

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

```

```

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

```

\newmthargsty ... to do!

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

```

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

```

\newmthoarg ... to do!

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

```

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

```

\newmthoargsty ... to do!

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

```

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

```

\newmthpar ... to do!

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

```

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

```

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

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

```

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

```

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

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

```

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

```

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

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

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

```

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

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

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

\mth ... to do!


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



```

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

\mtharg ... to do!


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



```

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

\mthoarg ... to do!


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



```

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

\mthpar ... to do!


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

```


```


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```

```

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

\mthopar ... to do!

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

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

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

\cmdmth ... to do!

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

\cmdmtharg ... to do!

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

\cmdmthoarg ... to do!

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

\cmdmthpar ... to do!

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

\cmdmthopar ... to do!

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

```

```

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

\cmdmthall ... to do!


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


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

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

```

\usrmth ... to do!

```


- \usrmth{cmdName}{Suf}{}; \cmdNameSuf = cmdName
  \usrmth{cmdName}{Suf}{arg};
  \cmdNameSuf{Arg^{Ex^{Ex}}} = cmdName(ArgEx^{Ex})
  \cmdNameSuf*{Arg^{Ex^{Ex}}} = cmdName(ArgEx^{Ex})
  \usrmth{cmdName}{Suf}{par};
  \cmdNameSuf{Par^{Ex^{Ex}}} = cmdName[ParEx^{Ex}]
  \cmdNameSuf*{Par^{Ex^{Ex}}} = cmdName[ParEx^{Ex}]

- \usrmth{cmdName}{Suf}{}[newName]; \cmdNameSuf = newName
  \usrmth{cmdName}{Suf}{arg}[newName];
  \cmdNameSuf{Arg^{Ex^{Ex}}} = newName(ArgEx^{Ex})
  \cmdNameSuf*{Arg^{Ex^{Ex}}} = newName(ArgEx^{Ex})
  \usrmth{cmdName}{Suf}{par}[newName];
  \cmdNameSuf{Par^{Ex^{Ex}}} = newName[ParEx^{Ex}]
  \cmdNameSuf*{Par^{Ex^{Ex}}} = newName[ParEx^{Ex}]


432 \newcommandx{\usrmth}[4][4=]
433   {\csdef{#1#2}{%
434     \@ifstar%
435     {\csname mth#3\endcsname*{\defval{#4}{#1}}}%
436     {\csname mth#3\endcsname{\defval{#4}{#1}}}%
437   }}

438 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

\usrmthlatlow ... to do!

```

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

```

\usrmthlatupp ... to do!

```

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

```

\usrmthlatlet ... to do!

```

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

```

```

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

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

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

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

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

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

457 %%*****%
458 %%*****%
459 %%** Text Macro Generators *****%
460 %%*****%
461 \iftxtgen@

\txtdf, ... ... to do!


- \txtdf{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$
- \txtargdf{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$
- \txtpardef{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$


462 %% Style for Definitions
463 \cmdtxtall{def}\newcommand{\txtstydef}{\normalfont\bfseries\em}

\cmdtxtdef ... to do!


- \cmdtxtdef{cmdName};  

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

\cmdName[sub][sub][ext] =  $newName_{sub}^{sub}ext$


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


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

\cmdtxttoargdef ... to do!


- \cmdtxttoargdef{cmdName};  

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

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

```



```

468 \newcommandx{\cmdtxttoargdef}[2][2=]
469   {\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] =  $newName_{sub}^{sub}ext1[par]ext2$ 
470 \newcommandx{\cmdtxtpardef}[2][2=]
471   {\usrtxt{#1}{\pardef}[#2]}

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

\txtabr, ... ... to do!
  • \txtabr{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
  • \txtargabr{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
  • \txtparabr{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
474 %% Style for Abbreviations
475 \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] =  $newName_{sub}^{sub}ext$ 
476 \newcommandx{\cmdtxtabr}[2][2=]
477   {\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] =  $newName_{sub}^{sub}ext1(arg)ext2$ 
478 \newcommandx{\cmdtxtargabr}[2][2=]
479   {\usrtxt{#1}{\argabr}[#2]}

\cmdtxttoargabr ... to do!
  • \cmdtxttoargabr{cmdName};
    \cmdName[sub][sub][arg] =  $cmdName_{sub}^{sub}(arg)$ 
  • \cmdtxttoargabr{cmdName}[newName];
    \cmdName[sub][sub][arg] =  $newName_{sub}^{sub}(arg)$ 
480 \newcommandx{\cmdtxttoargabr}[2][2=]
481   {\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] =  $newName_{sub}^{sub}ext1[par]ext2$ 
482 \newcommandx{\cmdtxtparabr}[2][2=]
483   {\usrtxt{#1}{\parabr}[#2]}

```

```

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

486 %%*****%

\txtname, ... ... to do!
    • \txtname{Name}[sub][sup][Ext] =  $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$ 
    • \txtargname{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}(\text{ARG})\text{EXT2}$ 
    • \txtparname{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}[\text{PAR}]\text{EXT2}$ 
487 %% Style for Names
488 \cmdtxtall{name}\newcommand{\txtstyname}{\normalfont\mdseries\scshape\sffamily}

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

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

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

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

\cmdtxtoparname ... to do!
    • \cmdtxtoparname{cmdName};
      \cmdName[sub][sub][par] =  $\text{CMDNAME}_{\text{SUB}}^{\text{SUB}}[\text{PAR}]$ 
    • \cmdtxtoparname{cmdName}[newName];
      \cmdName[sub][sub][par] =  $\text{NEWNAME}_{\text{SUB}}^{\text{SUB}}[\text{PAR}]$ 
497 \newcommandx{\cmdtxtoparname}[2][2=]
498   {\usrtxt{#1}{-}{oparname}{#2}}

```

```

\txtcom, ... ... to do!
    • \txtcom{Name}[sub][sup][Ext] = NAMESUBEXT
    • \txtargcom{Name}[sub][sup][Ext1]{Arg}[Ext2] = NAMESUBEXT1(ARG)EXT2
    • \txtparcom{Name}[sub][sup][Ext1]{Par}[Ext2] = NAMESUBEXT1[PAR]EXT2
499 %% Style for Complexities
500 \cmdtxtall{com}\newcommand{\txtstycom}{\normalfont\mdseries\scshape\rmfamily}

\cmdtxtcom ... to do!
    • \cmdtxtcom{cmdName};
      \cmdName[sub][sub][ext] = CMDNAMESUBEXT
    • \cmdtxtcom{cmdName}[newName];
      \cmdName[sub][sub][ext] = NEWNAMESUBEXT
501 \newcommandx{\cmdtxtcom}[2][2=]
502   {\usrtxt{#1}{-}{com}{#2}}

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

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

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

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

511 \fi
512 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
513 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
514 %** Math Macro Generators %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
515 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
516 \ifmthgen@

\mthname, ... ... to do!
    • \mthname{NAME}[sub][sup][Ext] =  $\mathcal{NAME}_{sub}^{sup}Ext$ 
    • \mthargname{NAME}[sub][sup][Ext1]{Arg}{Ex}{Ex}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2$ 

```

- $\backslash\mathrm{mthargname}\{NAME\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}$
- $\backslash\mathrm{mthparname}\{NAME\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] \mathrm{Ext2}$
- $\backslash\mathrm{mthparname}\{NAME\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{NAM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] \mathrm{Ext2}$

517 %% Style for Names

518  $\backslash\mathrm{cmdmthall}\{name\}\backslash\mathrm{newcommand}\{\mathrm{mthstname}\}\{\mathrm{mathcal}\}$

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

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

519  $\backslash\mathrm{seqoflatupp}\{Name\}\{\mathrm{mthname}\}$

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

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

520  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthname}\}[2][2=]$

521  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Name}\}\{\mathrm{name}\}\{\#2\}\}$

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

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

522  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthargname}\}[2][2=]$

523  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Name}\}\{\mathrm{argname}\}\{\#2\}\}$

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

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

524  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoargname}\}[2][2=]$

525  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Name}\}\{\mathrm{oargname}\}\{\#2\}\}$

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

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

526  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthparname}\}[2][2=]$

527  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Name}\}\{\mathrm{parname}\}\{\#2\}\}$

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

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

528  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoparname}\}[2][2=]$

529  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Name}\}\{\mathrm{oparname}\}\{\#2\}\}$

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

- $\backslash\mathrm{mthfam}\{NAME\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \mathcal{AM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$
- $\backslash\mathrm{mthargfam}\{NAME\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{AM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}$
- $\backslash\mathrm{mthargfam}\{NAME\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{AM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}$
- $\backslash\mathrm{mthparfam}\{NAME\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathcal{AM}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] \mathrm{Ext2}$

```

    • \mthparfam*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAM}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$ 
530 %% Style for Families
531 \cmdmthall{fam}\newcommand{\mthstyfam}{\mathscr}

\AFam, ... ... 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
532 \seqoflatupp{Fam}{mthfam}

\cmdmthfam ... to do!
    • \cmdmthfam{CMDNAME};
      \CMDNAMEFam[sub][sub][ext] =  $\mathcal{CMDNAME}_{sub}^{sub}ext$ 
    • \cmdmthfam{cmdName}{NEWNAME};
      \cmdNameFam[sub][sub][ext] =  $\mathcal{NEWNAME}_{sub}^{sub}ext$ 
533 \newcommandx{\cmdmthfam}[2][2=]
534   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}ext1(arg)ext2$ 
535 \newcommandx{\cmdmthargfam}[2][2=]
536   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}(arg)$ 
537 \newcommandx{\cmdmthoargfam}[2][2=]
538   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}ext1[par]ext2$ 
539 \newcommandx{\cmdmthparfam}[2][2=]
540   {\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] =  $\mathcal{NEWNAME}_{sub}^{sub}[par]$ 
541 \newcommandx{\cmdmthoparfam}[2][2=]
542   {\usrmth{#1}{Fam}{oparfam}[#2]}

\mthcls, ... ... to do!
    • \mthcls{NAME}[sub][sup][Ext] =  $\mathcal{NAME}_{sub}^{sup}Ext$ 
    • \mthargcls{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$ 
    • \mthargcls*{NAME}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2$ 
    • \mthparcls{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$ 
    • \mthparcls*{NAME}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2$ 

```

```

543 %% Style for Classes
544 \cmdmthall{cls}\newcommand{\mthstycls}{\matheus}

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

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

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

\cmdmthoargcls ... to do!
• \cmdmthoargcls{CMDNAME};
  \CMDNAMECls[sub][sub][arg] = \mathcal{NAME}_{sub}^{sub}(arg)
• \cmdmthoargcls{cmdCls}{NEWNAME};
  \cmdClsCls[sub][sub][arg] = \mathcal{NAME}_{sub}^{sub}(arg)
550 \newcommandx{\cmdmthoargcls}[2][2=]
551   {\usrmth{#1}{Cls}{oargcls}{#2}}

\cmdmthparcls ... to do!
• \cmdmthparcls{CMDNAME};
  \CMDNAMECls[sub][sub][ext1]{par}[ext2] = \mathcal{NAME}_{sub}^{sub}ext1[par]ext2
• \cmdmthparcls{cmdName}{NEWNAME};
  \cmdNameCls[sub][sub][ext1]{par}[ext2] = \mathcal{NAME}_{sub}^{sub}ext1[par]ext2
552 \newcommandx{\cmdmthparcls}[2][2=]
553   {\usrmth{#1}{Cls}{parcls}{#2}}

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

\mthsig, ... ... to do!
• \mthsig{Name}[sub][sup][Ext] = \mathcal{ame}_{sub}^{sup}Ext
• \mthargsig{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \mathcal{ame}_{sub}^{sup}Ext1\left(Arg^{Ex^{Ex}}\right)Ext2
• \mthargsig*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \mathcal{ame}_{sub}^{sup}Ext1(Arg^{Ex^{Ex}})Ext2
• \mthparsig{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \mathcal{ame}_{sub}^{sup}Ext1\left[Par^{Ex^{Ex}}\right]Ext2
• \mthparsig*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \mathcal{ame}_{sub}^{sup}Ext1[Par^{Ex^{Ex}}]Ext2
556 %% Style for Signatures
557 \cmdmthall{sig}\newcommand{\mthstysig}{\mathpzc}

```

```

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

\cmdmthsig ... to do!
• \cmdmthsig{cmdName};
  \cmdNameSig[sub][sub][ext] = cmd\amesubsubext
• \cmdmthsig{cmdName}[NewName];
  \cmdNameSig[sub][sub][ext] = \ew\amesubsubext
559 \newcommandx{\cmdmthsig}[2][2=]
560 {\usrmth{#1}{Sig}{sig}[#2]}

\cmdmthargsig ... to do!
• \cmdmthargsig{cmdName};
  \cmdNameSig[sub][sub][ext1]{arg}[ext2] = cmd\amesubsubext1(arg)ext2
• \cmdmthargsig{cmdName}[NewName];
  \cmdNameSig[sub][sub][ext1]{arg}[ext2] = \ew\amesubsubext1(arg)ext2
561 \newcommandx{\cmdmthargsig}[2][2=]
562 {\usrmth{#1}{Sig}{argsig}[#2]}

\cmdmthoargsig ... to do!
• \cmdmthoargsig{cmdName};
  \cmdNameSig[sub][sub][arg] = cmd\amesubsub(arg)
• \cmdmthoargsig{cmdSig}[NewName];
  \cmdSigSig[sub][sub][arg] = \ew\amesubsub(arg)
563 \newcommandx{\cmdmthoargsig}[2][2=]
564 {\usrmth{#1}{Sig}{oargsig}[#2]}

\cmdmthparsig ... to do!
• \cmdmthparsig{cmdName};
  \cmdNameSig[sub][sub][ext1]{par}[ext2] = cmd\amesubsubext1[par]ext2
• \cmdmthparsig{cmdName}[NewName];
  \cmdNameSig[sub][sub][ext1]{par}[ext2] = \ew\amesubsubext1[par]ext2
565 \newcommandx{\cmdmthparsig}[2][2=]
566 {\usrmth{#1}{Sig}{parsig}[#2]}

\cmdmthoparsig ... to do!
• \cmdmthoparsig{cmdName};
  \cmdNameSig[sub][sub][par] = cmd\amesubsub[par]
• \cmdmthoparsig{cmdSig}[NewName];
  \cmdSigSig[sub][sub][par] = \ew\amesubsub[par]
567 \newcommandx{\cmdmthoparsig}[2][2=]
568 {\usrmth{#1}{Sig}{oparsig}[#2]}

\mthstr, ... ... to do!
• \mthstr{Name}[sub][sup][Ext] = \amesupsubExt
• \mthargstr{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \amesupsubExt1(ArgExEx)Ext2
• \mthargstr*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] = \amesupsubExt1(ArgExEx)Ext2
• \mthparstr{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \amesupsubExt1[ParExEx]Ext2
• \mthparstr*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] = \amesupsubExt1[ParExEx]Ext2
569 %% Style for Structures
570 \cmdmthall{str}\newcommand{\mthstystyr}{\mathfrak}

```

```

\asStr, ... ... 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
571 \seqoflatlet{Str}{mthstr}\seqofgrklow{Str}{mthstr}

\cmdmthstr ... to do!
• \cmdmthstr{cmdName};
  \cmdNameStr[sub][sub][ext] = cmdNamesubsubext
• \cmdmthstr{cmdName}[NewName];
  \cmdNameStr[sub][sub][ext] = NewNamesubsubext
572 \newcommandx{\cmdmthstr}[2][2=]
573   {\usrmth{#1}{Str}{str}[#2]}

\cmdmthargstr ... to do!
• \cmdmthargstr{cmdName};
  \cmdNameStr[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
• \cmdmthargstr{cmdName}[NewName];
  \cmdNameStr[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
574 \newcommandx{\cmdmthargstr}[2][2=]
575   {\usrmth{#1}{Str}{argstr}[#2]}

\cmdmthoargstr ... to do!
• \cmdmthoargstr{cmdName};
  \cmdNameStr[sub][sub][arg] = cmdNamesubsub(arg)
• \cmdmthoargstr{cmdStr}[NewName];
  \cmdStrStr[sub][sub][arg] = NewNamesubsub(arg)
576 \newcommandx{\cmdmthoargstr}[2][2=]
577   {\usrmth{#1}{Str}{oargstr}[#2]}

\cmdmthparstr ... to do!
• \cmdmthparstr{cmdName};
  \cmdNameStr[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
• \cmdmthparstr{cmdName}[NewName];
  \cmdNameStr[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
578 \newcommandx{\cmdmthparstr}[2][2=]
579   {\usrmth{#1}{Str}{parstr}[#2]}

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

\mthset, ... ... to do!
• \mthset{Name}[sub][sup][Ext] = NamesupsubExt
• \mthargset{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
• \mthargset*{Name}[sub][sup][Ext1]{ArgEx{Ex}}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
• \mthparset{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
• \mthparset*{Name}[sub][sup][Ext1]{ParEx{Ex}}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
582 %% Style for Sets
583 \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,  $\Gamma, \Delta, E, Z, H, \Theta, \varTheta, I, K, \Lambda, M, N, \Xi, O, \Pi, \varPi, P, \Sigma, \varSigma, T, \Upsilon, \Phi, \varPhi, X, \Psi, \Omega$ 
584 \seqoflet{Set}{mthset}

\cmdmthset ... to do!


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


585 \newcommandx{\cmdmthset}[2][2=]
586 {\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


587 \newcommandx{\cmdmthargset}[2][2=]
588 {\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)


589 \newcommandx{\cmdmthoargset}[2][2=]
590 {\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


591 \newcommandx{\cmdmthparset}[2][2=]
592 {\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]


593 \newcommandx{\cmdmthoparset}[2][2=]
594 {\usrmth{#1}{Set}{oparset}[#2]}

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

\mthrel, ... ... to do!


- \mthrel{Name}[sub][sup][Ext] = NamesupsubExt
- \mthargrel{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1( $Arg^{Ex^{Ex}}$ )Ext2

```

- $\backslash\mathrm{mthargrel}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}$
- $\backslash\mathrm{mthparrel}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] \mathrm{Ext2}$
- $\backslash\mathrm{mthparrel}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] \mathrm{Ext2}$

601 %% Style for Relations

602  $\backslash\mathrm{cmdmthall}\{\mathrm{rel}\}\backslash\mathrm{newcommand}\{\mathrm{mthstyrel}\}\{\mathrm{mathit}\}$

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

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

603  $\backslash\mathrm{seqoflet}\{\mathrm{Rel}\}\{\mathrm{mthrel}\}$

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

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

604  $\backslash\mathrm{newcommandx}\{\mathrm{cmdmthrel}\}[2][2=]$

605  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Rel}\}\{\mathrm{rel}\}\{\#2\}\}$

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

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

606  $\backslash\mathrm{newcommandx}\{\mathrm{cmdmthargrel}\}[2][2=]$

607  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Rel}\}\{\mathrm{argrel}\}\{\#2\}\}$

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

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

608  $\backslash\mathrm{newcommandx}\{\mathrm{cmdmthoargrel}\}[2][2=]$

609  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Rel}\}\{\mathrm{oargrel}\}\{\#2\}\}$

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

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

610  $\backslash\mathrm{newcommandx}\{\mathrm{cmdmthparrel}\}[2][2=]$

611  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Rel}\}\{\mathrm{parrel}\}\{\#2\}\}$

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

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

612  $\backslash\mathrm{newcommandx}\{\mathrm{cmdmthoparrel}\}[2][2=]$

613  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Rel}\}\{\mathrm{oparrel}\}\{\#2\}\}$

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

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

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

614 %% Style for Functions

615  $\backslash\mathrm{cmdmthall}\{\mathrm{fun}\}\backslash\mathrm{newcommand}\{\backslash\mathrm{mthstyfun}\}\{\mathrm{mathsf}\}$

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

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

616  $\backslash\mathrm{seqoflet}\{\mathrm{Fun}\}\{\mathrm{mthfun}\}$

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

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

617  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthfun}\}[2][2=]$

618  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Fun}\}\{\mathrm{fun}\}\{\#2\}\}$

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

- $\backslash\mathrm{cmdmthargfun}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameFun}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathrm{cmdName}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}(\mathrm{arg})\mathrm{ext2}$
- $\backslash\mathrm{cmdmthargfun}\{\mathrm{cmdName}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdNameFun}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{arg}\}[\mathrm{ext2}] = \mathrm{NewName}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}(\mathrm{arg})\mathrm{ext2}$

619  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthargfun}\}[2][2=]$

620  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Fun}\}\{\mathrm{argfun}\}\{\#2\}\}$

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

- $\backslash\mathrm{cmdmthoargfun}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameFun}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathrm{cmdName}_{\mathrm{sub}}^{\mathrm{sub}}(\mathrm{arg})$
- $\backslash\mathrm{cmdmthoargfun}\{\mathrm{cmdFun}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdFunFun}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathrm{NewName}_{\mathrm{sub}}^{\mathrm{sub}}(\mathrm{arg})$

621  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoargfun}\}[2][2=]$

622  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Fun}\}\{\mathrm{oargfun}\}\{\#2\}\}$

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

- $\backslash\mathrm{cmdmthparfun}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameFun}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{par}\}[\mathrm{ext2}] = \mathrm{cmdName}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}[\mathrm{par}]\mathrm{ext2}$
- $\backslash\mathrm{cmdmthparfun}\{\mathrm{cmdName}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdNameFun}[\mathrm{sub}][\mathrm{sub}][\mathrm{ext1}]\{\mathrm{par}\}[\mathrm{ext2}] = \mathrm{NewName}_{\mathrm{sub}}^{\mathrm{sub}}\mathrm{ext1}[\mathrm{par}]\mathrm{ext2}$

623  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthparfun}\}[2][2=]$

624  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Fun}\}\{\mathrm{parfun}\}\{\#2\}\}$

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

- $\backslash\mathrm{cmdmthoparfun}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameFun}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathrm{cmdName}_{\mathrm{sub}}^{\mathrm{sub}}[\mathrm{par}]$
- $\backslash\mathrm{cmdmthoparfun}\{\mathrm{cmdFun}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdFunFun}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathrm{NewName}_{\mathrm{sub}}^{\mathrm{sub}}[\mathrm{par}]$

625  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoparfun}\}[2][2=]$

626  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Fun}\}\{\mathrm{oparfun}\}\{\#2\}\}$

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

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

- $\backslash\mathrm{mthargsym}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}$
- $\backslash\mathrm{mthparsym}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] \mathrm{Ext2}$
- $\backslash\mathrm{mthparsym}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] \mathrm{Ext2}$

627 %% Style for Symbols

628  $\backslash\mathrm{cmdmthall}\{\mathrm{sym}\}\backslash\mathrm{newcommand}\{\mathrm{mthstysym}\}\{\mathrm{mathtt}\}$

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

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

629  $\backslash\mathrm{seqoflet}\{\mathrm{Sym}\}\{\mathrm{mthsym}\}$

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

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

630  $\backslash\mathrm{newcommandx}\{\mathrm{cmdmthsym}\}[2][2=]$

631  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sym}\}\{\mathrm{sym}\}\{\#2\}\}$

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

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

632  $\backslash\mathrm{newcommandx}\{\mathrm{cmdmthargsym}\}[2][2=]$

633  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sym}\}\{\mathrm{argsym}\}\{\#2\}\}$

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

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

634  $\backslash\mathrm{newcommandx}\{\mathrm{cmdmthoargsym}\}[2][2=]$

635  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sym}\}\{\mathrm{oargsym}\}\{\#2\}\}$

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

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

636  $\backslash\mathrm{newcommandx}\{\mathrm{cmdmthparsym}\}[2][2=]$

637  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sym}\}\{\mathrm{parsym}\}\{\#2\}\}$

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

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

638  $\backslash\mathrm{newcommandx}\{\mathrm{cmdmthoparsym}\}[2][2=]$

639  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Sym}\}\{\mathrm{oparsym}\}\{\#2\}\}$

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

- $\backslash\mathrm{mthelm}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext}$
- $\backslash\mathrm{mthargelm}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}$

- $\backslash\mathrm{mthargelm}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}(\mathrm{Arg}^{\mathrm{Ex}^{\mathrm{Ex}}})\mathrm{Ext2}$
- $\backslash\mathrm{mthparelm}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] \mathrm{Ext2}$
- $\backslash\mathrm{mthparelm}\{\mathrm{Name}\}[\mathrm{sub}][\mathrm{sup}][\mathrm{Ext1}]\{\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}\}[\mathrm{Ext2}] = \mathrm{Name}_{\mathrm{sub}}^{\mathrm{sup}}\mathrm{Ext1}[\mathrm{Par}^{\mathrm{Ex}^{\mathrm{Ex}}}] \mathrm{Ext2}$

640 %% Style for Elements

641  $\backslash\mathrm{cmdmthall}\{\mathrm{elm}\}\backslash\mathrm{newcommand}\{\backslash\mathrm{mthstyelm}\}\{\mathrm{mathnormal}\}$

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

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

642  $\backslash\mathrm{seqoflet}\{\mathrm{Elm}\}\{\mathrm{mthelm}\}$

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

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

643  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthelm}\}[2][2=]$

644  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Elm}\}\{\mathrm{elm}\}\{\#2\}\}$

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

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

645  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthargelm}\}[2][2=]$

646  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Elm}\}\{\mathrm{argelm}\}\{\#2\}\}$

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

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

647  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoargelm}\}[2][2=]$

648  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Elm}\}\{\mathrm{oargelm}\}\{\#2\}\}$

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

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

649  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthparelm}\}[2][2=]$

650  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Elm}\}\{\mathrm{parelm}\}\{\#2\}\}$

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

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

651  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoparelm}\}[2][2=]$

652  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Elm}\}\{\mathrm{oparelm}\}\{\#2\}\}$

653 %%\*\*\*\*\*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```
669 %%*****%
```

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

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

```

670 %% Style for \LaTeX Operators
671 \cmdmth{luop}\newcommand{\mthstyluop}[1]{\textstyle\mathop{#1}}
672 \cmdmth{lbop}\newcommand{\mthstylbop}[1]{\textstyle\mathbin{#1}}

```

\cmdmthluop, ... .. to do!

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

```

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

```

\mthlrel ... to do!

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

```

677 %% Style for \LaTeX Relations
678 \cmdmth{lrel}\newcommand{\mthstylrel}{\mathrel}

```

\cmdmthlrel ... to do!

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

```

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

```

```

681 %%*****

```

\mthsnt, ... .. to do!

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

```

682 %% Style for Sentences
683 \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
α, β, γ, δ, ε, ζ, η, θ, ϑ, ι, κ, λ, μ, ν, ξ, ο, π, ϖ, ρ, ϑ, σ, ς, τ, υ, φ, ϕ, χ, ψ, ω
A, B, Γ, Δ, E, E, Z, H, Θ, Θ, I, K, K, Λ, M, N, Ξ, O, Π, II, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω

```

```

684 \seqoflet{Snt}{mthsnt}

```

\cmdmthsnt ... to do!

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

```

685 \newcommandx{\cmdmthsnt}[2][2=]
686   {\usrmth{#1}{Snt}{snt}[#2]}

```

```

\cmdmthargsnt ... to do!
    • \cmdmthargsnt{cmdName};
      \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
    • \cmdmthargsnt{cmdName}[NewName];
      \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
687 \newcommandx{\cmdmthargsnt}[2][2=]
688   {\usrmth{#1}{Snt}{argsnt}{#2}}

\cmdmthoargsnt ... to do!
    • \cmdmthoargsnt{cmdName};
      \cmdNameSnt[sub][sub][arg] = cmdNamesubsub(arg)
    • \cmdmthoargsnt{cmdName}[NewName];
      \cmdNameSnt[sub][sub][arg] = NewNamesubsub(arg)
689 \newcommandx{\cmdmthoargsnt}[2][2=]
690   {\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
691 \newcommandx{\cmdmthparsnt}[2][2=]
692   {\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]
693 \newcommandx{\cmdmthoparsnt}[2][2=]
694   {\usrmth{#1}{Snt}{oparsnt}{#2}}

\mthfrm, ... ... to do!
    • \mthfrm{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargfrm{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
    • \mthargfrm*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesupsubExt1(ArgExEx)Ext2
    • \mthparfrm{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
    • \mthparfrm*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesupsubExt1[ParExEx]Ext2
695 %% Style for Formulae
696 \cmdmthall{frm}\newcommand{\mthstyfrm}{\mathit}

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

\cmdmthfrm ... to do!
    • \cmdmthfrm{cmdName};
      \cmdNameFrm[sub][sub][ext] = cmdNamesubsubext
    • \cmdmthfrm{cmdName}[NewName];
      \cmdNameFrm[sub][sub][ext] = NewNamesubsubext
698 \newcommandx{\cmdmthfrm}[2][2=]
699   {\usrmth{#1}{Frm}{frm}{#2}}

```



```

\cmdmthargfrm ... to do!
    • \cmdmthargfrm{cmdName};
      \cmdNameFrm[sub][sub][ext1]{arg}[ext2] =  $\text{cmdName}_{sub}^{sub}ext1(arg)ext2$ 
    • \cmdmthargfrm{cmdName}[NewName];
      \cmdNameFrm[sub][sub][ext1]{arg}[ext2] =  $\text{NewName}_{sub}^{sub}ext1(arg)ext2$ 
700 \newcommandx{\cmdmthargfrm}[2][2=]
701   {\usrmth{#1}{Frm}{argfrm}[#2]}

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

708 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\mthmat, ... ... to do!
    • \mthmat{Name}[sub][sup][Ext] =  $\text{Name}_{sub}^{sup}Ext$ 
    • \mthargmat{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left(\text{Arg}^{Ex^{Ex}}\right)Ext2$ 
    • \mthargmat*{Name}[sub][sup][Ext1]{Arg^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left(\text{Arg}^{Ex^{Ex}}\right)Ext2$ 
    • \mthparmat{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left[\text{Par}^{Ex^{Ex}}\right]Ext2$ 
    • \mthparmat*{Name}[sub][sup][Ext1]{Par^{Ex^{Ex}}}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1\left[\text{Par}^{Ex^{Ex}}\right]Ext2$ 
709 % Style for Matrices
710 \cmdmthall{mat}\newcommand{\mthstymat}[1]{\boldsymbol{\mathsf{#1}}}

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

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

```

```

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

\cmdmthargmat ... to do!
  • \cmdmthargmat{cmdName};
    \cmdNameMat[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
  • \cmdmthargmat{cmdName}[NewName];
    \cmdNameMat[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
714 \newcommandx{\cmdmthargmat}[2][2=]
715   {\usrmth{#1}\Mat\argmat{#2}}

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

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

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

\mthvec, ... ... to do!
  • \mthvec{Name}[sub][sup][Ext] = NamesubsupExt
  • \mthargvec{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesubsupExt1(ArgExEx)Ext2
  • \mthargvec*{Name}[sub][sup][Ext1]{ArgEx{Ex}}[Ext2] = NamesubsupExt1(ArgExEx)Ext2
  • \mthparvec{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesubsupExt1[ParExEx]Ext2
  • \mthparvec*{Name}[sub][sup][Ext1]{ParEx{Ex}}[Ext2] = NamesubsupExt1[ParExEx]Ext2
722 %% Style for Vectors
723 \cmdmthall{vec}\newcommand{\mthstyvec}[1]{\boldsymbol{\mathit{#1}}}

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

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

```

```

725 \newcommandx{\cmdmthvec}[2][2=]
726   {\usrmth{#1}{Vec}{vec}{#2}}

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

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

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

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

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

\adhoc    • \adhoc = ad hoc
742 \cmdtxtabr{\adhoc}{ad hoc]

\afortiori    • \afortiori = a fortiori
743 \cmdtxtabr{\afortiori}{a fortiori]

\apriori    • \apriori = a priori
744 \cmdtxtabr{\apriori}{a priori]

\aposteriori    • \aposteriori = a posteriori
745 \cmdtxtabr{\aposteriori}{a posteriori]

\cf    • \cf = cf.
746 \cmdtxtabr{\cf}{cf.]

```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

779 `%%** Italian Abbreviations *****%`  
...  
780 `%%*****%`  
...  
781 `%%** French Abbreviations *****%`

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

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

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

785 `%%*****%`

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

787 `%%** English Abbreviations *****%`

```

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

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

\iff      • \iff = iff
790 \cmdtxtabr{iff}

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

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

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

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

795 %%*****

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

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

798 \fi
799 %%*****

800 %%*****
801 %%** Elementary Macros for Math *****
802 %%*****
803 \ifmath@

804 %%** General Notation *****

\defeq, \seteq ...
805 \DeclareRobustCommand{\defeq}
806   {\@ifstar%
807    {\mthlbop{\stackrel{\text{\textup{def}}}{=}}}%
808    {\mthlbop{\triangleq}}}
809 \DeclareRobustCommand{\seteq}
810   {\@ifstar{\mthlbop{:=}}{\mthlbop{=:}}}

811 %%*****

\implies, ... ...
812 \DeclareRobustCommand{\implies}
813   {\mthlrel{\rightarrow}}
814 \DeclareRobustCommand{\notimplies}
815   {\mthlrel{\not\rightarrow}}

\implied, ... ...
816 \DeclareRobustCommand{\implied}
817   {\mthlrel{\leftarrow}}
818 \DeclareRobustCommand{\notimplied}
819   {\mthlrel{\not\leftarrow}}

```

```

\coimplies, ... ...
820 \DeclareRobustCommand{\coimplies}
821   {\mthlrel{\Leftrightarrow}}
822 \DeclareRobustCommand{\notcoimplies}
823   {\mthlrel{\not\!\Leftrightarrow}}

824 %%*****%

\cmodels, ... ...
825 \DeclareRobustCommand{\cmodels}
826   {\mthlrel{\models}}
827 \DeclareRobustCommand{\notcmodels}
828   {\mthlrel{\not\models}}

\cequiv, ... ...
829 \DeclareRobustCommand{\cequiv}
830   {\mthlrel{\equiv}}
831 \DeclareRobustCommand{\notcequiv}
832   {\mthlrel{\not\equiv}}

833 %%*****%

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

838 %%*****%

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

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

853 %%*****%

\enumeration, ... ...
854 \varcmd{enumeration}{\mth}{\{,\}}{\{}}
855 \varcmd{enumerationx}{\mth}{\{;\}}{\{}}

\sequence, ... ...
856 \varcmd{sequence}{\mth}{\left[\{,\}\right]}{\{}}
857 \varcmd{sequence1}{\mth}{\left[\{,\}\right.]}{\{}}
858 \varcmd{sequencer}{\mth}{\left[\{,\}\right]}{\{}}
859 \varcmd{sequencex}{\mth}{\left[\{;\}\right]}{\{}}
860 \varcmd{sequencex1}{\mth}{\left[\{;\}\right.]}{\{}}
861 \varcmd{sequencexr}{\mth}{\left[\{;\}\right]}{\{}}

```

```

\tuple, ... ...
862 \varcmd{tuple}{\mth}{\left\langle}{,}{\right\rangle}{}
863 \varcmd{tuplel}{\mth}{\left\langle}{,}{\right.}{}
864 \varcmd{tupler}{\mth}{\left.}{,}{\right\rangle}{}
865 \varcmd{tuplex}{\mth}{\left\langle}{;}{\right\rangle}{}
866 \varcmd{tuplexl}{\mth}{\left\langle}{;}{\right.}{}
867 \varcmd{tuplexr}{\mth}{\left.}{;}{\right\rangle}{}

868 %** Sets *****%%

\set, ... ...
869 \DeclareRobustCommand{\set}
870   {\ifstar{\@set}{\@set[\left][\middle][\right]}}
871 \DeclareRobustCommandx{\set}[5][1=, 2=, 3=]
872   {\mth{\argmid{#1\lbrace}{\argsep{#4}{\, #2\vert\,}{#5}}{#3\rbrace}}}
873 \DeclareRobustCommand{\setl}
874   {\ifstar{\@setl}{\@setl[\left][\right]}}
875 \DeclareRobustCommandx{\setl}[3][1=, 2=]
876   {\mth{\argmid{#1\lbrace}{#3}{\, #2\vert\!}}}
877 \DeclareRobustCommand{\setr}
878   {\ifstar{\@setr}{\@setr[\left.][\right]}}
879 \DeclareRobustCommandx{\setr}[3][1=, 2=]
880   {\mth{\argmid{#1}{#3}{#2\rbrace}}}

\card ...
881 \DeclareRobustCommand{\card}
882   {\ifstar{\@card}{\@card[\left][\right]}}
883 \DeclareRobustCommandx{\card}[3][1=, 2=]
884   {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}

\pow ...
885 \DeclareRobustCommand{\pow}[1]
886   {\mth{2^{\defval{#1}{\cdot}}}}

887 %** Relations *****%%

\emptyrel ...
888 \DeclareRobustCommand{\emptyrel}
889   {\mth{\varnothing}}

890 %*****%%

\dom, \cod, ... ...
891 \usrmth{dom}{\}{\argfun}
892 \usrmth{cod}{\}{\argfun}
893 \usrmth{rng}{\}{\argfun}
894 \usrmth{img}{\}{\argfun}

895 %*****%%

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

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

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

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

```



```

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

905 %%*****%

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

911 %%*****%

\fix, \ifp, ... ...
912 \usrmth{fix}{\}{fun}
913 \usrmth{ifp}{\}{fun}
914 \usrmth{lfp}{\}{fun}
915 \usrmth{gfp}{\}{fun}

916 %%*****%

\Aomega, \AOmega ...
917 \usrmth{Aomega}{\}{argset}[\omega]
918 \usrmth{AOmega}{\}{argset}[\Omega]

\Atheta, \ATheta ...
919 \usrmth{Atheta}{\}{argset}[\theta]
920 \usrmth{ATheta}{\}{argset}[\Theta]

\Aomicron, ... ...
921 \usrmth{Aomicron}{\}{argset}[\omicron]
922 \usrmth{AOmicron}{\}{argset}[\Omicron]

923 %** Numbers *****%

\SetB ...
924 \DeclareRobustCommand{\SetB}
925   {\mthset[mathbb]{B}}

\SetF ...
926 \DeclareRobustCommand{\SetF}
927   {\mthset[mathbb]{F}}

\SetN, ... ...
928 \DeclareRobustCommand{\SetN}
929   {\mthset[mathbb]{N}}
930 \DeclareRobustCommand{\SetNI}[1] []
931   {\SetN[\infty #1]}

\SetZ, ... ...
932 \DeclareRobustCommand{\SetZ}
933   {\mthset[mathbb]{Z}}
934 \DeclareRobustCommand{\SetZI}[1] []
935   {\SetZ[\pm\infty #1]}
936 \DeclareRobustCommand{\SetZPI}[1] []
937   {\SetZ[+\infty #1]}
938 \DeclareRobustCommand{\SetZNI}[1] []
939   {\SetZ[-\infty #1]}

```

```

\SetQ, ... ...
940 \DeclareRobustCommand{\SetQ}
941   {\mthset[mathbb]{Q}}
942 \DeclareRobustCommand{\SetQI}[1] []
943   {\SetQ[\pm\infty #1]}
944 \DeclareRobustCommand{\SetQPI}[1] []
945   {\SetQ[+\infty #1]}
946 \DeclareRobustCommand{\SetQNI}[1] []
947   {\SetQ[-\infty #1]}

\SetR, ... ...
948 \DeclareRobustCommand{\SetR}
949   {\mthset[mathbb]{R}}
950 \DeclareRobustCommand{\SetRI}[1] []
951   {\SetR[\pm\infty #1]}
952 \DeclareRobustCommand{\SetRPI}[1] []
953   {\SetR[+\infty #1]}
954 \DeclareRobustCommand{\SetRNI}[1] []
955   {\SetR[-\infty #1]}

\SetC, ... ...
956 \DeclareRobustCommand{\SetC}
957   {\mthset[mathbb]{C}}
958 \DeclareRobustCommand{\SetCI}[1] []
959   {\SetC[\infty #1]}

960 %%*****

\num, ... ...
961 \DeclareRobustCommand{\num}[1]
962   {\mth{[#1]}}
963 \DeclareRobustCommand{\numcc}[2]
964   {\mth{[\argsep{#1}{,}{#2}]}}
965 \DeclareRobustCommand{\numco}[2]
966   {\mth{[\argsep{#1}{,}{#2})}}
967 \DeclareRobustCommand{\numoc}[2]
968   {\mth{(\argsep{#1}{,}{#2})}}
969 \DeclareRobustCommand{\numoo}[2]
970   {\mth{(\argsep{#1}{,}{#2}))}}

971 %%*****

\abs ...
972 \DeclareRobustCommand{\abs}
973   {\@ifstar{\@abs}{\@abs[\left][\right]}}
974 \DeclareRobustCommandx{\@abs}[3][1=, 2=]
975   {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}

\floor, \ceil ...
976 \DeclareRobustCommand{\floor}
977   {\@ifstar{\@floor}{\@floor[\left][\right]}}
978 \DeclareRobustCommandx{\@floor}[3][1=, 2=]
979   {\mth{\argmid{#1\lfloor}{#3}{#2\rfloor}}}
980 \DeclareRobustCommand{\ceil}
981   {\@ifstar{\@ceil}{\@ceil[\left][\right]}}
982 \DeclareRobustCommandx{\@ceil}[3][1=, 2=]
983   {\mth{\argmid{#1\lceil}{#3}{#2\rceil}}}

984 %%*****

\arg ...
985 \usrmth{arg}{\fun}

```

```

\evn, \odd ...
    986 \usrmth{evn}{-}{fun}
    987 \usrmth{odd}{-}{fun}

\bst, ... ...
    988 \usrmth{bst}{-}{fun}
    989 \usrmth{argbst}{-}{fun}[arg\,bst]

\min, \max, ... ...
    990 \usrmth{min}{-}{fun}
    991 \usrmth{max}{-}{fun}
    992 \usrmth{argmin}{-}{fun}[arg\,min]
    993 \usrmth{argmax}{-}{fun}[arg\,max]

\inf, \sup ...
    994 \usrmth{inf}{-}{fun}
    995 \usrmth{sup}{-}{fun}

    996 %** Sequences *****%%

\emptyseq ...
    997 \DeclareRobustCommand{\emptyseq}
    998   {\mth{\varepsilon}}

\len ...
    999 \DeclareRobustCommand{\len}
    1000   {\@ifstar{\@len}{\@len[\left][\right]}}
    1001 \DeclareRobustCommandx{\@len}[3][1=, 2=]
    1002   {\mth{\argmid{#1\lvert}{#3}{#2\rvert}}}}

\fst, \lst ...
    1003 \usrmth{fst}{-}{argfun}
    1004 \usrmth{lst}{-}{argfun}

    1005 \fi
    1006 %*****%%
    1007 %*****%%
    1008 %** Macros for Computational-Complexity Classes *****%%
    1009 %*****%%
    1010 \ifcom@

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

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

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

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

```

```

\CoUCompClass[sub][sup][ext] = CoUCompClassSUPSUBEXT
\UCompClassE[sub][sup][ext] = UCompClass-EASYSUPSUBEXT
\CoUCompClassE[sub][sup][ext] = CoUCompClass-EASYSUPSUBEXT
\UCompClassH[sub][sup][ext] = UCompClass-HARDSUPSUBEXT
\CoUCompClassH[sub][sup][ext] = CoUCompClass-HARDSUPSUBEXT
\UCompClassC[sub][sup][ext] = UCompClass-COMPLETESUPSUBEXT
\CoUCompClassC[sub][sup][ext] = CoUCompClass-COMPLETESUPSUBEXT

\ACompClass[sub][sup][ext] = ACompClassSUPSUBEXT
\CoACompClass[sub][sup][ext] = CoACompClassSUPSUBEXT
\ACompClassE[sub][sup][ext] = ACompClass-EASYSUPSUBEXT
\CoACompClassE[sub][sup][ext] = CoACompClass-EASYSUPSUBEXT
\ACompClassH[sub][sup][ext] = ACompClass-HARDSUPSUBEXT
\CoACompClassH[sub][sup][ext] = CoACompClass-HARDSUPSUBEXT
\ACompClassC[sub][sup][ext] = ACompClass-COMPLETESUPSUBEXT
\CoACompClassC[sub][sup][ext] = CoACompClass-COMPLETESUPSUBEXT

• \defcomcls{CompClass}[NewClass];

\CompClass[sub][sup][ext] = NewClassSUPSUBEXT
\CoCompClass[sub][sup][ext] = CoNewClassSUPSUBEXT
\CompClassE[sub][sup][ext] = NewClass-EASYSUPSUBEXT
\CoCompClassE[sub][sup][ext] = CoNewClass-EASYSUPSUBEXT
\CompClassH[sub][sup][ext] = NewClass-HARDSUPSUBEXT
\CoCompClassH[sub][sup][ext] = CoNewClass-HARDSUPSUBEXT
\CompClassC[sub][sup][ext] = NewClass-COMPLETESUPSUBEXT
\CoCompClassC[sub][sup][ext] = CoNewClass-COMPLETESUPSUBEXT

\NCompClass[sub][sup][ext] = NNewClassSUPSUBEXT
\CoNCompClass[sub][sup][ext] = CoNNewClassSUPSUBEXT
\NCompClassE[sub][sup][ext] = NNewClass-EASYSUPSUBEXT
\CoNCompClassE[sub][sup][ext] = CoNNewClass-EASYSUPSUBEXT
\NCompClassH[sub][sup][ext] = NNewClass-HARDSUPSUBEXT
\CoNCompClassH[sub][sup][ext] = CoNNewClass-HARDSUPSUBEXT
\NCompClassC[sub][sup][ext] = NNewClass-COMPLETESUPSUBEXT
\CoNCompClassC[sub][sup][ext] = CoNNewClass-COMPLETESUPSUBEXT

\UCompClass[sub][sup][ext] = UNewClassSUPSUBEXT
\CoUCompClass[sub][sup][ext] = CoUNewClassSUPSUBEXT
\UCompClassE[sub][sup][ext] = UNewClass-EASYSUPSUBEXT
\CoUCompClassE[sub][sup][ext] = CoUNewClass-EASYSUPSUBEXT
\UCompClassH[sub][sup][ext] = UNewClass-HARDSUPSUBEXT
\CoUCompClassH[sub][sup][ext] = CoUNewClass-HARDSUPSUBEXT
\UCompClassC[sub][sup][ext] = UNewClass-COMPLETESUPSUBEXT
\CoUCompClassC[sub][sup][ext] = CoUNewClass-COMPLETESUPSUBEXT

\ACompClass[sub][sup][ext] = ANewClassSUPSUBEXT
\CoACompClass[sub][sup][ext] = CoANewClassSUPSUBEXT
\ACompClassE[sub][sup][ext] = ANewClass-EASYSUPSUBEXT
\CoACompClassE[sub][sup][ext] = CoANewClass-EASYSUPSUBEXT
\ACompClassH[sub][sup][ext] = ANewClass-HARDSUPSUBEXT
\CoACompClassH[sub][sup][ext] = CoANewClass-HARDSUPSUBEXT
\ACompClassC[sub][sup][ext] = ANewClass-COMPLETESUPSUBEXT
\CoACompClassC[sub][sup][ext] = CoANewClass-COMPLETESUPSUBEXT

1011 \newcommandx{\defcomcls}[2][2=]
1012   {\defcomclssem{#1}{\defval{#2}{#1}}%
1013   \defcomclssem{#1}{\defval{#2}{#1}}[Co]}
1014 \newcommandx{\defcomclssem}[3][3=]
1015   {\defcomclsred{#3#1}{#2}{#3}%
1016   \defcomclsred{#3N#1}{#2}{#3N}%
1017   \defcomclsred{#3U#1}{#2}{#3U}%
1018   \defcomclsred{#3A#1}{#2}{#3A}}
1019 \newcommandx{\defcomclsred}[3][3=]
1020   {\defcomclscmd{#1}{#2}{#3}%
1021   \defcomclscmd{#1E}{#2}{#3}[-easy]%

```

```

1022 \defcomclscmd{#1H}{#2}{#3}[-hard]%
1023 \defcomclscmd{#1C}{#2}{#3}[-complete]]%
1024 \newcommandx{\defcomclscmd}[4][3=, 4=]
1025 {\csdef{#1}{\txtcom{#3#2#4}}}

\defcomhrc ... to do!


- \defcomhrc{CompHierarchy};

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

- \defcomhrc{CompHierarchy}[NewHierarchy];

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

1026 \newcommandx{\defcomhrc}[2][2=]
1027 {\csdef{#1}{\txtcom{\defval{#2}{#1}}}}

1028 %%*****%

```

\Easy, \Hard, ...

```

1029 \cmdtxtcom{Easy}
1030 \cmdtxtcom{Hard}
1031 \cmdtxtcom{Complete}

1032 %%*****%
```

\Time, ...

- \Time[sub][sup][ext] = TIME<sup>SUB</sup>EXT  
\TimeE[sub][sup][ext] = TIME-EASY<sup>SUB</sup>EXT  
\TimeH[sub][sup][ext] = TIME-HARD<sup>SUB</sup>EXT  
\TimeC[sub][sup][ext] = TIME-COMPLETE<sup>SUB</sup>EXT
- \NTime[sub][sup][ext] = NTIME<sup>SUB</sup>EXT  
\NTimeE[sub][sup][ext] = NTIME-EASY<sup>SUB</sup>EXT  
\NTimeH[sub][sup][ext] = NTIME-HARD<sup>SUB</sup>EXT  
\NTimeC[sub][sup][ext] = NTIME-COMPLETE<sup>SUB</sup>EXT
- \UTime[sub][sup][ext] = UTIME<sup>SUB</sup>EXT  
\UTimeE[sub][sup][ext] = UTIME-EASY<sup>SUB</sup>EXT  
\UTimeH[sub][sup][ext] = UTIME-HARD<sup>SUB</sup>EXT  
\UTimeC[sub][sup][ext] = UTIME-COMPLETE<sup>SUB</sup>EXT
- \ATime[sub][sup][ext] = ATIME<sup>SUB</sup>EXT  
\ATimeE[sub][sup][ext] = ATIME-EASY<sup>SUB</sup>EXT  
\ATimeH[sub][sup][ext] = ATIME-HARD<sup>SUB</sup>EXT  
\ATimeC[sub][sup][ext] = ATIME-COMPLETE<sup>SUB</sup>EXT

```
1033 \defcomcls{Time}
```

\Space, ...

- \Space[sub][sup][ext] = SPACE<sup>SUB</sup>EXT  
\SpaceE[sub][sup][ext] = SPACE-EASY<sup>SUB</sup>EXT  
\SpaceH[sub][sup][ext] = SPACE-HARD<sup>SUB</sup>EXT  
\SpaceC[sub][sup][ext] = SPACE-COMPLETE<sup>SUB</sup>EXT
- \NSpace[sub][sup][ext] = NSPACE<sup>SUB</sup>EXT  
\NSpaceE[sub][sup][ext] = NSPACE-EASY<sup>SUB</sup>EXT  
\NSpaceH[sub][sup][ext] = NSPACE-HARD<sup>SUB</sup>EXT  
\NSpaceC[sub][sup][ext] = NSPACE-COMPLETE<sup>SUB</sup>EXT
- \USpace[sub][sup][ext] = USPACE<sup>SUB</sup>EXT  
\USpaceE[sub][sup][ext] = USPACE-EASY<sup>SUB</sup>EXT  
\USpaceH[sub][sup][ext] = USPACE-HARD<sup>SUB</sup>EXT  
\USpaceC[sub][sup][ext] = USPACE-COMPLETE<sup>SUB</sup>EXT
- \ASpace[sub][sup][ext] = ASPACE<sup>SUB</sup>EXT  
\ASpaceE[sub][sup][ext] = ASPACE-EASY<sup>SUB</sup>EXT  
\ASpaceH[sub][sup][ext] = ASPACE-HARD<sup>SUB</sup>EXT  
\ASpaceC[sub][sup][ext] = ASPACE-COMPLETE<sup>SUB</sup>EXT

```
1034 \defcomcls{Space}
```

\LogTime, ...

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

1035 \defcomcls{LogTime}

\LogSpace, ...

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

1036 \defcomcls{LogSpace}

\PTime, ...

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

1037 \defcomcls{PTime}

\PSpace, ...

- \PSpace[sub][sup][ext] = PSPACE<sup>SUB</sup>EXT
- \PSpaceE[sub][sup][ext] = PSPACE-EASY<sup>SUB</sup>EXT
- \PSpaceH[sub][sup][ext] = PSPACE-HARD<sup>SUB</sup>EXT
- \PSpaceC[sub][sup][ext] = PSPACE-COMPLETE<sup>SUB</sup>EXT



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

1041  $\backslash \text{defcomcls}\{\text{ExpTime}\}$

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

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

1042  $\backslash \text{defcomcls}\{\text{ExpSpace}\}$

1043  $\%*****\%$

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

1044  $\backslash \text{defcomhrc}\{\text{PH}\}$

...

1045  $\backslash \text{fi}$

1046  $\%*****\%$

1047  $\%*****\%$

1048  $\%** \text{Macros for Games} *****\%$

1049  $\%*****\%$

1050  $\backslash \text{ifgam@}$

1051  $\%** \text{Logic Games} *****\%$

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

1052  $\% \text{Satisfiability Games}$

1053  $\backslash \text{cmdtxtoparname}\{\text{SATG}\}[\text{Sat}]$

1054

1055  $\% \text{Validity Games}$

1056  $\backslash \text{cmdtxtoparname}\{\text{VALG}\}[\text{Val}]$

1057

1058  $\% \text{Evaluation Games}$

1059  $\backslash \text{cmdtxtoparname}\{\text{EVLG}\}[\text{Evl}]$

1060

1061  $\% \text{Synthesis Games}$

1062  $\backslash \text{cmdtxtoparname}\{\text{SYNG}\}[\text{Syn}]$

1063

1064  $\% \text{Model-Checking Games}$

1065  $\backslash \text{cmdtxtoparname}\{\text{MCG}\}[\text{MC}]$

1066

1067  $\% \text{Ehrenfeucht-Fraisse Games}$

1068  $\backslash \text{cmdtxtoparname}\{\text{EFG}\}[\text{EF}]$



1069 %\*\* Syntax \*\*\*\*\*%

\PlrSym, \OppSym ...

1070 \newcommand{\plrSym}{E}  
 1071 \cmdmthSym{Plr}[\plrSym]  
 1072 \newcommand{\oppSym}{A}  
 1073 \cmdmthSym{Opp}[\oppSym]

\ArenaName, ... ...

1074 \newcommand{\arenaName}{A}  
 1075 \usrmthlatupp{Arena}{Name}{name}[\arenaName]

\PosSet, ... ...

1076 \newcommand{\posSym}{v}  
 1077 \newcommand{\posSet}{Ps}  
 1078 \cmdmthsetext{Pos}[\posSet][\posSym]  
 1079 \cmdmthSymelm{ipos}[\posSym\_{I}]  
 1080 \cmdmthSymelm{fpos}[\posSym\_{F}]  
 1081 \cmdmthset{PPos}[\posSet\_{\PlrSym}]  
 1082 \cmdmthSymelm{ppos}[\posSym\_{\PlrSym}]  
 1083 \cmdmthset{OPos}[\posSet\_{\OppSym}]  
 1084 \cmdmthSymelm{opos}[\posSym\_{\OppSym}]

\PlrFun ...

1085 \newcommand{\plrFun}{pl}  
 1086 \cmdmthFun{plr}[\plrFun]

\MovRel ...

1087 \newcommand{\movRel}{Mv}  
 1088 \cmdmthRel{Mov}[\movRel]

\GameName, ... ...

1089 \newcommand{\gameName}{\Game}  
 1090 \usrmthlatupp{Game}{Name}{name}[\gameName]

\WinSet ...

1091 \newcommand{\winSet}{Wn}  
 1092 \cmdmthset{Win}[\winSet]

\ObsSet, \obsFun ...

1093 \newcommand{\obsSet}{Ob}  
 1094 \cmdmthset{Obs}[\obsSet]  
 1095 \cmdmthFun{obs}

1096 %\*\* Semantics \*\*\*\*\*%

\PthSet, \pthFun ...

1097 \newcommand{\pthSym}{\pi}  
 1098 \newcommand{\pthSet}{Pth}  
 1099 \cmdmthsetext{Pth}[\pthSet][\pthSym]  
 1100 \cmdmthFun{pth}

\HstSet, ... ...

1101 \newcommand{\hstSym}{\rho}  
 1102 \newcommand{\hstSet}{Hst}  
 1103 \cmdmthsetext{Hst}[\hstSet][\hstSym]  
 1104 \cmdmthset{PHst}[\hstSet\_{\PlrSym}]  
 1105 \cmdmthSymelm{phst}[\hstSym\_{\PlrSym}]  
 1106 \cmdmthset{OHst}[\hstSet\_{\OppSym}]  
 1107 \cmdmthSymelm{ohst}[\hstSym\_{\OppSym}]  
 1108 \cmdmthFun{hst}

```

\PlaySet, \playFun ...
1109 \newcommand{\playsym}{\pi}
1110 \newcommand{\playset}{Play}
1111 \cmdmthsetext{Play}[\playset][\playsym]
1112 \cmdmthfun{play}

\StrSet, ... ...
1113 \newcommand{\strsym}{\sigma}
1114 \newcommand{\strset}{Str}
1115 \cmdmthsetext{Str}[\strset][\strsym]
1116 \cmdmthset{PStr}[\strset_{\PlrSym}]
1117 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1118 \cmdmthset{OStr}[\strset_{\OppSym}]
1119 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1120 \newcommand{\prfsym}{\xi}
1121 \newcommand{\prfset}{Prf}
1122 \cmdmthsetext{Prf}[\prfset][\prfsym]

\preFun, \sucFun ...
1123 \newcommand{\prefun}{pre}
1124 \cmdmthoargfun{pre}[\prefun]
1125 \newcommand{\sucfun}{suc}
1126 \cmdmthoargfun{suc}[\sucfun]

\entFun, \escFun ...
1127 \newcommand{\entfun}{ent}
1128 \cmdmthoargfun{ent}[\entfun]
1129 \newcommand{\escfun}{esc}
1130 \cmdmthoargfun{esc}[\escfun]

\intFun, \outFun ...
1131 \newcommand{\intfun}{int}
1132 \cmdmthoargfun{int}[\intfun]
1133 \newcommand{\outfun}{out}
1134 \cmdmthoargfun{out}[\outfun]

\atrFun, \rchFun ...
1135 \newcommand{\atrfun}{atr}
1136 \cmdmthoargfun{atr}[\atrfun]
1137 \newcommand{\rchfun}{rch}
1138 \cmdmthoargfun{rch}[\rchfun]

\liftFun ...
1139 \newcommand{\liftfun}{lift}
1140 \cmdmthoargfun{lift}[\liftfun]

\solFun ...
1141 \newcommand{\solfun}{sol}
1142 \cmdmthoargfun{sol}[\solfun]

1143 %** Qualitative Games on Graph *****%

\BG, ... ...
1144 %% Buchi Games
1145 \cmdtxtoparname{BG}
1146
1147 %% Co-Buchi Games
1148 \cmdtxtoparname{CG}
1149
1150 %% Parity Games

```

```

1151 \cmdtxttoparname{PG}
1152
1153 %% Rabin Games
1154 \cmdtxttoparname{RG}
1155
1156 %% Streett Games
1157 \cmdtxttoparname{SG}
1158
1159 %% Muller Games
1160 \cmdtxttoparname{MG}

1161 %** Syntax *****%
```

\EvnSym, \OddSym ...

```

1162 \newcommand{\evnsym}{0}
1163 \cmdmthsym{Evn}[\evnsym]
1164 \newcommand{\oddsym}{1}
1165 \cmdmthsym{Odd}[\oddsym]
```

\PrtSet, \prtFun ...

```

1166 \newcommand{\prtsym}{p}
1167 \newcommand{\prtset}{Pr}
1168 \cmdmthsetext{Prt}[\prtset][\prtsym]
1169 \cmdmthfun{prt}[pr]
```

```

1170 %** Semantics *****%
...
1171 %** Quantitative Games on Graph *****%
```

\EG, ... ...

```

1172 %% Energy Games
1173 \cmdtxttoparname{EG}
1174
1175 %% Mean-Payoff Games
1176 \cmdtxttoparname{MPG}
1177
1178 %% Discounted-Payoff Games
1179 \cmdtxttoparname{DPG}
```

```

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

\MaxSym, \MinSym ...

```

1181 \newcommand{\maxsym}{\oplus}
1182 \cmdmthsym{Max}[\maxsym]
1183 \newcommand{\minsym}{\boxminus}
1184 \cmdmthsym{Min}[\minsym]
```

\WghSet, \wghFun ...

```

1185 \newcommand{\wghsym}{w}
1186 \newcommand{\wghset}{Wg}
1187 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1188 \cmdmthfun{wgh}[wg]
```

```

1189 %** Semantics *****%
...
1190 \fi
1191 %*****%
1192 %*****%
1193 %** Macros for Logics *****%
1194 %*****%
1195 \iflog@
```

1196 %\*\* Propositional Logics \*\*\*\*\*%

\BF, \QBF, ...

1197 % Boolean Formulae  
 1198 \cmdtxttoparname{BF}  
 1199  
 1200 % Quantified Boolean Formulae  
 1201 \DeclareRobustCommand{\QBF}  
 1202 {\{\textname{Q}\}\BF}  
 1203 \DeclareRobustCommand{\EBF}  
 1204 {\ensuremath{\exists}\BF}  
 1205 \DeclareRobustCommand{\UBF}  
 1206 {\ensuremath{\forall}\BF}

1207 %\*\* Syntax \*\*\*\*\*%

\LogSig, ...

1208 \newcommand{\logsig}{L}  
 1209 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

\Tt, \Ff ...

1210 \newcommand{\ttsym}{\top}  
 1211 \usrmth{Tt}{\}{sym}[\ttsym]  
 1212 \newcommand{\ffsym}{\bot}  
 1213 \usrmth{Ff}{\}{sym}[\ffsym]

\LNeg, \LNot ...

1214 \newcommand{\lnegsym}{\neg}  
 1215 \usrmth{LNeg}{\}{luop}[\lnegsym]  
 1216 \newcommand{\lnotsym}{\sim}  
 1217 \usrmth{LNot}{\}{luop}[\lnotsym]

\LCon, \LDis ...

1218 \newcommand{\lconsym}{\land}  
 1219 \usrmth{LCon}{\}{lbop}[\lconsym]  
 1220 \newcommand{\ldissym}{\lor}  
 1221 \usrmth{LDis}{\}{lbop}[\ldissym]

\LImp, \LCoi ...

1222 \newcommand{\limpsym}{\rightarrow}  
 1223 \usrmth{LImp}{\}{lbop}[\limpsym]  
 1224 \newcommand{\lcoisym}{\leftrightarrow}  
 1225 \usrmth{LCoi}{\}{lbop}[\lcoisym]

\LExs, \LAll ...

1226 \newcommand{\lexssym}{\exists}  
 1227 \usrmth{LExs}{\}{luop}[\lexssym]  
 1228 \newcommand{\lallsym}{\forall}  
 1229 \usrmth{LAll}{\}{luop}[\lallsym]

\APSet, ...

1230 \newcommand{\apsym}{p}  
 1231 \newcommand{\apset}{AP}  
 1232 \cmdmthsetext{AP}[\apset][\apsym]  
 1233 \cmdmthfun{ap}\usrmth{ap}{\}{argfun}

\sub ...

1234 \usrmth{sub}{\}{argfun}

\Cnt, \Qnt, \Sym ...

1235 \usrmth{Cnt}{\}{sym}[C]  
 1236 \usrmth{Qnt}{\}{sym}[Q]  
 1237 \usrmth{Sym}{\}{sym}[\odot]

```

\QAE, \QEA ...
1238 \usrmth{QAE}{-}{sym}[\forall\exists]
1239 \usrmth{QEA}{-}{sym}[\exists\forall]

\QntSet, ... ...
1240 \newcommand{\qntsym}{\wp}
1241 \newcommand{\qntset}{Qn}
1242 \cmdmthsetext{Qnt}{\qntset}[\qntsym]

\free, \bound ...
1243 \usrmth{free}{-}{argfun}
1244 \usrmth{bound}{-}{argfun}

\dep, \alt ...
1245 \usrmth{dep}{-}{argfun}
1246 \usrmth{alt}{-}{argfun}

\cnf, \dnf, ... ...
1247 \cmdtxtabr{cnf}
1248 \cmdtxtabr{dnf}
1249 \cmdtxtabr{pnf}
1250 \cmdtxtabr{nnf}

1251 %** Semantics *****%

\LogStr, ... ...
1252 \newcommand{\logstr}{L}
1253 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet, ... ...
1254 \newcommand{\valsym}{\xi}
1255 \newcommand{\valset}{Val}
1256 \cmdmthsetext{Val}{\valset}[\valsym]

\AsgSet, ... ...
1257 \newcommand{\asgsym}{\chi}
1258 \newcommand{\asgset}{Asg}
1259 \cmdmthsetext{Asg}{\asgset}[\asgsym]

1260 %** First-Order Logics I *****%

\FOL, ... ...
1261 % First-Order Logic
1262 \cmdtxtoparname{FOL}[Fol]
1263 \cmdtxtoparname{FO}[FO]
1264
1265 % Monadic First-Order Logic
1266 \DeclareRobustCommand{\MFOL}
1267   {\{\txtname{M}\}\FOL}
1268 \DeclareRobustCommand{\MFO}
1269   {\{\txtname{M}\}\FO}

1270 %** Syntax *****%

\VarSig, ... ...
1271 \newcommand{\varsig}{V}
1272 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1273 \newcommand{\varsym}{x}
1274 \newcommand{\varset}{Vr}
1275 \cmdmthsetext{Var}{\varset}[\varsym]
1276 \usrmth{var}{-}{argfun}[vr]
1277 \cmdmthfun{dim}[dm]\usrmth{dim}{-}{argfun}[dm]

```

```

\ConSig, ... ...
1278 \newcommand{\consig}{C}
1279 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1280 \newcommand{\consym}{c}
1281 \newcommand{\conset}{Cn}
1282 \cmdmthsetext{Con}[\conset][\consym]
1283 \usrmth{con}{-}{argfun}[cn]

\FunSig, ... ...
1284 \newcommand{\funsig}{F}
1285 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1286 \newcommand{\funsym}{f}
1287 \newcommand{\funset}{Fn}
1288 \cmdmthsetext{Fun}[\funset][\funsym]
1289 \usrmth{fun}{-}{argfun}[fn]
1290 \cmdmthfun{art}[ar]\usrmth{art}{-}{argfun}[ar]

\TerSig, ... ...
1291 \newcommand{\tersig}{T}
1292 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1293 \newcommand{\tersym}{t}
1294 \newcommand{\terset}{Tr}
1295 \cmdmthsetext{Ter}[\terset][\tersym]
1296 \usrmth{ter}{-}{argfun}

\RelSig, ... ...
1297 \newcommand{\relsig}{R}
1298 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1299 \newcommand{\relsym}{r}
1300 \newcommand{\relset}{Rl}
1301 \cmdmthsetext{Rel}[\relset][\relsym]
1302 \usrmth{rel}{-}{argfun}[rl]

\skm ...
1303 \usrmth{skm}{-}{argfun}

1304 %** Semantics *****%%

\ConStr, ... ...
1305 \newcommand{\constr}{C}
1306 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr, ... ...
1307 \newcommand{\funstr}{F}
1308 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr, ... ...
1309 \newcommand{\terstr}{T}
1310 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr, ... ...
1311 \newcommand{\relstr}{R}
1312 \usrmthlatupp{Rel}{Str}{str}[\relstr]

1313 %** First-Order Logics II *****%%

\DF, \IF, ... ...
1314 % Dependence-Friendly Logic
1315 \cmdtxtoparname{DF}
1316
1317 % Independence-Friendly Logic
1318 \cmdtxtoparname{IF}
1319

```

```

1320 % Dependence/Independence-Friendly Logic
1321 \cmdtxttoparname{DIF}
1322
1323 % Dependence Logic
1324 \cmdtxttoparname{DL}
1325
1326 % Team Logic
1327 \cmdtxttoparname{TL}
1328
1329 % Alternating Dependence-Friendly Logic
1330 \cmdtxttoparname{ADF}
1331
1332 % Alternating Independence-Friendly Logic
1333 \cmdtxttoparname{AIF}
1334
1335 % Alternating Dependence/Independence-Friendly Logic
1336 \cmdtxttoparname{ADIF}

```

...

```

1337 %** Syntax *****%

```

\LEExs, \LAA11 ...

```

1338 \newcommand{\leexssym}{\Sigma}
1339 \usrmth{LEExs}{\luop}{\leexssym}
1340 \newcommand{\laallsym}{\Pi}
1341 \usrmth{LAA11}{\luop}{\laallsym}

```

```

1342 %** Semantics *****%

```

...

```

1343 %** Second-Order Logics I *****%

```

\SOL, ... ...

```

1344 % Second-Order Logic
1345 \cmdtxttoparname{SOL}[Sol]
1346 \cmdtxttoparname{SO}
1347
1348 % Weak Second-Order Logic
1349 \DeclareRobustCommand{\WSOL}
1350   {\{\txtrname{W}\}\SOL}
1351 \DeclareRobustCommand{\WSO}
1352   {\{\txtrname{W}\}\SO}
1353
1354 % coWeak Second-Order Logic
1355 \DeclareRobustCommand{\coWSOL}
1356   {\{\txtrname{coW}\}\SOL}
1357 \DeclareRobustCommand{\coWSO}
1358   {\{\txtrname{coW}\}\SO}
1359
1360 % Monadic Second-Order Logic
1361 \DeclareRobustCommand{\MSOL}
1362   {\{\txtrname{M}\}\SOL}
1363 \DeclareRobustCommand{\MSO}
1364   {\{\txtrname{M}\}\SO}
1365
1366 % Weak Monadic Second-Order Logic
1367 \DeclareRobustCommand{\WMSOL}
1368   {\{\txtrname{W}\}\MSOL}
1369 \DeclareRobustCommand{\WMSO}
1370   {\{\txtrname{W}\}\MSO}
1371
1372 % coWeak Monadic Second-Order Logic
1373 \DeclareRobustCommand{\coWMSOL}

```

```

1374  {{\txtname{coW}}\MSOL}
1375 \DeclareRobustCommand{\coWMSO}
1376  {{\txtname{coW}}\MSO}

1377 %** Syntax *****%%

\FVarSet, ... ...
1378 \newcommand{\fvarsym}{x}
1379 \newcommand{\fvarset}{FVr}
1380 \cmdmthsettext{FVar}[\fvarset][\fvarsym]

\SVarSet, ... ...
1381 \newcommand{\svarsym}{X}
1382 \newcommand{\svarset}{SVr}
1383 \cmdmthsettext{SVar}[\svarset][\svarsym]

1384 %** Semantics *****%%
...
1385 %** Second-Order Logics II *****%%

\TL, \PL, ... ...
1386 % Tree Logic
1387 \cmdtxttoparname{TL}
1388
1389 % Weak Tree Logic
1390 \DeclareRobustCommand{\WTL}
1391  {{\txtname{W}}\TL}
1392
1393 % coWeak Tree Logic
1394 \DeclareRobustCommand{\coWTL}
1395  {{\txtname{coW}}\TL}
1396
1397 % Monadic Tree Logic
1398 \DeclareRobustCommand{\MTL}
1399  {{\txtname{M}}\TL}
1400
1401 % Weak Monadic Tree Logic
1402 \DeclareRobustCommand{\WMTL}
1403  {{\txtname{W}}\MTL}
1404
1405 % coWeak Monadic Tree Logic
1406 \DeclareRobustCommand{\coWMTL}
1407  {{\txtname{coW}}\MTL}
1408
1409 % Path Logic
1410 \cmdtxttoparname{PL}
1411
1412 % Weak Path Logic
1413 \DeclareRobustCommand{\WPL}
1414  {{\txtname{W}}\PL}
1415
1416 % coWeak Path Logic
1417 \DeclareRobustCommand{\coWPL}
1418  {{\txtname{coW}}\PL}
1419
1420 % Monadic Path Logic
1421 \DeclareRobustCommand{\MPL}
1422  {{\txtname{M}}\PL}
1423
1424 % Weak Monadic Path Logic
1425 \DeclareRobustCommand{\WMPL}
1426  {{\txtname{W}}\MPL}
1427

```



```

1428 % coWeak Monadic Path Logic
1429 \DeclareRobustCommand{\coWMPL}
1430   {\textname{coW}}\MPL}

1431 %** Syntax *****%
...
1432 %** Semantics *****%
...
1433 %** Modal Logics I *****%

```

\ML, \GML, ...

```

...
1434 % Modal Logic
1435 \cmdtxttoparname{ML}
1436
1437 % Graded Modal Logic
1438 \DeclareRobustCommand{\GML}
1439   {\textname{G}}\ML}
1440
1441 % Quantified Modal Logic
1442 \DeclareRobustCommand{\QML}
1443   {\textname{Q}}\ML}
1444 \DeclareRobustCommand{\EML}
1445   {\ensuremath{\exists}\ML}
1446 \DeclareRobustCommand{\UML}
1447   {\ensuremath{\forall}\ML}

1448 %** Syntax *****%

```

\Opr ...

```

1449 \usrmth{Opr}{\sym}[Op]

```

\DMod, \BMod ...

```

1450 \usrmth{DMod}{\sym}[\Diamond]
1451 \usrmth{BMod}{\sym}[\Box]

```

\Exs, \All ...

```

1452 \DeclareRobustCommand{\Exs}[1]
1453   {\mth{\defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1454 \DeclareRobustCommand{\All}[1]
1455   {\mth{\defval{\argmid{\left[]}{#1}{\right}}}{\BMod}}}

1456 %** Semantics *****%

```

\KrpStr, ...

```

1457 \newcommand{\krpstr}{K}
1458 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

```

\WrlSet, ...

```

1459 \newcommand{\wrlsym}{w}
1460 \newcommand{\wrlset}{W}
1461 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
1462 \cmdmthsymelm{iwrl}[\wrlsym_{I}]

```

\AccRel, \TrnRel ...

```

1463 \newcommand{\accsym}{R}
1464 \cmdmthrel{Acc}[\accsym]
1465 \cmdmthrel{Trn}[\accsym]

```

\labFun ...

```

1466 \newcommand{\labsym}{\lambda}
1467 \cmdmthfun{lab}[\labsym]

```

```

\PthSet, \pthFun ...
1468 \providecommand{\pthsym}{\pi}
1469 \providecommand{\pthset}{Pth}
1470 \cmdmthsetext{Pth}[\pthset][\pthsym]
1471 \cmdmthfun{pth}

1472 %** Modal Logics II *****%%

\MC, \GMC, ... ...
1473 % Mu Calculus
1474 \cmdtxttoparname{MC}[\ensuremath{\mu}-Calculus]
1475
1476 % Graded Mu Calculus
1477 \DeclareRobustCommand{\GMC}
1478   {\{\textrm{G}\}\MC}
1479
1480 % Quantified Mu Calculus
1481 \DeclareRobustCommand{\QMC}
1482   {\{\textrm{Q}\}\MC}
1483 \DeclareRobustCommand{\EMC}
1484   {\ensuremath{\exists}\MC}
1485 \DeclareRobustCommand{\UMC}
1486   {\ensuremath{\forall}\MC}
1487
1488 % Alternation-Free Mu Calculus
1489 \DeclareRobustCommand{\AFMC}
1490   {\{\textrm{AF}\}\MC}
1491
1492 % Alternation-Free Graded Mu Calculus
1493 \DeclareRobustCommand{\AFGMC}
1494   {\{\textrm{AF}\}\GMC}
1495
1496 % Quantified Alternation-Free Mu Calculus
1497 \DeclareRobustCommand{\QAFMC}
1498   {\{\textrm{Q}\}\AFMC}
1499 \DeclareRobustCommand{\EAFMC}
1500   {\ensuremath{\exists}\AFMC}
1501 \DeclareRobustCommand{\UAFMC}
1502   {\ensuremath{\forall}\AFMC}
1503
1504 %** Syntax *****%%
...
1505 %** Semantics *****%%
...
1506 %** Temporal Logics I *****%%

\PTL, \LTL, ... ...
1507 % Propositional Temporal Logic
1508 \cmdtxttoparname{PTL}
1509
1510 % Quantified Propositional Temporal Logic
1511 \DeclareRobustCommand{\QPTL}
1512   {\{\textrm{Q}\}\PTL}
1513 \DeclareRobustCommand{\EPTL}
1514   {\ensuremath{\exists}\PTL}
1515 \DeclareRobustCommand{\UPTL}
1516   {\ensuremath{\forall}\PTL}
1517
1518 % Linear Temporal Logic
1519 \cmdtxttoparname{LTL}
1520

```

```

1521 % Quantified Linear Temporal Logic
1522 \DeclareRobustCommand{\QLTL}
1523   {\textrmname{Q}}\LTL}
1524 \DeclareRobustCommand{\ELTL}
1525   {\ensuremath{\exists}\LTL}
1526 \DeclareRobustCommand{\ULTL}
1527   {\ensuremath{\forall}\LTL}

```

```

1528 %** Syntax *****%

```

\X, ... ..

```

1529 \usrmth{X}{-}{sym}[X\,]
1530 \usrmth{F}{-}{sym}[F\,]
1531 \usrmth{G}{-}{sym}[G\,]
1532 \usrmth{U}{-}{sym}[\,U\,]
1533 \usrmth{R}{-}{sym}[\,R\,]

```

\Y, ... ..

```

1534 \usrmth{Y}{-}{sym}[G\,]
1535 \usrmth{P}{-}{sym}[P\,]\let\SavePildcrowP
1536 \usrmth{H}{-}{sym}[H\,]\let\SaveDoubleAcuteH
1537 \usrmth{S}{-}{sym}[\,S\,]\let\SaveSectionSymbolS
1538 \usrmth{B}{-}{sym}[\,B\,]

```

```

1539 %** Semantics *****%

```

...

```

1540 %** Temporal Logics II *****%

```

\PDL, \CTL, ... ..

```

1541
1542 % Propositional Dynamic Logic
1543 \cmdtxtopname{PDL}
1544
1545 % Computation Tree Logic
1546 \cmdtxtopname{CTL}
1547
1548 % Weak Computation Tree Logic
1549 \DeclareRobustCommand{\WCTL}
1550   {\textrmname{W}}\CTL}
1551
1552 % Quantified Computation Tree Logic
1553 \DeclareRobustCommand{\QCTL}
1554   {\textrmname{Q}}\CTL}
1555 \DeclareRobustCommand{\ECTL}
1556   {\ensuremath{\exists}\CTL}
1557 \DeclareRobustCommand{\UCTL}
1558   {\ensuremath{\forall}\CTL}
1559
1560 % Improved Computation Tree Logic
1561 \cmdtxtopname{CTLP}[CTL$^{+}$]
1562
1563 % Weak Improved Computation Tree Logic
1564 \DeclareRobustCommand{\WCTLP}
1565   {\textrmname{W}}\CTLP}
1566
1567 % Quantified Improved Computation Tree Logic
1568 \DeclareRobustCommand{\QCTLP}
1569   {\textrmname{Q}}\CTLP}
1570 \DeclareRobustCommand{\ECTLP}
1571   {\ensuremath{\exists}\CTLP}
1572 \DeclareRobustCommand{\UCTLP}
1573   {\ensuremath{\forall}\CTLP}
1574

```

```

1575 % Full Computation Tree Logic
1576 \cmdtxttoparname{CTLS}[CTL*]
1577
1578 % Weak Full Computation Tree Logic
1579 \DeclareRobustCommand{\WCTLS}
1580   {\{\txtname{W}\}\CTLS}
1581
1582 % Quantified Full Computation Tree Logic
1583 \DeclareRobustCommand{\QCTLS}
1584   {\{\txtname{Q}\}\CTLS}
1585 \DeclareRobustCommand{\ECTLS}
1586   {\ensuremath{\exists}\CTLS}
1587 \DeclareRobustCommand{\UCTLS}
1588   {\ensuremath{\forall}\CTLS}

1589 %** Syntax *****%%

\E, \A ...

1590 \usrmth{E}{\}{sym}
1591 \usrmth{A}{\}{sym}

1592 %** Semantics *****%%

...

1593 %** Strategic Logics I *****%%

\ATL, ... ...

1594 % Alternating Temporal Logic
1595 \cmdtxttoparname{ATL}
1596
1597 % Weak Alternating Tree Logic
1598 \DeclareRobustCommand{\WATL}
1599   {\{\txtname{W}\}\ATL}
1600
1601 % Quantified Alternating Temporal Logic
1602 \DeclareRobustCommand{\QATL}
1603   {\{\txtname{Q}\}\ATL}
1604 \DeclareRobustCommand{\EATL}
1605   {\ensuremath{\exists}\ATL}
1606 \DeclareRobustCommand{\UATL}
1607   {\ensuremath{\forall}\ATL}
1608
1609 % Improved Alternating Temporal Logic
1610 \cmdtxttoparname{ATLP}[ATL$^{+}$]
1611
1612 % Weak Improved Alternating Tree Logic
1613 \DeclareRobustCommand{\WATLP}
1614   {\{\txtname{W}\}\ATLP}
1615
1616 % Quantified Improved Alternating Temporal Logic
1617 \DeclareRobustCommand{\QATLP}
1618   {\{\txtname{Q}\}\ATLP}
1619 \DeclareRobustCommand{\EATLP}
1620   {\ensuremath{\exists}\ATLP}
1621 \DeclareRobustCommand{\UATLP}
1622   {\ensuremath{\forall}\ATLP}
1623
1624 % Full Alternating Temporal Logic
1625 \cmdtxttoparname{ATLS}[ATL*]
1626
1627 % Weak Full Alternating Tree Logic
1628 \DeclareRobustCommand{\WATLS}
1629   {\{\txtname{W}\}\ATLS}
1630

```

```

1631 % Quantified Full Alternating Temporal Logic
1632 \DeclareRobustCommand{\QATLS}
1633   {\txname{Q}\ATLS}
1634 \DeclareRobustCommand{\EATLS}
1635   {\ensuremath{\exists}\ATLS}
1636 \DeclareRobustCommand{\UATLS}
1637   {\ensuremath{\forall}\ATLS}

1638 %** Syntax *****%%

\EEs, \AA11 ...
1639 \DeclareRobustCommand{\EEs}[1]
1640   {\mth{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1641 \DeclareRobustCommand{\AA11}[1]
1642   {\mth{\argmid{\left[\left[\right]{\defval{#1}{\emptyset}}{\right]\right]}}}

1643 %** Semantics *****%%

\CGS ...
1644 \cmdtxname{CGS}

\CGSStr, ... ...
1645 \newcommand{\cgsstr}{G}
1646 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet, ... ...
1647 \newcommand{\agnsym}{a}
1648 \newcommand{\agnset}{Ag}
1649 \cmdmthsetext{Agn}[\agnset][\agnsym]

\PosSet, ... ...
1650 \providecommand{\possym}{v}
1651 \providecommand{\posset}{Ps}
1652 \cmdmthsetext{Pos}[\posset][\possym]
1653 \cmdmthsymelm{ipos}[\possym_{I}]
1654 \cmdmthsymelm{fpos}[\possym_{F}]
1655 \cmdmthset{PPos}[\posset_{\PlrSym}]
1656 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1657 \cmdmthset{OPos}[\posset_{\OppSym}]
1658 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet, ... ...
1659 \newcommand{\sttsym}{s}
1660 \newcommand{\sttset}{St}
1661 \cmdmthsetext{Stt}[\sttset][\sttsym]
1662 \cmdmthset{IStt}[\sttset_{I}]
1663 \cmdmthsymelm{istt}[\sttsym_{I}]
1664 \cmdmthset{FStt}[\sttset_{F}]
1665 \cmdmthsymelm{fstt}[\sttsym_{F}]

\ActSet, ... ...
1666 \newcommand{\actsym}{c}
1667 \newcommand{\actset}{Ac}
1668 \cmdmthsetext{Act}[\actset][\actsym]

\DecSet, ... ...
1669 \newcommand{\decsym}{d}
1670 \newcommand{\decset}{Dc}
1671 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ...
1672 \newcommand{\movsym}{\tau}
1673 \cmdmthfun{mov}[\movsym]

```

```

\HstSet, ... ...
1674 \providecommand{\hstsym}{\rho}
1675 \providecommand{\hstset}{Hst}
1676 \cmdmthsetext{Hst}[\hstset][\hstsym]
1677 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1678 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1679 \cmdmthset{OHst}[\hstset_{\OppSym}]
1680 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1681 \cmdmthfun{hst}

\PlaySet, \playFun ...
1682 \providecommand{\playsym}{\pi}
1683 \providecommand{\playset}{Play}
1684 \cmdmthsetext{Play}[\playset][\playsym]
1685 \cmdmthfun{play}

\StrSet, ... ...
1686 \providecommand{\strsym}{\sigma}
1687 \providecommand{\strset}{Str}
1688 \cmdmthsetext{Str}[\strset][\strsym]
1689 \cmdmthset{PStr}[\strset_{\PlrSym}]
1690 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1691 \cmdmthset{OStr}[\strset_{\OppSym}]
1692 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1693 \providecommand{\prfsym}{\xi}
1694 \providecommand{\prfset}{Prf}
1695 \cmdmthsetext{Prf}[\prfset][\prfsym]

1696 %** Strategic Logics II *****%%

\SL, ... ...
1697 % Strategy Logic
1698 \cmdtxtoparname{SL}
1699
1700 \DeclareRobustCommand{\ESL}
1701   {\ensuremath{\exists}\SL}
1702 \DeclareRobustCommand{\USL}
1703   {\ensuremath{\forall}\SL}
1704
1705 \DeclareRobustCommand{\FSL}
1706   {\{\textname{F}\}\SL}
1707
1708 \DeclareRobustCommand{\EFSL}
1709   {\ensuremath{\exists}\FSL}
1710 \DeclareRobustCommand{\UFSL}
1711   {\ensuremath{\forall}\FSL}
1712
1713 % One-Goal Strategy Logic
1714 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
1715   {\SL[#1][#2][1g\arglef{,}{#3}]}
1716
1717 \DeclareRobustCommand{\EOGSL}
1718   {\ensuremath{\exists}\OGSL}
1719 \DeclareRobustCommand{\UOGSL}
1720   {\ensuremath{\forall}\OGSL}
1721
1722 \DeclareRobustCommand{\FOGSL}
1723   {\{\textname{F}\}\OGSL}
1724
1725 \DeclareRobustCommand{\EFOGSL}
1726   {\ensuremath{\exists}\FOGSL}

```

```

1727 \DeclareRobustCommand{\UFOGSL}
1728   {\ensuremath{\forall}\text{FOGSL}}
1729
1730 % Conjunctive-Goal Strategy Logic
1731 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
1732   {\SL[#1][#2][cg\arglef{,}{#3}]}
1733
1734 \DeclareRobustCommand{\ECGSL}
1735   {\ensuremath{\exists}\text{CGSL}}
1736 \DeclareRobustCommand{\UCGSL}
1737   {\ensuremath{\forall}\text{CGSL}}
1738
1739 \DeclareRobustCommand{\FCGSL}
1740   {\{\textname{F}\}\text{xGSL}}
1741
1742 \DeclareRobustCommand{\EFCGSL}
1743   {\ensuremath{\exists}\text{FCGSL}}
1744 \DeclareRobustCommand{\UFCGSL}
1745   {\ensuremath{\forall}\text{FCGSL}}
1746
1747 % Disjunctive-Goal Strategy Logic
1748 \DeclareRobustCommandx{\DGS}[3][1=, 2=, 3=]
1749   {\SL[#1][#2][dg\arglef{,}{#3}]}
1750
1751 \DeclareRobustCommand{\EDGS}
1752   {\ensuremath{\exists}\text{DGS}}
1753 \DeclareRobustCommand{\UDGS}
1754   {\ensuremath{\forall}\text{DGS}}
1755
1756 \DeclareRobustCommand{\FDGS}
1757   {\{\textname{F}\}\text{xGSL}}
1758
1759 \DeclareRobustCommand{\EFDGS}
1760   {\ensuremath{\exists}\text{FDGS}}
1761 \DeclareRobustCommand{\UFDGS}
1762   {\ensuremath{\forall}\text{FDGS}}
1763
1764 % Alternating-Goal Strategy Logic
1765 \DeclareRobustCommandx{\AGS}[3][1=, 2=, 3=]
1766   {\SL[#1][#2][ag\arglef{,}{#3}]}
1767
1768 \DeclareRobustCommand{\EAGS}
1769   {\ensuremath{\exists}\text{AGS}}
1770 \DeclareRobustCommand{\UAGS}
1771   {\ensuremath{\forall}\text{AGS}}
1772
1773 \DeclareRobustCommand{\FAGS}
1774   {\{\textname{F}\}\text{xGSL}}
1775
1776 \DeclareRobustCommand{\EFAGS}
1777   {\ensuremath{\exists}\text{FAGS}}
1778 \DeclareRobustCommand{\UFAGS}
1779   {\ensuremath{\forall}\text{FAGS}}
1780
1781 % Extended-Goal Strategy Logic
1782 \DeclareRobustCommandx{\EGS}[3][1=, 2=, 3=]
1783   {\SL[#1][#2][eg\arglef{,}{#3}]}
1784
1785 \DeclareRobustCommand{\EEGS}
1786   {\ensuremath{\exists}\text{EGS}}
1787 \DeclareRobustCommand{\UEGS}
1788   {\ensuremath{\forall}\text{EGS}}
1789

```

```

1790 \DeclareRobustCommand{\FEGSL}
1791   {\textname{F}}\xGSL}
1792
1793 \DeclareRobustCommand{\EFEGSL}
1794   {\ensuremath{\exists}\FEGSL}
1795 \DeclareRobustCommand{\UFEGSL}
1796   {\ensuremath{\forall}\FEGSL}
1797
1798 % Boolean-Goal Strategy Logic
1799 \DeclareRobustCommandx{\BGS}[3][1=, 2=, 3=]
1800   {\SL[#1][#2][bg\arglef{,}{#3}]}
1801
1802 \DeclareRobustCommand{\EBGS}
1803   {\ensuremath{\exists}\BGS}
1804 \DeclareRobustCommand{\UBGS}
1805   {\ensuremath{\forall}\BGS}
1806
1807 \DeclareRobustCommand{\FBGS}
1808   {\textname{F}}\xGSL}
1809
1810 \DeclareRobustCommand{\EFBGS}
1811   {\ensuremath{\exists}\FBGS}
1812 \DeclareRobustCommand{\UFBGS}
1813   {\ensuremath{\forall}\FBGS}
1814
1815 % Nested-Goal Strategy Logic
1816 \DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
1817   {\SL[#1][#2][ng\arglef{,}{#3}]}
1818
1819 \DeclareRobustCommand{\ENGSL}
1820   {\ensuremath{\exists}\NGSL}
1821 \DeclareRobustCommand{\UNGSL}
1822   {\ensuremath{\forall}\NGSL}
1823
1824 \DeclareRobustCommand{\FNGSL}
1825   {\textname{F}}\xGSL}
1826
1827 \DeclareRobustCommand{\EFNGSL}
1828   {\ensuremath{\exists}\FNGSL}
1829 \DeclareRobustCommand{\UFNGSL}
1830   {\ensuremath{\forall}\FNGSL}
1831
1832 % Undefined-Goal Strategy Logic
1833 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
1834   {\SL[#1][#2][xg\arglef{,}{#3}]}
1835
1836 \DeclareRobustCommand{\EXGSL}
1837   {\ensuremath{\exists}\XGSL}
1838 \DeclareRobustCommand{\UXGSL}
1839   {\ensuremath{\forall}\XGSL}
1840
1841 \DeclareRobustCommand{\FXGSL}
1842   {\textname{F}}\xGSL}
1843
1844 \DeclareRobustCommand{\EFXGSL}
1845   {\ensuremath{\exists}\FXGSL}
1846 \DeclareRobustCommand{\UFXGSL}
1847   {\ensuremath{\forall}\FXGSL}
1848
1848 %** Syntax ****
\BndSet, ... ...
1849 \newcommand{\bndsym}{\flat}
1850 \newcommand{\bndset}{\Bn}

```



```

1851 \cmdmthsetext{Bnd}[\bndset][\bndsym]
1852 \usrmth{bnd}{-}{argfun}

\psn ...
1853 \usrmth{psn}{-}{argfun}

1854 %** Semantics *****%

\nxtFun ...
1855 \newcommand{\nxtfun}{nxt}
1856 \cmdmthfun{nxt}[\nxtfun]

1857 \fi
1858 %*****%

1859 %*****%
1860 %** Macros for Automata *****%
1861 %*****%
1862 \ifaut@
1863 %** Finite Word Automata *****%

\DFA, ... ...
1864 \cmdtxtoparname{DFA}\cmdtxtoparname{NFA}\cmdtxtoparname{UFA}\cmdtxtoparname{AFA}
1865
1866 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
1867
1868 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
1869 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
1870 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
1871 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
1872 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
1873 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
1874 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

\GFG, \PD, ... ...
1875 \cmdtxtoparname{GFG}
1876
1877 \cmdtxtoparname{PD}
1878
1879 % ...

1880 %** Syntax *****%

\AutName, ... ...
1881 \newcommand{\autname}{A}
1882 \usrmthlatupp{Aut}{Name}{name}[\autname]
1883 \newcommand{\autset}{Aut}
1884 \cmdmthset{Aut}[\autset]

\WAutSet ...
1885 \newcommand{\wautset}{WAut}
1886 \cmdmthset{WAut}[\wautset]

\SttSet, ... ...
1887 \def\sttsym{q}
1888 \def\sttset{Q}
1889 \cmdmthsetext{Stt}[\sttset][\sttsym]
1890 \cmdmthset{IStt}[\sttset_{I}]
1891 \cmdmthsymelm{istt}[\sttsym_{I}]
1892 \cmdmthset{FStt}[\sttset_{F}]
1893 \cmdmthsymelm{fstt}[\sttsym_{F}]

```

```

\SymSet, ... ...
1894 \newcommand{\symsym}{\sigma}
1895 \newcommand{\symset}{\Sigma}
1896 \cmdmthsetext{Sym}[\symset][\symsym]

\trnFun ...
1897 \newcommand{\trnsym}{\delta}
1898 \cmdmthfun{trn}[\trnsym]

1899 %** Semantics *****%

\LangFun ...
1900 \newcommand{\langfun}{L}
1901 \cmdmthfun{Lang}[\langfun]

\WrdSet, ... ...
1902 \newcommand{\wrdsym}{w}
1903 \newcommand{\wrdsset}{Wr}
1904 \cmdmthsetext{Wrd}[\wrdsset][\wrdsym]

1905 %** Finite Tree Automata *****%

\DTA, ... ...
1906 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
1907
1908 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
1909 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
1910 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
1911 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
1912 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
1913 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
1914 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}

1915 %** Syntax *****%

\TAutSet ...
1916 \newcommand{\tautset}{TAut}
1917 \cmdmthset{TAut}[\tautset]

\DirSet, ... ...
1918 \newcommand{\dirsym}{d}
1919 \newcommand{\dirset}{\Lambda}
1920 \cmdmthsetext{Dir}[\dirset][\dirsym]

1921 %** Semantics *****%

\TreeSet, ... ...
1922 \newcommand{\treesym}{T}
1923 \newcommand{\treeset}{Tr}
1924 \cmdmthsetext{Tree}[\treeset][\treesym]

\wotFun ...
1925 \newcommand{\wotfun}{wot}
1926 \cmdmthfun{wot}[\wotfun]

1927 \fi
1928 %*****%
1929 %*****%
1930 %** Format Tricks *****%
1931 %*****%
1932 \iffirm@

```

```

... ...
1933 %%...

1934 \fi
1935 %*****%

1936 %*****%
1937 %** Figure Tricks *****%
1938 %*****%
1939 \iffig@

1940 \RequirePackage{tikz}
1941 \usetikzlibrary{arrows,graphs,matrix,patterns,shapes}

1942 \tikzstyle{every node} =
1943   [draw = none, fill = none, black, thin]
1944 \tikzstyle{every edge} +=
1945   [black, thick]

1946 \tikzstyle{noall} =
1947   [draw = none, fill = none]
1948 \tikzstyle{nodraw} =
1949   [draw = none, fill = white]
1950 \tikzstyle{nofill} =
1951   [draw = black, fill = none]

1952 \ifwrpfig@
1953   % Wrapfig Package
1954   \RequirePackage{wrapfig}
1955 \fi

1956 \fi
1957 %*****%

1958 %*****%
1959 %** Table Tricks *****%
1960 %*****%
1961 \iftab@

... ...
1962 %%...

1963 \fi
1964 %*****%

1965 %*****%
1966 %** Algorithm Tricks *****%
1967 %*****%
1968 \ifalg@

1969 \RequirePackage[ruled,vlined]{algorithm2e}
1970 \setlength{\algomargin}{1.25em}
1971 \DontPrintSemicolon
1972 \SetInd{0.25em}{0.5em}

\Signature ...
1973 \SetKw{Signature}{signature}

\Macro, ... ...
1974 \SetKwFor{Macro}{macro}{}{}
1975 \SetKwFor{Function}{function}{}{}
1976 \SetKwFor{Procedure}{procedure}{}{}

\Let ...
1977 \SetKwFor{Let}{let}{in}{}

\True, \False ...
1978 \SetKw{True}{true}
1979 \SetKw{False}{false}

```

```

\From, ... ...
1980 \SetKw{From}{from}
1981 \SetKw{To}{to}
1982 \SetKw{DownTo}{downto}

\GoTo, ... ...
1983 \SetKw{GoTo}{goto}
1984 \SetKw{Break}{break}
1985 \SetKw{Continue}{continue}

\MIf, ... ...
1986 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
1987 \DeclareRobustCommand{\nlr}[1]
1988   {\addtocounter{AlgoLine}{1}%
1989   \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

1990 \fi
1991 %%*****%
1992 \endinput
1993 \</package>

```

## 2 Change History

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

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