

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

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## Abstract

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

## 1 Implementation & Usage

```
1 <*package>
2
3 \RequirePackage{etoolbox}
4
5 \RequirePackage{xargs}
6 \RequirePackage{xspace}
7 \RequirePackage{stringstrings}
8
9 \RequirePackage{amsmath}
10 \RequirePackage{amssymb}
11 \interdisplaylinepenalty=2500
12
13
14 \PackageOptions{
15   %% Text macro generation
16   \newif\iftxtgen@ \txtgen@false
17   \DeclareOption{txtgen}{\txtgen@true}
18   \DeclareOption{nottxtgen}
19   {\txtgen@false\text@false\com@false\gam@false\log@false\aut@false}
20
21   %% Math macro generation
22   \newif\ifmthgen@ \mthgen@false
23   \DeclareOption{mthgen}{\mthgen@true}
24   \DeclareOption{nomthgen}
25   {\mthgen@false\math@false\gam@false\log@false\aut@false}
26
27   %% Elementary macros for text
28   \newif\iftext@ \text@false
29   \DeclareOption{text}{\text@true\txtgen@true}
30   \DeclareOption{nottext}{\text@false}
31
32   %% Elementary macros for math
33   \newif\ifmath@ \math@false
34   \DeclareOption{math}{\math@true\mthgen@true}
35   \DeclareOption{nomath}{\math@false}
36
37   %% Macros for computational-complexity classes
```

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\*This document describes version v0.3 of the fmocdmac package, last revised 2021/02/03.

```

37 \newif\ifcom@ \com@false
38 \DeclareOption{com}{\com@true\txtgen@true}
39 \DeclareOption{nocom}{\com@false}
40
41 %% Macros for games
42 \newif\ifgam@ \gam@false
43 \DeclareOption{gam}{\gam@true\txtgen@true\mthgen@true}
44 \DeclareOption{nogam}{\gam@false}
45
46 %% Macros for logics
47 \newif\iflog@ \log@false
48 \DeclareOption{log}{\log@true\txtgen@true\mthgen@true}
49 \DeclareOption{nolog}{\log@false}
50
51 %% Macros for automata
52 \newif\ifaut@ \aut@false
53 \DeclareOption{aut}{\aut@true\txtgen@true\mthgen@true}
54 \DeclareOption{noaut}{\aut@false}
55
56 %% Format-related tricks
57 \newif\iffrm@ \frm@false
58 \DeclareOption{frm}{\frm@true}
59 \DeclareOption{nofrm}{\frm@false}
60
61 %% Figure-related tricks
62 \newif\iffig@ \fig@false
63 \DeclareOption{fig}{\fig@true}
64 \DeclareOption{nofig}{\fig@false}
65
66 %% Table-related tricks
67 \newif\iftab@ \tab@false
68 \DeclareOption{tab}{\tab@true}
69 \DeclareOption{notab}{\tab@false}
70
71 %% Algorithm-related tricks
72 \newif\ifalg@ \alg@false
73 \DeclareOption{alg}{\alg@true}
74 \DeclareOption{noalg}{\alg@false}
75
76 %% Auxiliary tricks
77 \newif\ifaux@ \aux@false
78 \DeclareOption{aux}{\aux@true}
79 \DeclareOption{noaux}{\aux@false}
80
81 %% Font tools
82 \newif\iffnttls@ \fnttls@true
83 \DeclareOption{nofnttls}{\fnttls@false}
84
85 %% Enumeration tools
86 \newif\ifenmtls@ \enmtls@true
87 \DeclareOption{noenmtls}{\enmtls@false}
88
89 %% AMS Theorem tools
90 \newif\ifamsthm@ \amsthm@true
91 \DeclareOption{noamsthm}{\amsthm@false}
92
93 %% Theorem tools
94 \newif\ifthmtls@ \thmtls@true
95 \DeclareOption{nothmtls}{\thmtls@false}
96
97 %% Hyper reference
98 \newif\ifhympref@ \hympref@true
99 \DeclareOption{nohympref}{\hympref@false}

```

```

100
101 %% ...
102
103 %% Camera-ready version
104 \newif\ifcrv@ \crv@false
105 \DeclareOption{crv}{\crv@true}
106
107 %% Change bars
108 \newif\ifchgbar@ \chgbar@false
109 \DeclareOption{chgbar}{\chgbar@true}
110
111 %% Line numbers
112 \newif\iflinnum@ \linnum@false
113 \DeclareOption{linnum}{\linnum@true}
114

  Option-processing code:
115
116 \DeclareOption*{\PackageWarning{fmocdmac}{Unknown~\CurrentOption}}%
117
118 \ExecuteOptions{txtgen,mthgen,text,math,com,gam,log,aut,aux}%
119
120 \ProcessOptions\relax%
121
122 \ifcsdef{if@twocolumn}{\newif\if@twocolumn}
123
124 %*****%
125 %** Auxiliary Font Declarations *****%
126 %*****%

\mathbb{B} Bbo Math Font: ... to do!
127 \ifdef{\mathbb{B}}{\DeclareMathAlphabet{\mathbb{B}}{U}{bbold}{m}{n}}

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

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

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

131 %*****%
132 %*****%
133 %** Auxiliary Alphabet Letters *****%
134 %*****%

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

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

140 %*****%
141 %*****%
142 %** Tools *****%
143 %*****%

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

```

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

```

144 \newcommand{\empchk}[2]
145   {\if&#1&\else#2\fi}

```

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

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

```

146 \newcommand{\defval}[2]
147   {\if&#1&#2\else#1\fi}

```

148 %\*\*\*\*\*%

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

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

```

149 \newcommand{\arglef}[2]
150   {\empchk{#2}{#1\allowbreak#2}}

```

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

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

```

151 \newcommand{\argrig}[2]
152   {\empchk{#1}{#1\allowbreak#2}}

```

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

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

```

153 \newcommand{\argmid}[3]
154   {\empchk{#2}{#1\allowbreak#2\allowbreak#3}}

```

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

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

```

155 \newcommand{\argsep}[3]
156   {\if&#1&#3\else#1\allowbreak\arglef{#2}{#3}\fi}

```

157 %\*\*\*\*\*%

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

```

158 \newcommand{\varcmd}[6]
159   {\expandafter\newcommand\csname gobble#1arg\endcsname[2]
160     {\csname check#1arg\endcsname{\argsep{##1}{#4}{##2}}}%
161     \expandafter\newcommand\csname check#1arg\endcsname[1]
162       {\csname @ifnextchar\endcsname%
163         \bgroup\csname gobble#1arg\endcsname{##1}{#2{##1#5}#6}}%
164     \expandafter\newcommand\csname#1\endcsname[1]
165       {\csname check#1arg\endcsname{#3##1}}}%

```

166 %\*\*\*\*\*%

```

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

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

175 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\seqoflatlow Sequence of Latin lowercase letters: \seqoflatlow{⟨A⟩}{⟨B⟩} ... to do!
176 \newcommand{\seqoflatlow}
177   {\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!
178 \newcommand{\seqoflatupp}
179   {\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!
180 \newcommand{\seqoflatlet}[2]
181   {\seqoflatlow{#1}{#2}\seqoflatupp{#1}{#2}}

182 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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

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

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

193 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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

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

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

200 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
201 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
202 %*** Text Meta Commands %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
203 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

```

\newtxt ... to do!
    • \newtxt[\rmfamily]{Name}[sub][sup][Ext] = “NamesubExt”
    • \newtxt[\sffamily]{Name}[sub][sup][Ext] = “NamesubExt”
    • \newtxt[\ttfamily]{Name}[sub][sup][Ext] = “NamesubExt”
204 \newcommandx{\newtxt}[5][1=, 3=, 4=, 5=]
205   {\text{#1#2\textsubsup{#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”
206 \newcommandx{\newtxtsty}[2][2=]
207   {\newtxt[\defval{#2}{#1}]}

\newtxtarg ... to do!
    • \newtxtarg[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
    • \newtxtarg[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
    • \newtxtarg[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
208 \newcommandx{\newtxtarg}[7][1=, 3=, 4=, 5=, 7=]
209   {\newtxt{#1}{#2}{#3}{#4}{#5\argmid{#6}{#7}}}

\newtxtargsty ... to do!
    • \newtxtargsty{\rmfamily}{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
    • \newtxtargsty{\rmfamily}[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
    • \newtxtargsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
210 \newcommandx{\newtxtargsty}[2][2=]
211   {\newtxtarg[\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)”
212 \newcommandx{\newtxtoarg}[5][1=, 3=, 4=, 5=]
213   {\newtxtarg{#1}{#2}{#3}{#4}[] {#5}[] }

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

\newtxtpar ... to do!
    • \newtxtpar[\rmfamily]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesubExt1[Par]Ext2”
    • \newtxtpar[\sffamily]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesubExt1[Par]Ext2”
    • \newtxtpar[\ttfamily]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesubExt1[Par]Ext2”
216 \newcommandx{\newtxtpar}[7][1=, 3=, 4=, 5=, 7=]
217   {\newtxt{#1}{#2}{#3}{#4}{#5\argmid{#6}{#7}}}

\newtxtparsty ... to do!
    • \newtxtparsty{\rmfamily}{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesubExt1[Par]Ext2”
    • \newtxtparsty{\rmfamily}[\sffamily]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesubExt1[Par]Ext2”
    • \newtxtparsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext1]{Par}[Ext2] = “NamesubExt1[Par]Ext2”

```

```

218 \newcommandx{\newtxtparsty}[2][2=]
219   {\newtxtpar[\defval{#2}{#1}]}

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

\newtxtparsty ... to do!
  • \newtxtparsty{\rmfamily}{Name}[sub][sup][Par] = “Namesub[Par]”
  • \newtxtparsty{\rmfamily}[\sffamily]{Name}[sub][sup][Par] = “Namesub[Par]”
  • \newtxtparsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Par] = “Namesub[Par]”
222 \newcommandx{\newtxtparsty}[2][2=]
223   {\newtxtpar[\defval{#2}{#1}]}

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

226 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\txt ... to do!
  • \txt{Name}[sub][sup][Ext] = “NamesubExt”
  • \txt[\scshape]{Name}[sub][sup][Ext] = “NAMESUBEXT”
  • \txt[\bfseries]{Name}[sub][sup][Ext] = “NamesubExt”
227 \newcommand{\txt}{}
228   {\newtxtsty{\txtsty}}

\txtgarg ... to do!
  • \txtgarg{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(Arg)Ext2”
  • \txtgarg[\scshape]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NAMESUBEXT1(ARG)EXT2”
  • \txtgarg[\bfseries]{Name}[sub][sup][Ext1]{Arg}[Ext2] = “NamesubExt1(ARG)Ext2”
229 \newcommand{\txtgarg}{}
230   {\newtxtgargsty{\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)”
231 \newcommand{\txtoarg}{}
232   {\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”
233 \newcommand{\txtpar}{}
234   {\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]"
235 \newcommand{\txtopar}
236 {\newtxtoparsty{\txtsty}}

\txtsty ... to do!
237 \newcommand{\txtsty}
238 {\mdseries\upshape\rmfamily}

239 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\cmdtxt ... to do!
• \cmdtxt{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
\txtNewCmd{Name}[sub][sup][Ext] = NAMESUBEXT
240 \newcommand{\cmdtxt}[1]
241 {\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
242 \newcommand{\cmdtxtarg}[1]
243 {\csdef{txtarg#1}{\newtxtargsty{\csname txtsty#1\endcsname}}}

\cmdtxttoarg ... to do!
• \cmdtxttoarg{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
\txtoargNewCmd{Name}[sub][sup][Arg] = NAMESUB(ARG)
244 \newcommand{\cmdtxttoarg}[1]
245 {\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
246 \newcommand{\cmdtxtpar}[1]
247 {\csdef{txtpar#1}{\newtxtparsty{\csname txtsty#1\endcsname}}}

\cmdtxtopar ... to do!
• \cmdtxtopar{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
\txtoparNewCmd{Name}[sub][sup][Par] = NAMESUB[PAR]
248 \newcommand{\cmdtxtopar}[1]
249 {\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]
250 \newcommand{\cmdtxtall}[1]
251 {\cmdtxt{#1}\cmdtxtarg{#1}\cmdtxttoarg{#1}\cmdtxtpar{#1}\cmdtxtopar{#1}}

252 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\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]`

```

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

255 %*****%
256 %*****%
257 %** Math Meta Commands *****%
258 %*****%
```

`\newmth ... to do!`

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

```

259 \newcommandx{\newmth}[5][1=, 3=, 4=, 5=]
260   {\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"`

```

261 \newcommandx{\newmthsty}[2][2=]
262   {\newmth[\defval{#2}{#1}]}
```

`\newmtharg ... to do!`

- `\newmtharg[mathrm]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"`
- `\newmtharg[mathsf]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"`
- `\newmtharg[mathtt]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"`

```

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

`\newmthargsty ... to do!`

- `\newmthargsty{mathrm}{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"`
- `\newmthargsty{mathsf}{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"`
- `\newmthargsty{mathtt}{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"`

```

265 \newcommandx{\newmthargsty}[2][2=]
266   {\newmtharg[\defval{#2}{#1}]}
```

`\newmthoarg ... to do!`

- `\newmthoarg[mathrm]{Name}[sub][sup][Arg] = "Namesub(Arg)"`
- `\newmthoarg[mathsf]{Name}[sub][sup][Arg] = "Namesub(Arg)"`
- `\newmthoarg[mathtt]{Name}[sub][sup][Arg] = "Namesub(Arg)"`

```

267 \newcommandx{\newmthoarg}[5][1=, 3=, 4=, 5=]
268   {\newmtharg{#1}{#2}{#3}{#4}[]{}{#5}[]}
```

`\newmthoargsty ... to do!`

- `\newmthoargsty{mathrm}{Name}[sub][sup][Arg] = "Namesub(Arg)"`
- `\newmthoargsty{mathsf}{Name}[sub][sup][Arg] = "Namesub(Arg)"`
- `\newmthoargsty{mathtt}{Name}[sub][sup][Arg] = "Namesub(Arg)"`

```

269 \newcommandx{\newmthoargsty}[2][2=]
270   {\newmthoarg[\defval{#2}{#1}]}
```

`\newmthpar ... to do!`

- `\newmthpar[mathrm]{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"`

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

271  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{newmthpar}\}[7][1=, 3=, 4=, 5=, 7=]$

272  $\{\backslash\mathrm{newmth}\{\#\mathrm{1}\}\{\#\mathrm{2}\}\{\#\mathrm{3}\}\{\#\mathrm{4}\}\{\#\mathrm{5}\}\mathrm{argmid}\{\!\backslash\mathrm{left}[\!-\#\mathrm{6}\}\{\!\backslash\mathrm{right}\}\mathrm{arglef}\{\!\backslash\!-\#\mathrm{7}\}\}\}$

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

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

273  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{newmthparsty}\}[2][2=]$

274  $\{\backslash\mathrm{newmthpar}\backslash\mathrm{defval}\{\#\mathrm{2}\}\{\#\mathrm{1}\}\}$

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

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

275  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{newmthopar}\}[5][1=, 3=, 4=, 5=]$

276  $\{\backslash\mathrm{newmthpar}\{\#\mathrm{1}\}\{\#\mathrm{2}\}\{\#\mathrm{3}\}\{\#\mathrm{4}\}[\!-\#\mathrm{5}][\!-\#\mathrm{6}]\}$

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

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

277  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{newmthoparsty}\}[2][2=]$

278  $\{\backslash\mathrm{newmthopar}\backslash\mathrm{defval}\{\#\mathrm{2}\}\{\#\mathrm{1}\}\}$

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

279  $\backslash\mathrm{newcommand}\{\backslash\mathrm{mthsubsup}\}[2]$

280  $\{\backslash\mathrm{empchk}\{\#\mathrm{1}\}\{\!-\#\mathrm{1}\}\backslash\mathrm{empchk}\{\#\mathrm{2}\}\{\!-\#\mathrm{2}\}\}$

281  $\%*****\%$

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

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

282  $\backslash\mathrm{newcommand}\{\backslash\mathrm{mth}\}$

283  $\{\backslash\mathrm{newmthsty}\backslash\mathrm{mthsty}\}$

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

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

284  $\backslash\mathrm{newcommand}\{\backslash\mathrm{mtharg}\}$

285  $\{\backslash\mathrm{newmthargsty}\backslash\mathrm{mthsty}\}$

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

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

286  $\backslash\mathrm{newcommand}\{\backslash\mathrm{mthoarg}\}$

287  $\{\backslash\mathrm{newmthoargsty}\backslash\mathrm{mthsty}\}$

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

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

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

```

288 \newcommand{\mthpar}
289 {\newmthparsty{\mthsty}}

\mthopar ... to do!


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


290 \newcommand{\mthopar}
291 {\newmthoparsty{\mthsty}}

\mthsty ... to do!
292 \newcommand{\mthsty}
293 {}

294 %%*****%

\cmdmth ... to do!


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

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


295 \newcommand{\cmdmth}[1]
296 {\csdef{mth#1}\newmthsty{mthsty#1}}

\cmdmtharg ... to do!


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

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


297 \newcommand{\cmdmtharg}[1]
298 {\csdef{mtharg#1}\newmthargsty{mthsty#1}}

\cmdmthoarg ... to do!


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

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


299 \newcommand{\cmdmthoarg}[1]
300 {\csdef{mthoarg#1}\newmthoargsty{mthsty#1}}

\cmdmthpar ... to do!


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

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


301 \newcommand{\cmdmthpar}[1]
302 {\csdef{mthpar#1}\newmthparsty{mthsty#1}}

\cmdmthopar ... to do!


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

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


303 \newcommand{\cmdmthopar}[1]
304 {\csdef{mthopar#1}\newmthoparsty{mthsty#1}}

\cmdmthall ... to do!


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

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

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

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

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

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


305 \newcommand{\cmdmthall}[1]
306 {\csdef{mth#1}\csdef{mtharg#1}\csdef{mthoarg#1}\csdef{mthpar#1}\csdef{mthopar#1}}

307 %%*****%

```

```

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

310 %%*****%

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

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

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

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

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

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

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

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

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

329 %%*****%
330 %%*****%
331 %%** Text Macro Generators *****%
332 %%*****%
333 \iftxtgen@

\txtdef, ... ... to do!
    • \txtdef{Name}[sub][sup][Ext] =  $Name_{\text{sub}}^{\text{sup}}Ext$ 
    • \txtargdef{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{\text{sub}}^{\text{sup}}Ext1(Arg)Ext2$ 
    • \txtpardef{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{\text{sub}}^{\text{sup}}Ext1[Par]Ext2$ 
334 %% Style for Definitions
335 \cmdtxtall{def}\newcommand{\txtstydef}{\bfseries\em}

```

```

\cmdtxtdef ... to do!
    • \cmdtxtdef{cmdName};
      \cmdName[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
    • \cmdtxtdef{cmdName}[newName];
      \cmdName[sub][sub][ext] =  $newName_{sub}^{sub}ext$ 
336 \newcommandx{\cmdtxtdef}[2][2=]
337   {\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] =  $newName_{sub}^{sub}ext1(arg)ext2$ 
338 \newcommandx{\cmdtxtargdef}[2][2=]
339   {\usrtxt{#1}{-}{argdef}[#2]}

\cmdtxtoargdef ... to do!
    • \cmdtxtoargdef{cmdName};
      \cmdName[sub][sub][arg] =  $cmdName_{sub}^{sub}(arg)$ 
    • \cmdtxtoargdef{cmdName}[newName];
      \cmdName[sub][sub][arg] =  $newName_{sub}^{sub}(arg)$ 
340 \newcommandx{\cmdtxtoargdef}[2][2=]
341   {\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] =  $newName_{sub}^{sub}ext1[par]ext2$ 
342 \newcommandx{\cmdtxtpardef}[2][2=]
343   {\usrtxt{#1}{-}{pardef}[#2]}

\cmdtxtopardef ... to do!
    • \cmdtxtopardef{cmdName};
      \cmdName[sub][sub][par] =  $cmdName_{sub}^{sub}[par]$ 
    • \cmdtxtopardef{cmdName}[newName];
      \cmdName[sub][sub][par] =  $newName_{sub}^{sub}[par]$ 
344 \newcommandx{\cmdtxtopardef}[2][2=]
345   {\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] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
346 %% Style for Abbreviations
347 \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] =  $newName_{sub}^{sub}ext$ 
348 \newcommandx{\cmdtxtabr}[2][2=]
349   {\usrtxt{#1}{-}{abr}[#2]}

\cmdtxtargabr ... to do!

```

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

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

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

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

352  $\backslash\text{newcommandx}\{\backslash\text{cmdtxttoargabr}\}[2][2=]$   
353  $\{\backslash\text{usrtxt}\{\#1\}\}\{\text{oargabr}\}[\#2]\}$

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

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

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

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

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

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

358 %\*\*\*\*\*%

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

- $\backslash\text{txtname}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext}] = \text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash\text{txtargname}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Arg}\}[\text{Ext2}] = \text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}(\text{ARG})\text{EXT2}$
- $\backslash\text{txtparname}\{\text{Name}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \text{NAME}_{\text{SUB}}^{\text{SUP}}\text{EXT1}[\text{PAR}]\text{EXT2}$

359 % Style for Names  
360  $\backslash\text{cmdtxtall}\{\text{name}\}\backslash\text{newcommand}\{\backslash\text{txtstname}\}\{\backslash\text{mdseries}\backslash\text{scshape}\backslash\text{sffamily}\}$

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

- $\backslash\text{cmdtxtname}\{\text{cmdName}\};$   
 $\backslash\text{cmdName}[\text{sub}][\text{sub}][\text{ext}] = \text{CMDNAME}_{\text{SUB}}^{\text{SUB}}\text{EXT}$
- $\backslash\text{cmdtxtname}\{\text{cmdName}\}[\text{newName}];$   
 $\backslash\text{cmdName}[\text{sub}][\text{sub}][\text{ext}] = \text{NEWNAME}_{\text{SUB}}^{\text{SUB}}\text{EXT}$

361  $\backslash\text{newcommandx}\{\backslash\text{cmdtxtname}\}[2][2=]$   
362  $\{\backslash\text{usrtxt}\{\#1\}\}\{\text{name}\}[\#2]\}$

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

- $\backslash\text{cmdtxtargname}\{\text{cmdName}\};$   
 $\backslash\text{cmdName}[\text{sub}][\text{sub}][\text{ext1}]\{\text{arg}\}[\text{ext2}] = \text{CMDNAME}_{\text{SUB}}^{\text{SUB}}\text{EXT1}(\text{ARG})\text{EXT2}$
- $\backslash\text{cmdtxtargname}\{\text{cmdName}\}[\text{newName}];$   
 $\backslash\text{cmdName}[\text{sub}][\text{sub}][\text{ext1}]\{\text{arg}\}[\text{ext2}] = \text{NEWNAME}_{\text{SUB}}^{\text{SUB}}\text{EXT1}(\text{ARG})\text{EXT2}$

363  $\backslash\text{newcommandx}\{\backslash\text{cmdtxtargname}\}[2][2=]$   
364  $\{\backslash\text{usrtxt}\{\#1\}\}\{\text{argname}\}[\#2]\}$

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

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

365 `\newcommandx{\cmdtxttoargname}[2][2=]`  
366 `{\usrtxt{#1}{\oargname}{#2}}`

`\cmdtxtparname` ... to do!

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

367 `\newcommandx{\cmdtxtparname}[2][2=]`  
368 `{\usrtxt{#1}{\parname}{#2}}`

`\cmdtxtoparname` ... to do!

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

369 `\newcommandx{\cmdtxtoparname}[2][2=]`  
370 `{\usrtxt{#1}{\oparname}{#2}}`

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

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

371 `%% Style for Complexities`  
372 `\cmdtxtall{com}\newcommand{\txtstycom}{\mdseries\scshape\rmfamily}`

`\cmdtxtcom` ... to do!

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

373 `\newcommandx{\cmdtxtcom}[2][2=]`  
374 `{\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`

375 `\newcommandx{\cmdtxtargcom}[2][2=]`  
376 `{\usrtxt{#1}{\argcom}{#2}}`

`\cmdtxttoargcom` ... to do!

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

377 `\newcommandx{\cmdtxttoargcom}[2][2=]`  
378 `{\usrtxt{#1}{\oargcom}{#2}}`

`\cmdtxtparcom` ... to do!

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

- $\backslash\text{cmdtxtparcom}\{\text{cmdName}\}[\text{newName}]$ ;  
 $\backslash\text{cmdName}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \text{NEWNAME}_{\text{SUB}}^{\text{EXT1}}[\text{PAR}]\text{EXT2}$

```

379 \newcommandx{\cmdtxtparcom}[2][2=]
380   {\usrtxt{\#1}\{\}\{parcom\}[\#2]}

```

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

- $\backslash\text{cmdtxtoparcom}\{\text{cmdName}\}$ ;  
 $\backslash\text{cmdName}[\text{sub}][\text{sub}][\text{par}] = \text{CMDNAME}_{\text{SUB}}^{\text{SUB}}[\text{PAR}]$
- $\backslash\text{cmdtxtoparcom}\{\text{cmdName}\}[\text{newName}]$ ;  
 $\backslash\text{cmdName}[\text{sub}][\text{sub}][\text{par}] = \text{NEWNAME}_{\text{SUB}}^{\text{SUB}}[\text{PAR}]$

```

381 \newcommandx{\cmdtxtoparcom}[2][2=]
382   {\usrtxt{\#1}\{\}\{oparcom\}[\#2]}

383 \fi
384 %%*****%
385 %%*****%
386 %%** Math Macro Generators *****%
387 %%*****%
388 \ifmthgen@

```

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

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

```

389 %% Style for Names
390 \cmdmthall{name}\newcommand{\mthstynname}\{\mathcal\}

```

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

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

```

391 \seqoflatupp{Name}\{mthname\}

```

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

- $\backslash\text{cmdmthname}\{\text{CMDNAME}\}$ ;  
 $\backslash\text{CMDNAMEName}[\text{sub}][\text{sub}][\text{ext}] = \text{CMDNAME}_{\text{SUB}}^{\text{SUB}}\text{ext}$
- $\backslash\text{cmdmthname}\{\text{cmdName}\}[\text{NEWNAME}]$ ;  
 $\backslash\text{cmdNameName}[\text{sub}][\text{sub}][\text{ext}] = \text{NEWNAME}_{\text{SUB}}^{\text{SUB}}\text{ext}$

```

392 \newcommandx{\cmdmthname}[2][2=]
393   {\usrmth{\#1}\{Name\}\{name\}[\#2]}

```

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

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

```

394 \newcommandx{\cmdmthargname}[2][2=]
395   {\usrmth{\#1}\{Name\}\{argname\}[\#2]}

```

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

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

```

396 \newcommandx{\cmdmthoargname}[2][2=]
397   {\usrmth{\#1}\{Name\}\{oargname\}[\#2]}

```

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

- $\backslash\text{cmdmthparname}\{\text{CMDNAME}\}$ ;  
 $\backslash\text{CMDNAMEName}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \text{CMDNAME}_{\text{SUB}}^{\text{SUB}}\text{ext1}[\text{par}]\text{ext2}$



- `\cmdmthparname{cmdName}[NEWNAME];`  
`\cmdNameName[sub][sub][ext1]{par}[ext2] =  $\mathcal{NENAM}\mathcal{E}_{sub}^{sub}ext1[par]ext2$`

398 `\newcommandx{\cmdmthparname}[2][2=]`  
399 `{\usrmth{#1}{Name}{parname}[#2]}`

`\cmdmthoparname ... to do!`

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

400 `\newcommandx{\cmdmthoparname}[2][2=]`  
401 `{\usrmth{#1}{Name}{oparname}[#2]}`

`\mthfam, ... to do!`

- `\mthfam{NAME}[sub][sup][Ext] =  $\mathcal{NAM}\mathcal{E}_{sub}^{sup}Ext$`
- `\mthargfam{NAME}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{NAM}\mathcal{E}_{sub}^{sup}Ext1(Arg)Ext2$`
- `\mthparfam{NAME}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{NAM}\mathcal{E}_{sub}^{sup}Ext1[Par]Ext2$`

402 `%% Style for Families`  
403 `\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*

404 `\seqoflatupp{Fam}{mthfam}`

`\cmdmthfam ... to do!`

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

405 `\newcommandx{\cmdmthfam}[2][2=]`  
406 `{\usrmth{#1}{Fam}{fam}[#2]}`

`\cmdmthargfam ... to do!`

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

407 `\newcommandx{\cmdmthargfam}[2][2=]`  
408 `{\usrmth{#1}{Fam}{argfam}[#2]}`

`\cmdmthoargfam ... to do!`

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

409 `\newcommandx{\cmdmthoargfam}[2][2=]`  
410 `{\usrmth{#1}{Fam}{oargfam}[#2]}`

`\cmdmthparfam ... to do!`

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

411 `\newcommandx{\cmdmthparfam}[2][2=]`  
412 `{\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] =  $\mathcal{NEWNAME}_{sub}^{sub}[par]$ 
413 \newcommandx{\cmdmthoparfam}[2][2=]
414   {\usrmth{#1}{Fam}{oparfam}[#2]}

\mthcls, ... ... to do!
    • \mthcls{NAME}[sub][sup][Ext] =  $\mathcal{NAME}_{sub}^{sup}Ext$ 
    • \mthargcls{NAME}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparcls{NAME}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{NAME}_{sub}^{sup}Ext1[Par]Ext2$ 
415 %% Style for Classes
416 \cmdmthall{cls}\newcommand{\mthstyccls}{\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
417 \seqoflatupp{Cls}{mthcls}

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

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

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

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

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

```

```

\mthsig, ... ... to do!
    • \mthsig{Name}[sub][sup][Ext] =  $\mathcal{N}ame_{sub}^{sup}Ext$ 
    • \mthargsig{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{N}ame_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparsig{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{N}ame_{sub}^{sup}Ext1[Par]Ext2$ 
428 %% Style for Signatures
429 \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
430 \seqoflatlet{Sig}{mthsig}\seqofgrklow{Sig}{mthsig}

\cmdmthsig ... to do!
    • \cmdmthsig{cmdName};
      \cmdNameSig[sub][sub][ext] =  $cmd\mathcal{N}ame_{sub}^{sub}ext$ 
    • \cmdmthsig{cmdName}[NewName];
      \cmdNameSig[sub][sub][ext] =  $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}ext$ 
431 \newcommandx{\cmdmthsig}[2][2=]
432 {\usrmth{#1}{Sig}{sig}{#2}}

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

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

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

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

\mthstr, ... ... to do!
    • \mthstr{Name}[sub][sup][Ext] =  $\mathcal{N}ame_{sub}^{sup}Ext$ 
    • \mthargstr{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{N}ame_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparstr{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{N}ame_{sub}^{sup}Ext1[Par]Ext2$ 

```

```

441 %% Style for Structures
442 \cmdmthall{str}\newcommand{\mthstystyr}{\mathfrak}

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

\cmdmthstr ... to do!
• \cmdmthstr{cmdName};
  \cmdNameStr[sub][sub][ext] = cmdNamesubext
• \cmdmthstr{cmdName}[NewName];
  \cmdNameStr[sub][sub][ext] = NewNamesubext
444 \newcommandx{\cmdmthstr}[2][2=]
445 {\usrmth{#1}{Str}{str}[#2]}

\cmdmthargstr ... to do!
• \cmdmthargstr{cmdName};
  \cmdNameStr[sub][sub][ext1]{arg}[ext2] = cmdNamesubext1(arg)ext2
• \cmdmthargstr{cmdName}[NewName];
  \cmdNameStr[sub][sub][ext1]{arg}[ext2] = NewNamesubext1(arg)ext2
446 \newcommandx{\cmdmthargstr}[2][2=]
447 {\usrmth{#1}{Str}{argstr}[#2]}

\cmdmthoargstr ... to do!
• \cmdmthoargstr{cmdName};
  \cmdNameStr[sub][sub][arg] = cmdNamesub(arg)
• \cmdmthoargstr{cmdStr}[NewName];
  \cmdStrStr[sub][sub][arg] = NewNamesub(arg)
448 \newcommandx{\cmdmthoargstr}[2][2=]
449 {\usrmth{#1}{Str}{oargstr}[#2]}

\cmdmthparstr ... to do!
• \cmdmthparstr{cmdName};
  \cmdNameStr[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2
• \cmdmthparstr{cmdName}[NewName];
  \cmdNameStr[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2
450 \newcommandx{\cmdmthparstr}[2][2=]
451 {\usrmth{#1}{Str}{parstr}[#2]}

\cmdmthoparstr ... to do!
• \cmdmthoparstr{cmdName};
  \cmdNameStr[sub][sub][par] = cmdNamesub[par]
• \cmdmthoparstr{cmdStr}[NewName];
  \cmdStrStr[sub][sub][par] = NewNamesub[par]
452 \newcommandx{\cmdmthoparstr}[2][2=]
453 {\usrmth{#1}{Str}{oparstr}[#2]}

\mthset, ... ... to do!
• \mthset{Name}[sub][sup][Ext] = NamesupsubExt
• \mthargset{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
• \mthparset{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
454 %% Style for Sets
455 \cmdmthall{set}\newcommand{\mthstysset}{\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,  $\Gamma, \Delta, E, Z, H, \Theta, \varTheta, I, K, \Lambda, M, N, \Xi, O, \Pi, \varPi, P, \Sigma, \varSigma, T, \Upsilon, \Phi, \varPhi, X, \Psi, \Omega$ 
456 \seqoflet{Set}{mthset}

\cmdmthset ... to do!


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


457 \newcommandx{\cmdmthset}[2][2=]
458 {\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


459 \newcommandx{\cmdmthargset}[2][2=]
460 {\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)


461 \newcommandx{\cmdmthoargset}[2][2=]
462 {\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


463 \newcommandx{\cmdmthparset}[2][2=]
464 {\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]


465 \newcommandx{\cmdmthoparset}[2][2=]
466 {\usrmth{#1}{Set}{oparset}[#2]}

\cmdmthsetext ... to do!
467 \newcommandx{\cmdmthsetext}[3][2=, 3=]
468 {\cmdmthset{#1}[#2]\caselower[q]{#1}%
469 \usrmthlet{\thestring}{Sym}{sym}[\defval{#3}{\lowercase{#2}}}%
470 \usrmthlet{\thestring}{Elm}{elm}[\defval{#3}{\lowercase{#2}}]}

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


- \mthrel{Name}[sub][sup][Ext] = NamesupsubExt
- \mthargrel{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
- \mthparrel{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2

```

```

471 %% Style for Relations
472 \cmdmthall{rel}\newcommand{\mthstyrel}{\mathit}

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

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

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

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

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

\cmdmthoparrel ... to do!
• \cmdmthoparrel{cmdName};
  \cmdNameRel[sub][sub][par] =  $cmdName_{sub}^{sup}[par]$ 
• \cmdmthoparrel{cmdRel}[NewName];
  \cmdRelRel[sub][sub][par] =  $NewName_{sub}^{sup}[par]$ 
482 \newcommandx{\cmdmthoparrel}[2][2=]
483 {\usrmth{#1}{Rel}{oparrel}{#2}}

\mthfun, ... ... to do!
• \mthfun{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
• \mthargfun{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
• \mthparfun{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
484 %% Style for Functions
485 \cmdmthall{fun}\newcommand{\mthstyfun}{\mathsf}

```

```

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

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

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

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

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

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

\mthsym, ... ... to do!
• \mthsym{Name}[sub][sup][Ext] = NamesupsubExt
• \mthargsym{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
• \mthparsym{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
497 %% Style for Symbols
498 \cmdmthall{sym}\newcommand{\mthstysym}{\mathtt}

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

```

```

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

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

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

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

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

\mthelm, ... ... to do!
    • \mthelm{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargelm{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
    • \mthparelm{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
510 %% Style for Elements
511 \cmdmthall{elm}\newcommand{\mthstyelm}{\mathnormal}

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

\cmdmthelm ... to do!
    • \cmdmthelm{cmdName};
      \cmdNameElm[sub][sub][ext] = cmdNamesubsubext

```



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

```

513 \newcommandx{\cmdmthelm}[2][2=]
514   {\usrmth{#1}{Elm}{elm}[#2]}

```

\cmdmthargelm ... to do!

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

```

515 \newcommandx{\cmdmthargelm}[2][2=]
516   {\usrmth{#1}{Elm}{argelm}[#2]}

```

\cmdmthoargelm ... to do!

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

```

517 \newcommandx{\cmdmthoargelm}[2][2=]
518   {\usrmth{#1}{Elm}{oargelm}[#2]}

```

\cmdmthparelm ... to do!

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

```

519 \newcommandx{\cmdmthparelm}[2][2=]
520   {\usrmth{#1}{Elm}{parelm}[#2]}

```

\cmdmthoparelm ... to do!

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

```

521 \newcommandx{\cmdmthoparelm}[2][2=]
522   {\usrmth{#1}{Elm}{oparelm}[#2]}

```

```

523 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

\cmdmthsymelm ... to do!

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

```

524 \newcommandx{\cmdmthsymelm}[2][2=]
525   {\cmdmthsym{#1}[#2]}%
526   \cmdmthelm{#1}[#2]}

```

\cmdmthargsymelm ... to do!

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

```

527 \newcommandx{\cmdmthargsymelm}[2][2=]
528   {\cmdmthargsym{#1}[#2]%
529   \cmdmthargelm{#1}[#2]}

\cmdmthoargsymelm ... to do!

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

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

530 \newcommandx{\cmdmthoargsymelm}[2][2=]
531   {\cmdmthoargsym{#1}[#2]%
532   \cmdmthoargelm{#1}[#2]}

\cmdmthparsymelm ... to do!

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

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

533 \newcommandx{\cmdmthparsymelm}[2][2=]
534   {\cmdmthparsym{#1}[#2]%
535   \cmdmthparelm{#1}[#2]}

\cmdmthoparsymelm ... to do!

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

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

536 \newcommandx{\cmdmthoparsymelm}[2][2=]
537   {\cmdmthoparsym{#1}[#2]%
538   \cmdmthoparelm{#1}[#2]}

539 %%*****%%

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

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

540 %% Style for Sentences
541 \cmdmth{lopr}\newcommand{\mthstylopr}[1]{\textstyle\mathop{#1}}

\cmdmthlopr ... to do!

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

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

542 \newcommandx{\cmdmthlopr}[2][2=]
543   {\usrmth{#1}{Opr}{lopr}[#2]}

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

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

544 %% Style for Sentences
545 \cmdmth{lrel}\newcommand{\mthstylrel}{\mathrel}

\cmdmthlrel ... to do!

```

```

    • \cmdmthlrel{cmdName};
      \cmdNameRel[sub][sub][ext] = cmdNamesubsub ext
    • \cmdmthlrel{cmdName}[\preceq];
      \cmdNameRel[sub][sub][ext] =  $\preceq$ subsub ext
546 \newcommandx{\cmdmthlrel}[2][2=]
547   {\usrmth{#1}{Rel}{lrel}[#2]}

548 %*****%

\mthsnt, ... ... to do!
    • \mthsnt{Name}[sub][sup][Ext] = Namesupsub Ext
    • \mthargsnt{Name}[sub][sup][Ext1]{Arg}[Ext2] = Namesupsub Ext1(Arg)Ext2
    • \mthparsnt{Name}[sub][sup][Ext1]{Par}[Ext2] = Namesupsub Ext1[Par]Ext2

549 %% Style for Sentences
550 \cmdmthall{snt}\newcommand{\mthstysnt}{\mathsf{f}}

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

\cmdmthsnt ... to do!
    • \cmdmthsnt{cmdName};
      \cmdNameSnt[sub][sub][ext] = cmdNamesubsub ext
    • \cmdmthsnt{cmdName}[NewName];
      \cmdNameSnt[sub][sub][ext] = NewNamesubsub ext
552 \newcommandx{\cmdmthsnt}[2][2=]
553   {\usrmth{#1}{Snt}{snt}[#2]}

\cmdmthargsnt ... to do!
    • \cmdmthargsnt{cmdName};
      \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = cmdNamesubsub ext1(arg)ext2
    • \cmdmthargsnt{cmdName}[NewName];
      \cmdNameSnt[sub][sub][ext1]{arg}[ext2] = NewNamesubsub ext1(arg)ext2
554 \newcommandx{\cmdmthargsnt}[2][2=]
555   {\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)
556 \newcommandx{\cmdmthoargsnt}[2][2=]
557   {\usrmth{#1}{Snt}{oargsnt}[#2]}

\cmdmthparsnt ... to do!
    • \cmdmthparsnt{cmdName};
      \cmdNameSnt[sub][sub][ext1]{par}[ext2] = cmdNamesubsub ext1[par]ext2
    • \cmdmthparsnt{cmdName}[NewName];
      \cmdNameSnt[sub][sub][ext1]{par}[ext2] = NewNamesubsub ext1[par]ext2
558 \newcommandx{\cmdmthparsnt}[2][2=]
559   {\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]
560 \newcommandx{\cmdmthoparsnt}[2][2=]
561   {\usrmth{#1}{Snt}{oparsnt}{#2}}

\mthfrm, ... ... to do!
    • \mthfrm{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargfrm{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
    • \mthparfrm{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
562 %% Style for Formulae
563 \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, o, π, ϖ, ρ, ϑ, σ, ς, τ, υ, φ, ϕ, χ, ψ, ω
A, B, Γ, Δ, E, E, Z, H, Θ, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω
564 \seqoflet{Frm}{mthfrm}

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

\cmdmthargfrm ... to do!
    • \cmdmthargfrm{cmdName};
      \cmdNameFrm[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
    • \cmdmthargfrm{cmdName}[NewName];
      \cmdNameFrm[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
567 \newcommandx{\cmdmthargfrm}[2][2=]
568   {\usrmth{#1}{Frm}{argfrm}{#2}}

\cmdmthoargfrm ... to do!
    • \cmdmthoargfrm{cmdName};
      \cmdNameFrm[sub][sub][arg] = cmdNamesubsub(arg)
    • \cmdmthoargfrm{cmdName}[NewName];
      \cmdNameFrm[sub][sub][arg] = NewNamesubsub(arg)
569 \newcommandx{\cmdmthoargfrm}[2][2=]
570   {\usrmth{#1}{Frm}{oargfrm}{#2}}

\cmdmthparfrm ... to do!
    • \cmdmthparfrm{cmdName};
      \cmdNameFrm[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2
    • \cmdmthparfrm{cmdName}[NewName];
      \cmdNameFrm[sub][sub][ext1]{par}[ext2] = NewNamesubsubext1[par]ext2
571 \newcommandx{\cmdmthparfrm}[2][2=]
572   {\usrmth{#1}{Frm}{parfrm}{#2}}

\cmdmthoparfrm ... to do!
    • \cmdmthoparfrm{cmdName};
      \cmdNameFrm[sub][sub][par] = cmdNamesubsub[par]
    • \cmdmthoparfrm{cmdName}[NewName];
      \cmdNameFrm[sub][sub][par] = NewNamesubsub[par]
573 \newcommandx{\cmdmthoparfrm}[2][2=]
574   {\usrmth{#1}{Frm}{oparfrm}{#2}}

```

575 %\*\*\*\*\*%

\mthmat, ... to do!

- \mthmat{Name}[sub][sup][Ext] =  $\text{Name}_{sub}^{sup}Ext$
- \mthargmat{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1(Arg)Ext2$
- \mthparmat{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1[Par]Ext2$

576 %% Style for Matrices

577 \cmdmthall{mat}\newcommand{\mthstymat}[1]{\boldsymbol{\mathsf{#1}}}

\aMat, ... 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, II, P, P, Σ, Σ, T, T, Φ, Φ, X, Ψ, Ω

578 \seqoflet{Mat}{mthmat}

\cmdmthmat ... to do!

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

579 \newcommandx{\cmdmthmat}[2][2=]

580 {\usrmth{#1}{Mat}{mat}[#2]}

\cmdmthargmat ... to do!

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

581 \newcommandx{\cmdmthargmat}[2][2=]

582 {\usrmth{#1}{Mat}{argmat}[#2]}

\cmdmthoargmat ... to do!

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

583 \newcommandx{\cmdmthoargmat}[2][2=]

584 {\usrmth{#1}{Mat}{oargmat}[#2]}

\cmdmthparmat ... to do!

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

585 \newcommandx{\cmdmthparmat}[2][2=]

586 {\usrmth{#1}{Mat}{parmat}[#2]}

\cmdmthoparmat ... to do!

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

587 \newcommandx{\cmdmthoparmat}[2][2=]

588 {\usrmth{#1}{Mat}{oparmat}[#2]}

\mthvec, ... to do!

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

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

589 %% Style for Vectors

590  $\backslash\mathrm{cmdmthall}\{\mathrm{vec}\}\backslash\mathrm{newcommand}\{\backslash\mathrm{mthstyvec}\}[1]\{\backslash\mathrm{boldsymbol}\{\backslash\mathrm{mathit}\{\#1\}\}\}$

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

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

591  $\backslash\mathrm{seqoflet}\{\mathrm{Vec}\}\{\mathrm{mthvec}\}$

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

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

592  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthvec}\}[2][2=]$

593  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Vec}\}\{\mathrm{vec}\}\{\#2\}\}$

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

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

594  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthargvec}\}[2][2=]$

595  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Vec}\}\{\mathrm{argvec}\}\{\#2\}\}$

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

- $\backslash\mathrm{cmdmthoargvec}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameVec}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathrm{cmdName}_{\mathrm{sub}}^{\mathrm{sub}}(\mathrm{arg})$
- $\backslash\mathrm{cmdmthoargvec}\{\mathrm{cmdName}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdNameVec}[\mathrm{sub}][\mathrm{sub}][\mathrm{arg}] = \mathrm{NewName}_{\mathrm{sub}}^{\mathrm{sub}}(\mathrm{arg})$

596  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoargvec}\}[2][2=]$

597  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Vec}\}\{\mathrm{oargvec}\}\{\#2\}\}$

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

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

598  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthparvec}\}[2][2=]$

599  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Vec}\}\{\mathrm{parvec}\}\{\#2\}\}$

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

- $\backslash\mathrm{cmdmthoparvec}\{\mathrm{cmdName}\};$   
 $\backslash\mathrm{cmdNameVec}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathrm{cmdName}_{\mathrm{sub}}^{\mathrm{sub}}[\mathrm{par}]$
- $\backslash\mathrm{cmdmthoparvec}\{\mathrm{cmdName}\}[\mathrm{NewName}];$   
 $\backslash\mathrm{cmdNameVec}[\mathrm{sub}][\mathrm{sub}][\mathrm{par}] = \mathrm{NewName}_{\mathrm{sub}}^{\mathrm{sub}}[\mathrm{par}]$

600  $\backslash\mathrm{newcommandx}\{\backslash\mathrm{cmdmthoparvec}\}[2][2=]$

601  $\{\backslash\mathrm{usrmth}\{\#1\}\{\mathrm{Vec}\}\{\mathrm{oparvec}\}\{\#2\}\}$

602  $\backslash\mathrm{fi}$

603 %\*\*\*\*\*%

604 %\*\*\*\*\*%

605 %\*\* Elementary Macros for Text \*\*\*\*\*%

606 %\*\*\*\*\*%

607  $\backslash\mathrm{iftext@}$

608 %\*\* Latin Abbreviations \*\*\*\*\*%

\adhoc • \adhoc = *ad hoc*

609 \cmdtxtabr{adhoc}[ad hoc]

\afortiori • \afortiori = *a fortiori*

610 \cmdtxtabr{afortiori}[a fortiori]

\apriori • \apriori = *a priori*

611 \cmdtxtabr{apriori}[a priori]

\aposteriori • \aposteriori = *a posteriori*

612 \cmdtxtabr{aposteriori}[a posteriori]

\cf • \cf = *cf.*

613 \cmdtxtabr{cf}[cf.]

\dedicto • \dedicto = *de dicto*

614 \cmdtxtabr{dedicto}[de dicto]

\defacto • \defacto = *de facto*

615 \cmdtxtabr{defacto}[de facto]

\dere • \dere = *de re*

616 \cmdtxtabr{dere}[de re]

\divideetimpera • \divideetimpera = *divide et impera*

617 \cmdtxtabr{divideetimpera}[divide et impera]

\eg • \eg = *e.g.*

618 \cmdtxtabr{eg}[e.g.]

\ergo • \ergo = *ergo*

619 \cmdtxtabr{ergo}

\errata • \errata = *errata*

620 \cmdtxtabr{errata}

\erratum • \erratum = *erratum*

621 \cmdtxtabr{erratum}

\etal • \etal = *et al.*

622 \cmdtxtabr{etal}[et al.]

\etc • \etc = *etc.*

623 \cmdtxtabr{etc}[etc.]

\ie • \ie = *i.e.*

624 \cmdtxtabr{ie}[i.e.]

\mutatismutandis • \mutatismutandis = *mutatis mutandis*

625 \cmdtxtabr{mutatismutandis}[mutatis mutandis]

\percontra • \percontra = *per contra*

626 \cmdtxtabr{percontra}[per contra]

\primafacie • \primafacie = *prima facie*

627 \cmdtxtabr{primafacie}[prima facie]

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

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

`\viz`     • `\viz = viz.`  
630 `\cmdtxtabr{viz}[viz.]`  
631 `%%*****`

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

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

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

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

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

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

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

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

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

`\Viceversa`     • `\Viceversa = Vice versa`  
641 `\cmdtxtabr{Viceversa}[Vice versa]`  
642 `%%** Italian Abbreviations *****`  
...  
643 `%%*****`  
...  
644 `%%** French Abbreviations *****`

`\role`     • `\role = rôle`  
645 `\cmdtxtabr{role}[r\^{o}le]`  
646 `%%*****`

`\Role`     • `\Role = Rôle`  
647 `\cmdtxtabr{Role}[R\^{o}le]`  
648 `%%** English Abbreviations *****`

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



```

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

\iff      • \iff = iff
651 \cmdtxtabr{iff}

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

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

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

\wlogx    • \wlogx = w.l.o.g.
655 \cmdtxtabr{wlogx}[w.l.o.g.]
656 %*****

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

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

659 \fi
660 %*****
661 %*****
662 %** Elementary Macros for Math *****
663 %*****
664 \ifmath@
665 %** General Notation *****

\defeq, \seteq ...
666 \DeclareRobustCommand{\defeq}
667   {\mthlopr{\triangleq}}
668 \DeclareRobustCommand{\seteq}
669   {\mthlopr{:=}}
670 %*****

\implies, ... ...
671 \DeclareRobustCommand{\implies}
672   {\mthlrel{\rightarrow}}
673 \DeclareRobustCommand{\notimplies}
674   {\mthlrel{\not\rightarrow}}

\coimplies, ... ...
675 \DeclareRobustCommand{\coimplies}
676   {\mthlrel{\Leftrightarrow}}
677 \DeclareRobustCommand{\notcoimplies}
678   {\mthlrel{\not\!\Leftrightarrow}}
679 %*****

\cmodels, ... ...
680 \DeclareRobustCommand{\cmodels}
681   {\mthlrel{\models}}
682 \DeclareRobustCommand{\notcmodels}
683   {\mthlrel{\not\models}}

```

```

\cequiv, ... ...
684 \DeclareRobustCommand{\cequiv}
685   {\mthlrel{\equiv}}
686 \DeclareRobustCommand{\notcequiv}
687   {\mthlrel{\not\equiv}}

688 %%*****%

\dual, \adj, ... ...
689 \DeclareRobustCommand{\dual}[1]
690   {\mth{\overline{#1}}}
691 \DeclareRobustCommand{\adj}[1]
692   {\mth{\mathring{#1}}}
693 \DeclareRobustCommand{\der}[1]
694   {\mth{\widehat{#1}}}
695 \DeclareRobustCommand{\trn}[1]
696   {\mth{\widetilde{#1}}}

\vec ...
697 \let\oldvec\vec
698 \DeclareRobustCommand{\vec}[1]
699   {\mth{\oldvec{#1}}}

700 %%*****%

\enumeration, ... ...
701 \varcmd{enumeration}{\mth}{\left[{}{,}{\right]}{}}
702 \varcmd{enumerationx}{\mth}{\left[{}{;}{\right]}{}}

\sequence, ... ...
703 \varcmd{sequence}{\mth}{\left[{}{,}{\right]}{}}
704 \varcmd{sequencex}{\mth}{\left[{}{;}{\right]}{}}

\tuple, ... ...
705 \varcmd{tuple}{\mth}{\left\langle{}{,}{\right\rangle}{}}
706 \varcmd{tuplex}{\mth}{\left\langle{}{;}{\right\rangle}{}}

707 %%** Sets *****%

\set ...
708 \DeclareRobustCommand{\set}[2]
709   {\mth{\argmid{\left\{{\argsep{#1}}{\allowbreak\mid\allowbreak}{#2}}{\backslash}}{}}

\card ...
710 \DeclareRobustCommand{\card}[1]
711   {\mth{\argmid{\lvert}{#1}{\rvert}}{}}

\denot ...
712 \DeclareRobustCommand{\denot}[1]
713   {\mth{\argmid{\lVert}{#1}{\rVert}}{}}

\pow ...
714 \DeclareRobustCommand{\pow}[1]
715   {\mth{2^{\defval{#1}{\cdot}}{}}}

716 %%** Relations *****%

\emptyrel ...
717 \DeclareRobustCommand{\emptyrel}
718   {\mth{\varnothing}}

719 %%*****%

```

```

\dom, \cod, ... ...
720 \DeclareRobustCommand{\dom}
721   {\mthargfun{\dom}}
722 \DeclareRobustCommand{\cod}
723   {\mthargfun{\cod}}
724 \DeclareRobustCommand{\rng}
725   {\mthargfun{\rng}}
726 \DeclareRobustCommand{\img}
727   {\mthargfun{\img}}

728 %*****

\prj ...
729 \DeclareRobustCommand{\prj}
730   {\mthargfun{\prj}}

\rst ...
731 \DeclareRobustCommand{\rst}
732   {\mthlopr{\upharpoonright}}

\cmp ...
733 \DeclareRobustCommand{\cmp}
734   {\mthlopr{\circ}}

735 %** Functions *****

\emptyfun ...
736 \DeclareRobustCommand{\emptyfun}
737   {\mth{\varnothing}}

738 %*****

\pto, \pmapsto ...
739 \DeclareMathOperator{\pto}
740   {\ensuremath{\rightharpoonup}}
741 \DeclareMathOperator{\pmapsto}
742   {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize$\llcorner$}}}%
743     \kern-1.5ex\rightharpoonup}}

744 %*****

\Aomega, \AOmega ...
745 \DeclareRobustCommand{\Aomega}
746   {\mthargset{\omega}}
747 \DeclareRobustCommand{\AOmega}
748   {\mthargset{\Omega}}

\Atheta, \ATheta ...
749 \DeclareRobustCommand{\Atheta}
750   {\mthargset{\theta}}
751 \DeclareRobustCommand{\ATheta}
752   {\mthargset{\Theta}}

\Aomicron, ... ...
753 \DeclareRobustCommand{\Aomicron}
754   {\mthargset{\omicron}}
755 \DeclareRobustCommand{\AOmicon}
756   {\mthargset{\Omicron}}

757 %** Numbers *****

\SetB ...
758 \DeclareRobustCommand{\SetB}
759   {\mthset[\mathbb]{B}}

```

```

\SetF ...
760 \DeclareRobustCommand{\SetF}
761   {\mthset[mathbb]{F}}

\SetN, ... ...
762 \DeclareRobustCommand{\SetN}
763   {\mthset[mathbb]{N}}
764 \DeclareRobustCommand{\SetNI}[1] []
765   {\SetN[\infty #1]}

\SetZ, ... ...
766 \DeclareRobustCommand{\SetZ}
767   {\mthset[mathbb]{Z}}
768 \DeclareRobustCommand{\SetZI}[1] []
769   {\SetZ[\pm\infty #1]}
770 \DeclareRobustCommand{\SetZPI}[1] []
771   {\SetZ[+\infty #1]}
772 \DeclareRobustCommand{\SetZNI}[1] []
773   {\SetZ[-\infty #1]}

\SetQ, ... ...
774 \DeclareRobustCommand{\SetQ}
775   {\mthset[mathbb]{Q}}
776 \DeclareRobustCommand{\SetQI}[1] []
777   {\SetQ[\pm\infty #1]}
778 \DeclareRobustCommand{\SetQPI}[1] []
779   {\SetQ[+\infty #1]}
780 \DeclareRobustCommand{\SetQNI}[1] []
781   {\SetQ[-\infty #1]}

\SetR, ... ...
782 \DeclareRobustCommand{\SetR}
783   {\mthset[mathbb]{R}}
784 \DeclareRobustCommand{\SetRI}[1] []
785   {\SetR[\pm\infty #1]}
786 \DeclareRobustCommand{\SetRPI}[1] []
787   {\SetR[+\infty #1]}
788 \DeclareRobustCommand{\SetRNI}[1] []
789   {\SetR[-\infty #1]}

\SetC, ... ...
790 \DeclareRobustCommand{\SetC}
791   {\mthset[mathbb]{C}}
792 \DeclareRobustCommand{\SetCI}[1] []
793   {\SetC[\infty #1]}

794 %%*****%

\num, ... ...
795 \DeclareRobustCommand{\num}[1]
796   {\mth{[#1]}}
797 \DeclareRobustCommand{\numcc}[2]
798   {\mth{[\argsep{#1}{,}{#2}]}}
799 \DeclareRobustCommand{\numco}[2]
800   {\mth{[\argsep{#1}{,}{#2})}}
801 \DeclareRobustCommand{\numoc}[2]
802   {\mth{(\argsep{#1}{,}{#2}]}}
803 \DeclareRobustCommand{\numoo}[2]
804   {\mth{(\argsep{#1}{,}{#2})}}

805 %%*****%

```

```

\floor, \ceil ...
806 \DeclareRobustCommand{\floor}[1]
807   {\mth{\argmid{\left\lfloor}{#1}{\right\rfloor}}}
808 \DeclareRobustCommand{\ceil}[1]
809   {\mth{\argmid{\left\lceil}{#1}{\right\rceil}}}

810 %%*****

\arg ...
811 \DeclareRobustCommand{\arg}
812   {\mthfun{arg}}

\evn, \odd ...
813 \DeclareRobustCommand{\evn}
814   {\mthfun{evn}}
815 \DeclareRobustCommand{\odd}
816   {\mthfun{odd}}

\bst, ... ...
817 \DeclareRobustCommand{\bst}
818   {\mthfun{bst}}
819 \DeclareRobustCommand{\argbst}
820   {\mthfun{arg bst}}

\min, \max, ... ...
821 \DeclareRobustCommand{\min}
822   {\mthfun{min}}
823 \DeclareRobustCommand{\max}
824   {\mthfun{max}}
825 \DeclareRobustCommand{\argmin}
826   {\mthfun{arg min}}
827 \DeclareRobustCommand{\argmax}
828   {\mthfun{arg max}}

\inf, \sup ...
829 \DeclareRobustCommand{\inf}
830   {\mthfun{inf}}
831 \DeclareRobustCommand{\sup}
832   {\mthfun{sup}}

833 %%** Sequences *****

\fst, \lst ...
834 \DeclareRobustCommand{\fst}
835   {\mthargfun{fst}}
836 \DeclareRobustCommand{\lst}
837   {\mthargfun{lst}}

838 \fi
839 %%*****

840 %%*****
841 %%** Macros for Computational-Complexity Classes *****
842 %%*****
843 \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-HARDSUBEXT
\ACompClassC[sub][sup][ext] = ANewClass-COMpleteSUBEXT;
\CoACompClassC[sub][sup][ext] = CoANewClass-COMpleteSUBEXT
844 \newcommandx{\defcomcls}[2][2=]
845   {\defcomclssem{#1}{\defval{#2}{#1}}%
846   \defcomclssem{#1}{\defval{#2}{#1}}[Co]}
847 \newcommandx{\defcomclsred}[3][3=]
848   {\defcomclsred{#3#1}{#2}{#3}%
849   \defcomclsred{#3N#1}{#2}{#3N}%
850   \defcomclsred{#3U#1}{#2}{#3U}%
851   \defcomclsred{#3A#1}{#2}{#3A}}
852 \newcommandx{\defcomclsred}[3][3=]
853   {\defcomclscmd{#1}{#2}{#3}%
854   \defcomclscmd{#1E}{#2}{#3}[-easy]%
855   \defcomclscmd{#1H}{#2}{#3}[-hard]%
856   \defcomclscmd{#1C}{#2}{#3}[-complete]]%
857 \newcommandx{\defcomclscmd}[4][3=, 4=]
858   {\csdef{#1}{\txtcom{#3#2#4}}}

859 %*****%

\Time, ...
• \Time[sub][sup][ext] = TIMESUBEXT
  \TimeE[sub][sup][ext] = TIME-EASYSUBEXT
  \TimeH[sub][sup][ext] = TIME-HARDSUBEXT
  \TimeC[sub][sup][ext] = TIME-COMpleteSUBEXT
• \NTime[sub][sup][ext] = NTIMESUBEXT
  \NTimeE[sub][sup][ext] = NTIME-EASYSUBEXT
  \NTimeH[sub][sup][ext] = NTIME-HARDSUBEXT
  \NTimeC[sub][sup][ext] = NTIME-COMpleteSUBEXT
• \UTime[sub][sup][ext] = UTIMESUBEXT
  \UTimeE[sub][sup][ext] = UTIME-EASYSUBEXT
  \UTimeH[sub][sup][ext] = UTIME-HARDSUBEXT
  \UTimeC[sub][sup][ext] = UTIME-COMpleteSUBEXT
• \ATime[sub][sup][ext] = ATIMESUBEXT
  \ATimeE[sub][sup][ext] = ATIME-EASYSUBEXT
  \ATimeH[sub][sup][ext] = ATIME-HARDSUBEXT
  \ATimeC[sub][sup][ext] = ATIME-COMpleteSUBEXT
860 \defcomcls{Time}

\Space, ...
• \Space[sub][sup][ext] = SPACESUBEXT
  \SpaceE[sub][sup][ext] = SPACE-EASYSUBEXT
  \SpaceH[sub][sup][ext] = SPACE-HARDSUBEXT
  \SpaceC[sub][sup][ext] = SPACE-COMpleteSUBEXT
• \NSpace[sub][sup][ext] = NSPACESUBEXT
  \NSpaceE[sub][sup][ext] = NSPACE-EASYSUBEXT
  \NSpaceH[sub][sup][ext] = NSPACE-HARDSUBEXT
  \NSpaceC[sub][sup][ext] = NSPACE-COMpleteSUBEXT
• \USpace[sub][sup][ext] = USPACESUBEXT
  \USpaceE[sub][sup][ext] = USPACE-EASYSUBEXT
  \USpaceH[sub][sup][ext] = USPACE-HARDSUBEXT
  \USpaceC[sub][sup][ext] = USPACE-COMpleteSUBEXT
• \ASpace[sub][sup][ext] = ASPACESUBEXT
  \ASpaceE[sub][sup][ext] = ASPACE-EASYSUBEXT
  \ASpaceH[sub][sup][ext] = ASPACE-HARDSUBEXT
  \ASpaceC[sub][sup][ext] = ASPACE-COMpleteSUBEXT
861 \defcomcls{Space}

\LogTime, ...
• \LogTime[sub][sup][ext] = LOGTIMESUBEXT
  \LogTimeE[sub][sup][ext] = LOGTIME-EASYSUBEXT
  \LogTimeH[sub][sup][ext] = LOGTIME-HARDSUBEXT
  \LogTimeC[sub][sup][ext] = LOGTIME-COMpleteSUBEXT

```







- $\backslash \text{AExpTime}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash \text{AExpTimeE}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash \text{AExpTimeH}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash \text{AExpTimeC}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime-COMplete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

868 \defcomcls{ExpTime}

\ExpSpace, ...

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

869 \defcomcls{ExpSpace}

870 %\*\*\*\*\*%

...

871 \fi

872 %\*\*\*\*\*%

873 %\*\*\*\*\*%

874 %\*\* Macros for Games \*\*\*\*\*%

875 %\*\*\*\*\*%

876 \ifgam@

877 %\*\* Logic Games \*\*\*\*\*%

\SATG, ...

878 %% Satisfiability Games

879 \cmdtxtopname{SATG}[Sat]

880

881 %% Validity Games

882 \cmdtxtopname{VALG}[Val]

883

884 %% Evaluation Games

885 \cmdtxtopname{EVLG}[Evl]

886

887 %% Synthesis Games

888 \cmdtxtopname{SYNG}[Syn]

889

890 %% Model-Checking Games

891 \cmdtxtopname{MCG}[MC]

892

893 %% Ehrenfeucht-Fraisse Games

894 \cmdtxtopname{EFG}[EF]

895 %\*\* Syntax \*\*\*\*\*%

\PlrSym, \OppSym ...

896 \newcommand{\plrSym}{E}

897 \cmdmthsym{Plr}[\plrSym]

898 \newcommand{\oppSym}{A}

899 \cmdmthsym{Opp}[\oppSym]

```

\ArenaName, ... ...
    900 \newcommand{\arenaname}{A}
    901 \usrmthlatupp{Arena}{Name}{name}[\arenaname]

\PosSet, ... ...
    902 \newcommand{\possym}{v}
    903 \newcommand{\posset}{Ps}
    904 \cmdmthsetext{Pos}[\posset][\possym]
    905 \cmdmthsymelm{ipos}[\possym_{I}]
    906 \cmdmthsymelm{fpos}[\possym_{F}]
    907 \cmdmthset{PPos}[\posset_{\PlrSym}]
    908 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
    909 \cmdmthset{OPos}[\posset_{\OppSym}]
    910 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\MovRel ...
    911 \newcommand{\movrel}{Mv}
    912 \cmdmthrel{Mov}[\movrel]

\GameName, ... ...
    913 \newcommand{\gamename}{\Game}
    914 \usrmthlatupp{Game}{Name}{name}[\gamename]

\WinSet ...
    915 \newcommand{\winset}{Wn}
    916 \cmdmthset{Win}[\winset]

\ObsSet, \obsFun ...
    917 \newcommand{\obsset}{Ob}
    918 \cmdmthset{Obs}[\obsset]
    919 \cmdmthfun{obs}

    920 %%** Semantics *****%%

\PthSet, \pthFun ...
    921 \newcommand{\pthsym}{\pi}
    922 \newcommand{\pthset}{Pth}
    923 \cmdmthsetext{Pth}[\pthset][\pthsym]
    924 \cmdmthfun{pth}

\HstSet, ... ...
    925 \newcommand{\hstsym}{\rho}
    926 \newcommand{\hstset}{Hst}
    927 \cmdmthsetext{Hst}[\hstset][\hstsym]
    928 \cmdmthset{PHst}[\hstset_{\PlrSym}]
    929 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
    930 \cmdmthset{OHst}[\hstset_{\OppSym}]
    931 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
    932 \cmdmthfun{hst}

\PlaySet, \playFun ...
    933 \newcommand{\playsym}{\pi}
    934 \newcommand{\playset}{Play}
    935 \cmdmthsetext{Play}[\playset][\playsym]
    936 \cmdmthfun{play}

\StrSet, ... ...
    937 \newcommand{\strsym}{\sigma}
    938 \newcommand{\strset}{Str}
    939 \cmdmthsetext{Str}[\strset][\strsym]
    940 \cmdmthset{PStr}[\strset_{\PlrSym}]
    941 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
    942 \cmdmthset{OStr}[\strset_{\OppSym}]
    943 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

```

```

\PrfSet, \prfFun ...
    944 \newcommand{\prfsym}{\xi}
    945 \newcommand{\prfset}{Prf}
    946 \cmdmthsetext{Prf}[\prfset][\prfsym]

\preFun, \sucFun ...
    947 \newcommand{\prefun}{pre}
    948 \cmdmthoargfun{pre}[\prefun]
    949 \newcommand{\sucfun}{suc}
    950 \cmdmthoargfun{suc}[\sucfun]

\entFun, \escFun ...
    951 \newcommand{\entfun}{ent}
    952 \cmdmthoargfun{ent}[\entfun]
    953 \newcommand{\escfun}{esc}
    954 \cmdmthoargfun{esc}[\escfun]

\intFun, \outFun ...
    955 \newcommand{\intfun}{int}
    956 \cmdmthoargfun{int}[\intfun]
    957 \newcommand{\outfun}{out}
    958 \cmdmthoargfun{out}[\outfun]

\atrFun, \rchFun ...
    959 \newcommand{\atrfun}{atr}
    960 \cmdmthoargfun{atr}[\atrfun]
    961 \newcommand{\rchfun}{rch}
    962 \cmdmthoargfun{rch}[\rchfun]

\solFun ...
    963 \newcommand{\solfun}{sol}
    964 \cmdmthoargfun{sol}[\solfun]

    965 %** Qualitative Games on Graph *****%

\BG, ... ...
    966 %% Buchi Games
    967 \cmdtxttoparname{BG}
    968
    969 %% Co-Buchi Games
    970 \cmdtxttoparname{CG}
    971
    972 %% Parity Games
    973 \cmdtxttoparname{PG}
    974
    975 %% Rabin Games
    976 \cmdtxttoparname{RG}
    977
    978 %% Streett Games
    979 \cmdtxttoparname{SG}
    980
    981 %% Muller Games
    982 \cmdtxttoparname{MG}

    983 %** Syntax *****%

\PrtSet, \prtFun ...
    984 \newcommand{\prtsym}{p}
    985 \newcommand{\prtset}{Pr}
    986 \cmdmthsetext{Prt}[\prtset][\prtsym]
    987 \cmdmthfun{prt}[pr]

    988 %** Semantics *****%

```

```

...
989 %** Quantitative Games on Graph *****%
\EG, ... ...
990 %% Energy Games
991 \cmdtxttoparname{EG}
992
993 %% Mean-Payoff Games
994 \cmdtxttoparname{MPG}
995
996 %% Discounted-Payoff Games
997 \cmdtxttoparname{DPG}

998 %** Syntax *****%

\WghSet, \wghFun ...
999 \newcommand{\wghsym}{w}
1000 \newcommand{\wghset}{Wg}
1001 \cmdmthsetext{Wgh}[\wghset][\wghsym]
1002 \cmdmthfun{wgh}[wg]

1003 %** Semantics *****%

...

1004 \fi
1005 %*****%
1006 %*****%
1007 %** Macros for Logics *****%
1008 %*****%
1009 \iflog@

1010 %** Propositional Logics *****%

\BF, \QBF, ... ...
1011 % Boolean Formulae
1012 \cmdtxttoparname{BF}
1013
1014 % Quantified Boolean Formulae
1015 \DeclareRobustCommand{\QBF}
1016   {\{\txtname{Q}\}\BF}
1017 \DeclareRobustCommand{\EBF}
1018   {\ensuremath{\exists}\BF}
1019 \DeclareRobustCommand{\UBF}
1020   {\ensuremath{\forall}\BF}

1021 %** Syntax *****%

\LogSig, ... ...
1022 \newcommand{\logsig}{L}
1023 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

\Tt, \Ff ...
1024 \newcommand{\ttsym}{\top}
1025 \usrmth{Tt}{\}{sym}[\ttsym]
1026 \newcommand{\ffsym}{\bot}
1027 \usrmth{Ff}{\}{sym}[\ffsym]

\APSet, ... ...
1028 \newcommand{\apsym}{p}
1029 \newcommand{\apset}{AP}
1030 \cmdmthsetext{AP}[\apset][\apsym]
1031 \cmdmthfun{ap}\usrmth{ap}{\}{argfun}

```

```

\sub ...
1032 \usrmth{sub}{-}{argfun}

\Cnt, \Qnt ...
1033 \usrmth{Cnt}{-}{sym}[C]
1034 \usrmth{Qnt}{-}{sym}[Q]

\QAE, \QEA ...
1035 \usrmth{QAE}{-}{sym}[\forall\exists]
1036 \usrmth{QEA}{-}{sym}[\exists\forall]

\QntSet, ... ...
1037 \newcommand{\qntsym}{\wp}
1038 \newcommand{\qntset}{\Qn}
1039 \cmdmthsetext{Qnt}[\qntset][\qntsym]

\free ...
1040 \usrmth{free}{-}{argfun}

\dep, \alt ...
1041 \usrmth{dep}{-}{argfun}
1042 \usrmth{alt}{-}{argfun}

\pnf, \nnf ...
1043 \cmdtxtabr{pnf}
1044 \cmdtxtabr{nnf}

1045 %** Semantics *****%

\LogStr, ... ...
1046 \newcommand{\logstr}{L}
1047 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet, ... ...
1048 \newcommand{\valsym}{\xi}
1049 \newcommand{\valset}{Val}
1050 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet, ... ...
1051 \newcommand{\asgsym}{\chi}
1052 \newcommand{\asgset}{Asg}
1053 \cmdmthsetext{Asg}[\asgset][\asgsym]

1054 %** First-Order Logics I *****%

\FOL, ... ...
1055 % First-Order Logic
1056 \cmdtxtoparname{FOL}[Fol]
1057
1058 % Monadic First-Order Logic
1059 \DeclareRobustCommand{\MFOL}
1060 {\{\textname{M}\}\FOL}

1061 %** Syntax *****%

\VarSig, ... ...
1062 \newcommand{\varsig}{V}
1063 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
1064 \newcommand{\varsym}{x}
1065 \newcommand{\varset}{Vr}
1066 \cmdmthsetext{Var}[\varset][\varsym]
1067 \usrmth{var}{-}{argfun}[vr]
1068 \cmdmthfun{dim}[dm]\usrmth{dim}{-}{argfun}[dm]

```

```

\ConSig, ... ...
1069 \newcommand{\consig}{C}
1070 \usrmthlatupp{Con}{Sig}{sig}[\consig]
1071 \newcommand{\consym}{c}
1072 \newcommand{\conset}{Cn}
1073 \cmdmthsetext{Con}[\conset][\consym]
1074 \usrmth{con}{-}{argfun}[cn]

\FunSig, ... ...
1075 \newcommand{\funsig}{F}
1076 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
1077 \newcommand{\funsym}{f}
1078 \newcommand{\funset}{Fn}
1079 \cmdmthsetext{Fun}[\funset][\funsym]
1080 \usrmth{fun}{-}{argfun}[fn]
1081 \cmdmthfun{art}[ar]\usrmth{art}{-}{argfun}[ar]

\TerSig, ... ...
1082 \newcommand{\tersig}{T}
1083 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
1084 \newcommand{\tersym}{t}
1085 \newcommand{\terset}{Tr}
1086 \cmdmthsetext{Ter}[\terset][\tersym]
1087 \usrmth{ter}{-}{argfun}

\RelSig, ... ...
1088 \newcommand{\relsig}{R}
1089 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1090 \newcommand{\relsym}{r}
1091 \newcommand{\relset}{Rl}
1092 \cmdmthsetext{Rel}[\relset][\relsym]
1093 \usrmth{rel}{-}{argfun}[rl]

\skm ...
1094 \usrmth{skm}{-}{argfun}

1095 %** Semantics *****%

\ConStr, ... ...
1096 \newcommand{\constr}{C}
1097 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr, ... ...
1098 \newcommand{\funstr}{F}
1099 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr, ... ...
1100 \newcommand{\terstr}{T}
1101 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr, ... ...
1102 \newcommand{\relstr}{R}
1103 \usrmthlatupp{Rel}{Str}{str}[\relstr]

1104 %** First-Order Logics II *****%

\IF, ... ...
1105 % Independence-Friendly Logic
1106 \cmdtxtoparname{IF}

...

1107 %** Syntax *****%

```

```

...
1108 %** Semantics *****%%
...
1109 %** Second-Order Logics I *****%%
\SOL, ... ...
1110 % Second-Order Logic
1111 \cmdtxttoparname{SOL}[Sol]
1112
1113 % Monadic Second-Order Logic
1114 \DeclareRobustCommand{\MSOL}
1115   {\txtname{M}}\SOL}
1116 %** Syntax *****%%

\FVarSet, ... ...
1117 \newcommand{\fvarsym}{x}
1118 \newcommand{\fvarset}{FVr}
1119 \cmdmthsetext{FVar}[\fvarset][\fvarsym]

\SVarSet, ... ...
1120 \newcommand{\svarsym}{X}
1121 \newcommand{\svarset}{SVr}
1122 \cmdmthsetext{SVar}[\svarset][\svarsym]

1123 %** Semantics *****%%
...
1124 %** Second-Order Logics II *****%%

\TL, \PL, ... ...
1125 % Tree Logic
1126 \cmdtxttoparname{TL}
1127
1128 % Monadic Tree Logic
1129 \DeclareRobustCommand{\MTL}
1130   {\txtname{M}}\TL}
1131
1132 % Path Logic
1133 \cmdtxttoparname{PL}
1134
1135 % Monadic Path Logic
1136 \DeclareRobustCommand{\MPL}
1137   {\txtname{M}}\PL}
1138 %** Syntax *****%%
...
1139 %** Semantics *****%%
...
1140 %** Modal Logics I *****%%

\ML, \QML, ... ...
1141 % Modal Logic
1142 \cmdtxttoparname{ML}
1143
1144 % Quantified Modal Logic
1145 \DeclareRobustCommand{\QML}
1146   {\txtname{Q}}\ML}
1147 \DeclareRobustCommand{\EML}
1148   {\ensuremath{\exists}\ML}
1149 \DeclareRobustCommand{\UML}
1150   {\ensuremath{\forall}\ML}

```



```

1151 %** Syntax ****
\Opr ...
1152 \usrmth{Opr}{sym}[0]

\DMod, \BMod ...
1153 \usrmth{DMod}{sym}[\Diamond]
1154 \usrmth{BMod}{sym}[\Box]

\Exs, \All ...
1155 \DeclareRobustCommand{Exs}[1]
1156   {\mth{defval{\argmid{\langle}{#1}{\rangle}}{\DMod}}}
1157 \DeclareRobustCommand{All}[1]
1158   {\mth{defval{\argmid{\left[]{\#1}{\right]}}{\BMod}}}

1159 %** Semantics ****

\KrpStr, ... ...
1160 \newcommand{\krpstr}{K}
1161 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

\WrlSet, ... ...
1162 \newcommand{\wrlsym}{w}
1163 \newcommand{\wrlset}{W}
1164 \cmdmthsetext{Wrl}[\wrlset][\wrlsym]
1165 \cmdmthsymelm{iwrl}[\wrlsym_{I}]

\AccRel, \TrnRel ...
1166 \newcommand{\accsym}{R}
1167 \cmdmthrel{Acc}[\accsym]
1168 \cmdmthrel{Trn}[\accsym]

\labFun ...
1169 \newcommand{\labsym}{\lambda}
1170 \cmdmthfun{lab}[\labsym]

\PthSet, \pthFun ...
1171 \providecommand{\pthsym}{\pi}
1172 \providecommand{\pthset}{Pth}
1173 \cmdmthsetext{Pth}[\pthset][\pthsym]
1174 \cmdmthfun{pth}

1175 %** Modal Logics II ****

\MC, \QMC, ... ...
1176 % Mu Calculus
1177 \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]
1178
1179 % Quantified Modal Logic
1180 \DeclareRobustCommand{QMC}
1181   {\{\txname{Q}\}\MC}
1182 \DeclareRobustCommand{EMC}
1183   {\ensuremath{\exists}\MC}
1184 \DeclareRobustCommand{UMC}
1185   {\ensuremath{\forall}\MC}

1186 %** Syntax ****

...

1187 %** Semantics ****

...

1188 %** Temporal Logics I ****

```

```

\PTL, \LTL, ... ...
1189 % Propositional Temporal Logic
1190 \cmdtxttoparname{PTL}
1191
1192 % Quantified Propositional Temporal Logic
1193 \DeclareRobustCommand{\QPTL}
1194   {\{\txtrname{Q}\}\PTL}
1195 \DeclareRobustCommand{\EPTL}
1196   {\ensuremath{\exists}\PTL}
1197 \DeclareRobustCommand{\UPTL}
1198   {\ensuremath{\forall}\PTL}
1199
1200 % Linear Temporal Logic
1201 \cmdtxttoparname{LTL}
1202
1203 % Quantified Linear Temporal Logic
1204 \DeclareRobustCommand{\QLTL}
1205   {\{\txtrname{Q}\}\LTL}
1206 \DeclareRobustCommand{\ELTL}
1207   {\ensuremath{\exists}\LTL}
1208 \DeclareRobustCommand{\ULTL}
1209   {\ensuremath{\forall}\LTL}
1210 %** Syntax *****%

\X, ... ...
1211 \usrmth{X}{-}{sym}
1212 \usrmth{F}{-}{sym}
1213 \usrmth{G}{-}{sym}
1214 \usrmth{U}{-}{sym}
1215 \usrmth{R}{-}{sym}

\Y, ... ...
1216 \usrmth{Y}{-}{sym}
1217 \usrmth{P}{-}{sym}\let\SavePilcrow\P
1218 \usrmth{H}{-}{sym}\let\SaveDoubleAcute\H
1219 \usrmth{S}{-}{sym}\let\SaveSectionSymbol\S
1220 \usrmth{B}{-}{sym}
1221 %** Semantics *****%

...

1222 %** Temporal Logics II *****%

\PDL, \CTL, ... ...
1223
1224 % Propositional Dynamic Logic
1225 \cmdtxttoparname{PDL}
1226
1227 % Computation Tree Logic
1228 \cmdtxttoparname{CTL}
1229
1230 % Quantified Computation Tree Logic
1231 \DeclareRobustCommand{\QCTL}
1232   {\{\txtrname{Q}\}\CTL}
1233 \DeclareRobustCommand{\ECTL}
1234   {\ensuremath{\exists}\CTL}
1235 \DeclareRobustCommand{\UCTL}
1236   {\ensuremath{\forall}\CTL}
1237
1238 % Improved Computation Tree Logic
1239 \cmdtxttoparname{CTLP}[CTL$^{+}$]
1240

```

```

1241 % Quantified Improved Computation Tree Logic
1242 \DeclareRobustCommand{\QCTLP}
1243   {\textname{Q}\CTLP}
1244 \DeclareRobustCommand{\ECTLP}
1245   {\ensuremath{\exists}\CTLP}
1246 \DeclareRobustCommand{\UCTLP}
1247   {\ensuremath{\forall}\CTLP}
1248
1249 % Full Computation Tree Logic
1250 \cmdtxttoparname{CTLS}[CTL*]
1251
1252 % Quantified Full Computation Tree Logic
1253 \DeclareRobustCommand{\QCTLS}
1254   {\textname{Q}\CTLS}
1255 \DeclareRobustCommand{\ECTLS}
1256   {\ensuremath{\exists}\CTLS}
1257 \DeclareRobustCommand{\UCTLS}
1258   {\ensuremath{\forall}\CTLS}
1259 %** Syntax *****%%

\E, \A ...

1260 \usrmth{E}{\sym}
1261 \usrmth{A}{\sym}

1262 %** Semantics *****%%
...

1263 %** Strategic Logics I *****%%

\ATL, ... ...

1264 % Alternating Temporal Logic
1265 \cmdtxttoparname{ATL}
1266
1267 % Quantified Alternating Temporal Logic
1268 \DeclareRobustCommand{\QATL}
1269   {\textname{Q}\ATL}
1270 \DeclareRobustCommand{\EATL}
1271   {\ensuremath{\exists}\ATL}
1272 \DeclareRobustCommand{\UATL}
1273   {\ensuremath{\forall}\ATL}
1274
1275 % Improved Alternating Temporal Logic
1276 \cmdtxttoparname{ATLP}[ATL$^{+}$]
1277
1278 % Quantified Improved Alternating Temporal Logic
1279 \DeclareRobustCommand{\QATLP}
1280   {\textname{Q}\ATLP}
1281 \DeclareRobustCommand{\EATLP}
1282   {\ensuremath{\exists}\ATLP}
1283 \DeclareRobustCommand{\UATLP}
1284   {\ensuremath{\forall}\ATLP}
1285
1286 % Full Alternating Temporal Logic
1287 \cmdtxttoparname{ATLS}[ATL*]
1288
1289 % Quantified Full Alternating Temporal Logic
1290 \DeclareRobustCommand{\QATLS}
1291   {\textname{Q}\ATLS}
1292 \DeclareRobustCommand{\EATLS}
1293   {\ensuremath{\exists}\ATLS}
1294 \DeclareRobustCommand{\UATLS}
1295   {\ensuremath{\forall}\ATLS}

```

```

1296 %** Syntax *****%
\EExs, \AA11 ...
1297 \DeclareRobustCommand{\EExs}[1]
1298   {\mth{\argmid{\langle!\langle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1299 \DeclareRobustCommand{\AA11}[1]
1300   {\mth{\argmid{\left[\left[\defval{#1}{\emptyset}]{\right]\right}}}}
1301 %** Semantics *****%

\CGS ...
1302 \cmdtxtname{CGS}

\CGSStr, ... ...
1303 \newcommand{\cgsstr}{G}
1304 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet, ... ...
1305 \newcommand{\agnsym}{a}
1306 \newcommand{\agnset}{Ag}
1307 \cmdmthsetext{Agn}[\agnset][\agnsym]

\PosSet, ... ...
1308 \providecommand{\possym}{v}
1309 \providecommand{\posset}{Ps}
1310 \cmdmthsetext{Pos}[\posset][\possym]
1311 \cmdmthsymelm{ipos}[\possym_{I}]
1312 \cmdmthsymelm{fpos}[\possym_{F}]
1313 \cmdmthset{PPos}[\posset_{\PlrSym}]
1314 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1315 \cmdmthset{OPos}[\posset_{\OppSym}]
1316 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet, ... ...
1317 \newcommand{\sttsym}{s}
1318 \newcommand{\sttset}{St}
1319 \cmdmthsetext{Stt}[\sttset][\sttsym]
1320 \cmdmthset{IStt}[\sttset_{I}]
1321 \cmdmthsymelm{istt}[\sttsym_{I}]
1322 \cmdmthset{FStt}[\sttset_{F}]
1323 \cmdmthsymelm{fstt}[\sttsym_{F}]

\ActSet, ... ...
1324 \newcommand{\actsym}{c}
1325 \newcommand{\actset}{Ac}
1326 \cmdmthsetext{Act}[\actset][\actsym]

\DecSet, ... ...
1327 \newcommand{\decsym}{d}
1328 \newcommand{\decset}{Dc}
1329 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ...
1330 \newcommand{\movsym}{\tau}
1331 \cmdmthfun{mov}[\movsym]

\HstSet, ... ...
1332 \providecommand{\hstsym}{\rho}
1333 \providecommand{\hstset}{Hst}
1334 \cmdmthsetext{Hst}[\hstset][\hstsym]
1335 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1336 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1337 \cmdmthset{OHst}[\hstset_{\OppSym}]
1338 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1339 \cmdmthfun{hst}

```

```

\PlaySet, \playFun ...
1340 \providecommand{\playsym}{\pi}
1341 \providecommand{\playset}{Play}
1342 \cmdmthsetext{Play}[\playset][\playsym]
1343 \cmdmthfun{play}

\StrSet, ... ...
1344 \providecommand{\strsym}{\sigma}
1345 \providecommand{\strset}{Str}
1346 \cmdmthsetext{Str}[\strset][\strsym]
1347 \cmdmthset{PStr}[\strset_{\PlrSym}]
1348 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1349 \cmdmthset{OStr}[\strset_{\OppSym}]
1350 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ...
1351 \providecommand{\prfsym}{\xi}
1352 \providecommand{\prfset}{Prf}
1353 \cmdmthsetext{Prf}[\prfset][\prfsym]

1354 %** Strategic Logics II *****%

\SL, ... ...
1355 % Strategy Logic
1356 \cmdtxttoparname{SL}
1357
1358 \DeclareRobustCommand{\ESL}
1359   {\ensuremath{\exists}\SL}
1360 \DeclareRobustCommand{\USL}
1361   {\ensuremath{\forall}\SL}
1362
1363 \DeclareRobustCommand{\FSL}
1364   {\{\textname{F}\}\SL}
1365
1366 \DeclareRobustCommand{\EFSL}
1367   {\ensuremath{\exists}\FSL}
1368 \DeclareRobustCommand{\UFSL}
1369   {\ensuremath{\forall}\FSL}
1370
1371 % One-Goal Strategy Logic
1372 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
1373   {\SL[#1][#2][1g\arglef{,}{#3}]}
1374
1375 \DeclareRobustCommand{\EOGSL}
1376   {\ensuremath{\exists}\OGSL}
1377 \DeclareRobustCommand{\UOGSL}
1378   {\ensuremath{\forall}\OGSL}
1379
1380 \DeclareRobustCommand{\FOGSL}
1381   {\{\textname{F}\}\OGSL}
1382
1383 \DeclareRobustCommand{\EFOGSL}
1384   {\ensuremath{\exists}\FOGSL}
1385 \DeclareRobustCommand{\UFOGSL}
1386   {\ensuremath{\forall}\FOGSL}
1387
1388 % Conjunctive-Goal Strategy Logic
1389 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
1390   {\SL[#1][#2][cg\arglef{,}{#3}]}
1391
1392 \DeclareRobustCommand{\ECGSL}
1393   {\ensuremath{\exists}\CGSL}
1394 \DeclareRobustCommand{\UCGSL}

```

```

1395   {\ensuremath{\forall}\text{forall}}\CGSL}
1396
1397 \DeclareRobustCommand{\FCGSL}
1398   {\{\textname{F}\}\xGSL}
1399
1400 \DeclareRobustCommand{\EFCGSL}
1401   {\ensuremath{\exists}\text{exists}}\FCGSL}
1402 \DeclareRobustCommand{\UFCGSL}
1403   {\ensuremath{\forall}\text{forall}}\FCGSL}
1404
1405 % Disjunctive-Goal Strategy Logic
1406 \DeclareRobustCommandx{\DGSL}[3][1=, 2=, 3=]
1407   {\SL[#1][#2][dg\arglef{,}\{#3\}]}
1408
1409 \DeclareRobustCommand{\EDGSL}
1410   {\ensuremath{\exists}\text{exists}}\DGSL}
1411 \DeclareRobustCommand{\UDGSL}
1412   {\ensuremath{\forall}\text{forall}}\DGSL}
1413
1414 \DeclareRobustCommand{\FDGSL}
1415   {\{\textname{F}\}\xGSL}
1416
1417 \DeclareRobustCommand{\EFDGSL}
1418   {\ensuremath{\exists}\text{exists}}\FDGSL}
1419 \DeclareRobustCommand{\UFDGSL}
1420   {\ensuremath{\forall}\text{forall}}\FDGSL}
1421
1422 % Alternating-Goal Strategy Logic
1423 \DeclareRobustCommandx{\AGSL}[3][1=, 2=, 3=]
1424   {\SL[#1][#2][ag\arglef{,}\{#3\}]}
1425
1426 \DeclareRobustCommand{\EAGSL}
1427   {\ensuremath{\exists}\text{exists}}\AGSL}
1428 \DeclareRobustCommand{\UAGSL}
1429   {\ensuremath{\forall}\text{forall}}\AGSL}
1430
1431 \DeclareRobustCommand{\FAGSL}
1432   {\{\textname{F}\}\xGSL}
1433
1434 \DeclareRobustCommand{\EFAGSL}
1435   {\ensuremath{\exists}\text{exists}}\FAGSL}
1436 \DeclareRobustCommand{\UFAGSL}
1437   {\ensuremath{\forall}\text{forall}}\FAGSL}
1438
1439 % Extended-Goal Strategy Logic
1440 \DeclareRobustCommandx{\EGSL}[3][1=, 2=, 3=]
1441   {\SL[#1][#2][eg\arglef{,}\{#3\}]}
1442
1443 \DeclareRobustCommand{\EEGSL}
1444   {\ensuremath{\exists}\text{exists}}\EGSL}
1445 \DeclareRobustCommand{\UEGSL}
1446   {\ensuremath{\forall}\text{forall}}\EGSL}
1447
1448 \DeclareRobustCommand{\FEGSL}
1449   {\{\textname{F}\}\xGSL}
1450
1451 \DeclareRobustCommand{\EFEGSL}
1452   {\ensuremath{\exists}\text{exists}}\FEGSL}
1453 \DeclareRobustCommand{\UFEGSL}
1454   {\ensuremath{\forall}\text{forall}}\FEGSL}
1455
1456 % Boolean-Goal Strategy Logic
1457 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]

```

```

1458 {\SL[#1][#2][bg\argleft{,}{#3}]}
1459
1460 \DeclareRobustCommand{\EBGSL}
1461 {\ensuremath{\exists}\backslash BGS}
1462 \DeclareRobustCommand{\UBGSL}
1463 {\ensuremath{\forall}\backslash BGS}
1464
1465 \DeclareRobustCommand{\FBGSL}
1466 {\{\textname{F}\}\backslash xGSL}
1467
1468 \DeclareRobustCommand{\EFBGSL}
1469 {\ensuremath{\exists}\backslash FBGSL}
1470 \DeclareRobustCommand{\UFBGSL}
1471 {\ensuremath{\forall}\backslash FBGSL}
1472
1473 % Nested-Goal Strategy Logic
1474 \DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
1475 {\SL[#1][#2][ng\argleft{,}{#3}]}
1476
1477 \DeclareRobustCommand{\ENGSL}
1478 {\ensuremath{\exists}\backslash NGSL}
1479 \DeclareRobustCommand{\UNGSL}
1480 {\ensuremath{\forall}\backslash NGSL}
1481
1482 \DeclareRobustCommand{\FNGSL}
1483 {\{\textname{F}\}\backslash xGSL}
1484
1485 \DeclareRobustCommand{\EFNGSL}
1486 {\ensuremath{\exists}\backslash FNGSL}
1487 \DeclareRobustCommand{\UFNGSL}
1488 {\ensuremath{\forall}\backslash FNGSL}
1489
1490 % Undefined-Goal Strategy Logic
1491 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
1492 {\SL[#1][#2][xg\argleft{,}{#3}]}
1493
1494 \DeclareRobustCommand{\EXGSL}
1495 {\ensuremath{\exists}\backslash XGSL}
1496 \DeclareRobustCommand{\UXGSL}
1497 {\ensuremath{\forall}\backslash XGSL}
1498
1499 \DeclareRobustCommand{\FXGSL}
1500 {\{\textname{F}\}\backslash xGSL}
1501
1502 \DeclareRobustCommand{\EFXGSL}
1503 {\ensuremath{\exists}\backslash FXGSL}
1504 \DeclareRobustCommand{\UFXGSL}
1505 {\ensuremath{\forall}\backslash FXGSL}
1506 %** Syntax *****%

\BndSet, ...
...
1507 \newcommand{\bndsym}{\flat}
1508 \newcommand{\bndset}{\Bn}
1509 \cmdmthsetext{\Bnd}[\bndset][\bndsym]
1510 \usrmth{\bnd}{\}{argfun}

\psn ...
1511 \usrmth{\psn}{\}{argfun}

1512 %** Semantics *****%

\nxtFun ...
1513 \newcommand{\nxtfun}{\nxt}
1514 \cmdmthfun{\nxt}[\nxtfun]

```

```

1515 \fi
1516 %*****%
1517 %*****%
1518 %** Macros for Automata *****%
1519 %*****%
1520 \ifaut@
1521 %** Finite Word Automata *****%

\DWA, ... ...
1522 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
1523
1524 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
1525 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
1526 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
1527 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
1528 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
1529 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
1530 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

\GFG, \PD, ... ...
1531 \cmdtxtoparname{GFG}
1532
1533 \cmdtxtoparname{PD}
1534
1535 %% ...

1536 %** Syntax *****%

\AutName, ... ...
1537 \newcommand{\autname}{A}
1538 \usrmthlatupp{Aut}{Name}{name}[\autname]
1539 \newcommand{\autset}{Aut}
1540 \cmdmthset{Aut}[\autset]

\WAutSet ...
1541 \newcommand{\wautset}{WAut}
1542 \cmdmthset{WAut}[\wautset]

\SttSet, ... ...
1543 \def\sttsym{q}
1544 \def\sttset{Q}
1545 \cmdmthsetext{Stt}[\sttset][\sttsym]
1546 \cmdmthset{IStt}[\sttset_{I}]
1547 \cmdmthsymelm{istt}[\sttsym_{I}]
1548 \cmdmthset{FStt}[\sttset_{F}]
1549 \cmdmthsymelm{fstt}[\sttsym_{F}]

\SymSet, ... ...
1550 \newcommand{\symsym}{\sigma}
1551 \newcommand{\symset}{\Sigma}
1552 \cmdmthsetext{Sym}[\symset][\symsym]

\trnFun ...
1553 \newcommand{\trnsym}{\delta}
1554 \cmdmthfun{trn}[\trnsym]

1555 %** Semantics *****%

\LangFun ...
1556 \newcommand{\langfun}{L}
1557 \cmdmthfun{Lang}[\langfun]

```



```

\WrdSet, ... ...
1558 \newcommand{\wrdsym}{w}
1559 \newcommand{\wrdsym}{w}
1560 \cmdmthsetext{Wrd}{\wrdsym}

1561 %** Finite Tree Automata *****%

\DTA, ... ...
1562 \cmdtxtopname{DTA}\cmdtxtopname{NTA}\cmdtxtopname{UTA}\cmdtxtopname{ATA}
1563
1564 \cmdtxtopname{DFT}\cmdtxtopname{NFT}\cmdtxtopname{UFT}\cmdtxtopname{AFT}
1565 \cmdtxtopname{DBT}\cmdtxtopname{NBT}\cmdtxtopname{UBT}\cmdtxtopname{ABT}
1566 \cmdtxtopname{DCT}\cmdtxtopname{NCT}\cmdtxtopname{UCT}\cmdtxtopname{ACT}
1567 \cmdtxtopname{DPT}\cmdtxtopname{NPT}\cmdtxtopname{UPT}\cmdtxtopname{APT}
1568 \cmdtxtopname{DRT}\cmdtxtopname{NRT}\cmdtxtopname{URT}\cmdtxtopname{ART}
1569 \cmdtxtopname{DST}\cmdtxtopname{NST}\cmdtxtopname{UST}\cmdtxtopname{AST}
1570 \cmdtxtopname{DMT}\cmdtxtopname{NMT}\cmdtxtopname{UMT}\cmdtxtopname{AMT}

1571 %** Syntax *****%

\TAutSet ...
1572 \newcommand{\tautset}{TAut}
1573 \cmdmthset{TAut}{\tautset}

\DirSet, ... ...
1574 \newcommand{\dirsym}{d}
1575 \newcommand{\dirset}{\Lambda}
1576 \cmdmthsetext{Dir}{\dirset}

1577 %** Semantics *****%

\TreeSet, ... ...
1578 \newcommand{\treesym}{T}
1579 \newcommand{\treeset}{Tr}
1580 \cmdmthsetext{Tree}{\treeset}

\wotFun ...
1581 \newcommand{\wotfun}{wot}
1582 \cmdmthfun{wot}{\wotfun}

1583 \fi
1584 %*****%
1585 %*****%
1586 %** Format Tricks *****%
1587 %*****%
1588 \iffirm@

... ...
1589 %...

1590 \fi
1591 %*****%
1592 %*****%
1593 %** Figure Tricks *****%
1594 %*****%
1595 \iffig@

... ...
1596 %...

1597 \fi
1598 %*****%

```

```

1599 %*****%
1600 %** Table Tricks *****%
1601 %*****%
1602 \iftab@

... ...

1603 %...

1604 \fi
1605 %*****%
1606 %*****%
1607 %** Algorithm Tricks *****%
1608 %*****%
1609 \ifalg@

1610 \RequirePackage[ruled,vlined]{algorithm2e}
1611 \setlength{\algomargin}{1.25em}
1612 \DontPrintSemicolon

\Signature ...
1613 \SetKw{Signature}{signature}

\Macro, ... ...
1614 \SetKwFor{Macro}{macro}{}{}
1615 \SetKwFor{Function}{function}{}{}
1616 \SetKwFor{Procedure}{procedure}{}{}

\Let ...
1617 \SetKwFor{Let}{let}{in}{}

\True, \False ...
1618 \SetKw{True}{true}
1619 \SetKw{False}{false}

\GoTo, ... ...
1620 \SetKw{GoTo}{goto}
1621 \SetKw{Break}{break}
1622 \SetKw{Continue}{continue}

\Mif, ... ...
1623 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
1624 \DeclareRobustCommand{\nlr}[1]
1625   {\addtocounter{AlgoLine}{1}%
1626   \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

1627 \fi
1628 %*****%
1629 %*****%
1630 %** Auxiliary Tricks *****%
1631 %*****%
1632 \ifaux@
1633
1634 \iffnttls@
1635   % Font Tools
1636   \RequirePackage[final]{microtype}
1637 \fi
1638
1639 \ifenmtls@
1640   % Enumeration Tools
1641   \RequirePackage{paralist}
1642 \fi

```

```

1643
1644 \ifamsthm@
1645   % AMS Theorem Tools
1646   \RequirePackage{amsthm}
1647 \fi
1648
1649 \ifthmtls@
1650   % Theorem Tools
1651   \RequirePackage{thmtools, thm-restate}
1652 \fi
1653
1654 \ifhympref@
1655   % Hyper References
1656   \RequirePackage{hyperref}
1657 \fi
1658
1659 \ifcrv@
1660   % Camera-Ready Version
1661
1662   %%...
1663
1664 \else
1665   % Draft Version
1666
1667   %%...
1668
1669   \ifchgbar@
1670     % Change Bars
1671     \RequirePackage{changebar}
1672   \fi
1673
1674   \iflinnum@
1675     % Line Numbers
1676     \if@twocolumn
1677       \RequirePackage[switch, columnwise, mathlines]{lineno}\linenumbers
1678     \else
1679       \RequirePackage[columnwise, mathlines]{lineno}\linenumbers
1680     \fi
1681   \fi
1682
1683   %%...
1684
1685 \fi
1686
1687 \fi
1688 %%*****%
1689 \endinput
1690 \</package>

```

## 2 Change History

v0.0		v0.2	
General: First public release	1	General: Changes in auxiliary tricks	1
v0.1		v0.3	
General: Algorithm tricks	1	General: Few problems solved	1

## 3 Index

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

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\!	264, 272, 678, 1298	\arenaname	900, 901
\#	1623	\ArenaName,□...	900
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